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ference. This not only may but must be done by the most circumspect. However ready, however sincere, we may be in protesting that we are not, nor will be, under the influence of such opinions, if they seem to be either the creatures or the creators of hypotheses, in practice we find it impossible to avoid entertaining them. The mind can no more help forming an opinion upon every matter brought within its range, than it can avoid conceiving the ideas which underlie them; and those opinions which relate to questions of scientific importance, demand the most careful expression we can give to them,—the most unhesitating expression consistent with that modesty and forbearance which should be the distinguishing characteristic of scientific utterance. It is not an unreasonable necessity which converts the privilege of the many into the duty of the few, whose judgments have been so tried by their labours as to command universal respect. In some minds, indeed, devotion to practice seems to beget a contempt of theory; but there is probably no man of science, however lofty his position and severe his method of investigation, who can long sit, Jove-like, on his Olympian summit, and from that high but hard seat of fact look down unsympathisingly on the discussions of meaner mortals: who can long hear the appeal of hope or distress made to his purer wisdom, and refuse—

“The fatal nod,
Which rends the clouds, and proves him less than God.”

Happily for English, and we will add, true science everywhere, the supremacy of fact is undoubted by the great majority of inquirers; although a high authority in this country has approved, by his example, the censure passed by a great German chemist upon the hero-worship paid by us to the father of the inductive system, that method of philosophising will probably be our safeguard till the progress of decrepitude reduces the intellect to its second childhood, and the mind is again let loose to revel in the revelations of the fancy. But it may fairly be questioned whether a blind devotion to facts, and facts alone, be not in reality prejudicial to the advancement of knowledge, even as a monomaniacal loyalty to a reigning house may be inimical to good government. Science is no miser, to gather from every quarter the isolated truths we call facts, and, after testing their value, to hoard them up from all eyes but its own, and all purposes whatever; but rather a merchant, whose capital is in the hands of bankers, by whom it is put to usance, and made subservient to its own increase and the general good. Comparison, arrangement, correlation, are the proper modes of employing our crude wealth, and constitute a higher plane of science than is trodden by him who is a seer of things,—a describer of phenomena, and nothing more. It is

impossible to have recourse to these without being led by their revelations of the interdependence of facts towards general truths, and along the various lines of facts which they define towards first principles. The more conscientiously this is done the better, not only for general science, but for the individual inquirer. There is more discomfort, more peril in allowing vague second-hand ideas to float incoherently through the brain, than in endeavouring honestly to ascertain how far they may be reposing on known facts, or shaped by recognised laws. But if in the examination of the evidence which presents itself in favour of any plausibility, the student discover that the chain breaks off far short of the bottom of that particular well in which he supposes the truth to lie, and if he be, nevertheless, disposed to drop to the conclusion through the remaining space by the simple force of gravity, he is arrested, awe-stricken by that ominous word,—hypothesis. A rational dread of hypothesis is exceedingly wholesome; but the indiscriminating use which some writers make of the word, as a reproach against the less practically minded, sometimes does more credit to their zeal than to their judgment. The distance is very great between the hypotheses which precede knowledge and defy reason, and those which naturally, if erroneously, rise in explanation of connected series of phenomena. The necessity, which discovers itself in every thoughtful mind, of passing beyond the limits of observation or experiment, and accounting for the relations and sources of the facts acquired, renders it frequently unable to wait for that complete empiricism, without which, satisfactory induction is impossible. This greed for explanation, temperately indulged, is neither unphilosophical, nor, as it has been often declared, futile. On the contrary, it is oftentimes productive of results which mere phenomenal investigation would long fail to accomplish. A speculation, once entertained, acts like Sindbad's cumbersome friend, it compels its victim to labour for its special behoof. Facts are, in reality the only currency in science, but their mint-mark is impressed by criticism; and the individual opinion, whether friendly or hostile, which thus determines their value, is generally a stimulant, frequently a guide, to the search after further riches. The true danger of hypothetical ratiocination lies, not in any intrinsic vice, but in the bigotry it is apt to engender in certain mental castes, and in the stained medium it interposes between the eye and its objects. The student of science, who avoids these evils, may be excused if he takes any and every opportunity of asserting his liberty of holding and expressing provisional opinions, not only as a personal and most valuable privilege, but as the very basis of scientific truth,—the foundation of intellectual progress, as distinguished from the reception of statements

once for all delivered. It may, indeed, be safely said that there is no opinion current amongst scientific men, not even those whose claim to the title "principle" appears most unquestionable, that is not essentially provisional, liable to modification or even revolution, under the pressure of increased knowledge. In the change which is now taking place in the minds of geologists, as to the igneous origin of granite, we have an instructive instance of the want of finality in the most generally accepted doctrines of science; and were we, at this moment, in possession of such a body of facts relating to the generation of life, or to the accidents of human origin, as would compel us to form an inductive decision upon either of them, its justification would differ from the grounds of current hypothetical views on the same subject in degree only. There would be more evidence, and so far the decision would be safer; but like its speculative precursors, it would not be beyond appeal, nor would the appeal be carried to a different court. It may almost be asserted, that every scientific opinion is speculative. With this "right of search" conceded to him, the student of man, who tends to reflect upon the probabilities of human origin, need not be terrified by the opprobrium of "rushing in where angels fear to tread", or of breeding opinions which, like the royal hunchback, are "deformed, unfinished, sent before their time into this breathing world, scarce half made up, and that so lamely and unfashionable, the dogs bark at them as they halt by them." The comparative utility of confining ourselves to experimental research, or of venturing into the latitudes of surmise, is a question which does not admit of a reply which shall be universally applicable, it must be decided in accordance with the individual bent and opportunities of the inquirer.

Certain it is that whether we accord the implied indulgence to speculators, or not, our generation assumes the privilege of theorising to a very great extent. At no previous time has the mind of thinking men been fixed on this subject, of human origin, so generally, so intently, so discordantly, and, on the whole, so rationally, as now; perhaps, because at no previous time has so great a quantity of materials, insufficient as they truly are, been at their command. The interest we feel in it is, no doubt, quickened by the results of modern research; we view it with the daybreak of science upon it, and it is recommended by the novelty and many-tinted beauty of that hour. Yet there seems to be a peculiar fascination about the mystery of human beginnings, which the mind in all ages has been unable to resist. It is the culminating point of cosmogony universally,—the point of contact at which systems of mythology touch the earth. Yearning to know more, always coexists with effort to be higher;

education and civilisation are nearly synonymous ; but in the civilisations of antiquity, the mind was all unconscious of the teachings of external nature, it was therefore compelled to concentrate itself upon the being of whose nature it formed part, and in the belief of its own self-sufficiency, it derived from itself materials for strange autobiographies. Every civilisation had its own racial school of thought,—every school its own metaphysical account of human nature and human origin. The Chinese, the Magian, the Hindoo, the Chaldean, the Egyptian, differed amongst themselves in their conceptions and explanations ; they agreed in their inability to look beyond themselves in any other direction than into the supernatural. Later on, the philosopher who had learned to discard the popular symbolism of his race, paid homage to the same imperious question in the schools of Alexandria, Athens, and Rome, with a zeal incommensurate with his materials,—a success which leaves almost everything to be acquired by generations future to our own.

With uneducated man universally, the natural, and therefore trustworthy, mode of accounting for his individual origin is to point to the earth, into which he knows his substance must one day be resolved. Whatever expectations of futurity may have been engendered in his mind, the starting-point of the past is always afforded by the *alma mater*, from whose breast he still derives his nourishment. When the title of a race to its fatherland is in dispute, the strongest evidence it can adduce, the proofs most convincing to its neighbours, are its traditions, that it has arisen from the soil it claims. There is, indeed, a native philosophy which in this respect anticipates the speculations and discoveries of modern science, which assures man that in origin, as in constitution, he is one with the other productions of nature. Neither the savage nor the peasant are capable of conceiving those transcendental ideas of man's nature, which shake the faith of others in his lowly derivation. But though Jew or Gentile involuntarily recognises in the elements around him the materials of his own composition, the mode whereby gross and seeming dead matter becomes invested with the qualities of a moving, thinking being, is to him an unfathomable mystery. Conscious that it is an effect far beyond human power,—ignorant of the subtile and hidden energies at work in and about him, yet convinced that some potent influence must be ever engaged in calling life from out of death,—his mind has no resource but to attribute the work to supernatural agency,—no satisfaction but in stolid content with the unknown. In this phase of its metamorphosis the intellect, if it be able to mount to the level of a pure abstraction, cannot preserve its tenure of an idea so refined. To conceive a life-giving being, itself unpossessed of the known ad-

juncts of life, passes the ability of many a cultured understanding. The imaginative faculty by which the untrained mind is characterised, proceeds at once to invest its concrete object with attributes which, though unlimited in extent, are in kind necessarily mere reflections of the faculties and passions of the thinker, who, knowing nothing higher than himself, can conceive of nothing nobler. Hence the constant creation of anthropomorphous gods, and hence, by interdependence of ideas, the self-complacent notion that man himself, with his so-fashioned God-like features, is an exceptional being, to whose origin, as a reproduction of the deity, anything less than the direct handicraft of divinity was inadequate. Man gave to the gods his image,—what so natural as to suppose that the gods had created him in theirs. Mythology testifies to the frequency, experience to the indelibility, of this opinion among various Europasian races. In no instance, however, is it more forcibly illustrated than in the cosmogony of the old immigrants into Canaan. Chaldæans by extraction and early sentiment, they unconsciously turned their faces to the land of the great rivers eastward, in Eden, as that of their nativity, and, exaggerating its natural advantages, pictured it, under divine culture, the most glorious of the paradises in which oriental luxury delighted. Here they beheld the first man of their red stock, the immediate handiwork of their old peculiar gods, the Elohim, whose man-like faculties having been transmitted from themselves, they were compelled to recognise in their Adamic prototype. Nor did the Gentile mythologies of the east differ from that of the Hebrews in another respect,—in their proneness to trace national origins to the gods by the intervention of demigods; sons often opponents of the deities, and after expulsion from divine intimacy, procreators of human races under the guise of local kings,—the groundwork of all such traditions. The general belief that certain portions of each human type had their origin in special localities, is to some extent acceptable to modern science. Theosophical excrescences eliminated, this fundamental tenet remains, and, whatever its truth, accords with the deductions of a large section of naturalists and anthropologists of the present day. There are, however, those whose zoological principles conduct them to the antipodes of the old creed; and in agreement with them, on this point, is a still larger class of men moving in other circles of science, whose opinion is based, not on scientific grounds, but on the unquestioned tradition of a single race. Nor are there wanting some who have drawn from their study of anthropological science conclusions more or less opposed to the idea of multiple points of origin. Time was when the sole object which stimulated faction-fight was the “when” and “where” of human genesis.

Man at that time appeared, to the majority of observers, a creature endowed so differently to all others, that the nature of his origin excited no controversy. Gradually, however, the great issue has been changed; the "how" must be answered before it again becomes necessary to write books showing, from external manifestations, the probabilities or improbabilities of primordial radiation.

The theories of human origin, which now compete for the favour of the scientific world, may be thrown together in three or four classes. Of these, the oldest and most generally respected is that which, accepting the definition of the term "species" as it was settled by the fathers of zoological science, regards it as representing, not merely an established ordinance of nature, but a "divine idea", and attributes the generation of the forms included within its impassable limits, to evocation out of nothing by the fiat of the First Cause. With every desire to avoid disparagement, it may, perhaps, be said that this opinion is held by those who have either paid no particular attention to biological inquiry, or are under the influence of extra-scientific prepossessions. The same tenacious faith in the reality of the thing called species is, however, compatible with a totally different explanation of its origin, proceeding from men who claim to reason only on physiological grounds. According to this account,—which is, as far as its present office is concerned, the materialistic,—the primary origin of species is simply due to those chemico-vital energies of matter which are known to cause the subsequent development of the individual, and continuation of the specific organism. But, of late years, the sharp outlines which defined the idea of a species, have nearly faded from the minds of many able investigators, and in the school which they have founded, the word remains as little more than the convenient expression of the systematist, bearing the same value in respect to nature as that of genus, family, or order. They who sin most deeply against the venerable and, as we are warned, most fundamental principle of zoology, are those who have undertaken to explain that gradual elevation of organised forms which is undoubtedly visible, on the large scale, to the geological eye. If we must believe the transmutationists, as they are somewhat irreverently called by their opponents, no distinct origin whatever can be assigned to the conventional group termed a species. Since the hypothesis with which we are required to start endows every organism with a tendency, or at least a potentiality, of changing its form under the pressure or permission of changed conditions, and since conditions are always changing, the species of yesterday may, or rather must, become the different species of to-morrow. Accepting this explanation of the rise of existing species, in whatever sense the term is

left to us, it is clear that the actual origin of them all has to be sought at an immense distance of time and organisation. But when we yield to the guidance of the theory, and are conducted down the long line of life until we reach its ultimate limit,—when we contemplate our almost structureless first parents, and ask what gave them birth, our Mentor is silent,—it is not as yet the province of development to trace the origin of the living point. If on this subject we question the advocates of that theory, they break up their bar, and speak as theologians or materialists. Some of them, however, are among those who endeavour to steer a middle course between these extremes. Believing that reasons can be adduced which, though not experimental, are sufficient to prove the existence of immaterial, or at least insensible being, conjoined with ponderable matter, they are led to ascribe, with more or less confidence to this “principle of life”, the production of living beings, as a consequence of its association either with preexisting organisms, or with so-called inert matter ripe for organisation. The life-principle itself is considered to be by some the creation of, by others an emanation from, the Universal Spirit. The organic matter necessary for its sublunary manifestation has, in controversial exigency, been declared to be the primitive form of matter itself. Both life and organisation are thus created mysteries, totally beyond the pale of human comprehension. Unless some other theory be found to satisfy the inquiring mind, it will be wisdom to accept this without attempting to understand it, until that time arrives—which appears to be anticipated by a celebrated anatomist—when we shall possess “powers of penetrating the problems of zoology, so far transcending those of our present condition, as to be equivalent to a different and higher phase of intellectual action, resulting in what might be termed another species of zoological science.”* Meanwhile, it may be as well to consider whether all other theories are so palpably false as to render it necessary for us to wait for more elaborate brains.

The general and the specific origins of life are, in reality, two distinct issues ; but the considerations relevant to each are so intimately connected, that it is not advisable to attempt to give them separate attention.

Since the theory of development denies the definite origin of species, on the one hand, and on the other does not profess to throw any light upon the primitive birth of life, the question compounded of these two particulars rests, in the first place, between those who think that the production of life required the immediate action of the First Cause ; and those who consider that the natural forces, which

* Owen, *Comp. Anat. of Vert.*, preface, xxxvii.

we are accustomed to call secondary causes, were equal to the task. Though we may possibly shrink from so blunt a statement of the matter at issue, it is our duty, as candid inquirers, to look it boldly in the face, and decide the question impartially, whatever sacrifice of early prejudices the decision may call upon us to make. We have to determine between creation, in the ordinary acceptation of the word, and evolution,—to say whether the production of living organisms, by the immediate act of the Deity, be a proposition probable in itself, and consistent with the present state of knowledge; or whether the organic has been evolved, by natural processes, out of the inorganic. It does not appear that any *à priori* reason, arising out of the nature of organisation, can safely be given in favour of the former of these opinions. The line of demarcation between compounds of the elements in an organised and unorganised state, though not absolutely obliterated by the modern chemist, has been of late greatly attenuated; their comparative rank in the system of nature will certainly not justify the idea that one composition may be readily effected, the other be totally impossible without Divine interposition. If, therefore, we assume the position of advocates for organic creation, we must fall back upon extraneous reasons in its support. These appear to be two,—the authority of revelation, and the concurrence of human tradition as to human origin; but these two are in reality one. If the former prove, on sober reflection, to be untenable, the latter at once falls to the ground, since no man could know that he had been created by the direct exertion of the Deity, unless it had been revealed to him; the concurrence of tradition, assuming that there is such a thing, testifies, therefore, not to the fact, but to the belief in the revelation of the fact.

We will assume that this belief has spread from a single source, and that the biblical account is an inspired production,—we will consider it to have been, as it undoubtedly was, intended to be taken in its literal sense. It is, at the present day universally conceded to science, by sensible interpreters, that the bible was never meant to teach natural history, or any other kind of secular knowledge, formally or indirectly. On such subjects, its statements—sometimes correct, sometimes incorrect—were always adapted to the intellectual acquirements of those to whom they were addressed, and necessarily so, for otherwise they would have been utterly unintelligible. Whether we are of opinion that Moses was the inspired author of the whole of the Pentateuch, or that its first section, the *Berayshith*, is composed of narratives from Chaldaic pens still more ancient, in either case the genesis was described to people who—in common with all those, especially of the east, who claim a national ancestry—attributed their origin

to the gods. Before an audience totally ignorant of anything relating to the subject but themselves and the ultimate operator, to refer to creative processes would have been not merely useless, but an infraction of the scheme of inspiration, which we now know excluded mere philosophical knowledge. No doubt a Creator can be imagined to work without means; but the question is not what he might have done, but what he did; and the silence of the Bible is an argument neither for nor against the use of whatever means were naturally required for organising purposes. Unless intermediate agencies are expressly referred to, we have a mental habit of vaulting over the interval of thought which should be occupied by them, and speaking of an effect and its ultimate cause as directly related. At the present day, for example, coroners' juries, who always proceed on the principle of taking *omne quod ignotum pro magnifico*, would, if required to sit upon a new human production, solemnly pronounce "born by the visitation of God"; and everyone who believes in a First Cause may, popularly speaking, refer to it as the original producer of his own and other organisms, even though he be persuaded by post-Chaldaic science that a train of secondary causes have, in reality, intervened. The ascription of life-production to the *Elohim* immediately, only proves that the Jews or Chaldeans were not *savans*. If then, tradition, without previous revelation, is of no value, and revelation in that age of the world necessarily omitted unintelligible particulars, the mode of organised production is left an open question, to be freely discussed even by those who are sincere believers in the divine legislation of Moses. But we shall here be met with the assertion that, whatever may be the case with other parts of the world of life, man stands upon a totally different footing; in other words, that the secondary causes, which might have been sufficient for the generation of brute nature, though themselves emanating from the Supreme Good, were altogether unable to form an image of that Good. This is a perfectly gratuitous assumption, to which replies in abundance may be concisely given. In the first place, if man's superiority be held to consist in a special immaterial principle, it may be said that the Creator was as able to produce the immaterial out of the material, by certain means provided by himself, as he was to produce the material out of nothing by other such means. It is equally reverential to the First Cause, and more so, to believe that he worked by his own ordinary laws, as to suppose that he created man by special patent. The Jewish record nowhere asserts explicitly that there is a difference between man and lower animals, so essential as to require a different source of derivation. The origin of the phrase "image of God", has been already explained. Being thus left dependent upon

investigation, we find that the difference between organised and unorganised compounds is insufficient to render the conversion of the one into the other supernatural, although at present it may be superhuman. As the tendency of discovery is to identify the forces which regulate their respective existences, we have therein presumptive evidence that the forces under which they commenced were radically the same. We know nothing of production without a natural medium; and it is therefore unphilosophical, without necessity or proof, to attribute organisation, human or other, to causes beyond experiment. The advocates of the sufficiency of natural modes of organisation, expose themselves to the declamatory charge of seeking to deprive the Deity of the glories of creative work. The odium is utterly undeserved; for until it is asserted that matter could be self-creative, and the forces belonging to it self-productive, the true dignity of the First Cause remains intact,—nay, increased by the superior homage we must pay to the agent endowing matter with the power of accomplishing its highest destinies.

The most sincere upholder of Divine Intelligence may therefore, without repugnance, take part in the inquiry now remaining, whether organisation be the product of efficient agencies, alien to those which cause the lifeless combinations of matter; or whether both of these may not, with better reason, be ascribed to causes identical in their nature.

Of late years, a very important change in the mode of viewing the phenomena of life has taken place in the minds of those who, being most intimately acquainted with all that relates to the living tissues, are most competent to form a reliable judgment. Like all scientific truth, the doctrine of vital operation, which is now commanding the assent of the physiological world, has passed through a severe ordeal of crimination, in addition to the more legitimate trial of criticism. It has, perhaps, been peculiarly unfortunate in its power of touching to the quick the prejudices of that class of scientific men who are unprepared to substitute new inductions, however palpable, for old habits of thought, however unphilosophical they may be demonstrated to be. It is not difficult to reach the source of the hypothesis which, until a comparatively late period, occupied the place of an intelligent comprehension of the nature of vital reactions, and thereby greatly impeded physiological progress. Aristotle conceived, first, that the whole world was provided with a principle of vitality,—an intelligent being, or *Ens*, whose office it was to superintend the origination of every form of organisation capable of earthly existence, and so to regulate the proceedings of each as to produce those harmonious results which have been the theme of admiration to reflective man in all

ages. Second, that an emanation from this universal "soul of the world" was localised in each distinct organism, forming a subordinate soul, to which was committed its individual welfare through all the stages of its life, and which he seems to have regarded as the cause, both efficient and final, of its beginning, its perfection, and even of its corruption. But the animating principle of the individual organism was not, according to the great philosopher, a homogeneous entity, but a composite being; one portion of the whole *psyche*, the *nous*, or mind, being so far separable from the rest as to be capable of existing independently of the body: though, during life, in intimate union with the *psyche*, and forming with it the total "animating principle." These two beings, thus invented, were received by philosophising Jews, adopted by Roman sages under the names *Anima* and *Animus*, consecrated by the Fathers, illuminated by doctors of the dark ages, and, finally, appear to the popular mind—innocent of knowledge of Greek conceits—as expressions of divine truth. But though the distinction thus made between the compound *Ens*, in charge of the whole man, and the constituent which was invested with the glories and responsibilities of its spiritual existence, has been handed down to our days, and accepted in the popular doctrine of a conjoined "vital principle" and "mental principle", building up and actuating the body, its adaptation to the revelations of science has not been effected without extensive modification. It is now rarely held that the two "principles" are in their nature even temporarily identical. The different results of their labours in life, proved to the minds of those who believed in them that they were separate beings. The "vital principle", raised to an independent existence in the body, naturally received a further accession of dignity; its adherents could not resist its logical claims to be considered capable of preserving its individuality when its connexion with the body and the mind had ceased; and though some hesitated to go so far, and contented themselves with vague ideas that its existence was, in some way or other, dependent upon that of the body, the general result was (according to notions now in course of explosion) that the body was patronised by as many tutelary godlets, in proportion to its wants, as were the contending hosts of the *Iliad*; and the products of the dissolution of this imaginative partnership could be described in Horatian verse,—

"Terra tegit *carnem*, tumulum circumvolat *umbra*,
Orcus habet *manes*, *spiritus* astra petit."

The whole doctrine of an "animating principle" comes to us, as we have seen, from the porticoes of Athens; but the innovation which conferred immaterial rank upon the "vital principle," arose from an unwarrantable, though oftentimes unconscious, abuse of terms in

modern physiology. In the progress of research, numerous phenomena presented themselves to the investigator of the constructive, adaptive, and reparative properties of the tissues; and, as they accumulated, it became more and more obvious that they were all produced in obedience to law. It was assumed that all were referrible to one and the same energy, and as none of the known forces of external nature appeared competent to bring about effects so mysterious, a convenient expression was required, not, indeed, to define the nature of their cause, but, as was professed, merely to serve as a nominal bond of union, and to obviate the necessity of periphrasis. The metaphysician (sometimes the same person with the physician), was at hand with a long established term useful for the purpose, and "vital principle" was transplanted into the language of the physiologist, who constantly protested that he did not employ the term in any theoretical sense, but merely as a provisional name for a set of reactions of whose causative stimulus he was ignorant. The process of transferring to a denomination the properties and powers of a concrete being was once more strongly illustrated; even in the course of a single volume, "vital principle" forgot its modest rank as a *vox et preterea nihil*, and asserted its substantiality as "the vital principle," to be ultimately debated about and fought for with all the reverential zeal inspired by a dogma. It was not, however, to be expected that the acumen of science would long be imposed upon by a feat of verbal juggling; not only has the expression been reduced to its pristine insignificance by frequent exposure of the unphilosophical nature of the hypothesis built upon it, but the necessity of using it at all has been swept away by the discovery of the protean modifications of which the material energy is capable, by the recognition of the slight difference between some products of the laboratory and others of the organising processes, by the knowledge, that in both cases the same combinations may become the subjects of analysis and recombination, though the products may be different; that the same polar disturbances ensue from chemical and vital reactions; that the processes are carried on in dependence upon the same physical properties, as elasticity and endosmosis, and that there is no such a thing as "inert matter," motion being the common property of inorganic and organic substances. It is true that a living cell has never yet been produced by the chemist; it is equally true, that a crystal has never been formed by magnetism, yet, we know that magnetism is but a modified form of galvanism which readily determines the formation of crystals. It is evident, therefore, that the general tendency of observation is to identify the physical and vital energies with each other, and on the other hand, no observations have been recorded essentially antagonistic to that identity.

an immaterial medium of organic life,—when we perceive that the hypothesis, at its introduction into physiology, did not even pretend to a foundation in fact, that it is surrounded with difficulties and absurdities, and that it is an utterly unnecessary mystery-making about matters purely inductive and referrible to known laws,—we cannot hesitate to condemn the hypothesis as wholly unworthy of the present state of knowledge, and further, to ascribe the origin of organisms to the modification of material force which produces the subsequent effects of generation and development. It is by no means necessary that we should be at once able to determine the exact nature of the vitalising force or forces, or to point out the other modifications of force to which it is most intimately related. We are informed by the sun's rays of the quarter in which it will rise, long before we can examine its disk; and other forces, whose modes of action are now fairly known, long baffled the investigators of their correlation. In the present case, the effects are infinitely more complex and diversified, and partial ignorance of their source is not a reproach, but a stimulus; while confidence that we are seeking in the right direction, is a strong encouragement.

But if we accept without hesitation the general truth of the proposition, that organic beings are the effects of some form of the physical force, we naturally ask, Does this offer a satisfactory explanation of the origin of mankind? Can the production, as well as the maintenance, of every degree of organisation from the vegetable monad to man, be attributed to this as its direct cause? It is from the combined testimony of geology and physiology that we can alone hope for a reply. The life-history of the earth, revealed by the former, assures us in unambiguous terms, that the life of the individual is, in its great features, repeated in the career of all natural aggregates, from the least in extent to the greatest of those whose whole course can be traced in the deposits. Each of these is seen, more or less distinctly, to have had periods of life,—cycles of development, following each other in regular succession, and homologous with those of our own birth, immaturity, adolescence, and prime, with their constant sequelæ, decay and dissolution. If, then, at several points in the existence of such groups, we perceive that it has undergone changes, which are attributable only to processes similar to those which bring about similar results in the individual life, it is difficult to avoid believing that the commencement, both of the individual and of the group, has been effected by the same methods. The life of the individual, at its origin, is simply the vitality of a single cell, which is either gifted with the faculty of so modifying the action of a uniform vital force, as to allow the development out of itself of a

perfect exemplar of the species to which it belongs, or being itself passive, of receiving the impression of whatever modification of that force may be necessary for such development. The question is, whether the life of the first individuals of a natural aggregate commenced in its adult or primitive cell condition ; whichever conclusion we adopt with regard to the unit, should be transferable to the numeral. Among those who recognise some form of material energy, whether purely chemical, physical, or resulting from any of their combinations as the efficient cause of life, some are of opinion that organisms have been brought by it into existence in their highest stage of development. But when we contemplate the exceeding complexity of structure which obtains in animals comparatively low in the scale of organisation, and the great diversity in the functions and products of their tissues, when we reflect that there is no real analogy between such combinations of many proximate principles and the constitution of the most intricate substance obtained artificially by organic chemistry, we cannot suppose that so vast an amount of elaboration has been accomplished by a single process. This would be to imagine an extraordinary substitute for that gradual building up and consolidation of the fabric which require for their completion continuous operation during definite periods of immaturity. Such an occurrence appears rather supernatural ; and, unless this is a mistaken view, it is necessary to withhold assent from the doctrine that mature forms of organisation, at least of the higher types, have been produced by the direct action of physio-chemical forces. It seems as reasonable to imagine that the steam engine in its working state is a single casting of different metals, effected by a mode of operation which is certainly employed in the formation of any one of its parts. Rejecting this idea as inconsistent with the constitution of adult life, we cannot, of course, regard any other stage subsequent to the initiatory one as more probably that in which formative action was primarily set up. It is, indeed, only in rudimental structures that we find the simplicity which alone appears capable of proceeding from extraneous sources. We have now to consider how this view of organogeny can be extended to group-origin. It may be said, that if we refer life origin to the germinal cell of the individual, and regard the adult as its development, the same idea must, by our own analogy of the individual to its group, be extended to all natural aggregates : that is ultimately to the whole animal, and, indeed, vegetable kingdom. A conclusion, which is really that of the Lamarckian theory, pure and simple : a primal monad at the base of the whole series. Such a termination of the argument is certainly plausible, and were the theory of uniform development from the lower to the higher more

agreeable to observation and consistent with principles at present accepted as sound, we should not hesitate to adopt it. But geology bears unflinching witness to the fact, that the progression of life forms has not taken place by consecutive steps of ascent. Certain forms, or groups of forms, persist in making their appearance before their proper time, and disappear before others inferior to them obtain their systematic characters. Zoology, likewise, testifies that the view of natural affinities on which the doctrine really leans is not tenable. Organisms are not capable of being arranged in that linear order which would appear to be the necessary result of the continuous eduction of one structure from another. It, moreover, is a contradiction of our ordinary conceptions of the operations of nature, to suppose that the production of life has taken place but once in the world's history. Our experience of nature, the foundation of all reasoning upon such matters, tells us that frequency, repetition, is the law of laws; that the material forces are continually at work, and their effects constant. Finally, we must dismiss this explanation of group-origin in the form usually presented, because, amidst all the destruction of old prejudices and transmutation of new, caused by discussion for or against the theory, permanence of type during definite periods stands erect and unharmed; no fact inconsistent with its elasticity, by which is meant its power of stretching and returning to its original condition, has been adduced from the past or in the present, able to shake our confidence in its truth.

But what is the alternative? If we say that there has been but one mode of life production for man and brute by the action of material forces; if we say that the result has not been a state of maturity, but the first steps of specific life; if we further say that the difficulties in the way of believing that the evolution of life on the large scale can in anywise be considered a uniform ascension, are insuperable; then it would appear that the sole resource left to us is to adopt the presumption that the conditions necessary for organised life have been so arranged as to allow germs of a special nature, that is capable of evolution into special forms, to be produced and sufficiently developed for the ultimate establishment of the group whenever its existence in the natural system became requisite. Have these germs arisen in dependence upon, or unconnected with pre-existing organisms? There is a very obvious objection to the latter supposition. Recurring to the ordinary method of individual origin, we know that the early stages of development out of the germinal cell take place in most, if not in all cases in continuity with, or at least in attachment to cells of the parent. If, then, life were first established in an independent germ,

how could embryonic development have gone on without embryonic surroundings? In the case of an inferior type, especially one of those inhabiting fluids, it is not extremely difficult to suppose that a germ might be produced and the ovum developed from surrounding materials sufficiently to enable the new animal to commence its automatic existence. It would not be altogether safe to say that in the case of some oviparous classes the process would be altogether impossible; but amongst viviparous animals, and those whose egg-born young depend upon parental support, such an origin of new species seems quite inadmissible. By way of evading the difficulty, much might, perhaps, be said about our knowledge of numerous animals which are evidently embryonic stages of higher structures, although they pass through the complete cycle of life; the metamorphic changes taking place in many invertebrates might similarly be quoted as examples of foetal development in a separate state. But in the latter case, the caterpillar and butterfly, for example, are one and the same individual; in the former, the proteus for instance, is embryonic only in a general sense—it is an unchanging type of imperfection. These examples, therefore, are very far from removing the difficulty before us. In reference to man, for instance, we should have to assume that there have at times existed human embryos and infants in the literal sense, so situated as to be able to pass in the usual methods and periods from that state into one of maturity. It is, of course, unnecessary to say that observation and reason are alike wanting in support of such an idea; and, indeed, it seems to involve a greater miracle than the immediate production of an adult by external agents.

If the chemico-physical theory prove itself inadequate to account for the rise of both the germ and the adult, we have, as it would seem, no resource but to attribute specific origin to some process of organic evolution. The conclusions to which we are led by the theory of development as it is usually presented, are as we have seen, too inconsistent with the facts of Zoological science to permit their acceptance. The great principle on which the theory is based, the tendency to vary, is within due limits a sound one; the companion principle, the tendency so to vary as at the same time to elevate by permission of circumstances, is at present open to great suspicion. That a disposition, or an impulse to vary does exist in the organised world in much greater force than was formerly admitted by naturalists, is incontestable; it is not, however, its prevalence, but its intensity which forces it upon our attention. The indubitable fact, that it is sometimes manifested very strongly, has given birth to the hasty assumption that it is the common property of organised life; but

the truth seems to be, that it is possessed only under certain conditions of life. There are numberless cases in which not the slightest tendency to throw off varieties can be detected. The suggestion that this failure is due to uniformity of circumstance, is not only purely hypothetical, but rendered very improbable by the fact, that a species will frequently exist under different local conditions without exhibiting a proneness to vary. The presumption that there is a centrifugal force constantly tending to enlarge the organic radius rectilinearly, and compelling every species to struggle to differ from its prototype in the ascensive direction, appears to be without sufficient foundation in nature. It is an unnecessary hypothesis if a probable account can be otherwise rendered of the variability which is displayed by certain groups. If we carefully and comprehensively examine the natural history of most of those species which possess the greatest amount of variability, we find that this tendency is but one of several concomitant characteristics analogous to, if not identical with, those which belong to the individual at the most vigorous period of its life, that is, at the most typical phase of its personal development. But the naturalist is well aware that in an organised group the most typical portion is by no means the highest in point of general structure. If, then, we concur with the advocates of development so far as to derive the origin of one group from a germ given off by another, we are forbidden to look to the most highly organised part of the parent group as the source of the new development; but to that which is the most mature relatively to the other members of the group, and by virtue of its maturity, the most procreative. May we not suppose that the power normally possessed by the most typical form may occasionally be intensified by extraordinary vigour, or by some constitutional peculiarity; and that germs of higher, but cognate characters may be thrown off when requisite from the surface of a type, while the type itself is (not transmuted, but) passing onward through its regular stages of life. Looking at variability as one of those physiological characters of adolescence which comprise amongst them a greater amount of adaptability than is possessed at any other period of existence, we cannot regard its possible effects in pushing out new types as eventually dependent upon external conditions. The typical characters of each natural group are retained even by those species whose decadence shows it to be in the last and feeblest period of its existence—a conservatism which appears incompatible with the elevation of a type by transmuting influences around it. Few, indeed, will dispute the truth of the principle which lies at the base of the development theory; perhaps no one, from the biblicist to the materialist, will deny that some force is, or has once been at

work whose effect upon the general economy of life is ascensive change—the effect is patent, it cannot be causeless. In the ordinary view of development, we contemplate this force acting directly upon the animal through the channel of external conditions,—we are told, that of the numberless accidental varieties which every type may constantly produce, those only succeed which happen to be suitable to surrounding circumstances, somewhat as though the flight of the rocket were generally due to the chance spark from a catharine wheel. The theory has many recommendations ; but it creates more difficulties than it explains. If, instead of a lawless appetite for mutation, it be possible to substitute a power of expansion exerted in, and as an element of, the prime of specific life—if we may reject the fortuitous slave of local circumstances in favour of an expanding germ of the old form, evoked in consequence of its general congruity with the life conditions and fellow beings of its period, we shall, perhaps, have lost nothing that development can give us, and gain much that is wanting to Darwinism,—the countenance of physiological experience, and the satisfaction of recognising order in the operations of life. To some, it may appear a recommendation of this mode of accounting for specific origin, that it relieves us from the necessity of ascertaining each minute grade of ascension between forms next akin and yet far removed. The germ, which, from whatever cause receives an impulse towards permanent expansion may be thus enabled to produce a being considerably higher than its parent ; and, as in the case of the lowest existing man and the highest present ape, intermediate forms may have been passed over in the embryo. But the probability that such has really been the mode of human origin must depend very much upon the age to be attributed to the earth and apes of the present day. Is that aberrant group immature or decrepid ? If it has buried no records of a life superior to that in which we now observe it ; if the number of its individuals, varieties, and species has never been higher than now ; if its elasticity under the strain of climate was never greater ; it is difficult to suppose that it has had vigour to throw off a new type so far in advance of itself. But the present apes give tokens that they are in the stage of natural decay ; the scanty relics of old world quadrumana do not indicate a more feeble life ; and it is, at least, impossible to say that the present groups are not the perishing remnants of the ape-folk of pliocene forests. Yet, until we have learnt that the group enjoyed its meridian of life when man first placed his heel fairly on the ground, all relation of origin between the two is merely conjectural, incapable of being moulded into a well favoured opinion. In such uncertainty, however, all views of human origin, except those of unreason, are at present involved. The tangled

skein of nature will require many a year of patient unravelling before we can trace the threads of life from end to end. It will be well, in this behalf, to do our spiriting gently. Prejudice and loud assertion make lingering haste—they pull out the slack but tighten the knots; modesty is our “only wear,” work and wait our safest watchword.

THE FORMATION OF THE MIXED HUMAN RACES.*

By M. de QUATREFAGES, Professor of Anthropology in the Museum of Natural History, Member of the Institute, Honorary Fellow of the Anthropological Society of London.

The Crossing of Races in the New World.—“South America,” says M. Perier very justly, “is the great laboratory of the modern mixed breeds or hybrid nations.” Let me add that Central America and Mexico, in this respect, may be placed upon nearly the same footing as the more southern countries. It is especially interesting, then, to study out in all their details the results of the vast and varied experiments which have been worked out, or better still, which are now only commencing upon this extended field. And it is precisely this that M. Perier has done. He has collated an immense number of papers, and has examined the questions which they suggest. He has considered successively the origin of the Mestizos, the Mulattoes, and the Zambos, but we cannot follow him into all these details. We will content ourselves with some general observations.

M. Perier recognises the fact, that in the crossings of races the inferior is bettered, and acquires a relative degree of superiority. But, according to him, this elevation is purchased only at the price of a degradation of the superior race, so marked that in fact there is a deterioration in the population.

Now, even by taking the facts as he presents them, I see no reason for accepting his conclusions. Evidently, M. Perier, in forming his judgment of the mixed races, takes for his standard of comparison a European of pure blood, as he is, or rather as he ought to be, among ourselves. He fails to bear in mind the real point of departure or standard of comparison, i. e., the Creole. If our author had only

* This article is an extract from the *Report on the Progress of Anthropology in France for the last twenty years*, made by Prof. Quatrefages, at the request of the Minister of Public Instruction.

applied to the mixed races the same considerations which some pages further on he has made in the case of the white colonies, if he had only remembered who the parents were, he would have been, I think, less severe on the children. He would have been still more indulgent if he had taken into account the moral and social condition in earliest infancy of these classes of society, too often the children of debauchery on the one hand, and on the other of degradation. Generally in America the white man despises alike the native and the negro; the native in turn regards the negro as beneath himself. The offspring of these different races are almost always and necessarily outcasts. What else could that be which is born and raised in reproach? Is there among the purer white races any stock whatsoever that preserves under such circumstances an elevated and moral position? No; and from these two points of view man will always be degraded by reason of the contempt which will be heaped upon him. This simple observation explains why it is that the Zambo, an intermixture of the Indian and the negro, is generally conceded to occupy the lowest position in the scale as regards these two points.

Perhaps I ought to say something concerning the mixture of the white man with the native American. Here the facts are so well defined that it is necessary to lay special emphasis upon them. This race plays, in Mexico and other places, a part undisputed, and for that matter indisputable; in many respects indeed it constitutes almost the entire active classes. Some of the men who have exercised the greatest influence upon the destinies of their country have belonged to this class. Has its influence always been a happy one? Certainly not; and that which is now transpiring in the South American republics only tends to substantiate this charge.

But this aspect of the question should be examined separately, and we will revert to it again.

Let us continue to accept without question (and this we may readily do) the facts as M. Perier presents them.

Now the mixed races in question are charged with physical degeneracy! But the very authors quoted by M. Perier seem to me to be almost unanimously of the contrary opinion. Those of them who have drawn the least favourable sketch of these races, have depicted them as "robust, indefatigable, sober," (Max Radiguet.) Some, moreover, declare them equal and even superior to the pure-blooded whites, (D'Orbigny, Martin de Moussy, d'Azara, etc.) And the oral proofs which I have received fully confirm these estimates, (César Daly, E. Reclus, etc.) Bear in mind, too, that they (as well as their indigenous ancestors) are wholly acclimated, and their rapid multiplication will astonish no one. We shall then understand the foresight

of those who look upon this race as destined to become nearly if not entirely the governing class in certain parts of South America.

While I allow my own opinions to be influenced by M. Perier's, I meet with no traveller who states that the mixed races are notably inferior to the whites as respects intelligence. The most critical of them acknowledge that they have "much of intelligence, spirit and imagination," (Raynal, Perier.) But in general, the charge made against them is in the use they make of their faculties. They are almost everywhere indolent, passionate, and addicted to gaming, always ready to foment civil discord, etc. Admit it, but let us compare this estimate of their moral character with that which M. Perier has drawn in the case of the Creoles, and still again, the distinction between the pure bred white and his descendants, too often disregarded, will not appear so very great. This is, moreover, a question the consideration of which we shall resume farther on.

M. Perier devotes a special chapter to the Paulistas (inhabitants of the Province of St. Paul, in Brazil.) With pleasure do we follow him into this field, but at the outset we must correct some of his statements of fact regarding the origin of this celebrated people; facts accepted without qualification by the author, although coming from prejudiced sources, as M. Ferdinand Denis long since pointed out in his "History of Brazil."

The Paulistas did not in their beginning spring from the unrestricted and unlicensed intercourse of the roving bands, of all sorts of ancestry, with the native American women, (as stated by various authors cited by Perier.) These first intermarriages were not forced by violence; quite the contrary. The founder of the colony, Alfonzo da Souza, in connection with some Portuguese, to whom were also added a few families from Azores, established himself without violence in the midst of the Gayanazos, a native race, at that time peaceable, and devoted to the chase. As they increased, this colony allied itself with the Carijos, a warlike and cannibal race, but also cultivators of the soil. Such were the elements concerned in the formation of this mixed race.

But it is important to remark, that from the very first the mixed marriages brought about by this coalition of races were regulated by the advice of Fathers Nobrega and Anchieta, who were the apostles of Christianity in those countries. Moreover, their common dangers united intimately the whites, who remained unmixed, and the Mamelucos, who were the result of the interbreedings. As for these last, their moral and social status was here quite different from what obtains in other places. Almost from the very commencement of the colonization they were regarded as the equals of the Europeans, and in this

instance they escaped the arraignment of the law which in certain cases is carried so far as to interdict regular marriages among the crossbreeds, and to condemn them to that life of debauchery which subsequently becomes their reproach.

What has been the consequences of a state of things so rarely realised? It is just that which M. F. Denis so strongly depicts, and his testimony is confirmed in most points by the very statements of the most bitter enemies of the Paulistas. So far as concerns their physical characteristics, no one denies to this people a remarkable muscular strength, and a power of resisting fatigue to a very extraordinary degree. The women are acknowledged, even in Brazil, as superior to all others of their sex. The men are remarkable for the general expression of their countenance, and for the fire of their eyes, which are usually brown, and but rarely blue. "Some families in the province of St. Paul have kept themselves free from all intermixture, and they love to call attention to this exceptional position. We can say, however, that these are not the ones who are noted for their beauty." (F. Denis.) Morally, everybody recognises in the Paulistas a rare energy, an indomitable courage, and a spirit of enterprise which equals, if it does not surpass, all that displayed by the European conquerors of the country. They have given evidence of these qualities from the very outset, and that too in agricultural labours as well as in the adventurous undertakings I am about to relate. No sooner had they increased their numbers in the plains of Piratininga than these places were put under cultivation unknown in the other districts. The sugar-cane brought from Madeira was cultivated first by the Paulistas, and they were the first also to raise large flocks, which became to them a source of wealth.

But, as is well known, in the sixteenth century people of such a nature and disposition as this would with difficulty settle down to peaceful occupations. Their institutions and customs permitted others. Traffic in negro or Indian slaves was authorised; the search for gold was esteemed an occupation worthy the bravest of their leaders. Thus these two pursuits became a favourite occupation of the Paulistas, and in them they accomplished wonders. United into little companies, each of which was commanded by a tried leader, they extended their forays from the Amazon to Paraguay, in the face of a thousand dangers from the country, the vicissitudes of weather, and the people. From these excursions they returned with thousands of slaves, whom they put to work in cultivating their fields. One of the most celebrated of these bands of the seventeenth century reckoned upon its lands a thousand Indians capable of military duty.

In these raids, it is pretty clear that the Mamelucos of St. Paul

showed that they were no more humane or refined than were at that time the pure-blooded Spaniards, who, if occasion demanded it, chased the natives with blood-hounds; that they were no less unscrupulous than in our day are the Circassians and the Tcherkesses, when they make forays into the plain. Above all, made ferocious by the very terror which they appeared to have everywhere inspired, they respected neither the slaves of others nor of the Jesuits themselves. These last, assailed in their sources of revenue, and seeing their converts removed from their control, and frequently by force, complained most bitterly. They described the Paulistas who robbed them as brigands, and finally induced the Pope to excommunicate all the possessors of Indians. At this turn of affairs the Paulistas drove out all of this religion in their own provinces, and they were then accused of having renounced the Christian religion to return to the local superstitions.

Such, it seems to me, is the truth of the past history of the Paulistas. They were a people peculiar to their time, a people infinitely more hardy, adventuresome and energetic than their neighbours. Unfortunately this people, who were simply children of nature, were attacked on the one hand by educated classes, and on the other by the religious orders, and finally, they were painted in the blackest colours. It is not surprising, then, that M. Perier should have found in the writings of the Jesuit Charlevoix and his associates, as well as in those who repeated their accusations, some exaggerated calumnies. Still we must remark, at the outset, that as regards the imputation of idolatry, we do not find charged against them anything more than was permitted at that time among the most pure-blooded whites.

But, finally, even had the Mamelucos of St. Paul been everything that their enemies represented, it is only just to inquire whether they have remained in the same condition that they were in during the sixteenth and seventeenth centuries. Now, on this point, all the testimony is in accord, and M. F. Denis has merely summed it up when he says: "During the later years of the eighteenth century, we observe a change taking place in the character of the Paulistas, to such a degree, that this active but turbulent people have acquired a reputation only for bravery, generosity, and sincerity, that contrasts most strikingly with the habitual spirit of violence and cruelty observed among the more ancient colonists. At the present time the most happy moral development, as well as the most remarkable intellectual progress, appears to obtain in the Province of St. Paul."

M. Perier accepts this testimony, but he attributes the change to the fact that the Paulistas of our day, crossed and recrossed with other stock, have gradually become assimilated to their European

origin, and have, so to speak, no foreign blood in their veins. I refrain from citing here the so decisive passage which I have already quoted from M. Denis. The comparison between the families of pure white blood, and the mixed, is by no means to the advantage of the former. But I will examine a little more at length this question proposed by my colleague.

To sum up, we see that the intermixture of four distinct races or peoples gave birth, in the province of St. Paul, to a hybrid race, which in physical characteristics was equal or superior to the Creole races that remained unmixed; which governed all the neighbouring races by its warlike energy, in times when war, so to speak, was the normal state; which, changing with the general condition of society, came back to more peaceful occupations, and in peace still preserved its superiority. Does not this fact in itself speak volumes? Does it not show what should take place in a majority, if not in all, the races formed in America by intermixing? Does it not throw a light upon the influence which the social and moral condition, under which a race has its birth, exercises upon the destinies of such race?

It remains for me to say a few words concerning the mulatto, the offspring of the European and the negro. I have already examined this question from various points of view, and I will here lay special emphasis upon the intellectual, moral, and social aspect of the same.

Let me say a single word upon a physical characteristic on which M. Perier has laid considerable stress, namely, the beauty of the women. Long ago we knew, and all travellers have been unanimous on this point, that the mulattoes, quadroons, etc., of our colonies are, in this respect, but little inferior to the more pure-blooded Creoles. From the testimony which I might cite, I will here adduce only that of M. Taylor, whose observations were made in the little colony of Tristan de Cunha. In this island the fathers were all white, either Englishmen or Hollanders from the Cape, the mothers were all negroesses or mulattoes. "All the people born in this island are mulattoes, but very slightly coloured, and of most admirably proportioned stature; almost all of them have more of the European than the negro type. Taken together, the young girls were so thoroughly beautiful, both in face and figure, that I do not recollect ever having seen any more so, and that, notwithstanding the fact that I am familiar with all the sea-shore countries, Bali and its Malays, Havana and its Creoles, Tahiti and its nymphs, the United States and their most celebrated women." The physical beauty of the mixed blood of black and white is certainly not to be disputed. Let us then return to considerations in reality of more importance.

Remember, at the outset, that the white and the black are both

zuela, writes me: "We find the same virtues and the same vices among the whites, the mulattoes, and the Indians." Then he adds a list of mulattoes distinguished by various titles, and among them figure orators, publicists, poets, and a former vice-president of New Grenada, "a distinguished writer and excellent administrator."

In a word, then, and to judge from all that we know of them, we can say of the mulattoes of Brazil and of many other countries besides, what M. Thevenot says of those with whom he was associated, "The mulatto may be all that the white man is. His intelligence is equal to ours." Let us add that he is born thoroughly acclimated to the intertropical regions, and let us bear in mind that a magnificent future awaits this too long down-trodden son of the negro and the white in countries that perchance are the most privileged on the globe.

The Origin of the Present Europeans.—If the crossing of races were in itself a cause of degeneration, as M. de Gobineau thinks, it is difficult to say to what a degree of inferiority European nations would have reached. There are but few places on the globe where nations have been so often intermingled, blended, and juxtaposed as on our soil. Archæology, philology, history, comparative mythology, etc., all strive daily to determine with more precision these ethnical elements, and at various times questions of this nature have been raised in the Anthropological Society. The origin and determination of the limits of the Celtic race have been especially the subject of numerous and profound studies. MM. Broca, Bonté, Lagneau, and Pruner-Bey, have on several occasions summed up the facts already known, and presenting them under their different aspects, have brought out the results of their own special researches. The works of M. Van der Hoeven, on the Fins and Magyars, have furnished M. Pruner-Bey an opportunity of making known his own upon the same subject. MM. Broca and L. Leguay have explored our own soil, and studied from an anatomical and archæological point of view the contents of the ancient tombs, etc. But I cannot enter into detail of these labours, the full appreciation of which would demand frequently a knowledge that I am deficient in, and which, moreover, touches upon special anthropology. I content myself then by merely indicating the general results arrived at.

M. d'Omalius has considered the question of European origins, taken in its totality and also in its numerous ramifications, in one of those short and ingenious epitomes in which our illustrious confrère knows so well how to sum up his learning, which is so vast, and his doubts, which occasionally border upon scepticism. Planting himself upon the broad ground of history and philology, and starting

from the recent discoveries in palæontology, he asks whether in the beginning of the present order of events the human races were not distributed almost as they are in our day ; whether the Europeans were really of Asiatic origin ; whether the languages with flexions would not have spread sooner from Europe into Asia, than from Asia into Europe ; whether the Irish, Welsh, low-Bretons, and Scotch, in place of being derived from Asia, were not more likely descendants of the autochthones of western Europe ?

M. d'Omalius has thus revived the argument originally enunciated in France by M. Henrici, and subsequently in England by Latham. These two authors go even to a greater extreme than our learned colleague. The first, admitting, with M. d'Omalius, that events have always followed in the same order, asserts that the west has always overrun the east. Consequently he is led to regard the Sanscrit language as derived from the Celtic ; he does not hesitate to look upon all the languages styled *neolatines* as offshoots of the Celto-Ligurian or Gallic tongue, a simple dialect of the old Celtic, which is preserved even to our day under the name of the Provençal dialect ; he considers the Latin itself to be directly derived from this mother tongue, which, moreover, had no small influence upon the Greek. It follows, then, that both peoples and languages have migrated from the west toward the east. Latham recognises the fact that history is silent upon the original migrations ; but, resorting to the *à priori* method, he thinks that they ought to have taken place from the larger to the more circumscribed countries, and he concludes that the original seat of the Sanscrit ought to be in the east or southeast of those countries where the Lithuanian is spoken, and that its origin is European.

The opposite opinion, as is well known, is the one maintained by the generality of modern ethnographers. In the Paris Anthropological Society, this view of the question has found many and earnest supporters. And if M. Dally has brought up again the doubts expressed by M. d'Omalius, M. Chavée, on the part of philology ; Lagneau and Bonté of history ; Bertrand of archæology ; Liétard of history, philology, and mythology ; and Pruner-Bey, in almost every point of view, have corroborated by new proofs the generally accepted opinions.

When we look at the imposing army of proofs, drawn from all these so different sources, and all pointing to one and the same conclusion, we can no longer doubt, it seems to me, the reality of this great fact, namely, that the modern European nations are children of Asia, and sisters of the races which have peopled India and Persia. An elder sister of all these races—an evidence of the primitive Aryans—still exists in the higher mountains of Bolor and Hindookoh.

Under the name of *Mamoges*, they still maintain against the fanaticism of the Afghans, their independence, their ancient customs, and their religion, almost Vedic in its character. These people have, undoubtedly, to a much greater extent than the Greeks under Alexander, impressed upon their neighbours of Cachemire those habits of regularity which characterise them, and which it is said are even more refined than among the nations which we are accustomed to look upon as models in this respect, (H. Smith.) All the recent observations of M. Lejean only tend to strengthen these conclusions, which in my opinion could justly be drawn from the facts previously known.

But, did the Aryans on arriving in Europe find the country unoccupied? No, we can confidently, at this day, assert. The man who in France was coeval with the long-haired elephant, the rhinoceros, the great bear of the caverns, and the reindeer; this man preceded the Aryan race upon our soil. He, in all probability, occupied the whole land, which later was invaded by the races relatively of recent origin. Mythological, legendary, and historical evidences, prove this in certain countries, and we have seen that we still find the evidences of this first European race. It has left its trace even in the people of Paris. In Greece, the head of Socrates, the features of which everybody knows, his cranium, certainly, well nigh brachycephalic, is known not to belong to the type which the Greeks derived from Asia. Moreover, how could these people have devised the type of the young faun, which is as wholly idealised in its kind as that of Apollo in his, unless they had before their eyes the models to indicate it?

Two great sources, therefore, have furnished the origin of the European people. But has the first of the two furnished only the homogeneous elements? Were all the men that the Aryans found in Europe entirely alike? Especially were they all brachycephalic, or wholly or more largely mesocephalic, as are the fossil remains of the men from whom we judge of the rest? Did these last mentioned remain unmixed with the other races? Have they always peacefully occupied the soil on which they have succeeded (at most) to the *tertiary* man, whose existence is still a matter of doubt? Did any invasion reckoning from this actual geological epoch (*i. e.*, the *tertiary*), bring among us new ethnical elements before the first Aryano-Celtic immigration? Was this last preceded everywhere by the allophylic population? Such are the questions as they present themselves at this time; for each step forward in the path on which we are advancing with such unhoped-for rapidity, gives rise to new problems, resulting from those we have already solved.

Let us remark at once that the preceding questions are wholly distinct from that which we have already examined, namely, (*the primitive European origins*). I previously defined the exact limits, both as to time and space, within which I should confine my remarks. Outside these limits the field for research is entirely free, and already a certain number of results seem to me to be acquired. Thus, for instance, M. Bernard has shown that beyond the primitive race which contented itself with the stone weapons so roughly prepared, the race which built the dolmens formed a little society apart by themselves, clearly circumscribed and wholly distinct from the Aryan stock. He has prepared a table of the migrations of this people which made its appearance at Courland, in the northern part of Russia, (West,) took up its line of march toward the west, and reached the sea, re-ascended as far as Gothebourg, but not much higher, touched at the Orcades and Hebrides, stopped upon the western shores of Great Britain and of France, where it ascended a number of the rivers, remained for a little time in Portugal, and finally lost itself in Africa, in the neighbourhood of Algiers and Constantina. At the period of its setting out, this race was still in the age of stone. In its long travels it passed through the age of bronze, and even entered upon the age of iron.

The crania of this race, even in Sweden, show at least in some of the burial places, that they were almost exclusively dolichocephalic, (Van Duben.) Is this already the Aryan race, but still in its infancy and appearing before it had made the discovery of the metals? A comparative and minute examination of the crania would alone settle this question; but, meanwhile, the considerations to be derived from their stature, would ill accord with the affirmative view of this question. When the Celt and the Aryan of the bronze age arrived in Europe, he is at once distinguished by his tall stature. The same observations apply to the short statured dolichocephalic, found in the long barrows (Thurnam). If this race was an Aryan it was a short statured Aryan, and consequently a race secondary to and different from the Celtic.

Could an allophylic stock, then, have its dolichocephalic branches? It would not be strange if such were the fact. In this, perhaps, we may find a solution of the difficulties raised by the cranium found at Engis, and also that of Egisheim, which also appears to be of the long type, (dolichocephalic.) In this way, perhaps, we shall find reconciled the contrary opinions maintained by MM. Broca and Pruner-Bey. Do not forget that the two cranial types are found in the Aryan stock, and this in a people which, separated by this characteristic, are in accord, in other respects, relating to their

skin, hair, and language. (The Germans of the north were *dolichocephalic*, and the Germans of the middle states *brachycephalic*.) We cite again, the fact, that the negro stock, which is generally dolichocephalic, has branches that are brachycephalic (Mincopies).

The existence in Europe of an allophyllic dolichocephalic people, would nevertheless add only another type secondary to those which this ancient race already presents. Let us, if you please, leave out of view its fossil representatives, still, perhaps, too few in number to generalise from, and let us take into account only the proofs still existing; let us lay aside the Magyars, whose advent is entirely modern; let us also neglect the Basque-type with the elongated head, for as a rule in this people brachycephaly does not everywhere appear to reach anything near the degree which it presents in the Laplander. This last, in turn, differs from the Esthonian in many characteristics, but notably in those pertaining to the superior maxillary bones; and finally among the Esthonians themselves we establish the existence of two well marked types.

We conclude, therefore, that without leaving this part of Western Europe, which alone has been pretty much explored from the point of view relating to our subject, we have ascertained in the allophyllic race derivative branches almost as numerous as those of the Aryan stock.

It is from the mixture of these elements, so diverse, in a physical point of view, and doubtless no less different in other respects, that the existing European peoples, as a whole, have originated, for we can scarcely take into account the small admixture of Semitic blood which they have received, particularly in the south. Mixed up by wars, invasions, and movements of every sort of which it is not my business to speak, these people have almost all retained, to a very high degree, the stamp of mixed races. The prevailing element, in one or another region, shows itself quite frequently by some characteristic common to the majority of the individuals of the race, *e. g.*, stature; occasionally some trait breaks out in the midst of others which seems to exclude it, (prognathism,) at times also the pure types seem to reappear, thanks to the phenomena of atavism, but the general fact of old and repeated intermixtures is no less evident.

Are we for that reason inferior to our ancestors, and must our civilisation yield to its predecessors? Yes, replies M. de Gobineau. No, we unhesitatingly affirm. Unquestionably mere size, without a well defined purpose in view, has for us few attractions, and we should not erect a pyramid simply to enclose a coffin. But, do we shrink back when a faith-inspiring thought or a noble purpose to be accomplished comes in to prompt our efforts? The existing state of

things shows the contrary. The spire of the cathedral of Strasbourg is but slightly overtopped by the pyramid of Cheops ; in cutting through the isthmus of Suez we are doing over the work of the Pharaohs, only on a much larger scale ; and in piercing the Alps we are certainly far ahead of everything antiquity dared dream of. Likewise in the domain of arts are we very much below the Greeks, the acknowledged models of all ? Perhaps so ; but if they have remained our masters in architecture and sculpture, may we not be theirs in music and painting ? And what civilisation of the past has approached at all near our works of pure science, those marvels which, happily, accomplish every day the satisfying of our noblest and most disinterested instincts, and which also minister to our wants, our pleasures, or our caprices ?

History shows us that it is not given to man to attain at once to all the extremes of his capability. But in submitting to this law, thus far absolute, the modern European, *the hybrid a thousand times crossed from the Allophyllic and the Aryan races*, can, without boasting, regard as well done the part which he has taken in the successive work of generations ; he has a right, indeed, to be proud of the manner in which he has performed his task.

Mean Age of Races and Peoples.—In view of the movement which is bringing face to face the most widely separated peoples, and which, everyday, is multiplying the means of intercourse, by canals, railroads, and steamboats, it is impossible for us not to foresee that the time is relatively near at hand when the most distant races, after having everywhere become thoroughly intermixed, shall people the entire world with their hybrid progeny. What, then, will be the result to humanity ? Will it be degraded or elevated ?

To give an intelligent opinion on this question, which forces itself upon us, the mind instinctively turns to those countries where the crossing is already most complete. It studies with anxiety the immediate results, and the impression which is forced upon us is not, it must be confessed, the most encouraging. And from thence come those gloomy forebodings which MM. Gobineau, Perier, and others, have more or less prominently put forth.

But these disheartening prophesies are based upon the postulate, either implied or expressly reduced to a formula, (as in the case of M. Gobineau,) that these mixed races of the future will be incapable of progress. Now, do we find in the past a single fact authorising this hypothesis ? Let us recall here our own history, and what France was after the invasion of the barbarians, at which time began those admixtures of races from which the French nation took their origin : let us remember the time of the *trêve de Dieu* and the *quarantaine du*

Roi. Who could anticipate the France of to-day in that desolate country?

Why should the destiny of Mexico and of South America be any way different?

In fact, the majority, at least of civilised peoples, have had their origin only in the midst of mixed races, and M. de Gobineau himself acknowledges it. In fact, each truly new mixture has given birth to a civilisation superior, at least in certain respects, to those which preceded it and from which it took its initiative. In fact, the pure races which we saw come into Europe, arrived there wholly in a state of barbarism, and it was only subsequent to the crossings that the aptitude for development in civilisation appeared. In fact, their immediate heirs, those knights of noble blood who, completely armed, were accustomed to leap on their horses, barbed, like themselves, in iron, had actually no position in society, either morally or intellectually; and consequently, the crossing of the human races appears everywhere to be a cause of progress, producing new forms which mankind invests with the attributes of greatness.

But, evidently, no single crossing is adequate for the accomplishment of this progress, or for the appearance of this new form. Neither the one nor the other is manifest at the outset. For the benefit of those impatient ones who would reduce every thing to a moment of time, I would recall the proofs from the practice of our stock breeders; the experiments so precisely instituted by Girou de Buzareingues, or those recounted by Nott himself. A certain number of generations, a certain proportion of the mixture of the two bloods are necessary for the resultant race to give forth all that is expected of it.

In these experiments with animals, intelligence and artificial selection come in and hasten the final result. In the crossings between human races natural selection alone is in play. Is it surprising, then, that the experiment should require more time? And when the newly incoming swarms of people keep the population constantly in the condition of beginning, is it strange that the result is delayed even still longer? No, it could not be otherwise. Now in almost every case this is precisely what obtains.

But when a small number of individuals of different races find themselves isolated in such a way that the progress of events takes place without interference, and the results of the mixture become evident so much sooner, and when at the same time the phenomena are less complex; we then more readily discern the connection of events. Just these conditions have been realised at Pitcairn, and that is why I attach so great an importance to the example there found.

It is to the general history of the mixture of the human races, what our experiments in the workshop and laboratory are to the great natural phenomena. It affords us an explanation and understanding of its laws.

In 1789, nine sailors of the English ship "Bounty," having mutinied and deserted their commander, established themselves at Pitcairn, with six Tahitians, whom they purposed to make their slaves, and fifteen women, who could hardly be called their wives. So far as concerns antecedents, it was, as we see, conquest with all its abuses ; it was what still too often takes place.

The results were just what they should have been. A war of races broke out. Five whites perished ; the women assassinated the Polynesians. In 1793, there remained at Pitcairn, only four whites, ten Polynesian women, and some children. They lived there in a state of absolute polygamy. Subsequently a quarrel broke out between the four Europeans, and two were slain.

The two remaining Europeans finally profited by the lessons of the past. They lived in peace, and exerted all their efforts to govern the little society born in the midst of the outbreak of all their passions. One of the two soon died of disease, and Adams alone remained to continue the work, having no other guide than a Bible, which had by chance been carried there.

In 1825, when Captain Beechey visited Pitcairn, he found a population of sixty-six persons, remarkable for their beautiful proportions, their muscular power, and extraordinary agility, their keen and quick intelligence ; their earnest desire for instruction, and their moral qualities, of which he narrates a touching instance. Most unquestionably, this society, entirely a mixed race, was superior at least to the very great majority of the elements which had given birth to it. But it reached that point only by passing through its *mean age*.

At Pitcairn, this decisive period has been short. The duration is in proportion to the number of elements which must be eliminated or softened down. In France and Europe it has lasted much longer, because these elements were infinitely more numerous and complex, and because in many respects the work had necessarily to be many times repeated. In America, the period of the invasion of races is still going on. How, then, should these races be fixed, and how could they manifest their true characteristics ?

America, in general, and especially the Spanish and Portuguese settlements therein, are in their full mean age. This fact, evident enough to me, explains why the reproaches made against these people are so well founded. The differences which are seen in other respects between the south and the north, could be easily explained, if this

were the place to engage in that work. What sort of a civilisation will arise out of this immense field of experiment, where all the nations of the earth are mixed, and amalgamated together? It seems presumptuous to attempt even in the most general way, to reply to this question, and yet the past warrants us in casting a glance at the future.

On this point I am happy to agree exactly with M. Maury, when, taking into view the ethnical origin of peoples, he sees civilisation born and developed into greatness by the contact, mixture, and union of races. I am happy to think, as does my colleague and predecessor, M. Serres, who sums up his opinion in these words: "The greater the number of elements entering into the composition of a race the higher its development; . . . the greater the number of special characteristics the longer is its life." These great social facts will nowhere be brought out in so perfect a manner as in America. Wholly differing, then, from those savants whose views I have previously combated, I see in the concourse which all the peoples of the globe are bringing in to the formation of the future American races, a pledge that these races will be more perfect than any of their ancestors. In that fact, there will be on the whole a prime cause of superiority; and as in the past, it will without doubt be manifested in new forms by the very fact of the mixture or crossing.

Moreover, we learn from history that civilisation in the progress of descent from their predecessors never retrogrades in this respect; that while they are perchance weaker on some points they more than make up for it on others. Even the most fleeting civilisations, like those of the Arabs in Spain, have had, so to speak, their specialty, and have made progress forwards. Now no one civilisation will have had for its point of departure a foundation so large as the future American civilisation. Everything, then, tends to the presumption that it will far outstrip us.

Conclusion.—In the course of the lectures delivered at the Museum some twenty years since, and of which a resumé has been published by M. Esquiros, M. Serres insists upon the future result of the crossing of the human races. Firmly admitting the perpetuity of actual characteristic types, he believes in the unification of races. Without going to so great a length, M. Maury thinks that everything tends towards uniformity, and that the time will come when a mere variation in character will take the place of the old diversity of races.

Now, while freely acknowledging there is some truth in the opinions of my eminent colleagues, I cannot go to so great a length as they. Without doubt, in the great movement which has engaged the attentive study of all three of us, the civilised white man plays the most

important part. It is he who everywhere seeks out the inferior races, at one time by force carrying them away with him and compelling them to undertake forced migrations, at another obtruding himself upon them and occupying their own soil, at still another exercising an influence and attraction against which he strives in vain to defend himself, but always mingling his own blood with that of the inferior races, and thereby elevating their position. But the mixed races will differ in proportion as the ethnical elements to which he allies himself differ. One only of the parties will be elevated out of the distance which before separated them, and a common element will be established between them in relations where none previously existed.

In addition to this prime cause, which will tend by itself to maintain a distinction of races, even were they placed in identical circumstances, we must besides add the influence of other causes. So long as the earth remains what it is, so long as there shall be an equator and poles, isles and continents, an old and a new world, so long as the conditions of existence shall remain as varied as we now see, so long will distinct races exist, and continue to form themselves, and that, too, exclusive of the phenomena of crossing. Only, and here is the point, it is principally the white race which emigrates and populates anew other countries. Consequently these races will be more nearly allied than those that we found occupying their places; for these last were the result of a series of operations, continuing for centuries, and which will never again be repeated.

The civilised white man will not be unmindful of the paths which he has opened up to himself. Were he obliged to remain where he is for lack of means of transportation, he would still pursue his course, he would none the less continue to extend his migrations. These relations between populations established under the most varied means, would of necessity bring about marriages. His aptitude for acclimatation would be enlarged. The phenomena which now obtain almost alone in the case of the Jewish race, would become universal. The races of the future will receive at birth an aptitude for sustaining the operation of the most varied influences; they will become in advance, as it were, either wholly or partially acclimated.

Thus, by virtue of events so linked together and of a self-imposed necessity, the future human races will be largely renovated with an infusion of white blood, that is to say, with the ethnological elements which thus far have carried to its highest degree the development of human intelligence. Consequently these races will become more intimately related to each other, but they will not for all that be either alike or equal. The same causes which have been at work in producing diversities among the members of the great human family,

will none the less continue to be active. There will always be dissimilar races, there will always be races superior and races inferior. But on the whole, humanity will be advanced, its means of control over natural phenomena will be enlarged ; at the same time its power of resistance to those events which thus far have sometimes controlled it, will be increased. Nothing, then, warrants us in thinking that the civilisations of the future can in any way be inferior to those of the present day, but on the contrary we even go so far as to predict that in some direction yet unknown, they will far outstrip them.

THE NEGRO AS A SOLDIER.*

By SANFORD B. HUNT, M.D., late Surgeon U. S. Volunteers.

ETHNOGRAPHICAL causes have always been active in the production of wars, and the existence of slavery was undoubtedly the ultimate cause in the war of the Rebellion. Yet, though it involved the deepest problems of race, it was not in itself a war of races. It was a struggle between two geographical sections of the same race and nation as to the just status of a foreign element which had become domiciliated among us by the act of our ancestors and which, in itself powerless, had by mere bulk and magnitude acquired a controlling importance in national affairs. During this struggle the negro remained passive. His ideas of the struggle were not revolutionary, but religious. He believed and waited, his simple mind filled with the grand metaphors of Holy Writ, and his doubts all silenced by an implicit faith that in the Lord's good time his deliverance would come. When it was decided by Government to employ him as a soldier, he cheerfully enlisted as he found opportunity. But when, by accident of locality, he was unable to reach our lines, he remained a faithful and quiet slave. In no instance did he assume leadership, in no instance did he organise to strike a blow for his own liberty. Yet, in all instances, he was patiently loyal to his own race and to the cause of the Union.

This passivity is a moral element which might well create many doubts as to his efficiency as a soldier. Aside from the intemperate

* We are indebted to Dr. W. A. Hammond, late Surgeon-General U. S. Army, for a copy of this valuable report to the U. S. Sanitary Commission.

opposition of negro-haters, many of his calmer friends could only look upon the experiment as one involving serious risks of failure. Had he the physique to endure hardship? Could he acquire the manual of arms and perfect himself in tactics? Had he the necessary physical courage? Would he not, when his savage blood was up in the fever-heat of battle, entail disgrace upon our cause by acts of outrage? Was not the profession of the soldier in its essence too noble and manly for this pariah of the land? All thinking minds acknowledged these doubts, and with many they became at once convictions.

The scepticisms entertained as to the capacity of the negro for the duties of a soldier found voice even in the Acts of Congress authorising his enrolment. The first Act only impliedly makes him a soldier. In the Act of Congress approved July 17th, 1862, we find the following:—

“**SEC. II.**—*And be it further enacted:* That the President of the United States be authorised to employ as many persons of African descent as he may deem necessary and proper for the suppression of the Rebellion, and, for this purpose, he may *organise and use them in such manner,* as he may judge best for the public welfare.”

A little later another Act was passed exhibiting the same spirit of hesitancy. We quote:—

“**SEC. XII.**—*And be it further enacted:* That the President be and he is hereby authorised to receive into the service of the United States, for the purpose of constructing intrenchments, or performing camp service or any other labour, *or any military or naval service for which they may be found competent,* persons of African descent, and such persons may be enrolled and organised under such regulations not inconsistent with the Constitution and Laws, as the President may prescribe.”

Even here, the name of soldier is not employed, and the precedence given to his employment as a labourer expressively indicates the hesitation felt by Congress and the people. And with a just sense that in thus employing the negro they opened the way to questions of deepest moment that might lie beyond and incurred obligations which would change the political status of four millions of human beings, they enacted another section conferring freedom on the negro, his wife, his mother and his children, who should serve in our armies, provided always that the master or owner of the negro should have enlisted in the service of, or in some way have aided and abetted the cause of the Rebellion.

Men looked at this startling innovation with different eyes. The earnest believer in a common humanity rejoiced; the careful statesman hesitated; the prejudiced denounced; and the pure scientist

looked upon it as a grand experiment on a scale of such magnitude as to render its results decisive. Every step, therefore, of the enlistment of 180,000 negroes was watched, by friend and foe, with a lively interest.

Enlistments of negroes, however, had begun before the passage of the Act of July 17th, 1862. The first black troops raised, were recruited in Kansas—the Waterloo of slavery,—by Col. James Williams, and his regiment for a long time was known as the “First Kansas Coloured Volunteers,” or, more familiarly, as the “First Nigger.” Colonel Williams acted without sanction and, of course, under difficulties that would have crushed a man less indomitable. How he fed or clothed his men is one of the unsolved mysteries. How he disciplined them is known. In one case, three members of one company, intoxicated by their new position, committed an infamous outrage. Twenty-four hours later, they had been tried, convicted and shot, the firing detail being made from their comrades. The subsequent history of this regiment is one of active service, of hard fighting and of heroic courage.

The first grand movement in the enlistment of negroes, was in the organisation of the *Corps d’Afrique* at New Orleans, and immediately after that coloured organisation became general in all the Slave States occupied by our forces. Some regiments were also raised at the North, the 54th Massachusetts being a notable example. We believe that, with the exception of that regiment, all the negro troops were taken up as United States volunteers, including the two regiments raised in Kansas and known, up to the spring of 1865, as the First and Second Kansas Coloured Infantry. But very many coloured troops were credited to the quotas of Northern States. Counties and cities sent recruiting agents to the South, and by paying bounties, induced negroes to credit themselves to New York, Boston or Philadelphia, as the case might be.

It was at first proposed to confine the use of these troops to the holding of sea coast and other fortifications, especially in malarial districts, with the idea that they were not liable to the diseases peculiar to those localities. As our experience enlarged, they were employed in campaigns, battles, and sieges, and were in many cases assigned to tasks requiring all the steadiness of veterans.

The conclusions which we are now justified in forming as to the value of the negro as a soldier affect his physique, his capacity to learn tactics, his providence or improvidence in the care and cooking of his food, his powers of resistance to hunger and fatigue, the diseases peculiar to him, if any, and those to which he is most usually subject, his morale, including his courage, cheerfulness, and obedience, and finally his comparative intellectuality.

Aptitude for Drill. The well known imitative faculty of the negro, together with his natural fondness for rhythmical movement, are elements of character which were promptly improved by the drill-officers by whom the recruits were instructed. The habit of obedience, inculcated by the daily life of the slave was also valuable, and it was soon found that, in the drill of the soldier, the negro lacked no essential. In cleanliness, however, there was a deficiency, though that was overcome in those instances where the discipline was rigid. Some of the regiments of the *Corps d'Afrique*, organised at New Orleans, were models of soldierly neatness and precision; while others, less carefully officered, were slovenly and careless.

Capacity for Marching. The large, flat, inelastic foot of the negro—almost splay-footed—was at first considered an objection; but experience has not sustained the idea. I have known a command of about 1,500 negroes to march 78 miles in 76 hours—part of the distance over a rough mountainous road—with remarkable ease and without increasing the sick-list, except from blistered feet. The general experience of army officers has decided that the negro marches as well as the majority of troops. His large joints and projecting apophyses of bone give a strong leverage to the muscles attached to or inserted in them. Yet in unfavourable circumstances there is reason to suppose that he fails to endure prolonged fatigue as well as the white man.

Endurance of Fatigue and Hunger. In response to inquiries addressed by the New Orleans Agency of the Sanitary Commission, Surgeon Blackwell, 81st U.S.C.T., expresses the opinion that the negro bears fatigue better than the white man. Other officers, among them Surgeon Humphreys of the 55th U.S.C.T. and Surgeon F. E. Piquette, in charge of the U.S.A. General Hospital for Coloured Troops at New Orleans, state with equal positiveness, that he is inferior in endurance; that “he is *at present*, too animal to have moral courage or endurance.” After full discussion with all the leading surgeons in charge of negro troops in Louisiana and Alabama, Dr. Owen M. Long reports to the commission that, “the coloured soldier does not endure fatigue as well and as long as the white, but he can endure hunger for a much longer period.” Dr. Long, in speaking of cases of exposure and hardships, says:—“In this instance, the *morale* of the white man steps in and often aids him in overcoming the situation.”

Such I believe to be the general opinion of observers. The negro loses the impulse of his natural gaiety, and becomes bitter and despondent; though, if well-fed, as in the instance of the severe march mentioned above, he sustains himself well.

Powers of Digestion and Assimilation. The negro is a heavy feeder. His plantation ration was usually confined to bacon and corn meal, eked out by such vegetables and poultry as he was allowed to raise, or such game as could be found in stream or forest. In the army he speedily adapted himself to the ration, was uniformly fond of "hard tack" and preferred bacon to beef. Even in the climate of the Lower Mississippi the tropical origin of the negro shows itself in some difficulty in maintaining animal heat. Hence, probably, their instinctive fondness for fat bacon, opossum, and coon. All our reports concur, practically, in the opinion that the negro, under a fair ration, has good digestive powers and manifests no peculiar tendency to diseases of the alimentary tract. *

Without being especially provident in the care of his ration, he is a very fair forager, and has a long list of foods not relished by the white soldier. He is also a liberal patron of the sutler. Negro regiments, in my experience, usually consumed all their ration, and as much more as they could conveniently obtain.

Immunity from, or Liability to, certain Diseases. One of the strongest arguments used in favour of the employment of negro troops was their supposed immunity from malarial forms of disease. There was a wide-spread belief in this idea, which has not been sustained by experience. We cannot better express our own convictions, resting on a very considerable observation, than by quoting somewhat at length from reports made to the commission by Dr. Ira Russell, who has given this subject the most careful study at St. Louis, at New Orleans, and in Virginia. Dr. Russell says, in a report on the coloured hospitals of Richmond, Norfolk, etc., that he found the opinion of numerous surgeons whom he consulted to be as follows:—

"First. The negro bears injuries and recovers from wounds quite as well as the white man."

"Second. Gangrene is of rare occurrence."

"Third. Malarial, typhoid, and bilious fevers do not occur more frequently or terminate more fatally than among the white race."

"Fourth. Pneumonia, pleuro-pneumonia, and measles are more frequent and fatal than among the white race."

Two of the surgeons, Drs. Maillard and Ela, have had a good deal of experience among the coloured population in the contraband hospitals at Portsmouth, Norfolk, and on the adjacent plantations. In reply to the query, "To what diseases is the negro more subject than the white man?" they replied, without hesitation, "To pneumonia and pulmonary inflammations." * * * * * "The system of slavery was calculated, in various ways, to stimulate child-bearing. The mother had no responsibility—no care for the support

of herself or her children. Breeding enhanced her value—to be a *cheap* negro was a disgrace. But, while the slave-holder understood how to stimulate child-bearing, his method of rearing children was very bad. The importance of cleanliness, good food, warm clothing, and proper shelter was but indifferently understood; hence, many of these children grew up with impaired constitution, affected with scrofula and tuberculosis. Dr. Seymour thinks that eruptive diseases, such as small pox, measles, and scarlatina, are severe with coloured children, and many die from pulmonary complications.”

There is, or was, among inexperienced medical officers, a belief that negroes are not fully amenable to remedies. Sudden and accountable deaths frequently occurred in the hospitals, and came to be considered a negro peculiarity. In some cases the superstition of “fetichism” was responsible for this. The patient would believe himself possessed with a devil, or to have been subjected to the baleful influence of the unholy charms of some witch; he thus became hopeless, despondent, and apathetic. Upon these points we again quote from Dr. Russell:—

“I have given careful attention to the symptoms and pathology of disease as exhibited in the negro, and as modified by his peculiarities of constitution, habits and modes of life. I have also made careful inquiries of surgeons on duty in negro regiments and in the negro hospitals at St. Louis, Mo., Nashville, Tenn., Washington, D. C., Alexandria, Richmond, and Hampton, Va.”

“All the intelligent surgeons agree with me that a thorough knowledge of the habits and idiosyncrasies of the negro are of the utmost importance in order to understand and successfully treat his diseases. Much of the lack of success in treating disease among this unfortunate class of our population is undoubtedly due to ignorance of such facts. Two hundred years of servitude, the implicit obedience required, the exemption from all care and anxiety to provide for the future, the extinguishment of all hope of improvement in his civil or social relations, has produced marked physical and moral effects. Self-reliance and exercise of the will have never been cultivated or formed any part of his education. His highest ideal of enjoyment has consisted in freedom from toil and the gratification of the lower animal instincts.”

After alluding to various other and obvious hygienic causes affecting the negro, Dr. Russell says:—

“When sick, he will take neither food nor medicine, unless administered by some other person. Many sick negroes have died in consequence of this neglect, much to the astonishment of the physician, who had faithfully prescribed all that was needed of both. He is superstitious, and believes in charms and diabolical agencies, and often imagines that he is the victim of some supernatural influence, from which it is impossible to extricate himself. When under the

from it in the valley of the Mississippi than on the Atlantic coast. Especially was this the case at Jefferson Barracks, near St. Louis, Mo."

We are compelled, then, to believe that, independent of external causes, the negro is far more susceptible to pulmonary disease than the white. The physiological cause of this cannot, perhaps, be demonstrated; but great weight is due to the hypothesis that he has a tropical, or smaller, lung. In all, or nearly all, the autopsies we have quoted, the weights of the lungs were taken; but those weights were so much invalidated by the presence of various forms of solidification in the organ, that we are unable to use them in this connection. A careful series of weights of normal lung, to contrast with weights of an equal number of whites, is a great desideratum. It should be re-inforced by measurements and the volume and the expansibility of the living thorax. At present we are only able to suggest that, if the Arctic lung requires a capacity equal to the absorption of oxygen enough to convert into carbonic acid gas forty-five or fifty ounces of carbon daily, in order to maintain the animal heat in those cold regions, it would be in accordance with the economy of nature to suppose that the oxygen capacity of a tropical lung would be smaller than the Arctic, in the same ratio as the amount of carbon required to maintain animal heat in the sultry climates of the Equator. But this is not yet proven. The comparative frequency of tuberculosis in the two races, is by no means understood. Most surgeons in contact with the negro, are of opinion that he, especially the mulatto, is predisposed to consumption. This opinion is pretty nearly universal among them, and yet Dr. Russell, from his own studies, doubts the truth of the theory. Dr. Harris, of Cleveland, Ohio, himself a negro, and a close student of his race, is emphatic in the opinion, that the admixture of races does not impair physical endurance or fecundity, but, on the contrary, promotes both. Against these opinions rests a pretty general conviction that tuberculosis is a scourge of the negro, especially the mulatto, and that the fecundity of the latter is not equal to that of pure bloods. Common observation shows that the number of quadroons is much more numerous than that of "octo-rooms," and that the number of mulattos is much greater than that of quadroons. If there were no impediment of fecundity, the reverse would obtain. But this study lacks all the data which would ensure an exact and intelligent opinion.

Intellectual capacity. The negro, both by nature and education, is social and gregarious. His fondness for companionship is notorious and adds much to his adaptability to the crowded life of the camp. The negro encampment is always a cheerful and chatty place, en-

livened by music, dance, and sport. Nostalgia, even in the married soldier, is almost unknown, and, when he is well and well fed, I have never seen a case.

His intellectual acuteness has been very much blunted by centuries of ignorance and servitude, and it is now impossible to define his relative position—as a native and uncontaminated being—in the scale of races. His history in the land of his origin is one of continuous barbarism, with occasional wild outbursts of the brute element. On this continent, we behold a patient, long-suffering, religious man, who, under circumstances of great provocation and frequent opportunities, rarely commits those graver and more beastly crimes which disgrace human nature. His record during the war of rebellion is wonderful in its gentleness and Christian forgiveness. He has “waited patient on the Lord,” and not until the prison gates were thrown open did he attempt to come out into the light of freedom. It is with him as we find him now, and not with his barbarous ancestry, with him under the dispensation of Christ, and not under the curse of Ham—that we have to deal in this era.

It would be grossly unfair to subject the negro to a comparison of intellectual capacity based on his present manifestations of mental acuteness. In the Slave states he has been held in ignorance by law; in the free States subjected to a constant sense of inferiority. All the paths of competition have been barred against him, and, though in the North he has in occasional instances raised himself to prominence in intellectual combat, it has been over obstacles which might daunt the most enterprising.

We do not expect from the besotted peasant of feudalism any vindication of his membership in a superior race. How few are the cases in which the agricultural peasant of Russia, France, or even England, has achieved intellectual distinction! From our own feudalism, we can anticipate no different result. We must turn, then, from the illiterate—almost inchoate—intellect of the feudalised negro, undeveloped and uncomprehended as it is, to some other means of comparison. However deficient it may be, it is nearer the truth than it would be to demand energy, enterprise, and political sagacity of one who has not yet made acquaintance with the spelling-book.

Three modes of ascertaining the superiority or inferiority of races have been devised, which have reference only to physical facts, and depend for their correctness solely on the honesty and accuracy of the observer. One of these—that by external measurements of the cranium—is in itself essentially faulty, in that it makes no allowance for the thickness of the skull, though it has developed the fact that the Germans use larger hats than the Anglo-Americans of the

Northern States; these, larger hats than the same race in the Southern States; and these, again, very much larger than those worn by the Spanish-Americans of New Mexico, etc. The English infantry hat sent to the coloured West India troops was found much too large.

A second means of measuring intellectuality rests, like the former, on the size of the brain, and is based on the supposition that there is a direct ratio, between the mental and the cubic capacity of the cerebral mass. Prof. Samuel George Morton, the distinguished craniologist, has taken the internal measurements of more than six-hundred skulls, by filling them with peas or shot, through the foramen magnum, and then measuring the peas or shot by the usual method. His plan is ingenious, and only lacks an accurate knowledge of the race represented by the skull and a far greater number of observations to have a decided practical value.

The third plan is to ascertain the weight of the brain by post-mortem examinations, and is, *per se*, the more reliable.

All these measurements presuppose that the size and weight of the brain is the measure of its intellectuality—a theory probably correct in the main. The objections are these: The mental capacity of a brain probably depends upon its relative portion of grey substance; and, in two brains, of exactly equal weight and measurement, these may differ materially. Again, the distribution of the volume of a brain, whether in the anterior or posterior regions of the skull, may materially control its intellectuality. But all analogies and contrasts go to prove that, as a rule, the size of the brain has much to do with its mental power. Daniel Webster's gigantic head contained 122 cubic inches of brain; the Hottentot and the Australian have only 75 cubic inches. The Toltec Indian, now perished from the face of the earth, had 77 cubic inches; his conqueror, the barbarous North American, had 84 cubic inches.

For the sake of comparison we give, succinctly, the measurements in cubic inches as established by Morton:

	Mean. Cub. ins.
The Teutonic family, including English, Germans, and Americans (30 crania), has	92
The Pelagic, Celtic, Semitic, etc., have	88
The Malays, Chinese, Hindostanees, and Egyptians	83
The American Tottec Indian	77
The American barbarous Indian (161 crania)	84
The native African Negro (62 crania)	83
The American Negro (12 crania)	82
Hottentots and Australians	75

In contrasting the important races we find that the conquering Teutonic family outnumbered all the rest; that, by a singular parallelism, the conquerors (barbarous Indians) who preceded us on this

continent had seven inches the advantage over the annihilated Toltecas, and that the now perishing Indian has eight inches less of brain than his conqueror, the Teuton. And, not to be reconciled with the theory of a direct ratio between size and intellect, is the strange fact, that the Totecan, the semi-civilised Indian, who built the mounds of the West and the now buried cities of Mexico and Central America, was driven out by a conqueror who, with larger brain, has never manifested any tendencies toward civilisation.

The third method of estimating intellectuality by material conditions is, by ascertaining the weight of the brain in different races. Up to the present war the number of brains carefully weighed by anatomists was small, nor had any attempt been made to educe any difference that might be assigned to race. I have carefully collated all the records of weights accessible, and find, in all, 278 brains of white Europeans, mostly English and German, and given on the authority of Clendenning, Sims, Tiedemann and Reid. These tables give the mean weight of the white European brain at 49½ ounces avoirdupois; the greatest weight given being 65 oz., and the smallest, 34 oz.

ETHNOGRAPHICAL TABLE,

Derived from 405 Autopsies of White and Negro Brains. Made under the direction of Surgeon Ira Russell, 11th Massachusetts Volunteers.

	Number of Autopsies.	Grade of Colour.	Average weight of Brain.	Maximum weight of Brain.	Minimum weight of Brain.	Brains, 60 ounces and over.	Brains, 55 and under 60 ounces.	Brains, 50 and under 55 ounces.	Brains, 45 and under 50 ounces.	Brains, 40 and under 45 ounces.	Brains, 35 and under 40 ounces.	Brains less than 35 ounces.
	24	White.	52.06	64	44½	1	4	11	7	1	...	...
	25	"	49.05	61	40	1	...	10	12	2	...	...
	47	"	47.07	57	37½	...	2	13	19	12	1	...
	51	"	46.54	59	38½	...	2	10	22	11	6	...
	95	"	46.16	57	34½	...	1	15	50	21	7	1
	22	"	45.18	50½	40	...	...	3	10	9	...	...
	141	Black.	46.96	56	35½	...	5	42	51	38	3	...
	405	...	...	...	...	2	14	104	171	94	17	1
Autopsies of Clendenning, Sims, Reid, and Tiedemann,	278	Whites, collated from various sources,	49½	65	34	7	28	99	97	39	7	1

Fortunately, in the same series of autopsies from which we have quoted in our statement as to the frequency of diseases of the lung,

we find the weight of the brain given in 405 cases, of which 24 were white and 381 were black. This number is larger than that of all the other brain-weights heretofore published, and is sufficient for satisfactory generalisation. It has, moreover, a special value in giving the grade of colour, whether black or mulatto, &c. The labour of this great number of autopsies was performed under the direction of Surgeon Ira Russell. The mode of classification has suggested itself to the writer.

The following laws would appear to obtain in the above table.

1st. The standard weight of the negro brain is over five ounces less than that of the white.

2d. *Slight* intermixtures of white blood diminish the negro brain from its normal standard; but, when the infusion of white blood amounts to one-half (mulatto), it determines a positive increase in the negro brain, which in the quadron is only three ounces below the white standard.

3d. The percentage of exceptionally small brains is largest among negroes having but a small proportion of white blood.

The weights given in the table are much larger than those given by European anatomists, so far as the white race is concerned. Yet certain correspondences induce us to believe that such a difference actually exists and would be verified by a more extended research. In the vital statistics of this work the weight of the American soldier is found to be $5\frac{1}{2}$ pounds more than that of the French soldier, and 18 lbs more than that of the average English recruit of the age of twenty-one years. Again, there is a curious confirmation of Morton's measurements of the internal capacity in cubic inches of the human cranium. If, as he states, the standard capacity of the Teutonic cranium is 92 cubic inches, and that of the American negro 82 cubic inches, then, to prove this relationship, the white brain weighing 52 ounces, the negro brain should weigh just 46.40 ounces. It actually weighs 46.96 ounces. This is founded on the American measurements only. If we group together the whole mass of weights of whites, foreign and American, we shall have 302 brains of whites, average weight 49.7 ounces. Comparing this with the weight of 141 pure negro brains we find a difference of 2.74 ounces.

Supposing the matter of weight to be the essential condition of intellectuality, the average white has a competitive advantage over the average black of $5\frac{1}{2}$ per cent,; or, taking the 24 brains of white Americans as the standard of comparison, the competitive advantage of the white is $9\frac{1}{2}$ per cent.

Two important questions present themselves in this connection.—

1st. Morton's measurements seem to show that during two centuries

of servitude the negro brain, if it has not diminished in size, has not increased under the influences of slavery. Therefore the crucial experiment of the effect of freedom and education has only just began. We cannot judge the ultimate capacity of the negro from that which he has thus far manifested. And 2d, so far as the 24 white brains enumerated can prove anything, they show that the American is heavier and larger than the European brain. If it has enlarged under our institutions, why may not the negro brain, subjected to new and invigorating influences, also increase its size?

The number of white brains weighed is too small for generalisation. It is simply a suggestion, not a scientific fact. To test it we must look to other conditions and inquire how far the climate and policy of the United States have affected or changed other and easily recognisable physical forms of man. The American is the child of Europe. Other things being equal, we should expect him to be a mere repetition of the European.

But there are evidences that the American, in founding a new nationality, has also established a new type of manhood. Of nearly 26,000 recruits from the New England and North Western States, Mr. Elliott informs us that the mean height was 5 feet 8½ inches. Of 27,853 recruits to the British army at home in 1860 the average height was 5 feet 6½ inches. The average height of the French army, for a series of years, was 5 feet 5¾ inches. Here, then, we find the American soldier is the tallest of the three, and so far as we can examine weights, we find him the heaviest, being 5½ pounds heavier than the French and 18 pounds heavier than the British soldier. In fine, there seems to be some reason to believe that the human brain, in the case of whites, has been increased in size by its transplantation to this continent, while in the case of blacks it has made no progress, but has, perhaps, deteriorated under the influences of slavery.

As between the two races, the problem is: Does the large brain by its own impulses create education, civilisation and refinement, or do education, civilisation and refinement create the large brain? This problem might be solved by a series of researches in the weight of brain of the poor whites of the south, known as "sand hillers," "low-down people," or "crackers." With them civilisation has retrograded. They came of a good stock originally, but have degenerated into an idle, ignorant and physically and mentally degraded people. Their general aspect would indicate small brains. If they are small it is due to the absence of educational influences.

In the present state of science, we can only refer to general opinion, which leans to the belief that it is within the power of educational causes to modify the form and size of the human brain to a consider-

able extent, and that the competitive success of the freedmen of this country rests upon the effort that may be devoted to their mental and moral elevation. They have already the same cranial capacity with the Hindostanees, who have developed a high civilisation, a profound philosophy and a rational religion.

We have thus stated, as elaborately as our limits will permit, the differences which exist between the black and white races. It will be seen that, for the purposes of the soldier, he has all the physical characteristics required, that his temperament adapts him to camp life and his morale conduces to his discipline. He is also brave and steady in action. His only disqualifications are found in his greater liability to pulmonary and exanthematous diseases and in the lack of education—perhaps of native intellect—that forbids his attainment to the rank of a commissioned officer. Neither of these objections are of sufficient moment to throw him out of the lists, and, in all subsequent wars, this country will rely largely upon its negro population as a part of its military power.

THE RACE QUESTION IN IRELAND.

By J. W. JACKSON, Esq., F.A.S.L.

THE day for the practical application of Anthropology has not yet arrived. Statesmen, although it is their business to govern men, know nothing of the science of man. And philosophers, although they profess to study human nature, prefer doing so in an abstract way, that ignores diversities of type and character as something beneath the dignity of a mind capable of a logical deduction of conclusions from the first principles of things. The result of this is, that whether in the executive or legislative department of government, we proceed on groundless assumptions and hastily formulated fallacies, which, in so far as they have any recognisable basis, seem to rest on the theological dogma of monogenism on the one hand and on the ultra-republican affirmation of racial equality on the other. As might be supposed, the effect of such grave misapprehension is often most lamentable. With an oceanic empire, that in its various settlements extends from the arctic almost to the antarctic circle, and which embraces not only European, but also Asiatic, African, and American peoples of almost every race, from the oceanic Negro to the high

caste Caucasian, and in every grade of culture, from the Indian hunter to the Oxford professor. Britain, in her regnant and imperial capacity, knows nothing of race. Practically, of course, she is compelled to recognise the difference between an Andaman islander and a Hindu Brahman, and Australian aborigine and a European settler, but she does so grudgingly, and with a reserved conviction that it is only a temporary arrangement, that, by the help of bibles and missionaries, to say nothing of omnipotent acts of parliament, will some day cease and give place to a millennial equality among all the sons of men ! This notion of racial equality was the underlying element of error in the public mind, which permitted of so monstrous a perversion of the forms of justice, as that involved in the prosecution of Governor Eyre. Were not the negroes of Jamaica "brothers," albeit in ebony, and had they not been liberated by parliamentary enactment and hard British cash, and were they not "converted" and capable of speaking English, after a fashion ? What more, then, was needed to prove that, whether as loyal subjects or armed insurgents, their treatment, to the minutest particular, should resemble that of our own or any other European people, under similar circumstances ? This was the arch-fallacy that tinged alike the platform oratory of the missionary meeting and the graver address of the Lord Chief Justice. Now, while such misconceptions are so generally prevalent, our present governmental mistakes, whether in legislation or administration, are unavoidable. The only cure for such errors, is knowledge—at least, to the extent of admitting racial diversity, mental and corporeal.

Now, although the misapprehensions to which we have been alluding are most absurd, if not most mischievous, where the diversity of type is greatest, as for example between Negroes and Caucasians, yet the error in principle is the same ; if, misled by false assumptions of racial equality, we proceed to legislate for well marked varieties of the same great division as if they were identical in endowment and proclivity, in capacity and requirement. We know that this is the tendency of modern legislation, which in this matter is lamentably in arrear of scientific knowledge. We do not blame any one for such a state of things, which is to a large extent unavoidable. We are still in the midway course of a revolutionary movement, which, beginning with theology and ecclesiastics in the fifteenth and sixteenth centuries, is now ultimating itself in the political commotion and social change of the eighteenth and nineteenth century. As a reaction against hierarchical and feudal despotism, such a movement could not fail to emphasise equality, to the extent even of ignoring racial diversity. Moreover, this movement is still headed by *doctrinaires*, men who unwisely begin with an assumption and then conscientiously end in a

fallacy. Whether from mental, constitutional, or educational impressions, these men, however otherwise gifted, seem incapable of appreciating facts when opposed to their favourite ideas. Hence, they overlook the obvious organic specialities of the different types of mankind, as of no account from their standpoint, and both speak and act as if they disbelieved in any harmonic relation between the mental constitution and organic structure of a people. They believe in art rather than nature, and fancy that by time and education they can make anything of any race. It is, of course, logically correct for such persons to put unlimited faith in institutions. Regarding laws and usages as the cause rather than the effect of national character, they, without any misgiving, attempt the transference of institutions from one race to another, however great the gulph between them—and then wonder that nature does not second their experiments.

Some of these have been instituted on rather an extensive scale during the present century. The whole of the Spanish possessions on the continent of America have been made the subject matter of their operation. Their racial equality and representative institutions have been on their trial for fully two generations, not as yet with the most satisfactory results. Knox foretold their failure thirty years ago, and nothing has since occurred to falsify his prediction; the only undeniable tendency of things thus far, being towards a re-emergence of the Indian type in strict accordance with the laws of race, as generally understood by Anthropologists. Nothing deterred, however, by this, England attempted the same thing in her West India Islands, where, as there are no aborigines, the only perceptible effect thus far, of this vast and expensive scheme of philanthropy, has been a rather effective development of negroid proclivity to indolence and barbarism; and then, as an affair almost of yesterday, we had the civil war in the States eventuating in the liberation of the negro throughout the South; with what effect, the future alone can decide; although science rather inclines to his ultimate extinction, and perhaps supercession by a superior race, like that of the Chinese Coolie, whose organic specialities also ally him more nearly to the aboriginal Indian type.

But these were experiments with very unfavourable material, where complete fusion, even if ultimately attainable, could not be rationally expected for centuries. But it is otherwise with races more nearly allied, as for example any of the so-called Aryan divisions of Europe. These have been so often commingled by the agency of conquest and colonisation, that it would be difficult to say what two of them will not amalgamate, to the extent at least of an ultimate absorption of one of the types, generally, if not always, the intrusive. Of this, the Goth in Spain, the Visigoth in Italy, and the Frank in Gaul are

illustrious instances. Britain is still debateable ground in this matter, the believers in area regarding it as essentially Celtic, and so at farthest only susceptible of a Teutonic or other baptism. But this view is so alien to popular prejudices, that it finds few supporters except among professed Anthropologists, and even among these there are still many dissentients. By those, on the contrary, who are unqualified believers in race, as something independent of area, England and the Lowlands of Scotland are regarded as thoroughly, and in a sense, permanently teutonised. And as this accords most easily with the prevalent notions about our "Anglo-Saxon" ancestors, it is, of course, the one most generally accepted. According to this popular Anthropology, however, Ireland is always spoken of as undoubtedly "Celtic," and it is so, because it did not partake with England in the benefit of the "Saxon" invasion. We suppose it need scarcely be said, that science cannot accept such "rough and ready" inferences from data so imperfectly ascertained and so gravely misapprehended. The race problem of the British Isles is scarcely susceptible of so facile a solution, which, sooth to say, demands the consideration of elements altogether ignored in this easy settlement of a rather difficult question.

We have spoken somewhat slightly of popular notions on the race question; but, we would not thereby be understood to imply that science has yet any right to assume a dogmatic tone on the subject. Anthropology is still at an incipient stage, and those who have shown the greatest mastery of its principles and the minutest acquaintance with its details, will, if we mistake not, prove the most modest in their pretensions to speak with authority on questions still under discussion, and awaiting the light of additional facts and profounder speculation for their more effective elucidation. It is thus with the great race problem of Europe. We know, that at present its peoples are predominantly Caucasian in type and Aryan in language; and there is adequate evidence that they have been thus characterised throughout the historic period. And yet, its quaternary men, to say nothing of later varieties, were ruder than any aborigines yet discovered. Now, of the process of supercession we know nothing. It was, of necessity, transacted ere written records came into existence, and we have not yet learned to spell out those bequeathed to us from other sources. We have, therefore, to be contented with the fact, rendered indisputable by recent discoveries in Archæology, that there has been a succession of races in Europe, and that its existing Aryans are but the latest link in the series, while its Esthonians in the South and its Finns and Lapps in the North, though no doubt the remnant of earlier races, do not represent the first.

Of course, Ireland participated in these changes ; perhaps, however, in a manner somewhat peculiar, arising from its geographical position as the north-western extremity of Europe, and so the final recipient of its manifold immigrational invasions from the south and east. If we mistake not, there are still perceptible traces of this speciality of position and fortune in its existing population. The Iberian character of the peasantry in the south and west has been often noticed. Even an approximation to an absolutely negroid type has been occasionally detected by keen observers. Now, it may be said, is not this last a remnant of the quaternary man ? And what is the first, but a remnant of the Esthonian period not yet fully absorbed by later types ? Quite certain it is, that inferior and non-Aryan racial elements are clearly perceptible in the population of the sister isle, and this, too, in much greater strength than in Britain. In the latter they are rare and exceptional, and, therefore, probably due simply to atavism, while in the former they are sufficiently common to warrant the suspicion, if not to sustain the conclusion, that they have been uninterruptedly transmitted, and are, therefore, due to persistence of type on the part of an older and wider, but still not wholly extinguished, race. We allude to these facts—dim and distant as they must seem to the general reader,—not, we trust, in the spirit of Anthropological pedantry, but, because they in a measure help to explain that peculiar impulsiveness and excitability always so characteristic of the Irish, who have thus, perhaps, inherited a rather larger bequest of the passional elements from prehistoric races than most other European peoples.

We would not, however, have the foregoing statements and suggestions misapprehended by the man of science, or misapplied by the statesman. The speciality of the Irish in their relation to rude or prehistoric types, is merely one of comparative aggravation. It has been said, that if you scratch a Russian you find a Tartar, so if you stir a Spaniard too deeply, you rouse the Moor. Something similar may, perhaps, be said of the French and English, only the savage does not here lie quite so near the surface. This is a subject demanding far more attention from Anthropologists than it has yet received. Among the ruder individualities, even of the most civilised nations, we often find types, decidedly barbarous, however produced, whether by degeneracy from a higher or persistence through a lower race. What phrenologists, perhaps rather unfairly, term "the criminal type," is an instance of this. We remember being particularly struck with the Turanian character of a group of murderers from the collection of the late Mr. Holm, when the old gentleman made us "sup full of horrors," by a stupendous lecture on the organ of de-

structiveness and its manifestations. This, however, is only a branch of the much wider subject of caste to which we have alluded in a previous article, and which must some day come up for solution at the hands of future Anthropologists.

But whatever may be the number or diversity of prehistoric racial elements still extant in Ireland, we can have no hesitation in assigning it to what is now known as the Celtic area. It is so in common with the whole of the British Isles, and its peculiarity in this relation, is the imperfection of its racial baptism. This perhaps needs some explanation. Few facts are now better established by Archaic and Historic Anthropology, than the periodic baptism of certain types by their racial correlates. The conquest and colonisation of the Celtic area by the Teutons is an instance in point. The previous conquest of the same area by the Romans is another. Now, from the latter the Irish were wholly exempt, both to their moral and physical disadvantage. And they have but imperfectly partaken of the benefits of the former. The result is, that throughout large portions, more especially of Munster and Connaught, we find the Celt in a state of racial exhaustion ; while he everywhere lacks that political and municipal training, which we owe to the domination of Rome, and that social organisation which we have derived from Feudalism. This was doubly unfortunate, for these necessary processes not having been effected at what may be called the right time, and by appropriate instrumentalities, have to be accomplished now, in the midst of a complex civilisation, and by agencies not altogether fitted for so rude a task.

From what has been said, it must be at once obvious that Ireland is, under every point of view, an exceptional country. It is so because, till recently, it remained both geographically and morally isolated from the rest of Europe. It stood out of the highway of events, and so did not partake of the expansion and invigoration which they have communicated to the remainder of Christendom. It was a moral fossil, like India, the only difference being that India is a civilised, while Ireland is a barbarous fossil, but both these extremities of the Caucasian area have been so shut out from the influence of passing events during the whole historic period, that they now present us with the sad spectacle of at least partial paralysis in all the functions of their higher life, the principal evidence of returning vitality which they have yet afforded being rather strong convulsions, painful to themselves and troublesome to their nurse.

Ireland has been often spoken of by historians and statesmen as a country unfortunately arrested at an incipient stage of its national life, by the intrusion of a stronger and more civilised race, who thus prevented the natural development of its intellect and institutions,

for which, the attempted substitution of their own laws, customs, and cultus, was a very inadequate, because radically inappropriate, compensation. And there is great truth in this statement, which, however, only involves an exposition of effects, not of causes. Ireland was susceptible of this institutional arrestment because of the feebleness of her national life, and this feebleness was due to the effeteness of her Celtic type, not adequately invigorated, like that of Britain and Gaul, by a sufficient infusion of the classic element from the south, and the Teutonic element from the north. Nor are we quite sure that even this goes to the root of the matter. If from her extreme isolation in the far Atlantic, Ireland, during the historic period, was imperfectly Teutonised and not at all Romanised, may she not have had an equally exceptional destiny in the prehistoric period ?

This is a subject deserving of grave consideration, even at the hands of statesmen and legislators. No mistake could be greater than to suppose that the nations of Europe are what we now find them, simply as a result of events transacted during the historic period, and so more or less definitively within our ken. As regards the classic peoples, for example, the important cycle of Cyclopean civilisation has passed through all its successive phases, from dawn to extinction, ere history or even tradition commences. So there cannot be a doubt that the Celts had passed through a period of power and comparative culture, ere they succumbed to the shock of Roman conquest. Brennus was probably not the first any more than the last Gallic chieftain who found his way over the Alps, now is it likely that the Gauls who invaded Greece were the first intruders of their race upon the sacred land of Hellas. Perhaps it is not too much to say, from the data now in our possession, that the day of Celtic greatness must have antedated the Christian era by at least one if not two thousand years, their Drudicial culture and the use of war-chariots allying them to the era of the great Egyptian and Oriental monarchies, if not to an age still more remote. Now the attainment of such a position, implies much previous discipline, involving, among other things considerable racial interaction, the precycle of Roman and Gothic colonisation. And, judging by her historic experience, there is some reason to think that Ireland may have participated but imperfectly in this prehistoric colonisation, and hence, perhaps, the large remnant of prognathism, the imperfect nasal development, and other indications of organic rudeness and imperfection attaching to large sections of the peasantry, more especially in the south and west, and by which they are unfavourably distinguished from the Highlanders, Welsh and Britons, to say nothing of the more effectually developed English and French.

If there be any truth in the foregoing views, it must be at once obvious that the Irish problem is not institutional but racial, and that the unfortunate speciality of the Sister Isle is not primarily misgovernment, but racial effeteness, the effect of imperfect colonisation. Now whether this effeteness antedates the Celtic era, may still remain an open question awaiting solution from farther inquiry at the hands of Anthropologists, but it certainly and without any doubt postdates it. Ireland has not been Teutonised to the same extent as England, France, Lombardy or Spain. But a Teutonic baptism was a racial necessity of the Celtic area, and it was accordingly provided in the shape of Gothic, Frankish, Saxon and Scandinavian invasions and settlements. Now Ireland partook of the last, when the Norwegians settled at Dublin, Waterford, Cork and Limerick, the only towns of any significance at the period of the English conquest. But their settlements in most of these places seem to have been principally urban, and so quite distinct in character from the Saxon conquest of England, and the Frankish conquest of France. It did not leaven the entire population by the introduction of a new racial element, and it did not discipline them by the institution of Feudalism. At farthest, it but prepared the way for the English, and along the eastern coast, laid the foundation of the Pale.

We are now then in a position to understand the real function of English conquest and colonisation. It was supplementary to the utter want of Roman rule, and the imperfect Teutonic baptism, by which Ireland has been unhappily contradistinguished from most of the remainder of the Celtic area of modern Europe. It was simply the carrying out of a great racial law—underlying, we may here remark, all small talk of peace societies, and all tall talk of political economists, *doctrinaire* statesmen, and other well-meaning but impracticable people, who would improve upon the plans of Providence, and make their revolutions out of rosewater. It was and is the terrible necessity of circumstances. From Londonderry to Cork on her eastern seaboard, Ireland, thanks to Danish, Norwegian, and British immigration, has been subjected to more or less effective colonisation, and with the exception of the old Norwegian town of Limerick, it is here alone that we find agriculture or manufactures, in an approachably satisfactory state. And even here, if we compare the condition of thoroughly Anglicised Baronies, like that of Forth near Wexford, with the neighbouring districts, we shall be impressed with the conviction, that even this colonisation, extensive as it was, might have been made more effective, with lasting advantage to the occupied country. We are aware that although calmly expressed, this is a terribly cruel utterance. But what if it be the truth. Euphuistic nonsense and beneficent

platitudes will not alter the laws of Nature, which have to be fulfilled under ever-increasing penalties, of which some are being paid by Ireland at the present moment. Compare Ulster with Munster, or Leinster with Connaught, and you will begin to understand what effective conquest and colonisation, even at a comparatively late period in European history, might have done for "old Ireland" as our Hibernian friends so fondly phrase it. But if you would know the full loss of Ireland in not partaking of Roman civilisation and Teutonic colonisation, simultaneously and proportionately with the remainder of the Celtic area, you must compare "old Ireland" with England, or the lowlands of Scotland, or the north of France. "Ireland for the Irish" is no doubt a splendid war cry, and carries with it a semblance of justice and a sound of patriotism, but in sober truth it is precisely where Ireland is most Irish that it is most poverty stricken, and where it has been most colonised, that it is most prosperous.

Such, then, are the facts. Now what do they imply? The application of our nostrums, say the *à priori* legislators. We will administer any number of "Acts of Parliament" to Ireland, till she is well! She has been injudiciously treated—that is all. We will give her just laws and amended institutions, and await the result. Ah, my friends, you told us the same story about Mexico and the South American republics—and what have you made of them? Miserable failures all, the old Indian blood proving too strong for you and your paper constitutions. No doubt Ireland has been misgoverned, as France and England, Spain and Italy once were, when the iron-heel of the Goth was stamping out their ancient institutions, and his sword was implanting the germs of those which were to succeed them. The pity is that these things were not done for Ireland at an earlier date, and then perhaps a Scandinavian colonisation might have rendered an English conquest unnecessary—and so impossible, as happened in Scotland. Again, we know that these are very unpleasant utterances, quite unsuited to any platform—even that of "the house"—but supposing that they are true, will unanimity in their condemnation render them false, or the consequences which they imply, nugatory?

And do we then despair of Ireland? By no means. On the contrary, we think that she is now in the very crisis of her racial regeneration. Hence her grief. Two hundred thousand patriotic Milesians are not wafted over the Atlantic annually by purely Favonian breezes. No such exodus ever did take place save under a certain measure of compulsion. We would not undervalue the suffering which this implies. Our consolation arises from the perception that it is not a perennial but epochal phenomenon, due to a

combination of special, and, in a sense, exceptional circumstances, recurrent only at rare periods of ethnic commotion. Such an exodus implies much, not only to the country of its reception, but also of its ejection. To the States it is the counterpoise of the German element. To Ireland it is the preparation for a more effective Teutonic-Celtic development, akin to that which has been already accomplished throughout a large portion of Britain. To both it must prove ultimately beneficial, if only as a fulfilment of the law of Nature, who abhors lengthened periods of isolation and stagnation, and generally supplements these by succeeding periods of emigration and racial regeneration.

We have said that Ireland was not conquered and colonised at the right time ; we meant for its present peace and well-being. Contemplated from the mundane stand-point, this, like all other great racial movements and historic events, resolves itself into the manifestation of a law, whose operation is unerring, and whose ultimate results cannot fail to prove beneficent. It would seem that most social baptisms are partial, and what we would call imperfect ; thus in the case of the great Teutonic colonisation of the old Celtic area, we find that in Britain, the Highlands of Scotland, the mountains of Wales, and the Peninsula of Cornwall, were reserved, in a measure, as Celtic preserves, to react, at various periods, with considerable force, on the more Teutonised area of the central and eastern provinces of the island. The heptarchy reaped the first result of this reservation, in the predominance of Wessex ; and Britain probably will not have gathered in the final harvest from this arrangement, till the close of the present cycle of European civilisation, when, once more effete and exhausted, she will again await her renewal at the hands of a ruder and less gifted but more muscular type than the then overwrought and effeminate remnants of her imperial greatness and her refined culture. We see the same phenomenon of reservation, as respects France, in Brittany and largely throughout the south ; we see it again, as to Spain, in the two extremes of Biscay and Andalusia. Similar remarks might be made in the classic area, where, for example, Magna Græcia remains but imperfectly Latinised and still more imperfectly Teutonised to this hour. The purpose of this reservation appears to be the more effective preservation, and ultimate resurrection, of the temporarily submerged type ; now, thus contemplated, Ireland is but the extreme west of the Celtic area of Europe, the last and best preserved retreat of a refined, sensitive, and intellectual race, already, through its better baptised divisions, in the van of civilisation, and apparently preparing for the resumption of imperial supremacy, as the concluding act of the great drama of European civilisation.

This brings us to the mission of Ireland and her place, not merely in British history, but in the great scheme of humanitarian development. No man capable of estimating the forces which have carried civilisation and empire on their north-western course for the last five thousand years, can doubt their inevitable culmination at the terminus of their stupendous march. Rome—whether we contemplate her geographically as a Mediterranean not an oceanic power, or as a heathen not a Christian empire, was obviously not the terminus of the imperial movement, nor the closing scene of the European drama, whose fifth act is only now commencing. In some previous papers we have shown that this must be performed not on a classic but in a Celtic area, not in Greece or Italy but in France or Britain, and preferably in the latter; hence the inordinate growth of London, so ludicrously disproportioned to the merely metropolitan demands of Britain, but perfectly in accordance with its present position, as the exchange of the world, and its impending greatness as the capital of civilisation. But this implies the exercise of a mundane power on the part of the British people, of which we have the faint promise and dim foreshadowment in their present mercantile influence and colonial extension, and perhaps also in the extent to which their institutional example has already modified most of the once despotic governments of Christendom; but true imperial leadership implies far more than this, especially when that leadership is to be based on a Celtic area, and to be exercised by a classically and Teutonically baptised but nevertheless radically Celtic population. For this implies—in addition to the mercantile enterprise, manufacturing industry and mechanical ingenuity by which Britain is now so especially distinguished, nay, in addition to their respect for law and their consequent capacity for the enjoyment of a well regulated liberty, by which her people are so happily characterised—an æsthetic culture second, if second, only to that of Greece, together with a refinement and delicacy of thought and feeling, a sensibility to emotion and a profound sympathy with nature, never reflected in the literature of either a Classic or a Semitic people, and awaiting its full and effective expression at the hands of those who have already produced a Shakespeare and a Shelley in poetry, and who, despite philistinism and the all-pervading worship of mammon, still prevail to speak of literature in the words of Matthew Arnold, and of art in those of John Ruskin.

Now we are fully aware that if there is to be a Celtic as there was a classic empire, it must, like its predecessor, be dual, and that in this division France enacts the part of Greece and Britain that of Rome, but, we would add, of Rome spiritual as well as temporal. Now it is her Celtic elements that can alone qualify her for the former function, and hence, perhaps, the distinct preservation of the Welsh, Gaelic,

and Erse speaking peoples, within the narrow compass of these highly civilised British isles to the present hour. They are so much latent force that cannot be discounted for ever, and must tell on the tone of the national mind, when the exaggerated practicality and vulgar materialism of the present shall yield, in due time, to the nobler aspirations and grander purposes of the future. Now the special quality of the Irish, as contradistinguished from the British Celt, whether southern Loegrian or northern Gael, is not strength but delicacy, not force but refinement, not vigour but spirituality—the very qualities that we want imported into our literature, our art, and, we may add, our religion. But why then, it may be said, have the Irish not manifested these rare gifts more frequently and in richer profusion during their connection with England, and notably in the literature and art of the last two or three centuries. This brings us back to the history, and so to the misfortunes, of their unhappy country.

As we have already seen, the speciality of Ireland is the imperfection of its ethnic baptisms and the consequent postponement of its racial regeneration; so that while France and Britain have been passing through a great cycle of Teutono-Celtic development, under which their national life has attained to vigorous manifestation both in thought and action, the comparatively isolated land of Erin has been struggling in the throes of a belated conquest and colonisation. Combined with this it has also been subjected to another speciality, that of continued dependency, which has only of late ripened into complete incorporation. To the eye of an Anthropologist these latter specialities were but a natural result of the former, and both were due primarily to geographical isolation, which has now happily ceased. As already remarked, from the mundane standpoint the seeming loss of these many centuries of national life is doubtless a small matter; nor can we doubt but the coming ages have an ample compensation in store, both for humanity as a whole and also for the suffering people in particular. But, nevertheless, as seen from the immediate proximity of Britain, and yet more as felt by a sensitive and cultured Irishman, few spectacles are more melancholy than that of the intellectual desolation of the sister isle, whose richly gifted sons should have furnished some of the foremost names in the annals of European culture, but for whom we look in vain when we would seek the compeers of Dante and Shakespeare, of Raphael and Michael Angelo, of Bacon and Newton, of Voltaire and Goethe. Italy, as we have seen, furnishes nothing similar; for though subdued in arms she still remained supreme in intellect. To find a parallel we must go to Greece, exhausted by her many centuries of classic civilisation, and then writhing under the iron heel of Turkish barbarism.

Would we then be understood to imply that either individuals or nations were responsible for this? By no means. It was the terrible inevitability of circumstances. As the last province of the Celtic area to be baptised, Ireland is naturally the last to be regenerated. If it is late in receiving the morning rays of modern civilisation, it was also late in losing the vesper glory of Celtic culture. When Gaul and South Britain were Roman provinces, Ireland still retained her Celtic language and institutions untouched, so that when the Christian missionary landed on her shores the literary dialect of the national tongue was spoken at her courts, the Druid with his sacred traditions unbroken, still officiated at her altars, and the Bard with his epic and amatory poetry in perfect preservation, still sung his inspiring strains as he had done in the days of Oisín, and for a thousand years before. And, although Norwegian kings had reigned for centuries at Dublin, Waterford, and Limerick, Erse still remained the mother tongue when Brian Boroime won the battle of Clontarf, and gave the Irish their last chance of founding an independent and Celtic nationality, which, here, if anywhere, might have been expected to survive in its integrity. And, perhaps, sentimentally, we may be permitted to regret that it did not—if only for the sake of the commonwealth of letters, which has thus lost, if not a language, then a literature, unique in character and abounding in mythology, poetry, and tradition from ages now virtually prehistoric. The day for fully appreciating our loss in this matter, however, has not yet arrived. Classical pedantry and Saxon philistinism can still afford to despise Celtic as they once did Oriental studies; but the lettered or unlettered barbarism that would neglect the roots of the indigenous civilisation of half Europe cannot last for ever. And so a day for the profound and earnest study of Celtic history and literature will doubtless yet dawn, and when it does, Ireland will not be wanting with another O'Donovan and Eugene O'Curry to assist in the process, nor will her contributions to the common stock of this peculiar scholarship be accounted wholly unworthy of attention.

But, to return to our more immediate subject. The true Pagan culture of Ireland, like that of all Europe, whether Classic, Celtic, or Teutonic, sank into dim eclipse before the triumphant diffusion of Christianity. This is a matter for whose honest and searching investigation the age is not yet prepared. Suffice it, then, that it was not the Norsemen nor the Anglo-Normans, but the Christian priests and their zealous converts who made the first and most destructive attack on the venerable edifice of Druidic learning. They exterminated the entire priesthood, and with it, the scholarship of Celtic heathenism, leaving only the Bards to sing in martial strains of the heroic deeds of an age, and faith for ever gone. Ireland is rather valuable as an illus-

tration of this time-honoured process of sacerdotal destruction of alien records, as it was not here complicated by the foreign element of Roman invasion, so that we have the extermination of the Druids and the loss of their lore, as the effect, pure and simple, of the triumph of a hostile faith. Let not the spirit of the foregoing remarks be misunderstood. Druidism, together with that phase of Celtic life and development, whereof it was the more intellectual expression, had, doubtless, served its purpose in the great economy of the world, and so it was cast aside like an outworn garment. But we could have wished, that in this far off Ireland, as in the yet more remote Iceland, the form and purpose of the bygone time of extinct heathenism had been fully preserved at least in written records, for the study of posterity. But, as already hinted, perhaps these regrets are premature, if not superfluous, for the generation which has decyphered the hieroglyphics of Egypt and the cuneiform inscriptions of Assyria, which translates the Veda and attempts to interpret the Avesta, can scarcely continue to neglect Celtic antiquities—pedantry and Philistinism to the contrary notwithstanding.

The fact that Druidism in Ireland succumbed to Christianity, is no proof of any especial weakness in its Celtic elements, as a similar subsidence of heathenism occurred sooner or later over the whole of Europe, this being, as we have elsewhere shown, one phase of that duplex invasion, moral and physical, to which the exhausted Classic and Celtic areas were then subjected ; while the well-deserved fame of the Christian Irish schools in the seventh, eighth and ninth centuries, is an indication that whatever defects there may have been in the social or political condition of the Irish people at this period, the evil had not extended to their educational institutions. The fatal weakness of the Irish intellect is best evidenced in the fact that this roseate dawn never brightened into the meridian splendour or matured into the vesper glory of a perfect day. It was a fair but delusive promise, that thus far has had no fulfilment. Scotland, which produced a mediæval Duns Scotus, has also given us a modern David Hume and Adam Smith. While the Venerable Bede and the English Alcuin, have not wanted successors, whether for learning or ability, in recent generations. But who among his countrymen shall we name as the compeer of John Erigena ? We are aware that the Irish speak of this as one of the disastrous effects of English conquest, which not only arrested their political and social, but also their intellectual development, at a critical period ; an assertion, perhaps, not wholly devoid of foundation, but to which their social and political condition at the period of the English invasion gives but little confirmation. From the battle of Clontarf to the landing of Strongbow, there was

nothing external to prevent, and everything to induce, the Irish people to coalesce into at least a federative nationality. Nor can we doubt that had the power of the Norsemen been as great in Erin as that of the Franks in Gaul, or the Saxons in England, this most desirable result would have been accomplished. But the first tidewave of the Teutonic immigration was not competent to this. It left Ireland, over its larger expanse, still in a state of Celtic exhaustion and clannish confusion, neither adequately baptised by Scandinavian blood, nor effectually reorganised by Scandinavian institutions. And the English invasion was the consequence; this being the form in which, from geographical position and other circumstances, Ireland had to receive the completion of her alien baptism. Now a country so circumstanced, to all appearance so utterly devoid of the simplest elements of national regeneration, could scarcely have emerged unaided, into the full vigour of that new intellectual life, which was manifested throughout the greater part of Western Europe. To have done so, it must have proved an exceptional member of the Celtic family of nations, whose destiny it has been to undergo a thorough Teutonic baptism as a part of their preparation for that vigorous, moral, and material development, to which they have attained under the regenerative and expansive influences of modern civilisation.

Again, let not the tenor of these observations be misconstrued. We do not undervalue Irish genius. On the contrary, as already observed, we regard it as possessing a peculiar delicacy, refinement and susceptibility, in virtue of which it is destined, in a more poetic and spiritual age, to surpass that of either France or Britain. The fact that Ireland is the last province of the Celtic area to be intellectually developed under the influence of our modern material civilisation, and predominantly analytical scientific culture, is by no means a proof that she is the lowest in the scale. The indication, at least to a certain class of minds, is perhaps the very reverse of this. The true Irishman is intuitive and synthetic in the cast and character of his intellect, manifesting in this, as in much else, a certain orientalism in his gifts and proclivities, not easily explicable by our present historic data, albeit Archæology gives some faint promise of ultimately solving this racial mystery of the *ultima Thule* of European civilisation.

But it would be unfair to regard the existent Irishman as the perfection of his type. Save in exceptional instances, he is not so in the sense in which an Englishman or Northern Frenchman represents the regenerated Celt of his area. The ethnic baptism of the sister isle is yet far from complete. The process of racial amalgamation and supercession is still in active operation. The great exodus is an event

of which Irish history affords no precedent, and which for its extent and ethnic importance, is unexampled in the annals of any other portion of the Celtic area. The effects of this movement will be felt for centuries, nor can it fail to be followed, in due time, by a considerable British immigration, which may ultimately assimilate Munster and Connaught, to at least the ethnic condition of Leinster and Ulster. Now we would not insinuate that it will be necessary to wait for the completion of these processes, ere we can expect an effective display of Irish genius; albeit historic Greece was an ethnic product of the racial interfusion of the Heraclidæ and Hellenes, so accurately pourtrayed, prior to their amalgamation, in the Iliad. So the Italy of Dante and Tasso, of Titian and Michael Angelo was the result of Gothic colonisation; while Gaul and Britain had to wait for many a century ere they emerged as the France of Racine and the England of Shakespeare.

It has been said that Providence is in no hurry. Its steps are timed, not simply by centuries, but millenniums, and one of the latter has now elapsed since the landing of the Norsemen. Moreover, we live in an age when political, social and intellectual movements have been accelerated, and when, consequently, moral causes ultimate more rapidly in their appropriate effects. Ireland is no longer the isolated Erin of the past. Steam has bridged the Atlantic for her retreating Celta. It has yet more effectually bridged the seas between her and Britain. She is now an integral portion of the European system, and must be assimilated in culture to the area of which she is so fair a portion. We do not expect her to sympathise with the philistinism of the nineteenth century. We do not think it desirable that she should do so. Her mission—if she has one—extends beyond long chimneys and profitable investments. Her higher inspirations must come from the age as yet but faintly dawning. She is the foundling of the present. She will be the darling of the future; the spiritual complement to England's material power; the intuitive supplement to Scotland's coercive logic; the fecund mother of sages and poets, painters and composers, in that great day, when the revolving cycle of Celtic genius shall strike the hour, kindred to that of Greece, when she breathed the Parian into life and framed her unapproachable language into the rhythmic cadences of an immortal literature.

Of course, our Anthropological readers will now be at no loss to understand that we do not put unlimited faith in the prescriptions of statesmen and political economists for the solution of "the Irish difficulty." In its main features and in its producing causes, this lies largely beyond the reach of their art and without the sphere of their wisdom. The ills of Ireland that legislation can remove are on the

surface. The utmost that can be done in this direction is but the removal of impediments to her prosperity. We would not undervalue just laws and good government. But in all the instances with which history has rendered us familiar, these things were essentially effects, not causes, that is, they were the growth of circumstances, and so the reflection and expression of a people's social, moral, and intellectual condition; not an extraneous force, not an imported commodity, but the natural product of their national life. Institutions, ere they can discharge vital functions, must be a part of the organic structure of the body politic. Custom is older than law. Enactments, when effectual, are but the echo of an unwritten code. All that legislation can really accomplish, is but to formulate the social elements already existing in a community. "Acts of Parliament" which transcend this, are an incumbrance. Imperial edicts that go beyond it, are a restriction. We do not expect people who believe in paper constitutions to accept these simple truths. They think nations can be made; we, on the contrary, believe they must *grow*, and that the racial elements of which they are composed will determine the ultimate form they are destined to assume.

The social and intellectual regeneration of Ireland is simply a question of time. It was not statesmanship that produced the clearing exodus, by which not only the superabundant Celtic, but also pre-Celtic element is being reduced within manageable limits. And it is not by statesmanship that the invigorating British immigration is to be effected. Irresistible circumstances produced the first, and will likewise accomplish the last of these great ethnic movements. The age of conquest and confiscation is happily past, but the age of monetary transfer and peaceable colonisation has arrived. Irish agriculture and manufactures only require British skill and capital for their development and they will obtain them.

And this brings us back to what the reader will doubtless have seen was the underlying idea of this paper, namely, the imperfect colonisation of Ireland in the past, and the possibility of an effective English immigration in the future.

We suppose no Anthropologist need be told that the popular and traditional notion about the Danes and Norsemen being simply marauding viking, is wholly false. These daring sea rovers may have acted as pioneers, but throughout Britain and Ireland they were generally followed by merchants, artisans, and commercial mariners, and the misfortune of Ireland was that, whether from her remoteness or the growing exhaustion of Scandinavia, she received a very inadequate supply of these hardy and industrious settlers. But this was followed by another, arising out of the special character of the En-

glish immigration during the slow and troubled process of conquest and occupation. The Anglo-Norman was pre-eminently a soldier—not a worker. He needed Frank and Saxon to precede him for the success of his stringent yet chivalrous feudalism. Had the rural population of Ireland consisted of Teutono-Celtic agriculturists, in place of almost purely Celtic clansmen, he might, and probably would, have made it a second England—albeit, as well remarked by Goldwin Smith, feudalism implies a king as the apex of the social and political pyramid, and this important element Ireland never possessed, so that her barons sunk into chiefs, and society remained in a state of chronic disorganisation. From the accession of the Tudors to the battle of the Boyne, repeated confiscation only made confusion worse confounded; this summary and profitable process of punishing rebellion only sufficing for the introduction, on each occasion, of a fresh flight of unprincipled harpies and political adventurers, whose object was not industrial enterprise, but legalised spoliation. To this, however, there was a partial exception in the rather extensive colonisation of the northern and eastern counties of Ulster under James I, and its completion by the citizens of London under William III; and we see the effects of this introduction of a true industrial, and, therefore, really civilising, element in the present prosperity of Belfast, Coleraine, and Londonderry. Not, we apprehend that Ireland ever will be as effectually Teutonised as England, or the Lowlands of Scotland; Cornwall, Wales, and the Highlands, show with what tenacity the Celt holds his own in the west even of Britain. Now, Ireland is pre-eminently THE west of the entire Celtic area of Europe, and so probably will remain to the end, less baptised with alien blood than most of her neighbours. Moreover, it should be remembered, that in receiving an infusion of Scotch or English immigrants, Ireland only obtains a Teutono-Celtic colonisation. And this probably accords with her place and destiny as the last and best preserved retreat of the Celtic race in the past, and so, perhaps, their finest, because purest exponent in the future.

The application of the foregoing remarks to the minor details or special features of Irish politics is so easy, that any formal attempt of the kind here would be superfluous. The question of the Established Church, for example, is part of a larger whole; for its maintenance or disendowment involves principles whose application cannot be limited to the Sister Isle. Religion, as a social element, no longer looms out in the vast and almost overwhelming proportions which it assumed in the sixteenth and seventeenth centuries. The more earnest attention of the general public is now absorbed by politics rather than ecclesiastics. While literature and science largely occupy our higher minds, to the

displacement of theology and its accessories. Hence "the Church" as an institution, whether Catholic or Protestant, is of far less significance than in former centuries, and so a universal disestablishment is looming as a by no means remote possibility in the future. It has already been accomplished in America, and may impinge on Europe through Ireland. Indeed, without an arrestment of the present predominant tendency to institutional disintegration, we may say this, like much else, is an inevitability. But let no one suppose that Protestant disestablishment will prove a panacea for the ills of Papal Ireland. These, as already remarked, are racial not institutional in their origin. That the Reformation, as a Teutonic movement, introduced a phase of faith and worship ill-adapted to the Classic and but imperfectly suited to Celtic nations, there is no doubt but the Cornish Wesleyan, the Welsh Calvinistic Methodist and the Presbyterian Highlander, amply suffice to show that under favourable circumstances, Protestantism is by no means incompatible with a very strong infusion of the Celtic element. The truth is that the Irish are Catholics, not because they are Celts, but because they were oppressed by the English Protestants, whose creed they rejected, not from conviction but patriotism. The religion of the Celt as a racial speciality, has yet to be developed, and when it is so, we may be quite sure that it will differ alike from the gross sensuousness of the Classic, and the cold intellectuality of the Teutonic phase of belief and worship. But in that development France and Britain will have to be consulted as well as Ireland.

It is the same with land tenure. You cannot deal with this as a purely Irish question. There is no doubt that injustice was done both in Ireland and the Highlands, when the common land of the Sept was vested as private property in the chief, and the participant clansman reduced to the condition of a tenant at will. But it was an injustice that must at some time have been perpetrated in England and France, albeit the records of this "legalised spoliation" have utterly perished. But it is now too late for modern legislation to recognise this primitive condition of things. The Sept, like much else that was once a part of the organic framework of society, has perished, and the nation has taken its place. Now it is quite possible that a time may come, when the land, which no man has made, any more than he made the air and the sunlight, no man will be permitted to possess absolutely, but only to use under conditions, appointed by the State, as sole and inalienable proprietor of its own territory. But this is a very different thing from that exceptional legislation which would vainly endeavour to satisfy Irish discontent by an impossible return to Brehon laws and clannish usages. Again, let us clearly understand

that the inevitable future of Ireland is not a return to the defunct institutions of primitive Celtic society, but a march onward with her compeers, into all the grand possibilities of modern civilisation. The exceptional condition of Ireland in the past, was due to her isolated position, and as the latter has ceased, the former cannot continue. Her obvious destiny is a racial and social assimilation to the remainder of the Celtic area, which implies that she must proceed with her baptismal regeneration, by the time-honoured processes of emigration, immigration, and amalgamation, and then base her progress and prosperity, not on foreign aid or alien leadership, but on the irrepressible energy and exhaustless resources of her renewed population.

Similar remarks are applicable to the industrial future of Ireland. She is simply behind England and France, as the latter were belated in comparison with Italy. The material prosperity of the old Classic and Celtic areas, as they gradually emerged into renewed social and national life, after the confusion attendant on the fall of the Roman Empire, was due in large part to the infusion of fresh energy, by the immigrant population, which vitalised and reinvigorated the municipal institutions and trades established by the Romans, and enabled them to develop into the corporations and guilds of the middle ages. But as Ireland never enjoyed the advantages of the Roman Municipia, so she only exceptionally partook of the commercial enterprise and industrial energy of the Norsemen. To the latter, however, she owes the foundation of whatever prosperity has been attained by Dublin, Cork, Waterford and Limerick. Still, as already remarked, their influence was local and almost purely urban, so that in reality the great work of social edification and industrial organisation, through all its successive stages from the clan to the nation, has been effected under English leadership, supplementing, as yet we fear but imperfectly, the want of that Roman law and Gothic force, to which the remainder of Western Europe owes so much of its present wealth and civilisation. Thus we see that in her industrial, as in many other aspects, Ireland, over a large portion of her area, is still an anachronism. She is at best mediæval rather than modern, but in truth there is much both in Munster and Connaught, that a feudal noble or an Italian podesta would have pronounced barbarous, and on which a Saxon yeoman or English alderman of the early Norman kings, would have looked with that pity which borders on contempt. Ireland, we must repeat, suffers from imperfect colonisation and insufficient discipline, and as a result, she is still in the turmoil and commotion of that racial displacement, which was effected over most of the west of Europe, from the fifth to the tenth century. But time,

the great healer, has doubtless his compensations in reserve, though for these, as for other gifts of the gods, we must wait the Divine pleasure—or, if our Positivist friends prefer it, the operation of unerring law—a process not to be hurried, even by the omnipotence of Parliamentary enactments.

We have said that Ireland is an anachronism ; she is so theologically, intellectually and socially, and she is so in her agriculture, manufactures and commerce. But this cannot continue. Nay, it is the almost unexampled rapidity with which this exceptional condition of things is ceasing, that occasions most of the discontent which now pervades the excitable but unreflecting population of the Sister Isle. Her cottar tenants are evicted, not slowly but in all haste, to make way for the modern agriculturist, who manages his farm on the Scotch or English model. And this great change is effected, not as it was with us, by slow growth and spontaneous action from within, but by example and influence, and not seldom by actual immigration and alien occupancy, from without. It is no wonder that under such circumstances, the land question is a source of irritation to the people and of disquietude to their rulers. The process of transition is too rapid for the comfort of either its agents or its subjects, and the wonder is not that we have a few agrarian outrages, but that we have not something occasionally approaching in its proportions to a servile or peasant war—a disaster from which the stupendous exodus could alone have saved us. Now what we have to do is simply to let this inevitable process of transition take its course. By meddling we may mar, that is, delay and disturb it. We may aggravate or we may prolong the feverish condition of the patient by our foolish nostrums. But the period of crisis has come, and he must pass through it, as other and equally good men have done before him.

It is the same with manufactures and commerce. Except in the North, they are still awaiting their inevitable development. Now, judging by the experience of the remainder of Europe, this cannot well take place, till the process of racial displacement and commotion has in a measure ceased. Security is a *sine qua non* of commercial prosperity, more especially in modern times, when capital so easily takes wing, and credit is subject to such fatal panics. But there need be no fear as to the ultimate result. The Irish are an ingenious and enterprising people, and they possess a natural taste, far surpassing in delicacy and refinement that of either the English or Scotch, approaching in this, as in much else, a French rather than a British standard. Strictly speaking, it is not the linen trade of Belfast, but the lace trade of Limerick which most truly represents the manufacturing skill of Ireland. Of course we do not expect the untravelled English reader, whose model Irishman is the mason's

hodman and bricklayer's labourer, to accept these conclusions. He can only judge by what he has seen. But supposing a Frenchman had only seen a Somersetshire peasant, fresh from the plough, could he conceive that out of this rough material, time and circumstance would ever frame the cunning hand and contriving brain of the skilled artisans of England. Ireland, we repeat it, is a vast reserve of intellectual resources for another and a better age than the present, when the finer rather than the stronger elements of humanity will be in demand. So, equally, she is a reserve of manufacturing skill, the needed complement to the hard practicality and almost grovelling utilitarianism of British industry, whose admitted want is taste. But as in her agriculture, so yet more in her manufactures, Ireland will doubtless be largely indebted to British capital and enterprise for her earlier steps. But once fairly started she has a path of her own, distinct from, yet allied to, that of the other clearly marked provinces of the great Celtic area of the west.

But it is time we should conclude, not because we have exhausted our subject, but our space. Our remarks have not been penned in haste, but are the result of many years' personal familiarity with, and residence among our Welsh, Irish and Gaelic fellow subjects. And as a result of such residence, we have not the least hesitation in saying, that the Celtic element, not merely as constituting the ethnic basis of our lowland Scotch and English population, but as represented in yet greater strength and purity by the sectional communities we have just named, is altogether underestimated, because totally misapprehended by the English public. We do not expect to change this opinion. It is sufficient that we know it to be erroneous. While the majority of Englishmen fancy themselves Saxons, or Anglo-Normans, they will of course despise the poverty-stricken remnant of the Celts. But the days of this popular fallacy are obviously numbered. Anthropology condemns it, and already in the eyes of those who have mastered the science of man, it is numbered with the prejudices of a bygone age. And whenever it shall be generally admitted that Britain is unalterably an integral portion of the Celtic area, susceptible of a Teutonic as of a Classic baptism, but nothing more, then will the day of justice to Celtic genius have arrived. We all know the beautiful and appreciative papers on this subject by Matthew Arnold, in the *Cornhill*. And these were written after only a few weeks' residence on the borders of Wales. But had he lived for years in her secluded valleys, and wandered not merely in the summer sunshine, but in the wintry mists among her mountains, and drank in of the enthusiasm of men to whom the names of Myrddin, Aneurin and Taliessin are still familiar as household words, we could fancy that

his sympathies would have been yet more deeply stirred and his noble eloquence have risen to yet grander utterances than those for which we are so deeply indebted to him.

It is the same with Ireland. You cannot know her people as a tourist. You cannot see them as they are, through the plate-glass of your railway carriage, or from the window of your hotel. To understand them you must live among them. They must know you ere you can know them—a truth of which most tourists, and not a few professed travellers, seem sadly oblivious. Not to aristocratic hauteur or philistine vulgarity, or sectarian bigotry, will they reveal the sacred sorrow bequeathed by six hundred years of defeat and humiliation. This sorrow and the love of country whence it springs, have never yet found befitting utterance in English words. The revealer of Ireland's heart is still to come. Thomas Moore was but the caged canary of a Whig drawing-room. There is more of the true soul of Erin in one air of Carolan, than in all the pretty melodies he ever penned. It is here we touch the key, by which alone it is possible for a stranger to unlock the deeper mysteries of Irish character. Ireland, like Scotland, must be interpreted through her music. The ecstasy of her joy, the agony of her grief, the ardour of her love, and the fervour of her patriotism, otherwise so silent or so extravagant, all find adequate and befitting expression through the medium of this universal language, where it still awaits that transfusion into our mother tongue, which, if we mistake not, will yet add another chapter of beauty and power to the ever-growing wealth of English literature.

GALL'S ORGANOLOGY.

To the Editor of the Anthropological Review.

SIR,—On the second page of the leading article in your last number (p. 330), I read as follows:—"Why is it that psychology proper remains where it was 2,000 years ago? Solely because she was too proud or too ignorant to call in the aid of the physiologist and pathologist. So, too, the nearly hopeless and chaotic condition into which the discoveries of Dr. F. Gall, respecting organology, have fallen, is the result of, in the first place, insufficient foundation, and in the second, dogmatic teaching:" and in the next sentence but one, I am informed that "The discussions on the localisation of cerebral action,

before the Paris Anthropological Society, have inaugurated a new era in Science." Now, did the British student derive his opinions of Dr. Gall's discoveries from a perusal of his own writings, I should deem it superfluous to notice such comments as the preceding. Unfortunately, however, that vast storehouse of knowledge, and imperishable monument to the genius and industry of Gall, his work *Sur les Fonctions du Cerveau*, still remains a sealed book to the European public, demonstrating, with additional force, with each successive year's neglect, how greatly its author *was* in advance of his contemporaries, and *still remains* in advance of their successors.

Had I not been previously aware of Dr. Hunt's generous assiduity in blowing the trumpet for his friends, the Paris Anthropological Society, I should certainly have imagined that the announcement,—that the fact of the discussion of the localisation of cerebral action, before the Anthropological Society of Paris, inaugurated a new era in science, had been made ironically; that it had been adopted, in short, as a pleasant mode of rebuking some ill-judged pretensions put forth by the Society or its partisans, so extravagantly hyperbolic does it appear in the presence of the actual and long-standing position of this question. In the first place, it is a familiar fact, that there are a number of considerations which lead so irresistibly to the inference of the plurality of the cerebral organs that, to quote the words of Foderé, "they have been adverted to by almost all anatomists, from the days of Galen downwards, and even by the great Haller, *who felt the necessity (qui éprouvait le besoin)* of assigning *distinct* functions to *different* parts of the brain"; and Comte, the greatest of modern philosophers, says, "Two philosophical principles, now admitted to be indisputable, serve as the immovable bases of Gall's doctrine, as a whole; viz., the innateness of the fundamental dispositions, affective and intellectual, and the plurality of the distinct and independent faculties." In the second place, Gall left on record a series of observations of facts, which, he considered, justified him in associating the manifestations of twenty-seven mental functions with as many distinct localities of the brain; and no evidence has been adduced to invalidate Gall's conclusions, except, perhaps, in one instance, and in this it was not—as I pointed out many years since—the observations of this extraordinary genius that were at fault, so much as the inference he deduced from them.

It has too long been the fashion to advert, in a depreciatory tone, to the labours of Gall, in language which, whilst so conveniently vague and general as neither to require any definite knowledge, nor commit the utterer to any specific opinion, contrives to insinuate—by the enunciation of the merest platitudes as to the desirability of

collecting facts, and the undesirability of hasty induction,—that this great man was the inferior of the writer or speaker, in the caution and sobriety of judgment, which characterise the true philosopher. Surely, it is to be lamented, in the interests of science, that the critics of Gall give us no practical example of the philosophic method and cautious induction in the theory of which they are such masters. They appear to overlook the fact that—if an individual could collect and leave on record such a number of cases of coincidence between special development of brain and special manifestation of a mental function, not really connected with it—it should be tenfold easier to collect cases in disproof. Yet, where are they?

Not to refer to the stronger department of Gall's system, the larger organs of the propensities,—have his critics ever adduced, or can they now show us, an instance of a great mathematician, musician, or painter, small in the region of the brain, appropriated by Gall to number, music, or colour, or the portrait of the author of a dictionary, or a great linguist with sunken eyes? In short, whilst ready in *assertion*, so totally have they failed to illustrate their own precepts, that, having in view the wide divergence between their teaching and practice, one might be tempted to define "facts" as "a word constantly in the mouth of those who never collect any." Referring to this class of critics in his own day, Gall humorously, but sarcastically, remarked, "It would be difficult for such learned men to have recourse to so laborious a source of true knowledge as observation." Where a philosopher has, with patient assiduity, from boyhood to the close of a long life, devoted an unrivalled genius for observation to the collection of facts, and only after long investigation and close scrutiny allowed himself to found a conclusion from the evidence obtained; scientific names, even more eminent than those of our most distinguished critics, are not sufficient to release their bearers from the obligation of supporting their assertions by some kind of evidence, and in default of doing so, they are themselves exhibiting a glaring example of that hasty generalisation and want of philosophic caution they so glibly, and seemingly as a matter course, attribute to one of the most conscientious and painstaking observers of his own or any other epoch. In the mean time, let us not forget that when some supposed authority chooses to distrust the reliability of discoveries, not as the result of observation, but by assumptions furnished by self-consciousness,—whilst hundreds of followers prefer the easy task of echoing an opinion, to questioning nature for themselves,—additional numbers impart no additional solidity to the flimsiness of the foundation on which the original dictum reposed.

I have been intimately acquainted with Gall's writings for more

than a quarter of a century, and for a still longer period have lost no opportunity of testing, to the best of my ability, the soundness of his views with regard to the seats of the special faculties, and the result is that, with the exception of those regarding the cerebellum, I am prepared to defend them all, as substantially correct. That the list of the primitive faculties was perfect and complete, or our knowledge of the exact functions and relationships of those discovered,—particularly in the case of the intellectual faculties,—thorough and precise, Gall himself never pretended, and would have been the first to disavow. Gall never undertook the construction of a *system* of psychology,—in fact, expressly disclaimed the pretension of doing so; he simply announced, as a fact, that observation showed that the development of a certain part of the head was associated with the tendency to act in a certain manner, or with the capacity for doing a certain thing. Gall's error with regard to the functions of the cerebellum is greatly to be regretted, having exercised a most unfortunate influence in retarding the reception of his doctrines, by creating a distrust of his care and accuracy as an observer, which, as I long ago pointed out, the circumstances, when rightly understood, do not justify.

At a very early period of my studies, contemplating the nervous system as a whole, it seemed to me that the harmony, everywhere else discernible, was violated by placing the seat of a propensity,—making the female an object of desire, and capable of being called into action by *ideas*—outside the cerebrum. After a time, I found myself almost insensibly connecting the large development of the region of the cerebellum with acute sensation and intolerance of pain. I examined the opinion of physiologists with regard to the function of this part of the brain,—and finding my idea discounted by their writings, and influenced also by reverence for Gall, and still more by the cases that had come under my own observation, indicating a connexion between a prominent cerebellum and strong sexual feelings,—I came to the conclusion that I must be mistaken in my supposition. Doubt and curiosity had, however, been excited, and I at length determined to compare the relative development of the cerebrum and cerebellum in the lower animals with their character and peculiarities. In the course of two years, I examined and separately weighed the cerebrum and cerebellum in nearly every species of bird and quadruped to be found in the British Isles, endeavouring, where practicable, to ascertain the variations, and determine the average in six members of each variety. The following is a very brief outline of the facts I obtained, and the inferences I was led to draw from them.

Observations on horses, pigs, and sheep, show that castration very slightly diminishes the size of the cerebellum, but that the diminution is so trifling as not to counterbalance the congenital variations which occur in the size of the organ.

Castration does *not* diminish the relative size of the cerebellum compared with the cerebrum, the development of the latter organ being quite as much ; or if there is any ascertainable difference, even more impeded, by the effect of the operation.

Unilateral castration produces no perceptible difference in the development of the lobes of the cerebellum. Having removed the right testis from a kitten three days old, I examined the cerebellum at the age of one year and a quarter, but was unable to detect any inequality in its sides, though having placed it in spirits, I repeatedly made it the subject of careful scrutiny at separate intervals of time. An examination of the effects of unilateral castration, in the cases of a ram and a hare, furnished the same results.

In birds, the development of the lateral lobes of the cerebellum is strictly rudimentary, consisting almost entirely of the root of the fifth pair of nerves, and no pons Varolii, as a matter of course, is discernible. The median lobe, or vermiform process, however, attains in this class to an unusual magnitude ; so much so, that the proportionate weight of the cerebellum, compared with that of the cerebrum, is not inferior to the generality of mammalia, ranging from 1 to 4 in the swallow to 1 to 13 in the grey owl.

These peculiarities of organisation suggest two questions,—first, what is the function possessed by the mammalia which may be said to be rudimentary, or wanting, in birds, except in the portion of their body to which the branches of the fifth pair of nerves are distributed ?

Secondly, what function is possessed by birds in a degree as commensurately greater than other vertebrata, as the relative development of the median lobe of their cerebellum surpasses that of the latter ?

The answer to the first question was clearly cuticular sensibility. The thin and membranous skin of birds scarcely presents a trace of nerves,—which would have been thrown away with such a covering as feathers,—and manifestations of surface sensibility appear almost solely restricted to the parts concerned in the selection and deglutition of food.

In pondering on the second query, I was struck with the capacity of birds for traversing great distances, and supporting themselves in a medium of so much less specific gravity than their bodies, together with the infinite grace and elegance which characterise their motions. Such a capacity demanded great muscular power combined with an

extremely delicate sense of resistance, and necessitated the existence of a proportionately large nervous apparatus for generating, storing, and distributing, the appropriate nervous stimulus. In the crow, whose motions are neither rapid nor elegant, the weight of the cerebellum is $11\frac{1}{4}$ grains, and that of the cerebrum 129, being a proportion of 1 to $11\cdot4$, whilst in the common gull, who sails through the air in graceful curves, or, tumbling and darting in rapid flights, sports with the wind when at its highest, the weight of the cerebellum is 14 grains with a cerebrum of only 63 : a proportion of 1 to $4\cdot5$. The swift sparrow-hawk possesses a cerebellum of $6\frac{1}{2}$ grains and a cerebrum of $36\frac{1}{2}$. The slow grey owl a cerebellum of 9 grains to a cerebrum of 120, being in the ratio of 1 to $5\cdot6$ and 1 to $13\cdot3$. Finally, in the swallow tribe, who may be said to live on the wing, the development of the cerebellum reaches its maximum, being, as compared with the cerebrum, 1 to 4. In birds, then, I consider we may regard it as an established fact that the development of the cerebellum (practically consisting of the middle lobe alone) always bears an exact ratio to the locomotive power.

The question now presented itself, what animals occupy the opposite pole to birds with regard to the manifestation of cuticular or surface sensibility? The answer is the cetaceans, in whom the sense of feeling is so acute as to enable them to communicate with each other at long distances by the vibrations of the water. Pursuing a living prey, and obliged at short intervals to seek the surface for air, and thus lose sight of it, without this special endowment of sensation to keep them apprised of the motions of the object of their chase, they would lose all knowledge of its locality at each breathing time. Their sensibility to pain also appears to be very acute; for I have been assured by an individual, who once saw an embayed porpoise put to death by some fishermen, that the cries of the animal when wounded were heart-rending and conveyed the idea of most intense suffering. In conjunction with this extreme endowment of surface sensibility, the cetaceans present of all animals the greatest development of the cuticular system of nerves which pervade the whole of the layer of blubber interposed in this family between the skin and the muscles, and form a network of extreme minuteness on its external surface.

Now there coexists with this maximum development of the cuticular system of nerves in the cetaceans, just as marked a peculiarity in the structure of the nervous centres, viz., an extraordinary development of the lateral lobes of the cerebellum. In the porpoise, the size of the cerebellum as compared with the cerebrum, is as 1 to $2\frac{1}{2}$, its unusual bulk being entirely due to the enormous development of the great lateral lobes, which equal in absolute size to those of man, far surpass

his or those of any other animal (with one exception to be hereafter mentioned) in the proportion they bear to the other nervous centres.

These facts appear to me to point irresistibly to the conclusion that the median and lateral lobes of the cerebellum have separate functions, the former being the great ganglion of the nerves of muscular resistance, imparting a knowledge of the relative position of the different parts of the body, and the centre of gravity, and constantly developed in the ratio of the animal's agility and balancing power; the latter the great ganglion of the nerves of cutaneous sensibility, and always developed in the ratio of the animal's endowment with this function.

Had however any doubts of the soundness of this conclusion lingered in my mind, they would have been dispelled by an examination of the cerebellum in the Cheiroptera. These insectivora possess jointly the large lateral lobes distinctive of the cetaceans, and the large central lobe characteristic of the bird, and, in conformity with the views of the functions of these nervous centres just expressed, unite the fine tactile sensibility of the former class, with the agility and balancing power of the latter. The same knowledge of the relative position, the distance or proximity, of other bodies furnished to the cetaceans by the vibrations of water, the bat obtains from the pulsations of the air. Spallanzani found that bats when blinded avoided obstacles in their flight with the greatest precision, and this in places to which they were strangers. They flew with rapidity through apertures only just large enough to allow of their passage, and even avoided small threads stretched across the apartment, thus exhibiting an example of tactile sensibility so exquisite as almost to be equivalent to a new sense. The cerebellum in the bat is proportionately to the other nervous centres larger than in any other animal. In the common pipistrelle the average (drawn from six) is cerebellum .96 of a grain, cerebrum 1.78.

That there is a relation between the size of the occiput, and the sexual feeling, is I think undoubted, my observations on man impress me with this conviction, and in the horse, the ox, the sheep, and the cat, the diminished size of the nape of the neck in the castrated animal, when compared with the perfect male, is very perceptible. That the ancients were familiar with this relationship,—as well as with many other things, the knowledge of which was once supposed to be an exclusive appanage of modern times,—is evident from the lines

“ Non illam nutrix orienti luce revisens,
Hesterno collum potuit circumdare filo.”

Apollonius of Rhodes, also, in speaking of the passionate love of Medea, says, “The fire which devours her, attacks all her nerves and makes itself felt even behind the head in that spot where pain is most poignant when an extreme fervour seizes on all the senses.”

In locating the sexual feeling in the cerebellum, therefore, I believe Gall to have committed an error of inference, rather than of observation. The convexity of the lower fossæ of the occipital bone and their protrusion backwards and downwards, really *have* a connection with the strength of the sexual feeling; but then these conditions are principally due to the development of the under surface of the posterior lobe of the cerebrum, and but in a minor degree to the size of the cerebellum, in the same way as the prominence of the eye, and pouching of the lower eyelid, indicative of philological talent, is mainly caused by the development of certain convolutions of the under surface of the anterior lobe which rest on the roof of the orbit. Not only is the range of variation or diversity in size, presented by the occipital region as a whole, much greater than the deviations from mean size exhibited by the cerebellum, but a larger *proportionate* share in causing these diversities must be attributed to fluctuations in the size of the posterior region of the cerebrum, than to fluctuations in that of the cerebellum, in harmony with the law, that the limits of variation increase in proportion as the functions of organs rise in the scale and become less indispensable to the continuance of life, as we see exemplified in the much larger range of variation in the size of the coronal region of the head—the seat of the affections connected with man's perfectibility and life in society—than in that of the basilar, the seat of those concerned with the conservation of the individual, or at most the family.

Gall's views of the functions of the cerebellum were greatly strengthened by several remarkable cases of loss of sexual feeling occurring after sabre wounds of the cerebellum, for which he was indebted to Baron Larrey. I think it scarcely admits of dispute that pathology offers irresistible evidence of a close connection between the cerebellum and the generative function. The number of cases of apoplexy in which irritation of the sexual organs has proved a correct diagnostic that the apoplexy was cerebellar, are alone sufficient to establish the fact. From my point of view, however, these pathological proofs of relationship are perfectly compatible with the location of the generative instinct in the cerebrum. A portion of the lateral lobes of the cerebellum approximating towards the mesial line must be associated with the *sensation of the sexual organs*, whilst a portion of the central part or vermiciform process must have the duty of regulating and controlling the *ensemble* of the muscular acts and positions peculiar to the generative act, which are of a determinate character in different species of animals, and even seem to vary within certain limits in the different races of man. Now that there must be the closest connection between these two cerebellar

functions, and the instinct of propagation, is most certain ; for instance, we often see the latter called into activity in the dog, by the mere accident of his finding himself in a certain position. On some occasions—perhaps I should say normally—the chain of nervous action commences in the cerebrum on the presentation of the image of the female ; on others the spark of ignition lights on the other end of the train, and a peripheral excitant, by sympathetic influence awakens the cerebral desire. Such appear to be the relations between the external sexual organs represented by a portion of the cerebellum, and the true generative instinct seated in the cerebrum.

Let us now compare the comparatively venial error of Gall as to the functions of the cerebellum, with the strange blindness to the most notorious facts—viz., the structure of that interesting class the cetaceans, and the self-evident deductions to which they irresistibly lead—involved in the acceptance of the current doctrines of Physiologists as to the office of this portion of the brain. Dr. Carpenter's *Principles of Human Physiology*, which may fairly be regarded as an orthodox text-book on the subject, has for the last quarter of a century contained the following passage :—

“ In proportion as the extremities acquire the power of prehension, and together with this a power of application to a great variety of purposes, still more in proportion as the animal becomes capable of maintaining the erect posture, in which a constant muscular exertion, consisting of a number of most elaborately combined parts, is required—do we find the size of the cerebellum and the complexity of its structure undergoing a rapid increase. . . . Man surpasses all other animals in the number and variety of the combinations which he is capable of exerting, and in the complexity of the combinations themselves. Thus, if we attentively consider the act of *walking* in man, we shall find that there is scarcely a muscle of the trunk or extremities which is not actually concerned in it, some being engaged in performing the necessary movements, and others in maintaining the equilibrium of the body, which is disturbed by them.”

Do we dream ? or does there really exist such an animal as a porpoise—which, devoid of “ prehensile extremities capable of being applied to a great variety of purposes ;” without “ the capacity of maintaining the erect posture ;” wanting in *every* feature described by Dr. Carpenter as indicative of a large cerebellum—yet claims the distinction of being the only animal smaller than man, which possesses a cerebellum equal in absolute size to this *erect biped's*, and vastly larger when compared either with the body considered as a whole, or with the size of the cerebrum.

Now I venture to say, that no such transparently fallacious assumption can be pointed out in Gall's writings, as, has thus been tacitly accepted without protest by the physiologists of Europe, and allowed

to form the staple article of their faith as to the functions of the cerebellum for the last third of a century.

The advent of Gall broke up the long night of darkness and error as to their own being, under which the human race had slumbered for ages. Sensation, perception, memory, judgment, imagination—the idola of the past, the stock properties of every psychological system from that of Aristotle downwards, instead of being primitive faculties, were clearly demonstrated, by the most masterly analysis, and the most unanswerable arguments, to be simply different degrees or consecutive modes of action, proper to each of the elementary intellectual faculties, and necessarily variable in strength in relation to subjects—specifically distinct. Gall studied the maximum or minimum exhibition of certain passions or capacities, compared with the extreme or defective development of certain parts of the brain, and when a vast number of concurrent experiences had satisfied him of a connection, named the primitive faculty by the simplest words indicative of its function to be found in the vocabulary of everyday life. He thus replaced the phantoms of the metaphysicians, which explained nothing, by terms which speedily asserted their vitality by being constantly heard in the mouths of the people, to assist them in defining and describing their fellow men, thus at once obtaining that sanction from the spontaneous dictates of popular common sense, which is the surest test of the truth of all fundamental ideas.

Dr. Gall himself, ascribed his discoveries to his having given himself ingenuously and unreservedly to the study of nature free from the bias of preconceived opinions and ideas, and without seeking to make his observations square with some *à priori* constructed system. Now it is characteristic of the labours of the true naturalist, the careful observer and honest interpreter of nature, who chronicles her aspects faithfully; that they possess an intrinsic value for all time, and ever remain a solid basis on which succeeding students may carry to a greater height the pillar of human knowledge. What then can Dr. Hunt mean, by stating that the discoveries of Gall have fallen into a “nearly hopeless and chaotic condition?” In the amount of work of the nature of discovery, he accomplished, Gall stands altogether unrivalled, and it is difficult to discern how he could have done more for the success of his doctrines, unless he had had the power of bequeathing to the world his genius, his industry, and his truthfulness.

There was in Gall a breadth and massiveness of intellect, a certain grandeur and nobility of character, which placed him beyond the reach of the jealousies of his contemporaries. The craving for instant appreciation, which besets smaller minds, was to him unknown. He always entertained a due sense of the dignity and importance of his re-

searches, and, confident of his place in history, never allowed his equanimity to be discomposed by the misrepresentations of which he was the object.

"My views of the qualities and faculties of man," says Gall, "are not the fruit of subtle reasonings. They bear not the impress of the age in which they originate, and will not wear out with it. They are the result of numberless observations, and will be immutable and eternal like the facts that have been observed, and the fundamental powers which these facts force us to admit." "Here, then, terminates this work, which for fifteen years the public have been impatiently expecting. I should have wished to defer it still longer to bring the fruits of my researches to greater maturity; but the final hour draws near, and I must be content with leaving this first effort on the physiology of the brain far less perfect than it will be fifty years hence." "If I had been a man to be gratified with a little temporary *éclat* I should have yielded more than twenty years ago to the desire of publishing the first views of a physiology of the brain; but I am prouder of the discovery of the slightest truth than the invention of the most brilliant system."

The great principles established by Gall, of the dependence of mind upon organisation, and the specialisation of the organs, have pervaded and leavened the mind of the age—written themselves in our jurisprudence, modified our views of education, given precision to our treatment of insanity, flavoured the novel, coloured the poem,—whilst thousands of intelligent men in England and America are believers in his doctrines, and avail themselves of their teachings in the practical business of life. That they are still rejected, misrepresented, and vilified by those who claim to represent the orthodox science of the day, far from being strange, is, I apprehend, quite "*en règle*," and merely illustrates some very familiar facts. In the great majority of mankind the strength of the feelings so vastly preponderates over that of the intellect, as to incapacitate them as judges on any subject on which the animus of class prejudices, has once been rooted in their minds by their teachers in early life. At all periods, the number of persons capable of thinking for themselves is infinitely small, and out of these, many are ready to follow science under the wing of the orthodox authorities of the day, reaping fame, and honour, and profit, and social position, who are not ready to sacrifice all these considerations—shall I say advantages—and embrace the martyrdom of ridicule, contumely, and neglect, in the cause of truth. However sad the reflection, it must be admitted that Truth in the England of to-day does not pay.

There are, however, exceptional circumstances to account for the opposition Phrenology has encountered, which fully explain the exceptional bitterness and animosity with which it has been attacked. Men with little minds, little heads, but great vanity, rebel against a

standard of capacity which gauges them correctly. Again, the whole of the genus humbug, the empirics and the impostors of the day, and men conscious of being at bottom thoroughly dishonest and unprincipled, instinctively recoil from a system which threatens to unmask their moral deformities to the eyes of the world, and reveal their true features despite a whole wardrobe of trappings of duplicity. Napoleon boasted of having greatly contributed to put down Gall. His own medical attendant, Corvisart, one of the greatest physicians France ever produced, was an admirer of Gall, and vainly endeavoured to introduce him to the Emperor. "Corvisart," says Napoleon, "was a great partizan of Gall, and left no stone unturned (*fit l'impossible*) to push him on to me, but there was no sympathy between us." In short, Napoleon confessed he felt the greatest aversion for those "who taught that nature revealed herself by external forms." Shortly before the announcement of Gall's discoveries startled the Parisian scientific world, the Institute had summoned courage to ask the first consul's permission to award a prize medal to Sir H. Davy, for his brilliant discovery of the metals of the alkalies. Consent was granted, but the soreness of national defeat rankled deeply within, and upon his hearing shortly after, that the greatest of his comparative anatomists had attended Gall's lectures, he broke out furiously at his levy, and berated the wise men of his land for allowing themselves to be taught chemistry by an Englishman, and anatomy by a German. "He scolded sharply," says Gall, "those members of the Institute who had shown themselves enthusiastic about my new demonstrations. This was the thunder of Jupiter overthrowing the pigmies. Immediately, my discoveries became nothing but reveries, charlatanism, and absurdities, and the journals were used for throwing ridicule—an all-powerful weapon in France—on the so-called bumps."

Dr. Hunt saddles Dr. Gall and his followers with being responsible for the limited acceptance of their science, which he states to be "the result of, in the first place, insufficient foundation, and in the second dogmatic teaching." The "insufficient foundation" should be demonstrated instead of asserted; but admitting it to be true—for the sake of argument—who are so responsible for the circumstance as the party with whom Dr. Hunt identifies himself, the professional anatomists and physiologists? These industrious cultivators of science have turned their special opportunities to such good account, that, half a century after the discovery, and the announcement of the fact by Gall, they have just found out—apparently to their great astonishment—that there really *is* a relationship between certain convolutions of the under surface of the anterior lobe of the brain reposing on the roof of the orbit, and the faculty of articulate language.

Strange to say, however, whether to excuse the long blindness of which they stand self-convicted, or from a misgiving that the public may begin to suspect that they have been greatly misled by these orthodox authorities as to the truth and value of Gall's researches ; with singular bad taste, they signalise their conversion by depreciatory nibblings at the fame of the great master, and by deprecating the supposition that the occurrence forms any ground for believing in the probability of his other discoveries.

As to the charge of "dogmatic teaching"—if a perpetual inculcation of the necessity of collecting facts, and a steady refusal to submit their doctrines to any other arbitrement—in short, a never ceasing, though ever fruitless, call upon their opponents to bring forward observations, in lieu of reasonings and assumptions—be evidence of dogmatic teaching, then Dr. Gall and his followers must plead guilty. But let us listen to the teaching of the accused, and hear the words of Gall, couched in the clear and forcible language, which so unmistakably tells the tale of energy of brain.

"Whoever is not impelled by an innate instinct of observation ; whoever finds it hard to sacrifice his opinions and the views he has derived from his earlier studies ; whoever thinks more of making his fortune, than of exploring the treasures of nature ; whoever is not fortified by inexhaustible patience, against the interpretations of envy, jealousy, hypocrisy, ignorance, apathy and indifference ; whoever thinks too highly of the force and correctness of his reasoning, to submit it to the test of experiments a thousand times repeated, will never do much towards perfecting the physiology of the brain."

This is Gall's dogmatism ; that of his accusers consists in doggedly refusing to take the direct road to knowledge he so clearly pointed out, and persistently confining themselves to suppositions, reasonings, and opinions, garnished with a few occasional flourishes on the "*true scientific method*," the preaching of which they appear to think a satisfactory substitute for its practice. The study of nature is evidently uncongenial to their minds, and, in lieu of observations, and the testimony of facts, instead of "I have seen," we get, "I entertain a strong persuasion,"—"from inquiries I have made,"—"the fact seems to be,"—"if I am not mistaken,"—"it would rather seem probable," &c., &c.

This is, no doubt, easier than collecting facts, by all the difference between talking and doing ; but, unfortunately, like the former, establishes nothing, but leaves the work still to be done. In short, the charge of dogmatism does not attach to those who record their observations of nature, and invite the co-operation of others, but to those who indolently, and arrogantly assume such observations to be erroneous, and treat them with ridicule and contempt. Dr. Hoppe, of Copenhagen, Mr. Crook, and Mr. George Combe, independently arrived

at the conclusion that the portion of brain lying under the zygomatic arch is the seat of the instinct to take food. During twenty years that I have observed the development of this portion of the brain, I have never seen a case where a great depression in this region was not accompanied with more or less weakness of the digestive functions, and I entertain no more doubt of the connection than I do of my own existence. How are we adequately to realize the intellectual torpor of a man in the daily practice of the medical profession, hearing the statement that such an important means of diagnosis exists, yet not taking sufficient interest in the question, to make a single observation to determine the truth, but apathetically resting in preference in the assurance, born of the prejudices of his teachers, that phrenology is all humbug? and who I ask are so responsible and so much to blame as the orthodox professors of Anatomy, Physiology, and Medicine, for the "inadequate appreciation" of Gall's discoveries by the existing generation?

Amongst other objections brought against Gall's discoveries by those who prefer theory and speculation to observation, it is argued that the organs are more numerous than is necessary, and that a smaller number of primitive faculties would suffice by their combination, to produce all the varieties of character we behold in man. I believe that just the reverse is the fact, and that analysis requires, and that observation will ultimately prove, that many require subdivision. To take the "organ of Love of Approbation," for example, shall we conclude that the same portion of grey matter originates the "desire of notoriety or distinction," and the "desire of pleasing"? I think not. Again, with regard to the functions of the "organ of Secretiveness"—I meet with some individuals who instinctively suppress the outward manifestation of the thoughts and emotions that arise in their minds, are habitually shy and reserved, and dislike even being looked at, who yet have no tendency actively to employ deception as a means to attain their ends. Other individuals, on the contrary, who have no shrinking from publicity, instinctively resort to deception as the readiest weapon to their hands in fighting the battle of life, and unless restrained by moral considerations, are profoundly treacherous, and lie from instinct. The first faculty is a defensive one, the latter an aggressive. According to my observations the former class are characterised by the large development of the portion of brain lying above Destructiveness, and now marked Secretiveness in the busts sold in this country; the latter by the prominence of the region immediately before Destructiveness, directly at the spot where the upper part of the front of the ear loses itself in the cheek.

No doubt much remains to be done, before we shall possess a strictly philosophical analysis and classification of all the primitive faculties, and their mutual relations, but this by no means lessens the truthfulness and value of the mass of facts and luminous deductions, for which we are indebted to the genius and industry of Gall. For instance, Gall's disciples know as surely as they know any fact in Natural History, that a portion of the anterior lobe lying on the roof of the orbit, is connected with the talent for philology, and that another portion, at the corners of the forehead, bestows the capacity for music, and such knowledge has a substantive value, although we are not able to define the exact boundary of the tract of neurine which, considered as a whole, has the function of cognising the peculiar qualities of sound appreciable by man,—as articulateness, timbre, pitch, and some others—or even to demonstrate what is doubtless the case, that the organ of articulate language, and that of music or pitch, are continuous with each other, and the rest.*

We see, however, that the general law, that the organs most indispensable to the well-being of the animal, are placed nearest the base of the brain and the mesial line, holds good with regard to the subdivisions of sound, and thus the more essential organ of articulate language is seated below, and within, the comparatively ornamental faculty of music.

It has never yet fallen to my lot to hear anyone declare, that after qualifying himself to judge of the development of the organs by the requisite study, the result of careful examination convinced him that there was no connection between the primitive faculties and the localities assigned to them by Gall; nor can I conceive such a result possible with a person of average intelligence and caution. As far as my experience goes, the reason assigned for disbelief, is invariably the authority of somebody else; some apocryphal tale, or the old thread-bare stock objection so often refuted, and so intrinsically silly, of the frontal sinus, and the want of parallelism between the tables of the skull—an objection which, as it presents an exact parallelism in point of absurdity, with avowing a disbelief in astronomy, on account of the aberration of light, or the unavoidable errors in optical instruments, is quite unworthy of serious refutation. In short, it is perfectly clear and palpable that those who reject phrenology do not reject it on account of "insufficient evidence," because they do not examine the evidence already in existence. No! the real cause is the

* As far as my observations have gone, and the fact is worthy of note, in all great musical composers, Language, as well as Music, is large; indeed, the whole region of the corners of the forehead, including Order and Number, presents a development much above the average.

intellectual indolence and apathy which prevents their taking this step, and induces them to content themselves with *assuming* its falsehood.

Why, indeed, should those who are in the secrets of nature and able to pronounce *a priori* as to what is true, and what is ridiculous, have recourse to so troublesome and laborious a method of obtaining knowledge as observation?

No one who really desires to arrive at a definite conclusion as to the truth of Gall's discoveries, need remain in doubt from any difficulty in procuring the data necessary for forming a judgment. Evidence abounds, easily attainable, unlimited in amount, decisive in character. Setting aside the direct foundation and unassailable basis of his doctrines—the correspondence between energy of function and local development of brain—the beauty and harmony (so greatly beyond human ability to have devised), revealed in the arrangement of the organs, (more especially having regard to their gradual and isolated discovery), and also the irresistible confirmation of the accuracy of their localities afforded by “natural language,” are alone sufficient to stamp Gall's discoveries with truth, in the eyes of all those capable of appreciating the difficulty, or rather miracle, involved in the adoption of any other alternative.

Tests the most conclusive, from which everything dubious may be eliminated, are within the reach of all. Colour is one of the smallest of the organs of Gall, and the determination of its size presents far greater difficulty than that of the tenfold larger organs of the affective faculties, but it possesses the advantage that the nature of its function renders its manifestation little open to dispute. Every few years I find myself in presence of a new batch of hazy speculations on colour-blindness, in which this imperfection is attributed to some supposed defect in the eye, in utter ignorance of the fact that more than half-a-century before, Gall had clearly shown the defect to be cerebral, and pointed out its exact seat. As there are individuals colour-blind and incapable of distinguishing one colour from another, so, on the other hand, there are painters who excel in the harmonics of colour. Here we have a faculty easily discriminated, both in its positive and negative manifestations. Take the masks of half-a-dozen persons afflicted with colour-blindness, and half-a-dozen painters who excel as colourists, and mix them together, and any tolerable practical phrenologist would have no difficulty in separating the two classes. Now, when such things can be done—done even in the case of the smallest organs—and that they can is notorious, ridicule becomes ridiculous, and doubt, a sign of feebleness of mind.

Individuals to whom such facts do not carry the conviction of

logical sequence and connection, may be perfectly qualified to rank under Plato's definition "*animal implume bipes*," but they assuredly lack that nobler characteristic of the genus *Homo*, the gift of reason.

T. SYMES PRIDEAUX.

THE WEIGHT-PROPORTIONS OF THE BRAINS OF AUSTRIAN PEOPLES, WITH REFERENCE TO STATURE, AGE, SEX, AND DISEASES.

By Dr. A. WEISBACH.*

1. *Stature*.—Among the peoples examined in this respect (Magyars, Czechs, Italians, and Germans), there seemed to prevail a general law, that the cerebrum, compared to the whole brain (encephalon), diminishes with increasing stature; but that the occipital brain (and also the cerebellum alone) increases. As regards the absolute weight, it appeared that, generally, middle-sized persons possessed the heaviest, and short individuals the lightest, brains. But the Magyars formed an exception to this; as among them short individuals had the heaviest, and middle sized persons had the lightest brain.

2. *Age* influences the brain in males and females in an inverse mode, in so far as the total weight is, between twenty and thirty, greatest, and then continually diminishes with advancing age, which decrease is divided in the separate cerebral sections, in such a manner that the cerebrum in males becomes, with advancing age, relatively larger, and the occipital brain smaller. In females (German), the total brain-weight is also, between twenty and thirty, greatest, after which time it steadily diminishes; but, with this difference from males, that in the former the cerebrum becomes, with advancing age, relatively smaller, the occipital brain (or the cerebellum and the pons alone) becomes relatively larger.

3. *According to Sex*.—In both nations examined in this respect, namely, Germans and Slavonians, it appears that the female brain is, on the whole, smaller than the male brain, but in the Germans the

* The above are the chief results arrived at by the author, and published in the second and third part of the *Archiv für Anthropologie*, under the title of "Die Gewichts Verhältnisse der Gehirne Oesterreichischer Völker, mit Rücksicht auf Körpergrösse, alter, Geschlecht, und Krankheiten."

cerebrum is relatively larger, the occipital brain smaller; conversely, in the Slavonian females, the cerebrum is relatively smaller, and the occipital brain larger, than in the males of both; moreover, the Slavonian females possess, in comparison with the German females, a relatively smaller cerebrum and a larger occipital brain.

4. The influence of *disease* has been examined in Magyars, Italians, Germans, and Czechs, and it was found that, by chronic diseases, the total weight of the brain is diminished in the three first nations (but strikingly increased in the Czechs); which diminution, however, takes place in this mode,—that in the Magyars and Italians the cerebrum becomes relatively larger, and the occipital brain (or pons and cerebellum separately) becomes smaller; whilst, on the contrary, in the Germans and the Czechs, it is the cerebrum which becomes relatively smaller, and the occipital brain larger.

5. *Nationality*.—*a.* The Magyars have a middle-sized brain which, excepting that of the Rumani and Czechs, exceeds all others (that of the German by eight grammes). Their cerebrum is relatively, and with that of the Czechs also absolutely, the largest; their cerebellum is, however, excepting that of the South Slavonians, the absolutely, but amongst all, the relatively, smallest; their pons is of medium size, and the occipital brain altogether the relatively smallest of all.

b. The Rumani (Rumaenen).—After the Czechs, their total brain is the heaviest, about twelve grammes more than that of the Germans. The Rumani have a relatively smaller, but absolutely as large a cerebrum as the Magyars, the cerebrum is of middle size, and so is, on the whole, the occipital brain.

c. The Italians have, of all our peoples, the smallest encephalon, about 25·21 grammes less than the Rumani, a cerebrum of the least but relatively of middle size, excelling in this respect that of the Rumani. Their cerebellum is of less absolute but proportionally of middle weight (somewhat less than that of the Rumani), the pons Varolii is small, and, in relation to the cerebellum, considerably smaller than that of the Rumani; their occipital brain is, with that of the South Slavonians, absolutely the smallest, but relatively of medium size and but little less than that of the Rumani.

d. The Poles have an encephalon of medium size, intermediate between that of the Magyars and Germans. They have, along with a medium-sized cerebrum, a relatively small occipital brain, the cerebellum in proportion to the cerebrum, being, after that of the Magyars, the smallest; but the pons is, in every respect, after that of the Slovaks,—the largest.

e. The Ruthenes. The weight of the encephalon equals that of the Poles, being under that of the Czechs, but exceeding that of the

Slowaks and South Slavonians. The cerebrum also equals in weight that of the Poles, being relatively, however, a little less; but their cerebellum is somewhat larger than that of the Poles (by about 1.47 gramme); the pons is small, so that the occipital brain is somewhat larger than that of the Poles.

f. The Slowaks. The encephalon is of medium weight, greater than in the South Slavonians and Italians, but less than in others, approaching nearest to that of the Germans. Their cerebrum has of all the above nations, the relatively smallest weight; their occipital brain has the relatively greatest weight, which latter is only exceeded by that of Slavonian females, their cerebellum equals that of the Rumani and Germans, but is relatively larger than in all other nations, and their pons is absolutely and relatively the largest among all.

g. The Czechs are distinguished by their encephalon possessing the greatest weight; exceeding that of the Germans by 53.81 grammes, that of the Magyars by 45.45 grammes, and that of the Rumani by 54.33 grammes. Their cerebrum is also the absolutely largest, but compared with the whole brain only of medium size, but among the Slavonian people's the relatively largest. The weight of the cerebellum is also the absolutely largest, but in relation to other parts of the brain only moderately large, equalling that of the South-Slavonians. The pons is of medium size, and relatively small, so that the occipital brain on the whole has absolutely the greatest, but relatively only little weight.

h. The South-Slavonians. Their encephalon is of small weight, the smallest after that of the Italians. Their cerebrum is, however, in relation to the encephalon, of medium size, being in this respect only superior to the Magyars and Czechs. Their cerebellum is absolutely the smallest of all, but comparatively of medium size. Their pons is the smallest; hence the occipital brain is absolutely and relatively very small.

i. The Germans (males). Encephalon of medium size, exceeding only that of the Slowaks, South Slavonians, and Italians. Cerebrum relatively small, like that of the Rumani and the Slowaks; cerebellum, the largest after that of the Slowaks; pons of medium size, but smaller than in the Slowaks, Poles, and Magyars; the occipital brain is next to that of the Slowaks, the relatively largest among all males.

On comparing the peoples of the four families represented here, we find that the Slavonian family possess the largest encephalon, the Romanic the smallest, and that the intermediate Magyars possess a more weighty encephalon than the Germans, which are nearly equal to the Romanic stock. We find further that the cerebrum is relatively

largest in the Magyar stock, so that it is less in the Slavonian, still less in the Romanic, and least of all in the Germanic stock. On the other hand, the occipital brain, or the cerebellum alone, is largest in the German, less in the Romanic, still less in the Slavonian, and least in the Magyar stock. The pons is largest in the Magyar, and smallest in the Romanic stock; but has in the German a relatively greater weight than in the Slavonian family.

ARCHAIC ANTHROPOLOGY AT THE SOCIETY OF ANTIQUARIES.*

ANTHROPOLOGY, forming as it does a sort of central science, around which the other sciences cluster, contributes its aid to, and receives contributions in return from, the followers of all of them. No scientific society which really does its work can fail to have laid before it, in aid of its special objects, papers that are really anthropological. Such papers have the more interest, to the professed anthropologist, that they possess a certain local colouring.

These considerations lead us to draw attention to the more recent publications of the parent Society of Archæologists, the Society of Antiquaries. To it Mr. Frere contributed, seventy years ago, his account of the Hoxne find, and it has been of late years a favourite depository for recitals of the discoveries of archaic anthropologists. We recognise it gladly as a society "which really does its work."—During the past few years, its affairs have been managed under very favourable circumstances, and every department, publications, library, and evening meetings, has been kept to a high point of efficiency. This has been due, we believe, to the possession of ample funds, a courteous and accomplished Director, and a zealous and indefatigable Secretary. Mr. Percival and Mr. Watson deserve a great deal of credit, and they will not object to acknowledge that they owe some of the success of their labours to the condition of financial ease, in which the Society has been placed by liberal bequests and benefactions.

The volume of *Archæologia* just completed contains only two papers belonging to the department of archaic anthropology. The first is

* *Archæologia*, vol. xli; *Proceedings of the Society of Antiquaries*, New Series, vol. iii.

Mr. W. M. Wylie's communication of a paper by Padre Gerrucci, on recent discoveries of sepulchral remains at Palestrina, the ancient Præneste. This excellent memoir is accompanied by eleven beautiful plates and several woodcuts, and describes the relics of an early Italic civilisation, in which not only iron, but ivory and amber, were plentiful. The other, by Mr. John Evans, on the stone implements discovered in Lough Neagh, Ireland, is illustrated by a coloured plate, representing several of the forms. These finds are interesting from the great number of objects, including simple flakes, amounting to many thousands, and from the variety of material employed, and they have attracted the attention of many observers.

Among papers not so strictly anthropological, may be mentioned another communication from Padre Gerrucci, through Mr. Wylie, on a very remarkable bronze object, conjectured to have been a votive offering to Faunus Lupercus; and a most learned and valuable paper by Dr. J. Barnard Davis, F.R.S., on Runic Calendars and Staffordshire Clogg Almanacks.

It is, however, rather in the brief notices contained in the "proceedings" of the Society, than in the more elaborate memoirs reserved for *Archæologia*, that we find evidence of the anthropological work it is doing. The completion of a volume of these records enables us to look back upon three sessions of the Society. During that period, it has had laid before it the discoveries of flint and stone implements in Kensington, Norfolk, Devon, Essex, Kent, Sussex, Aberdeen, Orkney, Paris, Pressigny, Dordogne, Denmark, Zealand, Nova Scotia, Jubbulpore, Burmah, Sumatra, and Prince Edward Island. It shared the interest which the Anthropological Society took in the remarkable discoveries of pile-dwellings and archaic skulls in the bed of the Thames made by Mr. Layton at Kew, and it entered with zeal into the question raised by Dr. Thurnam, as to the prevalence in long-barrows of a long type of skull. It welcomed also the periodical accounts which were received from its former Director, Mr. Franks, of the accessions, to the British Museum and the Christy collection, of objects of high antiquity. The rock markings at Sancreed, Cornwall, are figured and made the subject of a communication by Mr. Blight, and many other exhibitions of interest in this department were made from time to time.

That the Society did not, at the same time, neglect those questions which lie more closely within the scope of its ordinary work need hardly be said. The question of the Paston Letters, of Cæsar's landing, and of the Chapter-house at Westminster, will serve as types of the matters in which they have bestirred themselves with effect. We

cordially echo the tone of congratulation in which their President, Earl Stanhope, addressed them at a late anniversary, in allusion to the change of Directors:—"There has never yet been wanting a series of active, able, and learned men by whom the succession inherited from their predecessors in the Society is worthily upheld. Long may it continue to be so! long may it be said of the Society of Antiquaries as of the winged commonwealth in classic times:—

*"At genus immortale manet, multosque per annos
Stat fortuna domus, et avi numerantur avorum."*

Some few years ago the Society did not take that leading position respecting Archaic Anthropology, which it has since assumed. Until recently it devoted very few of its sittings to the discussion of these subjects, which are now somewhat absurdly denominated "Prehistoric Archæology."

We hail with great satisfaction the leading position which the Society of Antiquaries has recently assumed in reference to all subjects relating to man's early history. This is as it should be; all parties should unite in supporting such a course of action. It is advisable, that before persons write papers and books, on what they please to call Prehistoric, they should have some knowledge of what is Historic. A study of British, Saxon, and Roman antiquities is a better preparation for writing on Prehistoric Archæology, than the opening some comparatively modern ruin, and describing the same as Prehistoric, or the representing mere naturally fractured stones or flints as works of art.

The Society of Antiquaries has shown itself both able and willing to discuss every topic relating to the great Science of Archæology, and has never given undue prominence to the discussion of the speculations of the modern school of writers on Archaic Anthropology, calling themselves "Prehistoric Archæologists."

DR. BASTIAN ON THE ETHNOGRAPHY OF CIVILISED
PEOPLES.*

SINCE the appearance of the *Anthropology of Primitive Peoples*, by Professor Waitz, no book on that science has been published in Germany containing so extensive an apparatus of learning as Dr. Bastian's Prolegomena, and, if we say in Germany, we may as well say anywhere, the industry and patience of scientific writers in that country being unrivalled in any other. But these valuable qualities are unfortunately not always coupled with a corresponding degree of lucidity and grasp of thought, which we but too frequently look for in vain in the numerous contributions to science which we receive from our Teutonic cousins. So in this instance, a rich mine of intellectual wealth, a treasure of accumulated facts and careful observations comes to us in a form as unwieldy as it is unattractive. Why that should be so appears at the first glance quite unaccountable; however, a plea is put forward in the preface, which is supposed to explain, or extenuate, the offence. We decline to accept that plea.

Want of time, and want of space, can never excuse want of arrangement, and want of clearness; nor is it likely that the results of Dr. Bastian's studies will ever be proportionate to his labour and capacity, unless he brings them before the world in a more artistic shape. There are no chapters in this book, no paragraphs, no well marked sections of any kind; three hundred closely printed pages, but no indication whatever to guide us as to the relation in which they stand to each other! The thread of thought becomes continually broken through by copious foot-notes, relevant though they be to the subject under discussion. All this is rather unpleasant; still, he who will work his way patiently through this work, is not likely to regret it; there is in it solid proof, not only of the industry, but also of the philosophical mind of the author, and of his capability for the task he has set himself.

Darwinism is making even more rapid progress amongst German Anthropologists than amongst ourselves; Dr. Bastian looks upon his science (which he calls Ethnography, although Anthropology would be a more comprehensive term) from a thoroughly Darwinian stand-point; or we had perhaps better say he starts from the point to which Darwin,

* *Das Beständige in den Menschenrassen und die Spielweite ihrer Veränderlichkeit. Prolegomena zu einer Ethnologie der Culturvölker.* Von Dr. A. Bastian. Mit einer Karte von Prof. Kiepert, Berlin. Verlag von D. Reimer 1868.

De Candolle (*Géographie Botanique*), and Nathusius (*Rassen des Schweines*), have brought up the question of persistency of race characters, or characters of species.

It is only natural that many facts to which our attention is directed, many arguments which are brought forward in the course of the inquiry, appear to support the doctrine of Mr. Darwin; civilisation and its effects upon peoples cannot but show some phases bearing a resemblance to the symptoms observed in artificial breeding; so we meet (p. 49, *et seq.*) with some observations on this subject, which are well worth attention.

“Nothing more strongly characterises the profound confusion, says Dr. Bastian, and the utter want of all elementary principles in ethnography, than the prevailing opinion of the degenerating influence of mixture on race, whilst it is patent that wherever civilised peoples appear in history, they are but the highest product out of an infinite number of mixtures. Generally the primitive roots of their ethnological genesis go back to prehistoric times, which are far removed from our view; they (the roots) become known only by their effects when the race in the light of history has grown into a dominant nationality, but every scientific inquiry is at an end if we then want to consider such nationality as a *deux ex machina*, instead of analysing its organic genesis. We talk of purity of race; breeders consider it of the utmost value to retain the blood of their stock pure, and not to deteriorate it by mixture. So far, so good. But are therefore these thorough-bred races pure races, if by pure is understood primitive and aboriginal? Is the improved English short-horned breed of cattle the representative of the wild (feral?) species, or is it not rather a creature grown out of many, and most artificial crossings? In the race of Berkshire hogs, as it now exists, we find English, Tonquinesian, and Neapolitan elements, which compose this valuable breed, as has been proved by Nathusius. The English race-horse is certainly not the progeny of the wild horse of the Steppe or of the Pampas; on the contrary, it is produced by careful crossings out of Arab barbs, and English blood in order to provide it with the requisite qualities. The Arab horse also, will be, according to all probabilities, the product of crossings, its origin dating back into a prehistoric period, etc., etc.”

It is not without interest to follow our author in the application to Ethnography of the arguments derived from a careful study of the aboriginal Fauna, and its present state of subserviency to man. The late Dr. Knox would be sadly puzzled by some of the facts brought to bear on the subject of races and anthropogenesis; his arbitrary classification of the human races, and his dogmatic assertions about human hybridity, are already superseded by profounder and more modern researches; in the volume before us we meet with a juster appreciation of the persistent characteristics of race, as well as of the modifying influence of surrounding circumstances. Dr. Bastian, and we believe



the best authorities with him, take a middle course, opposed alike to the eccentric teachings of Knox, and to the quiet ignoring of the importance of race in history, so fatal to Buckle's learned and eloquent, yet inconclusive, essay.

Our author follows some notable former writers on the subject, in arguing from an analogy between the elements and compounds in chymistry, on the one hand, and the pure and mixed races of animals, man included, on the other. The argument is very ably sustained, and it tells favourably on the Darwinian theory, although Dr. Bastian is by no means a mere advocate of that theory, or any other; all facts, whether apparently adverse or favourable, being fully brought forward and impartially considered. Towards the latter part of the book great prominence is given to archæological, mythological, and linguistic inquiries, showing an astounding amount of reading, as well as original research and travel. The information on those points is very complete, and we approach thereby the question of race from another road that may yet open up vistas hitherto little thought of. The light, which by recent investigations is shed on the intercourse between the Icelandic discoveries of Finland and the aborigines of Northern and Central America, is likely to demolish many theories boldly advanced, many notions still tenaciously defended about the Aztecs, Mexican architecture, inscriptions, etc., etc. We recommend this part of the book to the students of comparative Mythology and Philology; they will find in it more than they look for.

A map, which is drawn up with the assistance of Professor Kiepert, forms a very valuable and welcome addition to this little volume. It shows, in varying colours, the areas occupied towards the end of the fifteenth century by different races and nationalities of the world; a reproduction of this map on an enlarged scale is a desideratum for all Anthropologists, who are often in want of such a guide on a complicated and difficult subject.

ON THE LOCALISATION OF THE FUNCTIONS OF THE
BRAIN, WITH SPECIAL REFERENCE TO THE
FACULTY OF LANGUAGE.

By JAMES HUNT, PH.D., F.S.A.

(*Historical part continued from p. 345, vol. vi.*)

AMONG the writers of the sixteenth century we meet with an anthropologist, who deserves even more space in these pages than we can here afford him. We allude to Juan Huarte, the author of that re-

markable work entitled *An Examination of Geniuses for the Sciences, showing the difference of aptitudes among men, and what sort of learning would suit best each genius.**

Huarte certainly was not a scientific anatomist, in the present acceptation of the term; but he was a man of great erudition, an original and bold thinker, a keen observer, and not merely a speculative but a practical philosopher. It is not our intention to give here a complete analysis of the work in question; we shall merely give such extracts as will show that Huarte was one of the first who forcibly pointed out the intimate connexion of mental phenomena and the body, and boldly and distinctly proclaimed the brain to be the organ of thought. When we take into consideration the century and the country in which Huarte wrote, we marvel at the boldness of the man who, with the eyes of the Spanish Inquisition upon him, dared to evolve even the character of Christ from the spurious description of his physical organisation, attributed to P. Lentulus, the proconsul of Jerusalem. To show at once "what manner of man" we have before us, we extract from the work a passage on authors and scholars, whom the author compares to sheep and goats, evidently ranging himself among the latter.

"The goat does not like the plain, but prefers rocks and hills, which it climbs, and looks down into the abyss; it leaves the herd and the trodden path. The rational soul, dwelling in a well-organised and tempered brain, possesses the same qualities; it proceeds onward to discover new things. On the other hand, there are people who do not imagine that there is anything more to be discovered in the world. They have the character of sheep, which never leave the herd nor the trodden path. Amongst scholars, some are bold, and care little about received opinions; they do everything in their own way, speak their thoughts freely, and are their own guides. The others are timid, humble; they swear by the words of some great authorities; they follow them, and deem their opinions as incontrovertible truths, which alone deserve faith; whilst they hold what others say to be whims and lies. These two kinds of geniuses are, taken together, very useful. For as shepherds generally put to a great flock of sheep about a dozen goats, to render the former lively, and show them the way to new pastures; so must there be, in human sciences, some inventive minds, which show to the sheep new wonders of the creation. It is in this way that science is developed, and in this way the knowledge of man increases daily."

One of the leading ideas, which pervades the whole work, is that man is just what nature made him; that, therefore, we must study the nature of each man to learn what he is fit for. If you send a brute

* "Examen de ingenios para la Ciencias, donde se muestra la diferencia de habilidades que hay en hombres y el genero de letras que à cada uno responde en particular." Pampluna, 1578.

to Rome, a brute will return; or as he has it, *Quien bestia va á Roma bestia torna*: "it will as little avail him to go to Salamanca, if he brings no intellect with him". Huarte, therefore, in his dedication to the king of Spain, proposes,—

"That the universities should examine whether those who present themselves to study logic, philosophy, divinity, law, etc., possess the requisite aptitudes for either of these sciences; otherwise, apart from the injury that such a one may afterwards do to the commonwealth by practising an art wherein he is not skilled, it is melancholy to see a man take pains and rack his brains about a matter whereof he cannot reap any advantage."

Another leading idea is that the mental operations of man depend on the condition of his corporeal frame. "It is," as he observes, "against all natural philosophy, to believe that the rational soul, being in the body, can operate without the mediation of her corporeal instrument." He rejects the theory of ancient philosophers, that the heart is the chief seat of the soul. "It is true," he adds, "that in many passages of the sacred scriptures, the heart is styled the superior part of man; but this is merely an accommodation to the way of speaking in use at the time. Experience and reason have proved that the brain, and not the heart, is the chief seat of the rational soul." In accordance with this opinion, he observes:—

"When God formed Adam and Eve, it is certain that before he filled them with wisdom, he instrumentalised their brain in such a manner that they might receive it with ease, and serve as a proper instrument, therewith to be able to discourse and to reason."

Although Eve was made by God as perfect as any of her sex can be, yet is it an undoubted fact that woman is inferior in intellect to man. The cause evidently is that the composition and temper of her brain are differently disposed.

In chapter 1, he proves, by an example, that if a child have not the disposition which is requisite for a certain science, the best schoolmaster will lose his labour. We almost fancy we read the biography of Gall in the following passage:—

"I am myself a good witness to this truth. There were three companions of us, who entered together to study Latin. One of us learned it with great facility, the rest could never make any commendable composition; but passing on to logic, the one who could not learn grammar, excelled in that art. Then all three coming to hear astronomy, it was a matter worthy of note, that he who could learn neither logic nor grammar knew, in a few days, more astronomy than the master who taught him. I then greatly marvelled thereat, and found that every science required a special and particular aptitude."

Assuming thus that nature alone makes man able to learn, he inquires (chap. iii):—

“What part of the body ought to be well tempered, that a young man may have ability. No one doubts,” he says, “that the brain is the instrument ordained by nature to the end that man might become wise and skilful. Four conditions ought the brain to enjoy, that the rational soul may perform the works which appertain to understanding and wisdom. 1. Good composition; 2. that the parts be well conjoined; 3. that the heat exceed not the cold, nor the moist the dry; 4. that this substance be made of parts subtile and delicate. The brain should be well formed, and of sufficient quantity. The four ventricles should be distinct and severed, each in its proper place, and of appropriate capacity.”

“Galen,” he continues, “infers the good figure of the brain from the outward shape of the head, which,” he says, “ought to be such as it would be when we take a round ball of wax and compress it a little on the sides. The forehead and occiput will then present projections. Hence, it follows that the man who has his forehead very plain, and the back of his head very flat, has not his brain so figured as is requisite for wit and ability.”

Speaking of the quantity of brain, he observes: that none of the brutes have as much brain as man; and that animals approaching man in wisdom and discretion (dog, ape, fox), have a greater quantity of brain than other animals with larger bodies. Galen says, that a little head in a man is ever faulty, because it is deficient in brain. This, says Huarte, is not always the case. A big head affords no positive proof of a large brain, as the size may be owing to the thickness of the bones and the quantity of flesh; in the same way as we find big oranges with such hard and thick skins, that they contain but little juice.

The soul, in order to produce different effects, must act by special instruments. This is shown by the different structure of the external organs of sense; we may hence conclude as to the internal senses. If, then, it be true, that every kind of work requires a special instrument, it necessarily follows that within the brain there must be one organ for the understanding, one for the imagination, and another, different from them, for memory; for if all the brain were organised after the same manner, either the whole would be memory, or the whole understanding, or the whole imagination. But we see that these are very different operations, and therefore it is clear that there must be a variety of instruments.

But, when we open the skull, we shall find the whole composed of the same substance, only there appear four little cavities. Galen and other anatomists have endeavoured to find out the truth, but none of them have precisely stated the function of either of these ventricles. They only affirm that they are workshops (which some doubt) where the vital spirits are digested and converted into animal spirits, to give sensation and motion to other parts of the body.

Huarte dissents from this theory, and thinks that the fourth ventricle alone has the office of digesting and altering the vital spirits; for which reason nature has severed it, and placed it at a distance from the others, and made that part of the brain a separate portion.

He doubts not that the three ventricles placed in the forepart are intended by nature to no other end than to discourse and philosophise, which is apparently proved by the fact that in severe study and contemplation it is always this part of the head that is aggrieved.

But the difficulty is to know in which of these ventricles is seated memory, or imagination, or understanding. He comes to the conclusion that, in as much as the understanding cannot act without memory, nor memory without imagination, all these powers reside in each ventricle. But, if so, it may be asked to what end has nature made several ventricles, as one would suffice for the performance of all. He answers, for the same reason that nature has made two eyes, and two ears, so that when one fails the other may act. Thus, in palsy, the action of one ventricle may be lost, and yet memory, understanding, and imagination, though weaker than before, may remain, which clearly shows that these faculties reside in each ventricle.

In chapter iv he shows that when the brain becomes heated, a man may become eloquent and wise. Among other cases he cites that of a rude country fellow, who, becoming frantic, made a very eloquent discourse in his presence, with so many flowers of rhetoric, and such apt choice of words, as if Cicero had spoken in the presence of the Senate. This person, when in health, had nothing to say.

But this, he adds, is nothing compared to the case of a page in the service of a grandee, who, whilst he was mad, delivered such rare conceits, and devised such excellent modes of governing the kingdom, of which he imagined himself to be the sovereign, that his master rarely left his bed, and prayed God not to restore him to health. It seems, however, that the page was cured by a physician, who, when he claimed his fees from the master, received the following answer: "I was never more aggrieved; of one who was wise and well advised you have made a fool again." Nor did the good doctor fare better when he applied to his former patient, who also deplored that he had been cured.*

On the intellectual faculties Huarte observes as follows: Memory and understanding are faculties essentially different. Memory is only

* This anecdote has given rise to a ludicrous mistake on the part of D. Seligman. In his *Sciagraphia Virium Imaginationis*, he writes, *Huartus, Hispanus, se regem in delirio arbitratus prudentissimos de regimine faciebat discursus*: Huartus is thus considered to have been mad himself, whilst he only cites the above case. Willis (*see infra*) also quotes the case incorrectly.

a passive faculty, depending on certain qualities of the brain, such as moisture and softness, which render the brain fit to receive what the imagination, by means of the senses, has perceived. Memory is to the imagination what white paper is to the writer. What is contemplated by the imagination with attention, is deeply impressed upon the memory, what is only superficially viewed is easily forgotten. In the same way as a writer, who carefully delineates his letters, renders his writing legible, so the imagination, in order that each image should long and legibly remain in the brain, must carefully impress it in the brain, otherwise, the image will be scarcely perceptible; as happens in old manuscripts, in which some parts are obliterated by time, and others are distinct. In the same way, some images may remain in the memory, whilst others are effaced. Memory and understanding are not merely different, but opposed faculties. The understanding requires a dry brain, the memory a soft and moist brain. Young persons have a good memory on account of the softness and moisture of their brain. In old age the brain substance becomes so hard as to be incapable of receiving impression. Hence young people are deficient in understanding, in which old persons excel, for the understanding requires a dry brain. Women, like children, having softer brains, are inferior in understanding to man. He even goes so far as to assert that men possessing a prodigious memory, are deficient in understanding, and *vice versa*. There is also in this work a curious chapter on the mode of begetting strong, wise, and virtuous children, male or female, which we do not think it necessary to touch upon.*

Huarte's work naturally provoked much criticism. To those of his contemporaries, who complained that they had in vain sought in his book for the chapter which was to reveal to them their aptitudes, he simply replied, that he was not obliged to give wit to those to whom

* Juan de Dios Huarte, Navarro, was, as he tells us himself (natural de San Juan de Pie del Puerto) born about 1525, at St. Jean-Pied de Port, a little town in Navarre, then belonging to Spain. Nothing certain is known about the year of his death. He studied medicine at Huesca, in Aragonia, then a flourishing university; he probably, also, attended lectures at Salamanca and Alcalá. He then seems to have settled at Huesca, where he died, about the end of the sixteenth century. Some say that he died in Madrid. Huarte appears to have finished his work in 1557, but only published it in 1575. The earliest edition we have seen is that of 1578. The work soon created a great sensation in the literary and scientific world, and was translated into most European languages. In Germany it became known by the name *Scrutinium Ingeniorum*, a Latin translation, by Æschasius Major (Joachim Cæsar), Leipzig, 1612. In English, there are two translations, one by Carew, *The Examination of Men's Wits*, etc., London, 1616, and another by Bellamy, *The Tryal of Wits*, etc., 1698. Several translations appeared in France. The earliest translation we know of is that by Camilli, Venet., 1586, from which Carew made his translation. Finally, Lessing translated the work into German in 1752, and gave it the title *Prüfung der Köpfe* (an Examination of Heads).

God and nature refused it. There is, however, one critic we must mention who wrote a formal refutation of Huarte, in the shape of a book double the size of Huarte's work. This book is entitled, *An Examination of the Examination of Geniuses*, by Jourdain Guibelet, physician to the King. It is not our purpose to enter into the merits of this refutation. Certain it is that Guibelet is far inferior to Huarte in originality of thoughts, and power of expression. He belongs, in fact, to the second class of authors described by Huarte. Guibelet is now almost entirely forgotten; his name being scarcely mentioned in any biographical dictionary, nor his book cited in bibliographical works. It is for this very reason that we would rescue from entire oblivion one chapter, at least, of this scarce work, partly because we think it deserves preservation from its intrinsic interest, and partly because it forms what the author intended it should, a supplement to Huarte. The following is the substance of the last chapter of Guibelet's work,* headed, *By what Signs the Character of Children may be known*. This ought to have been the main object of Huarte's book, but, as he has neglected it, or has only slightly touched upon it, Guibelet says, that he would try to give a few rules on account of the importance of the subject.

There is such intimate connection between the soul and its organ the body, that we are able to judge of the mental capacity of children by their face, which has been called the mirror of the soul, and by other parts of the body, when the children are about seven or eight years old. The chief marks, touching the minds of children, are to be found about the head. As the brain is the seat of the faculties, it is reasonable to suppose that *the external head should show what is going on within*, just as the dial outwardly represents what is hidden. We must, therefore, first examine this part and see whether the child has a well formed head. . . . The head should show some eminence in front and behind; because of the ventricles of the brain, in which are seated the sensus communis, imagination, and memory. The top of the head should be slightly depressed in the region of the sutures. . . . The hair should be smooth, neither too stiff, nor too black; the face should be rather thin, neither too fleshy, nor too fat; the complexion should be a mixture of white and red. He then proceeds to the conformation of the eyes, "the two windows of the soul," as he calls them. They should be neither too large nor too small, nor too deep seated; they should be bright. The chief characters of a sound mind, he continues, are clearly marked in the face between the eyes, which shine like brilliant stars; the eyes should be azure or sky-coloured.

* *Examen de l'Examen des Esprits*. Par Jourdain Guibelet, M.D., Médecin du Roy à Evreux. Paris, 1631.

The space between the eyes should be a little depressed, rather than raised ; Straton thought that there was the seat of the soul. The forehead and the hand are two parts of the body in which are depicted all the powers of the mind. A large and square head, proportioned to the size of the face, shows the force of the faculties, it is a mark of a large brain, and a sign of good sense, and a sound mind.

God has put some marks in the hand, so that each may know what he can do. But all this is not for children, but for grown up men who have a face lean from study, *vultum exercitatum*, as Petronius says, and hands skilled for all kind of work. Guibelet very judiciously adds, it is also from the actions and deportment of children that we can conjecture what they will be. Those who think slowly, but still show vivacity of mind when something interests them, are generally intelligent. This tardiness, age and study will remove, and they will then show what is now hidden. There are some children with vivid minds, ready to say everything, and to do everything. They cause pleasure to the parents, but it is a straw-fire which soon becomes extinct.

It is noteworthy what Fracastor says, that those who have great memory for localities and roads, approach the nature of brutes. The teacher may also by frequently questioning his pupils judge of the state of their intellect.

Michael Servetus, of Villanuova, in Arragonia, born 1509, the discoverer of the circulation of the blood through the lungs, burnt at Geneva as an heretic in 1553, at the instigation of Calvin, must also be mentioned as a localiser of the cerebral functions. He believed that the choroid plexus was the organ destined to secrete the animal spirits ; that the true seat of the soul was in the aqueduct of Sylvius ; that the two anterior ventricles were destined to receive the images of external objects, and that the fourth ventricle was the seat of memory.*

As will be seen, there is scarcely any part of the encephalon which has not alternately been looked upon as the palace of the soul ; none, however, has acquired such a celebrity as the pineal gland, the spot selected by the great reformer of Philosophy, the opponent of Aristotle, namely, Renatus Cartesius (René Descartes, born 1596, died 1650). The chief reasons Descartes gives for assuming that the *glandula pinealis* is the seat of the soul, are the following.† Although the soul is immanent in the whole body, there must be a certain part in which it more specially exercises its functions. This part is not the whole brain, but the pineal gland, which is situated in the middle of the cerebral substance, above the canal through which the spirits of the anterior ventricles communicate with the spirits of the posterior

* *Restitut. Christian.*, lib. v. Vienna, 1553.

† Descartes, *Passiones Animæ*. Amstel., 1664, a:t. 31, 32, 34.

cavity, so that the slightest motion of that body may change the current of the spirits, whilst the slightest change in the spirits may affect the motions of the pineal glands. We need scarcely add, that the pineal gland is, at present, left entirely untenanted, as regards any intellectual function.

Physiognomy and Cephalonomy are so intimately blended, that we must not pass over two authors of this period, the chief representatives of the above doctrines. The first we shall quote from is *Marian Cureau de la Chambre* (born 1594, died 1669), physician to Louis XIV, and one of the first members of the then newly founded French Academy. Tinged as the works of these writers are with baseless hypotheses, paradoxes, and astrological superstitions, they still deserve the attention of the Physio-anthropologist. The two chief works of de la Chambre are his treatises *On the Art of Knowing Men*,* and *The Character of the Passions*; he was also the author of numerous other works.

The subjoined extracts are from the chapters on the principles of Metoposcopy, in the work *On the Art of Knowing Men*. "The forehead is unquestionably that part of the face which Metoposcopy is most occupied with. The signs are there in great number, and more diversified than anywhere else; hence Metoposcopy derives its name from this spot. When we inspect this confined space, which naturally should be smooth and equal, and yet which presents such a variety of irregular lines, some of which vanish and give rise to others; when we find that some are deeper, others more superficial, some short, others long; that they are not to be found in the same number, or of the same colour alike in two persons; then, I say, that we have reason to believe that there is some secret hidden in man's forehead, unknown to man, and that the impressions upon his forehead are due to nobler and higher causes than the lines we find on the foreheads of animals. It might be said that the consistence of the skin is the cause of this diversity, and in proportion as it is thicker or more supple, the lines are more or less easily formed; but do we not see a vast number of persons whose skin is of the same consistence, yet who have not one line alike? He admits that movement and dryness may contribute to form these lines; but he contends that these lines on the forehead exist already at birth, although they are not then perceptible. We must then attribute the first impression of these lines to a cause outside the body, and as there are incontrovertible proofs that certain planets govern certain parts, so must we conclude that the lines on the forehead are of this order, and they are imprinted

* *L'Art de connoistre Les Hommes*. Paris, 1663. *Les Caractères des Passions*, 1658.

by one of these planets. In his opinion, it is probable that the forehead is governed only by one planet, namely, Saturn. We may only add that he considers the nose is governed by Venus, and the lips by Mercury.

The normally greater strength of the right side of the body, a subject which will be again adverted to in the sequel, is thus accounted for by our author. The hands are the chief instruments used by the mind to perfect its inventions, and, no doubt, they give such an advantage to man, that if we cannot say with the ancient philosophers, that man is wise because he possesses hands, we may at least assert that he appears wise because of his hands. Nature has placed them as much as possible near the seat of reason, and the senses with which they are so nearly connected. The right hand is the first in dignity, being more agile and stronger than the left. It is stronger because it has more heat, and it has more heat, not merely because it is on the same side as the right ventricle of the heart, where the blood is hotter and more boiling; not merely because the liver, the source of blood, is nearer to it; not merely because the veins of the right side are, as Hippocrates says, more ample, but also because it is placed on the right side, where all movements should commence. That all movement commences naturally on the right side, is a truth which cannot be contested, when we observe what is going on in animals. Thus, quadrupeds always commence moving with the right forefoot; and bipeds also always put the right foot foremost. We carry burdens better on the left shoulder, so as to leave the movement of the right foot free.

The second, indeed the most prominent representative of Cephalonomy and Physiognomy of the seventeenth century, is an Englishman, namely, Richard Saunders, the very prototype of Gall and Lavater. Many of the axioms laid down in this singular and scarce work,* from which we take the subjoined extracts, will be found closely resembling the fundamental principles as laid down in modern phrenological works, as the following passages will abundantly show.

“Now, in our science of Physiognomie, the form, the proportion, and dimensions of the head are to be considered; for by it, and its form, we judge of the mind contained therein.

“A little head is never without vice, and most commonly, is guilty of little wisdom, but rather full of folly, which is naught and malicious.

“The best form of a head is moderate, as greatness and thickness, and of a decent and convenient roundness, which, before and behind, is tempered with a little depression. . . .

* *Physiognomie, Chiromancie, Metoscopie*, etc. By Richard Saunders, Student in the Divine and Celestial Sciences. London, 1653.

“The brain, one of the noblest parts of the body, is according to the form of the cranium ; for if the cranium be corrupted, the brain is so too. The head of man has proportionately more brains than all other living creatures ; and men have more brains than women ; and the head of man has more joynts than any other creature. So the well-formed head is like a mallet, or spear, there being some eminence before and behinde ; the form of the middle ventricle should be a little compressed, so the cogitative faculty is the more notable. If the forepart be depressed, the man is of no judgment : if the hinder, he has no memory. . . . When the head is big, proportionately to the body, the sinews of the neck big, and the neck itself strong, it is a sign of strength, choler, magnanimity, and a martial humour. . . . A head having the middle ventricle somewhat compressed towards the side, denotes the cogitative faculty, natural diligently comprehensive, ratiative, and eloquent, which proceeds from the union of the spirits that are in that place ; those who have a head thus are learned and knowing. The head, very little, is necessarily an evil sign ; and the less it is, the more folly there is.”*

In chapter eight, which treats of Metoposcopy or the signification of the forehead, the author illustrates his views by fifty woodcuts of heads, in which the lines on the forehead and its form betray the disposition of the individual, “according to the most accurate and exact observation, which being as an epitomy of the whole doctrine, may delight the reader.” Some lines denote the character of a simple honest person, others denote a murderer, a thief, a prattling loquacious person, cowardice or courage, meekness and impudence.

At this period general human anatomy was already comparatively in an advanced state ; but the anatomy and physiology of the brain and nerves was still vague and meagre in the extreme. There can be no doubt that Thomas Willis occupied the foremost rank in the seventeenth century as a cephalotomist and neurologist. His great work “On the Anatomy of the Brain and the description and use of the Nerves,”† although published more than two centuries ago, forms still the foundation of modern neurology. Willis was the first who perceived the great advantage of comparing the human brain with the animal brain, and he arrives at the conclusion now generally admitted—that man’s intellectual superiority was greatly owing to the depth and extent of the cerebral convolutions. He attached great importance to the grey substance as generating the force of which the medullary matter is the distributor. This is not the place to enter into his great merit of having introduced a new method or, at all events, a uniform method

* Part II, chap. vii, p. 158, *et seq.*

† *Cerebri Anatomie ; cui accessit nervorum descriptio.* London, 1664.

of dissecting the brain, which before him was performed downwards and upwards and in different directions; nor shall we say any thing about his tracing the origin of the cranial nerves, and their classification, by which he introduced order where till then the greatest confusion obtained. What concerns us here is this, that Willis considered not only the brain as the organ of the rational soul, as the origin and source of all conceptions, but that he assigned to different parts of the brain different physical and mental functions.

In his Preface to the Reader, after stating that he felt ashamed of having drawn out for himself and his auditors a kind of poetical philosophy and physics consisting of conjectures, he came to the determination not any longer to pin his facts on the received opinions of others, nor on the guesses of his own mind, but for the future to believe nature and ocular demonstration. He consequently, as he states, addicted himself specially to the opening of heads and to inquiring into the offices and uses of the brain and its nervous appendages. The first sentence of chapter i, "On the method of dissecting the brain" is characteristic; it runs thus: "Among the various parts of an animal body subject to anatomical inquisition, none is presumed to be easier and better known than the brain; and yet there is none less or more imperfectly understood." The importance which he attached to the comparative anatomy of the brain is shown in the following passage: "That the perfect knowledge of the brain may be gained, it is necessary not only to dissect men's heads but those of all other kinds of living creatures In doing so I shall shew the communities and differences which the parts in question obtain in various animals, compared among themselves and with man. From such a comparative anatomy not only the faculties and uses of every organ, but the impressing influences and secret workings of the sensitive soul will be discovered."

Chap. x. *A description of the Brain and the use of its parts*:—"The brain is accounted the chief seat of the rational soul in man, and of the sensitive in brute beasts; it is the chief mover in the animal machine and the origin and fountain of all motions and conceptions. *Convolution*s.—In the more perfect animals all the turnings are made of a twofold substance, viz. cortical and medullary; the animal spirits are wholly, or for the most part, generated in the cortical substance, the medullary part serves for their dispensation. The anfractuous brain, like a plot of ground planted with nooks and corners and danks and molehills, has a far more ample extension than if its superficies were plain and smooth. These folds are larger and far more numerous in man than in any other living creature for the various and manifold actings of the superior faculties."

Willis rejects the theory of the ancients that the animal spirits are

elaborated in the ventricles, or that the supreme seat of the soul is fixed there. He also rejects the theory that the pineal gland is the seat of the soul, or that its chief faculties arise from it, on the ground, "because animals which are almost destitute of the superior powers of the soul, have the glandula large and fair enough." (Chap. xiv; *Anat. of the Brain.*) The sensations he places in the corpora striata; these sensations are represented upon the corpus callosum, as it were upon a white wall, and so induce a perception and a certain imagination of the thing felt. These images, further progressing from the corpus callosum to the cortex and entering its folds, constitute the memory (chap. iv, *On the Soul of Brutes*). As regards motion, Willis considers that the cerebrum presides over voluntary, and the cerebellum over involuntary movements. In a chapter on stupidity Willis remarks:—"It is a common observation that wit and ingenuity depend somewhat on the magnitude and figure of the head, and consequently of the brain. The genuine and best figure of the head ought to be globular; those who have a flat head, or otherwise unproportionate, are for the most part affected with some noted faults of the animal functions, for these kinds of brains, like distorted looking-glasses, do not rightly collect the images of the things nor truly object them to the rational soul. A fever sometimes cures fools and renders them acute. Huarte tells us of a certain man that was a fool at the court of Corduba, who becoming distempered with a malignant fever, came so much to himself that in the midst of disease he spoke with such judgment and discretion that the whole court stood in admiration, and so remained his whole life afterwards one of the most prudent men of his time."

As we cannot believe that Willis embellished this story, we must presume that he took it second hand. He, however, makes an addition of his own experience which is worth recording:—"We ourselves," continues Willis, "have known a certain man of a very blunt Bœotic dull wit, who talks idly, but in fever suddenly brought forth most acute speeches, and seasoned with a great deal of salt and wit. Further we knew a generous old gentleman who, having lost his memory and so the use of discourse, received great help by the distemper of fever happening afterwards."

The great Haller (1708-77*) has also briefly discussed the question of the seat of the soul, for in chapter eleven of his work, *First Lines of Physiology*, he asks, "Is there in the brain any principal part in which resides the origin of all motion, the end of all sensations, and where the soul has its seat? Is it in the corpus callosum?" He comes to the

* *Primæ Lineæ Physiologiæ*. Gotting., 1751. *Elementa Physiologiæ corporis humani*. Lausanne, 1757-66.

conclusion that it is not, and that this opinion is opposed by very many facts: birds have no corpus callosum, and wounds in that body are not in the least more mortal than those in other parts of the brain, as appears from undoubted experiments.

Concerning the seat of the soul, he adds, "We must inquire experimentally. In the first place, it must be in the head, and not in the spinal cord. Again, as it appears from the experiment of convulsions arising when the inmost parts of the brain are irritated, that it lies not in the cortex but in the medulla, and, by a probable conjecture, in the crura of the medulla, the corpora striata, thalami, pons, medulla oblongata. Again, by another not absurd conjecture, where the origin of every nerve lies, as the first origins of all the nerves taken together make up the sensorium commune. Are the sensations of the mind represented here, or do the voluntary and necessary motions arise in that place? This seems very probable; elsewhere he denotes the pons as the probable sensorium commune.

The next author who in chronological order claims our attention with reference to the localisation-theory, is Charles Bonnet (born 1720, died 1793). This celebrated philosophical naturalist starts, like Aristotle and Locke, from the principle that our ideas are derived from the senses; that all the manifestations of our physical life are merely the phenomena of nervous and cerebral action, and that the main object of philosophy consists in the observation of the laws of relation between the function of the central organ of sensation and mental phenomena. It must not, however, be inferred, that Bonnet was a pure sensualist, or materialist. On the contrary, he believed in the continuance of the thinking principle after death, and wrote an apology of Christianity,* which has been translated into most European languages, and was so much admired by Lavater, that he forthwith translated it into German, and challenged Mendelssohn either to refute the arguments, or to embrace Christianity. Bonnet must in so far be considered as an organologist, in as much as he considers not only the brain to be an aggregation of numerous faculties, but assigns special functions to each fibre. Every faculty, sensitive, moral, or intellectual, is in the brain connected to a bundle of fibres. Every faculty has its laws, which subordinate it to other faculties, and determine its mode of action; and not only has every faculty its fasciculus of fibres, but every word has its own fibre.

I feel the more induced to give some lengthy extracts from two of this author's noted works,† because that apart from their intrinsic

* *Recherches Philosophiques sur les preuves du Christianisme*. Genève, 1770.

† *La Palingénésie Philosophique*. Genève, 1769. *Essai Analytique sur les facultés de l'âme*. Genève, 1770.

interest, they bear, as will be seen in the sequel, upon the question of loss of articulate speech, in relation to the intellectual faculties. It will also be found that the theory, propounded by an eminent anthropologist and cephalotomist recently deceased (M. Gratiolet) is here anticipated.

Specific Differences of Sensitive Fibres.—Every sense has its own mechanism. Every sense transmits to the soul a multitude of different impressions, followed by as many different sensations. . . .

Imagination and Memory.—The ideas which objects excite in the mind may be reproduced by imagination and memory. Before searching how an idea may be reproduced, we must know how it is produced.

The Mechanism of Memory.—In order to elucidate a little the mechanism of this wonderful faculty, says Bonnet, he had studied the art we are to impress upon our brain, a sequence of sounds, words, a discourse, and he found that this art, so well-known by public speakers, has for its final object to set the sensitive fibres into a motion corresponding to the order of the sequence of words, to which they are appropriated. These fibres intercommunicate with one another, and may acquire an *habitual* disposition to set each other into motion in a determined and constant order. It is therefore by the repetition of the same movements, in the *same direction*, that we succeed in making these fibres contract this position.

Attention, which adds new force to their movement, aids in fixing the sequence of words on the memory. This sequence is then represented in the brain by a chain of fibres and fibrils, along which the movement is propagated in order, the more constant as the memory is tenacious. Memory is attached to the body, since causes which only affect the body, enfeeble the memory, or destroy it; or may be, fortify it. How many facts in medicine have not established this truth? How many diseases have not been followed by the weakening, or loss of memory? How many accidents have not modified this faculty, or given it more force? The ideas being in their first origin only the movements, impressed by the objects to the sensitive fibres, it follows that the conservation of the ideas by memory, depends on the disposition which the sensitive fibres have acquired to repeat these movements.* I call the *primitive* or *original state* of the sensitive fibres, that which precedes the time when the objects begin to act upon these fibres. The action of objects upon the sensitive fibres, changes to a certain point the *primitive* condition of these fibres, since it imparts to them dispositions they had not before. By dispositions, I always understand determining to certain movements. The capa-

* *Essai Analytique sur l'Âme.*

city of receiving these determinations, or to express it in a single word, the *mutability* of the fibres lies in their structure. A simple fibre is composed of *molecules*, or *elementary* parts, the form, or the arrangement of which determines the species, or the action of the fibre. If the elementary molecules of the fibres were absolutely incapable of change, the fibres would be rigid, and the objects could make no impression upon them. If the effect which the impression of the objects produce on the fibres were absolutely momentaneous, the impression would not be durable, and there would be no memory. The action of objects upon the fibres *modifies* the original form of their molecules, or changes their *respective* positions. We know nothing of the force which tends to maintain the fibres in their actual condition ; we only know that it exists. Memory requires a certain time to lay hold of objects ; this leads to the supposition that there is a resistance to overcome. The phenomena of memory belong to the brain, and the recall of an idea is the reproduction of the movements to which this idea was attached. Every movement involves a change in the body moved. The condition of the brain changes when any object acts upon it. A necessary consequence of this change is that which follows in the state of the mind, and which we express by the names, sensation, perception, idea, &c.

Extinction of Reminiscences.—The sensitive fibres have been so constructed, that they give to the nourishing particles an arrangement relative to the dispositions they have received ; but if, by some foregoing impulse, this arrangement is disturbed, the nourishing particles cannot place themselves with the same regularity, and are no longer in a position for the preservation of *reminiscences*, and the impressions become effaced. Finally, when with the lapse of time, there remain no fibres nor molecules of fibres, which have retained some of these impressions, the memory of them is lost. Too much softness, as well as too great rigidity of the fibres, are injurious to reminiscence.

The celebrated Soemmering (born 1755, died 1830), was about the last anthropologist of note who assigned to the soul a special seat in the encephalon.

“When,” says Soemmering, in the introduction to his work *On the Organ of the Soul*,* “during the summer of 1793, after laborious researches touching the human brain, I read, for recreation, Platner’s *Questiones Physiologicae*, and accidentally glanced at the drawings, the result of my researches, the idea suddenly struck me that if the principles laid down by Platner were correct, the *prôtôn aisthêtêrion* must be in the moisture of the ventricles of the brain.”

The more, he adds, he studied this subject, the more he became

* *Ueber das Organ der Seele von S. Th. Soemmering. Berlin, 1796.*

convinced of the probability, not to say the truth of his theory. He could never understand why the *sensorium commune* was assigned to a solid, or rather a rigid portion of the brain (§ 31). As there is no part of the brain which has not been found destroyed without perceptibly interfering with the function of the *sensorium commune*, the latter cannot be limited to a minute solid portion of the brain. If, further, the *sensorium commune* is in the brain, it must be, as acknowledged by many eminent physiologists (Haller, Albinus, Tiedemann, Platner, etc.), in that part of the brain where all the nerves meet.

Now, the cerebral ends, or the origins of *most*, if not *all* the nerves, may be traced to the walls of the ventricles, where they are washed by, or come into contact with the *aqua ventriculorum cerebri*, which fluid he considers as the organ of the *sensorium commune*, or in other words, the seat of the soul. The liquid of the ventricles is therefore the real *medium uniens* of all the nerves, between body and mind. He then discusses the question, whether a fluid can be animated, and answers it in the affirmative, and that there is no valid reason why the liquid of the ventricles should not be organised just as the albumen of the egg. This work, we may add, is dedicated to Kant, the metaphysician.

We have now brought our historical outline of the localisation theory down to the beginning of the present century. In doing so we have given extracts from the writings of some nearly forgotten authors, as well as from classical writers on the functions of the brain. We think that the discussion of a scientific theory is best advanced by tracing the origin of the fundamental idea; by noting the phases through which it has passed, by watching its gradual development, its maturity, its decay, and its likely resuscitation; for an idea once engendered, never dies, it is sure to revive at some period, though perhaps under a different name.

[To be continued.]

Anthropological News.

ARCHAIC ANTHROPOLOGY AT PARIS.—The first portion of the Proceedings of the 1867 meeting of the Congrès International d'Anthropologie et d'Archéologie Préhistoriques, held at Paris, has been issued. It contains few papers of any length, the principal being those of M. Arthur Issel, "On Evidences of the Antiquity of Man in Liguria"; Mr. Boyd Dawkins "On the Pleistocene Mammifera found associated with human remains in Great Britain"; and of M. P'hibert Lalande "On the Megalithic Monuments of

the departments of La Corrèze and La Cantal". M. Issel's paper is directed to the question raised by Professor Nicolucci, Hon. F.A.S.L., whether the Ligurians are not an aboriginal race, independent of the great Aryan family, and in this respect he claims for the facts he has collected the special attention of anthropologists. Several human fossils had been found in pliocene deposits within the very limits of the town of Savona. The only bones which had been preserved were, a piece of the right parietal, a fragment of the left upper jaw, with a false molar, a part of the right lower jaw, containing the last molar, and others of less importance. In general, they were of less than the normal size. At Verrizzi, near the seacoast, had been discovered a cavern, containing fossil bones and land shells, which had been explored by Professor Ramorino, now of Buenos Ayres. The cavern was too small to have ever been inhabited; but it contained some pieces of charcoal, and some of the bones had been broken for the purpose of extracting the marrow. The well-known cavern of Menton had been recently again explored by Professor Perez, who discovered many worked implements of flint, jasper, cornelian, etc. Caves at Finale and Toirano contained human bones and worked bone implements. Numerous other recent discoveries of stone weapons had been made in the province, presenting every variety of form. Two of these are figured in illustrations to the paper, and appear to be very elegant and carefully finished spearheads. Only one object of metal, belonging to prehistoric periods, had been discovered. Mr. Boyd Dawkins's paper is a *résumé* of the discoveries of human remains in connexion with those of extinct mammalia in England, ground over which the readers of the *Review* have been frequently led. He supplies a table, showing the mammalia whose bones were found in four caves, with human remains, and in twenty-six caverns without human remains; and also the like details for three river-deposits with human remains, and thirty-seven without.

GERMAN ANTHROPOLOGY.—It is always satisfactory to welcome into existence any periodical devoted to natural science, and to mark its method of treating the subjects in which anthropologists are so deeply interested. In the present instance, we have to consider, first, the applicability of the title; and next, the rank which the new periodical claims for itself among the many scientific publications of the day. *Hertha** is a very good name, but, unfortunately, combined with a very superficial method of treatment. Dr. Rolle's recent book on *Man*, which was very popular in its character, is supplemented by a publication no less popular. We are here presented with no new views,—no great amount of genius is exhibited; and while we may express some degree of pleasure at the attempt, we cannot but feel regret that "our young friend" manifested no "go" in it. We have a restatement, in a very mild and watery way, of the Darwinian hypothesis, containing nothing worthy of attention. Mild criticism of books, more or less recent, follows; and well-known sources of information, such as Dennis's *Etruria*, are resorted to for the pabulum with which to feed the printer's press, and diminish the paper merchant's store. Mediocrity and an atmosphere of "behind handedness" are the main characteristics of the magazine; and while everything is undoubtedly respectable, there is nothing which would

* *Hertha*, *Zeitschrift für Naturwissenschaft und Völkerkunde*. Herausgegeben von Dr. Frederich Rolle. Erster Band. Zweites Heft. Frankfurt am Main, 1868.

tempt the student of science to pause and say "here is something of mark." Even the wrapper bears an anthropological absurdity on the face of it. Popular magazines, unless very efficiently conducted, have neither a public to address, nor any vitality in themselves, except of the vegetative kind. It is very praiseworthy of Dr. Rolle to employ printers in these days of little enterprise, and that is all we can say. Hertha was an ancient deity of the Teutons,—a nice, respectable, easy-going goddess,—and her literary representative is a nice "goody-goody easy-going nightcapped" magazine. We took it to bed the night we received it, and fell comfortably to sleep without experiencing any horrific slumbers, or seeing any spectral appearances afterwards. Science retired from business, and perusing good old authorities, equal in value to time-honoured Goldsmith or Magnall's *Questions*, won't do for these modern days.

K. R. H. M.

SCIENTIFIC SOCIETIES.—Under this heading the following article appeared in the *Pall Mall Gazette* of October 13th, 1868, and is here reprinted as an interesting historical document.—Those who are *au courant* of the scientific and literary gossip of the day are aware that the Ethnological and Anthropological Societies have not always, indeed have very rarely, been on harmonious terms. The first was founded by Dr. King in 1843, and the last by Dr. Hunt in 1863. If their objects could be guessed by their titles, there should not be much difference between them; since the one may be defined as the science which treats of the varieties of the human race, and the other would relate to the natural history of the human species. It may be that the senior society was jealous of the junior; certainly the latter, while professing the utmost respect for her elder sister, made rather high pretensions, urging that pure ethnology was but a part of anthropology, and that she herself was more comprehensive in research, and also less shackled by routine and tradition. Thus it came to pass that on one occasion, connected with the meeting of the British Association, the relations between the two societies were something more than strained. It was felt more than once by the leading members on both sides that an amalgamation, if it could be brought about, would be desirable; and very lately it was stated that so far as financial matters were concerned such an arrangement had been decided on. Now it appears however, that those appointed to act were unable to agree upon a name for the new amalgamated society; the Ethnological wishing to be born anew as the Society for the Promotion of the Science of Man (which name is certainly open to objection, since whatever man may be he is not precisely a science) and the Anthropological desiring to retain its original title. In consequence, it would seem, the negotiations have altogether failed. Both had on their list of members the names of some of the most celebrated explorers and savans of the day; the older society was supported by a well-known literary and scientific weekly journal, the transactions of the younger were chronicled by arrangement with the editor of the *Anthropological Review*. The history of this review and of its connection with the society is explained by the editor in the present quarterly number. There is no need to recount in detail those difficulties which beset the starting of any new organ of public opinion—the jealousies that are aroused, the susceptibilities that have to be studied, or the financial side of the question, which requires to be considered from more than one point of view. Even the Ethnological Society, at one time of its existence, published little or nothing for nearly seven years, and was, so to speak, in a comatose condition. The Quakers had obtained a footing in it, and men whose views were rather bold and speculative than

orthodox or humanitarian were blackballed as soon as they were proposed as members. In 1858 the anniversary meeting collected but six members, including the president, at that time Sir James Clark! In 1859 some gentlemen drew up a prospectus with the object of publishing a quarterly journal of ethnology, but circumstances delayed the carrying out of the plan, and it did not appear until 1862, and then under the title of the *Anthropological Review*. It had long been felt that at the meetings of the Ethnological Society there was a want of sufficient scientific and philosophical freedom of opinion, that the expression of the critical spirit was repressed rather than encouraged, and that the range of subjects was unduly and unwisely limited in extent. The presence of lady members at these discussions was believed to operate unfavourably on them in this respect, and influenced by these considerations, a number of gentlemen united to form the Anthropological Society, based on regulations which they hoped would accomplish a reform in the direction desired. The *Anthropological Review*, while holding itself entirely independent in its own views, offered on certain conditions to publish quarterly a report of the proceedings of both societies. This proposal was accepted by the Anthropologists, but declined by the Ethnologists; and the result of the experiment is stated to have been economically successful, as the subscribers of the former were thus made cognisant of the merits and scientific intelligence of the review. Some offence was occasionally taken by the members when the editor used his judgment in condensing or eliminating extraneous or useless matter from the reports, but difficulties of this nature frequently and inevitably beset any editor gifted with firmness and discretion. By some it was thought that the connection between the society and the review, though a purely business one, was a mistake, and that the remarkably outspoken opinions ventilated by the last had a detrimental effect on the fortunes of the first. We do not ourselves think this probable, though the proprietor and editor has offered to place the copyright of the review, unconditionally and free from debt, in the hands of the society. It does not appear that the Anthropological Society has so far been a pecuniary success. It has almost from the first had two difficulties to contend with, and on both points it certainly commands our sympathy. That which related to the finances it might have at any time escaped had the anthropologists chosen to swell their receipts by admitting as members ladies. But as the exclusion of ladies was precisely one of the original reasons for starting the Association, they declined to accept this solution of their affairs. The force of the arguments will be fully understood by the following extract, which is in the dedication of Carl Vogt's *Lectures on Man*, to Professor Broca, written in 1864:—"The standpoint claimed for the science of ethnology by the late Dr. Knox, by Captain Burton, by myself, and some others, was that of a grave, erudite, and purely scientific study, requiring the most free and serious discussion, especially on anatomical and physiological topics, for the elucidation of the many difficult problems arising out of the subjects brought forward. This, however, was far from being the opinion of a large and powerful section of the society, headed by my venerable friend Mr. John Crawfurd. The party under his leadership desired to place the Ethnological Society on a footing with the Royal Geographical Society, and to render its meetings fashionable and popular by the admission of ladies. You will doubtless smile at the strange idea of admitting females to a discussion of all ethnological subjects. However, the supporters of the 'fair sex' won the day, and females have been regularly admitted to the meetings of the Ethnological

Society during the last three years. Even now the advocates of this measure do not admit their error, nor do they perceive how they are practically hindering the promotion of those scientific objects which they continue to claim for their society. On the contrary, they rejoice at their victory, and Mr. Crawford has publicly on more than one occasion ascribed the success which attended the Ethnological Society under his régime to the admission of ladies." We perfectly coincide in the opinion expressed above. There are and ought to be books written by men for men, which women really interested in such subjects have full liberty and are quite right to read. There is no law even to prevent their having societies of their own if they wish, but as matters stand their presence at the discussions of the Anthropological Society is not desirable, and would certainly either restrain freedom of speech, or embarrass alike the speaker and the audience; more particularly since such subjects as hybridity, miscegenation, strange and mysterious rites practised by savage nations, let alone the researches into Phallic worship, seem to have a special fascination for some of the anthropologists. Thus we find one terming the society the "refuge of destitute truth," where that which might not be said elsewhere could be freely expressed; another is affectionately exhorted "not to be afraid to give full details, he should not shrink from telling them the whole story. After he had done so, and it had been printed in the journal of the society, they could always do as the Abbé Domenech did when he published his *Livre des Sauvages*, paste down the leaves which contained the narrative;" while, with reference to one distinguished member, "the modesty which prevented him giving further particulars" was publicly alluded to as a misfortune. Later on dissensions arose with respect to the effect of missionary enterprises on savages, and also as to whether the biblical account of the Creation and Fall, and other kindred subjects, were to be understood as perfectly open questions, to be treated in a purely scientific and critical spirit or otherwise. The result of this was a secession of some twenty members, who formed themselves into a Victoria Institute under the genial guidance of Lord Shaftesbury. On this point, as on the previous one, we entirely agree with the course taken by the society. Let the same rule guide clergymen as women in propriety and fitness. When they cannot properly listen let them stay away. The speech addressed by the president of the society to the members last February contained the following very natural little outburst:—"Those who object to our non-acceptance of the biblical account of man's formation as the starting point of our inquiries, we can now consign to the 'Victoria Institute;' and those who from diseased livers or disappointed ambition cannot discuss scientific questions without a childish exhibition of temper, to the softening influence of the female sex at the Ethnological Society."

BIBLICAL SCIENCE.—"In scientific circles, the heresy of the most efficient members is startlingly apparent. Against members of the Anthropological Society charges of atheism are freely levelled; and although such a charge does not seem to be justified by any reports of their meetings, or by their printed publications, it is clear that not only out of doors, but even amongst their own circle, it is felt that their researches conflict seriously with the Hebrew writ. The Society has been preached against and prayed against, and yet it is simply a society for discovering everything possible about man, prehistoric as well as modern. It has, however, an unpardonable vice in the eyes of the orthodox,—it encourages the utterance of facts without regard to their effect on faiths."—*National Reformer*, January 14th, 1869.

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THE CAVE CANNIBALS OF SOUTH AFRICA.

By JAMES HENRY BOWKER, Dr. BLEEK, and Dr. JOHN BEDDOE.

AMONGST the many interesting objects of the Transgariep country are the celebrated Cannibal Caverns, the largest of which is situated amongst the mountains beyond Thaba Bosigo. A visit to this cavern will well repay the traveller for the break-neck journey that he is obliged to take before reaching it; and after he has spent an hour or two in the cavern and its vicinity, he will, I imagine, return a wiser and a sadder man; for such were the feelings that I brought away with me after paying it a visit.

We left Thaba Bosigo (the residence of the old Chief Moshesh) in the morning, and after passing that mountain, we travelled up a steep and narrow valley, and then along the Berea heights, until we reached the old deserted mission station Cana, where having obtained the necessary guides amongst the natives of this place, we started for the Cannibal Cavern, which was about two miles distant. Upon our arrival at the mountain above the cavern we left our horses in charge of a native, and descended a steep and rugged foot-path (or rather I should have said, a *hand-and-foot-path*, for the hands have quite as much to do in travelling this precipitous path as the feet), and by dint of holding on to tufts of grass, shrubs, projecting rocks, &c., &c., and by slipping, sliding, and scrambling, we at length arrived upon a grassy ledge, in the face of the cliff, where we could stand without the necessity of holding on. On turning to the right of this ledge the scene opened out in all its grandeur; and certainly, in all my life and wanderings, I have never beheld a more savage looking place. The cavern is formed by the overhanging cliff, and its entrance, a long, rugged, natural arch, extends along the whole face of the cavern, or nearly so, which is in length about one hundred and thirty yards, and its breadth about one hundred. The roof of this place, which is lofty and arched, is blackened with the smoke and soot of the fires of the savages who

formerly inhabited it, and its floor, strewn with the remains of what they had left there, consisted of heaps of human bones, piled up together or scattered about at random in the cavern, and from thence, down the sloping face of the rock, as far as the eye could reach, the clefts and small level spots were white with the bones and skulls of human beings; skulls especially were very numerous, and consisted chiefly of those of children and young persons. These remains told too true a tale of the purpose for which they had been used, for they were hacked and cut to pieces with what appeared to have been either blunt axes or sharpened stones; the marrow-bones were split into small pieces, the rounded joints alone being left unbroken. Only a very few of these bones were charred by fire, showing that the prevailing taste had been for boiled rather than roast meat.

You may guess the feelings with which I wandered about this gloomy sepulchre, and examined its various places of interest. One spot was pointed out to me, with rough irregular steps, leading up into the interior of the cavern to a gloomy-looking natural gallery, and in this place, I was informed, were stowed away the unfortunate victims not required for immediate consumption. From this place it was impossible to escape without passing through the middle of the cavern, which they could not do without being detected.

Horrible as all this must appear, there might be some excuse made for savages, driven by famine to extreme hunger, for capturing and devouring their enemies; but with these people it was totally different, for they were inhabiting a fine agricultural tract of country, which also abounded in game; but, notwithstanding all this, they were not contented with hunting and feeding upon their enemies, but preyed much upon each other also, for many of their captures were made from amongst the people of their own tribe, and even worse than this, in times of scarcity, many of their own wives and children became the victims of this horrible practice. If a wife proved lazy, or quarrelsome, she was speedily disposed of; or a crying baby would in like manner be silenced, and any member of the community showing signs of sickness, or bodily infirmity, would not be allowed to linger or to fall off in condition. Such were the horrible practices of this degraded people, and although it is now commonly reported that they have for many years entirely given up this diabolical way of living, I saw, while at the cavern, unmistakable evidence that the custom has not been altogether abandoned, for amongst the numerous bones were a few that appeared very recent; they were apparently those of a tall, bony individual, with a skull as hard as bronze; in the joints of these bones the marrow and fatty substances were still evident, showing but too plainly that not many months had elapsed since he had met his fate.

This cavern is one of the largest in the country, and from all accounts formed one of the head-quarter establishments of the cannibals; but the whole country, from the Moluta to the Caledon, including a part of the Putesana River, was, about thirty years ago, inhabited by cannibals, who were the terror of the surrounding tribes.

Their mode of living was to send out hunting parties who would conceal themselves amongst the rocks and bushes, and lie in ambush near roads, drifts, gardens, or watering places, for the purpose of surprising and capturing women and children, or travellers, or boys in search of lost cattle, &c.

There are still a good many of the old cannibals in existence. On the day that we visited the cavern, I was introduced to one of them, who is now living not very far from his former dwelling-place. He is a man of about sixty years of age, and (not to speak from prejudice) one of the most God-lost looking ruffians that I have ever beheld in all my life. There is one little episode connected with his life that I may as well relate. In former days, when he was a young man, and residing in the cavern, he captured, during one of his hunting expeditions, three young women, and from these he selected the best looking as a partner for life—the other two went to stock the larder. This union, notwithstanding the strange circumstances attending it, proved to be a happy one, the lady soon reconciling herself to her new mode of living, and settling quietly down in the cavern, where I was shown the corner which she and her husband formerly occupied; and her son, a fine strapping youth, brought us some milk on the day on which we visited the caverns. The old man's name is Rankutsent,* and that of his wife Mategeni.

Of the vegetation of the cavern and its vicinity, I have but little to say. There was nothing remarkable about it; a few scattered ferns of the commonest kinds grew here and there in the crevices of its roof, and outside of the cavern, growing in the broken skull of a child, which was partly filled with earth and served it as a flower-pot, was a little bulb (one of *Asphodelaceæ*), which I brought away with me as a souvenir of the cavern and its sad associations.

I also visited, in company with some friends, several of the cannibal caverns near the sources of the Caledon River. Some of these are very fine large caverns, though not so extensive as the one that I have just described. These Caledon River caverns are still inhabited, though no

* This is probably *Rakotsuane*, whom Arbousset and Dumas mention as the principal chief of the cannibal tribe, called *Makhatla*, tributaries to *Moshesh*. According to Arbousset's original account (*Relation*, p. 117), *Rakotsuane* had four kraals under him, whilst the translation (*Narrative*, p. 58) makes him govern twenty-five or twenty-six kraals, the most considerable of which was *Sefika*.

longer by cannibals, as the people have taken to other modes of procuring a livelihood.

At one of these caverns we met with an old savage, who told us that he had formerly been at the cooking of about thirty people, when cannibalism was still in vogue, and he seemed, like the "Last Minstrel," greatly to regret that

" Old times were changed,
Old manners gone ;"

and that

" The bigots of this iron time
Had called his *harmless* life a crime."

for he appeared to think that the objections raised to their former mode of living were unreasonable and uncalled-for. This old savage had a "devilled kidney," or "boiled missionary," look about him.

While we were at this place we heard rather a curious anecdote ; it is as follows :—

Many years ago, during one of the raids made by the cannibals, several individuals were captured and brought into the cavern, and amongst them was a young girl of great personal attractions. After a great deal of discussion on the part of the savages, her life was spared, and she became the wife of one of the cannibals. After some time had elapsed the father of this girl received information that she was still alive, but detained in the cavern ; upon hearing which he sought the aid of one of the missionaries residing in those regions, and together they proceeded to the cavern, where they made the necessary arrangements for the girl's return to her home, the father paying six oxen as ransom for his daughter. But she had not been very long at home before she again disappeared, and, upon inquiry being made, it was found that she had, of her own free will, returned to her friends in the cavern ; strange to say, preferring their mode of living to that of her father, who was not a cannibal.

There is another anecdote told of these people, which I will also relate, as it serves to illustrate their manners and customs, and to show how lightly they regarded human life :—

In former times, when lions were plentiful in these regions, they would occasionally (like the inhabitants of the caverns) choose the flesh of human game in preference to that of wild animals, becoming exceedingly troublesome in their nightly ravages to the inhabitants of the caverns, seizing and devouring many of them. To rid themselves of the lions, these people constructed stone-traps, and (shocking to relate) these stone-traps were baited with young children, whose sad wailings attracted the lions to the spot, when they would be taken in the snare, and the life of the child sacrificed. There is an old woman living near Thaba Bosigo who told me that she had, in the days of her

childhood, been the bait of a lion-trap; fortunately for her the lions did not enter the trap in which she was placed, or she would not have been saved to tell the tale.

The inhabitants of these caverns, who were formerly cannibals, constitute a part of Moshesh's tribe, which has been made up of the remnants of various aboriginal nations. The old chief, I have heard, did all in his power to suppress and do away with cannibalism amongst his people, and his endeavours were at length crowned with success, for they have, almost without exception, ceased to practise this inhuman custom, and have taken to other and more civilised modes of obtaining a livelihood. They are now not only stock-breeders, as well as stock-lifters, but they are also tillers of the soil.

DR. BLEEK HAS KINDLY ADDED THE FOLLOWING.

Those whom it may interest to hear more of the history of this cannibalism, we refer particularly to *Arboussset et Daumas' Relation d'un Voyage d'exploration au Nord-est de la Colonie du Cap de Bonne-Espérance; entrepris dans les mois de mars, avril et mai 1836* (Paris 1842), chap. vii, pp. 105-123. In the English translation by our late colonial botanist, Dr. Brown (Cape Town, 1846), this chapter is at pp. 52-61; but the translation does not contain the plates of the original edition, among which there are two (facing pp. 106 and 110) portraying the cannibal Betshuana. In the map which accompanies the original edition we find the seats of these cannibals laid down to the north-east of Thaba Bosigo. A short account of them is also given in the Rev. Edward Solomon's *Two Lectures on the Native Tribes of the Interior* (Cape Town, 1855), pp. 62-64.

According to the latter writer, the tribes who practised cannibalism were four, of whom two were Betshuana (the *Bafukeng* or *Ba-hukeng* and *Ma-katla*), and two Kafir, viz., the *Ba-makakana* and the *Ba-matlapatlapa*. It appears as if these tribes had first become cannibals through the wars which devastated those parts of Africa nearly fifty years ago. There is no doubt, however, that when once the appetite for human flesh had been created, they did not abandon the use of this kind of food, even after the necessity had ceased; and cannibalism became the habit of a people who (as our reporter had observed) inhabited "a fine agricultural country, which also abounded with game." It is possible, however, that cannibalism is of far older date in these regions. The native literature of the Zulus and the Betshuana abounds with reference to the cannibals who are called *A-ma-zimu* (sing. *I-zimu*) in Zulu, and *Ma-rimo* (sing. *Le-rimo*) in Setshuana. In several of the interesting Zulu nursery tales, published by Dr. Callaway, the cannibals play as prominent a part as the giants and man-eating witches in our European nursery tales. How deliciously, it is

told, how Unhlokanyana, entrapped by the cannibals, makes them eat their own mother instead of himself. Another story is remarkable, because it is met with not only among the Zulu, but is also told in essentially the same manner by the Betshuána tribes. It is the tale of "The Girl and the Cannibals," on pp. 142-152 of Dr. Callaway's *Nursery Tales*; and another Zulu version of it appears to be *Usitungu sonbenhle*, on pp. 74-78. Arbousset recounts it under the title *Tsélané*, at pp. 119-123 of his *Relation* (pp. 59-61 of Dr. Brown's Translation). The Setlapi version differs somewhat both from the Sesuto and the Zulu. It was written down from the dictation of a native called Mahube, by the late Rev. J. Frédox (Motito, Dec. 13th, 1865), and is preserved in manuscript at the Grey Library.

The following is a general account of the *Amazimu*, or cannibals, as dictated in Zulu to Dr. Callaway by a native (*Nursery Tales*, pp. 155-158):—

"All I know is that it is said that the Amazimu deserted other men and went to live in the mountains. For at first the Amazimu were men. The country was desolate; there was a great famine; and they wished to eat men because of the severity of the famine. When the famine was great, and men were in want, and there was no place where they could obtain food, they began to lay hold of men and to eat them. And so they were called Amazimu; for the word Amazimu, when interpreted, means to gormandize—to be gluttonous. So they rebelled against men; they forsook them and liked to eat them; and men drove them away. They went everywhere seeking men for food, and so they were regarded as a distinct nation, for with them men became game. They no longer cultivated the soil; they no longer had cattle or houses or sheep, nor any of those things which they had had whilst they were men. They went and lived in dens. When they found a cave, it became their dwelling-place whilst they went to hunt men. If they caught a man they went to the cave; again they left it to go and hunt men. They had no fixed habitation. If they did not catch a man they were constantly on the move, going about hunting for men.

"If they saw a man going alone they went to him, they decoyed him, and made themselves out merciful people; they treated him kindly, and spoke gently with him; and appeared incapable of doing any evil. When the man was thus beguiled and entirely unsuspecting, regarding them as pleasant people only, they would then lay hold of him; if he was a powerful man he might fight with them, and perhaps drive them off; or they might overcome him and carry him away to eat him. Again they hunted; at all times their occupation was to hunt.

"When they saw many men perhaps the men recognised them, and when they saw the Amazimu coming to them they began to prepare their weapons; if the Amazimu were numerous they threw themselves into line, and the men, too, threw themselves into line, forming a row. Then they drew near to each other, the Amazimu, too, drawing near;

but the men drew near with great courage, (that is, it required very great courage to think of fighting them,) for they knew that the Amazimu were very powerful men and fought. Perhaps they fight, perhaps they do not fight; but the men run away on casting one glance at them, for the Amazimu were terrible. Some who are brave may fight with them, and perhaps beat them; they then run away and leave the men behind, for the Amazimu were very swift; and the men can do nothing, and give over the pursuit.

“Again the Amazimu hunt and fall in with other men: when they fall in with them, perhaps they see that they are Amazimu, and run away, and the Amazimu pursue them until they overtake them; when they overtake them they lay hold of them. Others hide themselves and they do not see them. If they have caught sight of a man who has not hid himself he must run a great distance, they pursuing him till he is tired. For if a man does not hide himself, but contends with them by running only, they pursue him till they overtake him, for they do not readily tire. Then they carry him away with them, seeking a place concealed from men in the wilderness; when they come to such a place they boil and eat him.”

Dr. Callaway errs, however, in believing that the tales of cannibals in South Africa “are, for the most part, the traditional record of the incursions of foreign slave-hunters.” If Dr. Callaway had seen the caves of the cannibals, he would hardly have doubted that the reports of the natives and the French missionaries were as literally true as could be expected under the circumstances. The long-haired cannibals are evidently Betshuana, who generally have or wear longer hair than the Kafir tribes.

FURTHER PARTICULARS RESPECTING THE CANNIBALS OF SOUTH AFRICA.

By Dr. JOHN BEDDOE.

An Englishman, who visited the Cannibal Caves in December 1868, says, there is a regular system of chopping up the bodies, just as a butcher does a sheep. Every skull is cut with an axe across the bridge of the nose, cutting away the jaws, which are thrown away; a hole is then cut in the top of the skull, and the brains taken out. The ribs are all cut through to go into the cooking-pots, the large bones divided, and the marrow taken out. Many bones have gristle still adhering; and there are marks of the knives on the skulls where the flesh has been cut off, in strips, to eat. The bodies of the Europeans who fell in the attack on Thaba Bosigo were eaten at once, under the belief that their courage would pass into the bodies of their devourers.

A Basuto, who lately took service with a colonist near Graham's Town, stated, that the cannibals always ate white people, and blacks of other tribes: but not Hottentots or half-breeds. They ate the heart, liver, etc., took out the brains, tied them in a rag, and baked

them under ashes,—this is in good seasons; in times of greater scarcity they devour the whole body. They ate all the white people who fell into their hands during the late war in the Free State.

When questioned on the subject by the Kaffir servants of the colonist,* the same Basuto said he had never eaten human flesh himself, but he owned to having seen others do so, and he knew all about it.

ON MICROCEPHALI; OR, HUMAN-APE ORGANISMS.†

By Professor CARL VOGT, Hon. F.A.S.L.

I PURPOSE in this memoir to treat of certain cases of idiotism, happily very rare, which are the result of a congenital insufficiency of the cerebral system, and which should be distinguished from such cases of idiotism as are produced by various maladies after birth.

The intellectual faculties may be more or less profoundly altered by a number of different causes. They may be disturbed momentarily, or for a more or less considerable length of time, or even through life, by acute or chronic attacks. They may even be almost entirely abolished by morbid causes, leaving pathological alterations, differing much in their nature, but resembling each other in their effects. We now know that the primary causes of these states of brutalisation, known by the names of idiotism or cretinism, may vary; that cretinism may be combined with thousand deformations, differing much from each other, of the osseous cranium, of the integuments and of the substance of the brain; that effusions, extravasation of blood, inflammations, partial or general dropsy, may induce similar effects as regards the intellectual life of the brain, and that these morbid states may anatomically be manifested by a number of frequently opposite alterations.

I do not intend to enter into the analysis of all these cases, which are the result of morbid conditions supervening in an originally normally constituted organ. I shall only treat of cases of microcephaly, properly so called; where, by an arrest of development—which supervened during the uterine life of the fœtus, and by causes as yet unknown—the brain of the embryo is struck before being definitively

* Who was my informant.—J. B.

† We propose to publish, in a series of articles, a translation of the greater part of the important Memoir which M. Vogt has recently published on the above subject. We are glad to announce that we do so with the author's sanction and cooperation.—EDITOR.

constituted, and where, consequently, the infant is born with a brain considerably less in volume, and profoundly modified in its essential forms. I also exclude monsters not viable, because of the greater or lesser deficiency of the brain ; acephalous monsters, and anencephali (without brain). I confine myself to human products who are viable, and *who have lived*, in whom has been observed, from their birth, a brain too small, and a small cranium moulded on a defective brain.

Apart from any other quality of form or structure, the cerebral mass, in the genus *homo*, ought to have a minimum of volume and weight, below which it cannot descend without the cerebral functions, and, in the first place, those of the intelligence becoming sensibly affected. Microcephaly constitutes, as the Greek word justly expresses it, that condition in which the cranium, and the brain contained in it, have not reached the limit assigned to the species, and in which already, before birth, the cerebral functions are disturbed in consequence of arrest of development.

Cases of microcephaly are, I repeat, rare. The crania and the brain of microcephali are the most valuable objects in pathological collections. Despite long continued researches, I have, in the whole scientific literature, only found notices of about forty cases, and even of these there are, probably, some belonging to the category of idiotism from disease. I shall only mention the cases which I could not examine myself, by citing the sources I have taken them from. I shall, however, treat, in detail, of the crania and casts of the brain, which have kindly been placed at my disposal by the directors of the respective museums to which they belonged. Owing to the liberality of Messrs. Henle, of Goettingen ; Reichert and Virchow, of Berlin ; Luschka, of Tubingen ; Welcker, of Halle ; Koellicker and Recklinghausen, of Wurzburg ; Graeser, of Eichberg (Nassau) ; Krauss, of Stuttgart, I have been enabled to present—at the sitting of the Natural History Section of the Genève Institute, June 6, 1866—nine well characterised crania of microcephali, which form pretty nearly the whole inventory of Germany, as regards this formation. I am also indebted for many particulars, and pieces for comparison, to Messrs. Ecker, of Freiburg ; Frey, of Zurich ; Theile, of Weimar ; Capellini, of Bologna ; Klebs, of Berne ; Dr. Schaerer, of Waldau ; De la Harpe, of Lausanne ; Broca and Quatrefages, of Paris : to all of whom I return sincere thanks.

In this first memoir, I only give the particulars of German microcephali, for the history of which I was enabled to collect all the materials, excepting two brains preserved in alcohol. I shall, in supplements, treat of such, the materials for which are as yet incomplete. There seems to hover an evil star over all the materials formerly col-

lected at Paris. Despite the researches of my friend, M. Broca, none of the objects examined by MM. Cruveilhier, Baillarger, and Gratiolet, have been discovered,—a fact the more to be regretted, as the collection contained the only known cranium of a Negro microcephalus.

As I had no brains at my disposal I was obliged to confine my researches to crania and casts of the cranial cavity. I have given the *contours* of all the objects in natural size in geometrical projection. Some of the figures have been drawn with the apparatus of Lucae; but for the great majority of the objects I have used the diagraph of Gavard of Paris, an excellent instrument, not less exact than that of Lucae, and more easy in application for the designer.

All my drawings, excepting two views of the bases of crania, are taken upon a uniform position of the cranium, in which the superior margin, or the axis of the zygomatic arch, is parallel to the horizontal plane. It is known that this plane has been adopted by the Anthropologists who met at Goettingen, and in the works of MM. Ecker, Lucae, His, Rutimeyer, as well as in my own work on Man. I have reduced to the same position the drawings of the casts of the internal cavity representing the brain, in the conviction that the contents should be seen in the same manner as the capsule. The crania and the casts, being all drawn in natural size, may easily be compared with each other, by superposing the traces upon tracing paper. But here we must explain the mode of superposing these traces. I place the traces of the profile in such a manner that the median points of the nasofrontal suture exactly cover each other, and I reduce in the view of the profile the zygomatic arch to the horizontal plane. The differences in the *contours* are then seen at once, and are much more easily understood than by long descriptions. The division of my work was indicated by the nature of my subject. I first treat of the microcephali which have become known to me, citing all the sources where notices of them may be found, as well as the museums containing the preparations.

I then proceed to a detailed description of these pieces, reporting at the same time textually, as far as I had access to these documents, all that the respective authors said on these cases. I should have wished to separate, in order to insert them at a more appropriate place, the notices on the cranium and the brain, from the intellectual manifestations and the biography of these beings; but, to my regret, this was not always possible. I have, therefore, in the first chapter reported all that appeared to me important, confining my own observations to the cranium alone. I thus pass in review first the adults, and then infant microcephali, and summarise the facts in separate articles. I finish this chapter by a general summary on the conformation of

crania, treating especially of prognathism and of the position of the great occipital foramen.

In the second chapter I proceed to the examination of the brain by the aid of internal casts of the cerebral cavity. I examine the volume, the relation of the different parts and lobes, the convolutions and the relations of certain parts to some localised faculties.

The third chapter is devoted to the study of the manifestation of life, both somatic and intellectual. Amongst the cases will be found one of a microcephalous girl still living in the Canton of Berne.

The fourth chapter finally contains some general remarks on the causes of microcephaly, its relations to normal conformations, and on the results obtained for science in general, and the theory of Darwin in particular.

LIST OF KNOWN MICROCEPHALI, THE AUTHORS WHO HAVE DESCRIBED THEM, AND THE MUSEUMS IN WHICH THE PREPARATIONS ARE PRESERVED.

(a) GERMANY.

1. Gottfried Maehre, of Ratzum, died aged 44 years; Tables I-IV. The entire cranium is in the Museum of Halle.
J. G. Carus, *Atlas der Cranioscopie*, Tab. iv, 1843.
Hermann Welcker, *Untersuchungen über Wachsthum und Bau des Menschlichen Schaedels*, 1862. Some measurements of this cranium as well as of No. 4.
2. Michael Sohn, of Kiwittsblott, near Bromberg, died aged 20 years. Plates 5-7.
3. Friederich Sohn, his brother, died aged 18? Pl. 8-10. The entire skeleton of the former, and the cranium of the latter, are in the Berlin Museum.
Johannes Müller, *Nachrichten über die beiden Mikrocephalen zu Kiwittsblott bei Bromberg in Medicinische Zeitschrift für Heilkunde in Preussen*, 1836, Nos. 2 and 3.
4. Conrad Schuettelndreyer, of Buckeburg, died aged 31. Pl. 11-13. The cranium is in the Museum of Goettingen.
Blumenbach, *De anomalis et vitiosis quibusdam nisus formationis aberrationibus*. 1813.
Foerster, *Atlas der Missbildungen: Handbuch der speziellen Pathologischen Anatomie*, 1834, p. 406, pl. 17.
5. Microcephalus, of Jena, died aged 26. Pl. 14-16. The cranium and the brain are in the Goettingen Museum.
Theile, *Ueber einen Microcephalus in Zeitschrift für rationelle Medicin*, von Henle und Pfeufer. Third series, vol. xi, p. 210, 1861.

6. Louis Racke, of Hofheim (Nassau), died aged 20. Pl. 17 and 18. The cranium is in the Museum of the Hospital at Eichberg, near Eltville (Nassau).
7. Margareta Maehler, of Reineck, died aged 33. Pl. 19-21. The cranium is in the Museum of Würzburg.
Virchow, *Gesammelte Abhandlungen zur wissenschaftliche Medicin*, 1856, p. 947.
O. Schröder, *Krankengeschichte und Sectionsbericht in Archiv für wissenschaftliche Medicin, von Virchow*, vol. **xx**, p. 358. Foerster. See No. 4.
8. Johann Moegle, of Plattenhardt, near Stuttgart, died aged 15. Pl. 22, 23. The cranium is in the Tübingen Museum, No. 14.
9. Jacob Moegle, the cousin of the preceding, died aged 10. Pl. 24-26. The cranium is in the Stuttgart Museum, No. 13.
10. Johann George Moegle, brother of the preceding, died aged 5. Pl. 25, 26. The cranium is in the Tübingen Museum, No. 12. Jaeger, *Zur Geschichte hirnarmer Kinder: Medicinisches Correspondenzblatt des Württembergischen ärztlichen Vereins*, vol. **ix**, 1839, No. 28.

(b) FRANCE.

- 11, 12, 13. Three cases mentioned in Cruveilhier, *Anatomie Pathologique*, liv. 30, pl. 4.
14. A case described by Blachez in *Bulletin de la Société Anatomique de Paris*. 2me série, vol. **i**, Juillet 1856.
15. Case of 4 years; cranium and brain confided by M. Giraldes to M. Gratiolet.
Gratiolet, *Observations sur la Microcéphalie*, in *Bulletins de la Société d'Anthropologie de Paris*, vol. **i**, p. 34.
Gratiolet, *ibid.*, vol. **ii**, p. 68.
Gratiolet et Leuret, *Anatomie comparée du Système Nerveux*. Atlas, pl. 24.
16. Another case of 4 years. Cranium and brain given by M. Giraldes to M. Gratiolet.
Gratiolet et Leuret, *Anatomie comparée du Système Nerveux*. Atlas, pl. 32.
Gratiolet, *Observations sur la Microcéphalie*, in *Bulletins de la Société d'Anthropologie de Paris*, vol. **i**, p. 34.
17. Case presented by M. Broca to the Anthropological Society of Paris.
18. Girl, aged 4 years, presented by M. Baillarger before the Académie de Médecine.
Annales Médico-psychologiques, par Baillarger: Cerise et Moreau, 3me série, tome 2me, p. 473, 1856.
19. Boy, two years of age, observed by M. Joly, mentioned by M. Baillarger in the same note, p. 471.

(c) ENGLAND.

20. Cranium, preserved in the College of Surgeons. Male.
Owen, Osteology of the Chimpanzee,—Transactions of the Zoological Society, vol. i, p. 343.
- 21, 22. Two crania and brains, in the Museum of St. Bartholomew's Hospital. Described in the Catalogue of that Museum.
23. Case of a female, aged 42 years.
Gore, Notice of a case of Microcephaly, in Anthropological Review, vol. i, p. 169.
Defert, Rapport sur la Notice de M. Gore, Bulletins de la Société Anthropologique de Paris, vol. v, p. 15.
- 24, 25. Two cases, boy aged 11, and girl aged 7 years. Conolly.
Dublin Quarterly Journal, August 1865.
26. One case. Peacock, Notes on a case of Congenital Atrophy of the Brain, and Idiocy, in Reports of the Pathological Society of London, vol. x, session 1858-1859.
27. One case. Willis, Cerebri Anatome. Genève, 1860, p. 20.
28. Young girl, of Cork. Cranium preserved in the Museum of the College of Surgeons.
Spurzheim, Anatomy of the Brain. London, 1826.
29. Brain of a boy aged 12, presented by Mr. Marshall. Marshall, Anthropological Review, vol. i, p. 8, May 12, 1863.
Defert, Rapport sur la Revue Anthropologique de Londres, in Bulletins de la Société d'Anthropologie de Paris, vol. v, p. 560.
At the meeting of the Anthropological Society of London, May 1, 1866, Dr. Down observed that there were many cases of living Microcephali of a very low organisation. Dr. Beigel added, that he had seen fifteen of them at Colney Hatch.—Journal of the Anthropological Society, No. 15, October 1866, p. 182.

(d) HOLLAND.

30. Cranium, preserved in the Museum of Leyden, the individual died at the age of 20.
Sandifort, Museum Anatomicum Academiae Lugduni Batavorum, vol. iv, Tab. 690-691.

(e) SWITZERLAND.

31. A boy, aged 9 years, died at Abendberg, near Interlaken.
Vrolik, Beschrijving van gebrekkigen Hersen-en Schedel-Vorm. Amsterdam, 1854.
- 32-34. Three cases, among five infants, at St. Leonard, near Sion.
Baillarger, Annales Médico-Psychologiques, 3me série, vol. ii, p. 460.
35. A. R., girl, aged 5, died at Abendberg, near Interlaken. Autopsy by Professor Valentin of Berne, in
J. Guggenbühl, Die Heilung und Verhütung des Cretinismus und ihre neuesten Fortschritte, Bern und St. Gallen, 1853, p. 56.

36. Marie-Sophie Wyss, aged 16 years. Still living, in the hospice for poor and sick females, established by the government of the canton Bern, in the château Hindelbank, near Berne.

(f) ITALY.

- 37, 38. Two cases. One of the crania which belonged to an individual aged 36, is in the Museum of the Hospital of S. Spirito, at Sassia; the other, aged 19, is in the Museum of Manicomio, at Rome.

Bastonelli, *Sopra due casi di microcefalia*. Bolletino delle scienze mediche. Bologna, anno 31, ser. iv, vol. xi, Febbrajo, 1859.

G. C. Carus, *Zur vergleichenden Symbolik zwischen Menschen und Affenskelet*. Act. Acad. Leop. Naturæ Curiosorum, vol. xxviii, 1861.

(g) ASIA.

39. Mahratta girl, aged 16.

John Shortt, *Description of a living Microcephale*,—Journal of the Anthropological Society, No. 15, October 1866, p. 181.

(h) AMERICA.

- 40, 41. The two Aztecs exhibited in Europe; boy Maximo, and the girl Bartola. The head of one of these is said to be in the Museum of Berlin.

Leubuscher, *Ueber die Azteken*, in—Notizen aus der Natur und Heilkunde, von Froriep, 1856, vol. ii, Nos. 6, 7.

C. G. Carus, *Ueber die sogenannten Aztekenkinder*, in—Berichte der Akademie in Berlin; Mathematisch-physikalische Classe, 1856, p. 11.

(i) AFRICA.

42. Negress, aged 14.

Gratiolet, *Observations sur la Microcephalie*; Bulletins de la Société d'Anthropologie de Paris, vol. i, p. 34; vol. v, p. 18.

A general treatise, by R. Wagner, on the structure of the brain of microcephali compared with that of the normal brain in man and apes, appeared in 1862 under the title of, "Vorstudien zu einer wissenschaftlichen Morphologie und Physiologie des Menschlichen Gehirns als Seelenorgan." Zweite Abhandlung Ueber den Hirnbau der Mikrocephalen mit vergleichender Rücksicht auf den Bau des Gehirns des Normalen Menschen und der Quadrumanen.

R. Wagner treats here specially of the Jena case (No. 5), and cites the cases of the Sohns (Nos. 2 and 3); Mæhre (No. 1), of Gratiolet (Nos. 15, 16, and 34); the child, aged fourteen, described by Baillarger (No. 34); the two cases of Conolly (Nos. 21 and 22), of Cruveilhier (Nos. 11-13), of Plattenhardt (Nos. 8-10), two children of Roringen,

near Goettingen, who have not been scientifically examined; the case of Schuttelndreyer (No. 4), that of Leyden (No. 28), of Maehler (No. 7), and that of Abendberg described by Vrolik.

About the same time Wagner gave a general *résumé* of his views on microcephali, in the "Archiv für Naturgeschichte," of Troschel, 1861, vol. i, p. 63.

M. Gratiolet gives also a summary of his studies on this subject in a "Mémoire sur la microcéphalie considérée dans ses rapports avec la question des caractères du genre humain," in Mémoires de la Soc. d'Anthrop. de Paris, vol. i, p. 61, 1860-1863.

TABLE OF CASES OF MICROCEPHALY, WHOSE AGE AND SEX WERE ASCERTAINED. ARRANGED ACCORDING TO AGE.

Nos. of Order.	Name and Indication of Case.	No. of the preceding list.	Age.	Sex.
			Years.	
1	Gottfried Maehre	1	44	Male.
2	Case of Mr. Gore	23	42	Female.
3	Case of Sassia (Bastanelli)... ..	37	36	Male.
4	Margaritha Maehler	7	33	Female.
5	Schuttelndreyer	4	31	Male.
6	Case of Jena	5	26	"
7	Michel Sohn	2	20	"
8	Case of Leyden	30	20	"
9	Louis Racke	6	20	"
10	Case of Rome (Bastanelli)	38	19	"
11	Frederic Sohn	3	18	"
12	Aztec Maximo	40	17	"
13	Sophie Wyss	36	17	Female.
14	Maharatta girl	39	16	"
15	Johann Moegle	8	15	Male.
16	Negress (Baillarger)	42	14	Female.
17	Aztec Bartola	41	14	"
18	Case of Mr. Marshall	29	12	Male.
19	Case of Dr. Conolly	24	11	"
20	Jacob Moegle	9	10	"
21	Case of Abendberg (Vrolik)	31	9	"
22	Case of Dr. Conolly	25	7	Female.
23	Johann George Moegle	10	5	Male.
24	A. R., of Abendberg (Valentin)	35	5	Female.
25	Case of M. Giraldes	15	4	Male.
26	Case of M. Giraldes	16	4	"
27	Case of M. Baillarger	18	4	Female.
28	Case of M. Cruveilhier	12	3	Male.
29	Case of M. Joly	19	2	"
30	Case of M. Cruveilhier	11	8 months	"
31	Case of M. Cruveilhier	13	new-born.	"

Of these thirty-one cases, nine are of the female sex. In eight other cases, the age of which is unknown but the sex indicated, there

is one female (case of Cork, No. 28); there are thus about 25·6 per cent. or one-fourth of the female sex.

[*To be continued.*]

THE ANTIQUITY OF MAN.

How fully have the discoveries and researches of geologists confirmed the remarks of the poet,—

“The dust we tread upon was once alive.”

Everywhere, at various depths, and in various kinds of strata, have the numerous remains of living organisms been found,—the remains of living beings that played their part upon the earth for a time and then disappeared. The geologist has not only ascertained that such dust once lived, but has also arrived at a knowledge of the time which has elapsed since it was alive; so that we talk of the epochs of palæontology very much in the same manner as we do of those of history. Who among the wisest sages, three centuries ago, could have predicted that the crust of this planet should tell such a wonderful story—a story by which a knowledge of the various changes which it has undergone would be carried back millions of years? Who could have foretold then that so many generations of extinct creatures were entombed in the hard rocks, and preserved in a fossil state through periods of time in comparison with which the duration of Egyptian pyramids, catacombs, and mummies, is as insignificant as the lifetime of an ephemeride. Strange tales have, indeed, been told by mammoths, mastodons, plesiosauruses, and trilobites. We are startled when we open any well-written geological work, and read of the successive genera of animals which have inhabited this world, each one lasting its day,—which was doubtless a long one,—and another coming to act its part after it;—when we find it stated, that what is hill was once valley, and that what is valley was once hill;—that what is sea was once land, and that what is land was once sea;—that what is hard and compact rock, was once loose and incoherent sand; and that what is now loose and incoherent sand, was once hard and solid rock;—that our loftiest and most majestic mountains, with their bold granite peaks, defying the elements, were once slag and mud; and that what now forms mud at the bottom of the ocean formed, during olden times, the bold crests of elevated mountain ridges. While reading

about such astonishing matters, may we not, for a very good reason, pause for a moment, and inquire whether we have got into our hands a book somewhat akin to the *Arabian Nights*,—a book pleasing to the fancy, but totally unconnected with the realities of nature? But such is not the case; for as we proceed, we find that startling propositions and assertions are supported by solid arguments and a mighty array of facts. We cannot resist coming to the conclusion, when we weigh these arguments and consider the facts, that there is truth in that which is said,—that many of the statements are incontrovertible, and that assuredly we are not reading a book about dreamland, but one which discusses the sternest realities in the universe.

While many of the wonders of the Old World's history have been revealed by geological discovery, the ancient records of the earth's strata have not, till of late, thrown much light either on the antiquity or early condition of man. Within the last half-century, however, numerous human remains have been discovered buried in strata, which, although comparatively recent, are still of great antiquity when compared with the remotest time to which history can lead us back. Human bones, and even whole skeletons, have been discovered in such strata; while along with these, and in other strata without them, rude tools of stone, bronze, and bone, have been found, which attest that he was an inhabitant of the earth when those strata were formed. The discovery of these ancient human remains has led to various discussions with respect to man's antiquity,—both bones and tools being disputed as genuine; but unwearied scientific research and zeal have in the end triumphed, by fully establishing the genuineness of both bones and tools. The judgment, patience, and calmness with which scientific men have answered carping objections, are extremely praiseworthy; and not only are those tools alone made to supply evidence of man's existence in those ancient times, but the very marks on the bones of those animals which were killed by him, are made to throw light on the case in point. The discovery of the ancient ruins of cities in America, which shows that civilisation once existed in the land where the savage Red Indian has subsisted for innumerable ages on the produce of the chase; and of brown-haired mummies, which prove that the founders of that civilisation were a different race from these Indians, and were probably of European origin, has supplied us with further important evidence of the antiquity of man.

Of late, one of the most distinguished geologists of the age has written an elaborate work on this interesting subject,—a book delightfully written, and fraught with most important information on the question discussed: although, perhaps, a little prolix, and abounding

in irrelevant matter, which tends to make the reader lose sight of the main argument. But it may be said, in palliation of these faults, that the actual geological facts known bearing directly on the question, are, upon the whole, circumscribed; and that, in consequence, the author could not do otherwise than speculate upon the unknown, and point out the fields to be explored, when material to serve his turn was wanting. We have, not, therefore, those few strata only, in which man's remains have been found, described, but a most magnificent delineation of all the strata connected with them, and an elaborate investigation of their history, character, and the changes which they have undergone. So entertaining and fascinating are Sir Charles's descriptions of those gigantic geological revolutions, which have effected such strange changes in the structure of the crust of the earth, that the reader, far from cursing, feels inclined to bless, his digressive propensity. Although Sir Charles Lyell has designated his book *The Geological Evidences of the Antiquity of Man*, yet it should be more properly named "The Geology of the Strata in which Man's Remains have been found, or in which they may be found." Sir Charles has not exclusively restricted himself to the geological evidence; but has availed himself of that furnished by archæology, philology, and physiology. The work is not only one on the geological evidence of man's antiquity; but, also, on all other evidence which can be brought to bear on the point. Although, obviously, Sir Charles Lyell has thrown no new light on the antiquity of man, the most of the evidence brought forward, having previously appeared in other writings; yet he has treated the matter in such a superior manner, has imparted to it so much interest, has cast it in such a new form, and has so united scattered evidence and so conspicuously presented it to view, that the work cannot certainly be called a compilation, but a comprehensive philosophical treatise in which the arguments, discoveries, and observations of others, are used as material for enlarged and profound scientific generalisations.

It is remarked by Emerson, in his "Representative Men," that "Great minds are more distinguished by breadth than by originality," and this breadth of mind is perceived in all the writings of Sir Charles Lyell, in his "Principles" and in his "Elements of Geology"; and it is to this large, comprehensive handling of scientific subjects that a great portion of the extraordinary attractiveness of his writings, is particularly owing. As we read his works we are surprised at his far ken and range of vision, and wonder that so many of the bearings of facts and hypotheses upon each other, escaped our own observation. In considering this work, we can only regret that a book so finely written—a book in which the grand geologic changes connected with, and imme-

diately preceding, human existence, are delineated with the vivid conception of a poet, should, from the nature of the subject, want those enduring elements which ensure immortality. However, as our knowledge of this important question advances, it is to be hoped that this excellent scientific treatise shall keep pace with the progress of discovery by successive editions. It is a work, doubtless, that every lover of science and literature should feel sorry to see shelved or out of print.

It may be said that, in some respects several feel disappointed, on account of having fully expected that the question would have been treated altogether from a geological point of view; but it can easily be conceived that it was hardly possible to restrict it exclusively to the geological evidence; for, without the evidence supplied by other sciences being brought to bear on the geological, the latter could not be so well understood or appreciated. As yet, this department of science is in its infancy, and all that we know of it, is of a scattered and fragmentary character.

To unite isolated and disjointed facts, the sole resource of the writer, in the circumstances, was to reason boldly on the unknown, and bring conjecture to aid in constructing a rational theory capable of explaining the phenomena. The speculative character of the book, and its enlarged generalisations, we consider to be among its highest merits. It is highly suggestive, and cannot fail to lead the reader into new trains of thinking; for the writer never allows him to view the scenery from one point; but successively presents it to him from different positions, owing to which he is enabled to see it in all its variety. Well, indeed, do the words of Emerson apply to Sir Charles in this respect:—"Every surmise and vaticination of the mind is entitled to a certain respect; and we learn to prefer imperfect theories and sentences, which contain glimpses of truth, to digested systems which have no one valuable suggestion. A wise writer will feel that the ends of study and composition are best answered by announcing undiscovered regions of thought, and so communicating, through hope, new activity to the torpid spirit."

Indeed, "announcing undiscovered regions of thought," appears to be a principal aim of the "Antiquity of Man," and in few works has it done this to more purpose, and, assuredly, not many books are so well calculated to communicate "new activity to the torpid spirit" as this one is.

The first eleven chapters of the book discuss questions connected with those strata in particular, in which either the bones of man, or implements employed by him, or works constructed by him, have been found. We have a long and interesting account of the Danish

peat bogs, mounds, and kitchen middens, which have, for a length of time, so much excited the interest of archaeologists and geologists. Those curious lake dwellings which have of late years been discovered in such large numbers, receive a large share of the author's attention. The flint instruments, first discovered and examined by M. Boucher de Perthes, are brought prominently before the reader's view ; while the arguments of that celebrated man are recapitulated and put in a new light. The ages of stone, bronze, and iron, are examined, and their relative antiquity considered. The progress of man, however, from the use of stone tools to those of bronze, and from those of bronze to those of iron, affords but an uncertain guide to the tracing of man's antiquity ; since all these kinds of tools may have been used contemporaneously by different tribes and nations bordering upon one another ; while the substitution of the one kind for the other may be as often owing to conquest as to its gradual introduction either by native discovery or commerce. There is very great reason to think that, long after the introduction of iron, both stone and bronze tools were used. Even in the time of Tacitus, arrows headed with bone were used by the Fenni, a tribe that inhabited the north-east of ancient Germany. Tacitus assigns as a reason for using bone the scarcity of iron ; but we may reasonably assume that it was fully as much owing to the low civilisation which he ascribes to them. If in the time of Tacitus this people used arrows headed with bone, it is not unlikely that stone weapons were also employed by them ; and on this account there are good grounds for inferring that a few centuries before the time of Tacitus both stone and bronze weapons were by no means unfrequent among several European tribes. The readiness with which iron succeeded other metals and stone, no doubt depended much on the aptitude of different peoples to use or apply it ; and when different nations were fiercely waging war with one another, it may well be supposed that those who lived in an iron-producing country, would use all their endeavours to prevent those who lived in a country less favoured to obtain this metal ; so that, in consequence, the latter would be constrained to use such substances as stone or bone from absolute want of that which was more efficient.

What the civilisation of the Fenni was, may be best learnt from Tacitus's own words :—“ Fennis mina feritas, fœda paupertas ; non arma, non equi, non penates ; victui herba, vestitui pelles : cubile humus : sola in sagittis spes, quas inopia ferri ossibus asperant.” *

While the extraordinary revelations of the peat mosses and shell mounds of Denmark, with respect to the existence of man in that country long before the historic period, excite our amazement, not

* Tacitus, *Germania*, cap. 47.

less striking are the wonderful tales told by those curious lake dwellings which have of late years been discovered in such large numbers. When these lake dwellings are considered, as well as the peat mosses and shell mounds of Denmark, the antiquity ascribed to them cannot be said to be in the least exaggerated ; and an age of 7,000 years assigned to the oldest, may be said to be under rather than above that which is justified by facts. As beech flourished in Denmark two thousand years ago, we may reasonably allow it a duration of two thousand years previous to that time, and as it flourishes now as well as ever, we may justly infer that it will last at least a thousand years longer. Climate changes slowly, and so do the physical features of a country ; and, during those slow changes, one species of tree followed the other in the forests of Denmark. Four thousand years is about as short a time as we can allow for the duration of beech, and, certainly, we may allow twice the time for a succession of two kinds of oak ; this will give a duration of 11,000 years to the highest portion of the Scotch fir. When we consider that since the inhabitants of the Danish Isles, whose remains are found in the shell-mounds, lived, the physical features of Denmark, and the communication between the Atlantic and the Baltic, have been so much altered, as to affect materially oysters and other shell-fish found on the coast, to conclude that such a time has elapsed since the shells were deposited in the mounds is highly reasonable.

There is no country which tends to impress the mind with a stronger belief in the great antiquity of man than the land of the Pharaohs. Here are to be seen the remains of a mighty civilisation, the beginning of which is completely hidden from our view by the mist of ages. Immense pyramids, vast cities in ruin, gigantic sculptures, paintings which have defied the injuries of time, hieroglyphics, and mummies, about which early history is ignorant, and which were greater mysteries to Plato and Herodotus than to modern Egyptologists. How remote must that period be when the ancient Egyptian, like the savage inhabitants of Europe at the time when Denmark was covered with forests of Scotch fir, or like the modern natives of Australia, New Caledonia, New Guinea, and other South Sea islands, wrought with stone implements and fought with flint and bone weapons ! When the inhabitants of Denmark, whose remains are found in the shell mounds and peat mosses, killed wild beasts with bone weapons and cut them down with flint hatchets ; when the inhabitants of Switzerland raised their wooden-huts on lakes and feasted on the flesh of the fox ; did not the mighty cities of Egypt flourish in all their magnificence, abounding in superior artists and profound men of science ? their inhabitants in possession of numerous luxuries and refinements ; with a learned priesthood and

stable government ; the useful arts ministering to their wants, and supplying them with innumerable comforts and enjoyments. Did not those ancient Egyptians trade along the coasts of the Mediterranean ? and had they no intercourse with the barbarous tribes of Europe ? Did not bronze and iron find their way across the Mediterranean from Egypt and Phœnicia to Greece, Italy, and Gaul ? From the amazing progress which has been made during the last thirty years, in the knowledge of everything relating to man in prehistoric times, we are led to think that not many years shall elapse ere all these questions shall be satisfactorily answered. Egypt seems to us to be the land, more than any other, which brings archæology more closely in contact with geology ; and nothing can be more pleasing to the lovers of science than to learn that the Nile mud deposit is likely to afford a clue to the knowledge of the antiquity of Egyptian civilisation. Almost every year some new light is thrown upon this subject by the discovery of ancient remains at various depths in the Nile valley.

Long after its discovery America was considered to be a land which had never made any progress in civilisation, a land which had not even been inhabited many centuries before Europeans had visited its shores, and whose inhabitants were supposed to have entered it by Behring's Straits from Asia. The Spaniards encountered in Mexico and Peru a very rudimentary civilisation, certainly, which was supposed to have been imported from the old world. No land could be imagined to form a greater contrast to Egypt than America, from being apparently so void of all monuments of ancient human art. But this continent appears now in a different light ; monuments of ancient civilisation have been discovered over a vast extent of territory. Huge mounds, ruins of cities, sculpture, articles of gold and silver, and pottery attest that the western hemisphere was not always a dreary, vast, interminable forest, serving no other human purpose than a hunting ground for the naked, savage Red Indian. Those who created this civilisation seem to have been a different race from any of the present aboriginal ones ; for the skulls excavated from some of the burying places are different from those of the Red Indians. Of late, mummies have been discovered in South America with brown hair, a fact which proves that a brown-haired race, at one time, abounded there. Whence this brown-haired race arrived, if not autochthonous, is a question not easily answered at present. If from Europe, they must have emigrated at a time long anterior to the earliest period described in history ; and a civilisation must have existed on the western shores of this continent, of which all traces were lost at the time when the Roman sway prevailed in Britain, Gaul, and Spain. It may now be positively affirmed that America was inhabited by man at a very remote period, as human

remains are found there which have all the appearance of being as ancient as those found on the old continent. Under four superimposed forests, in the delta of the Mississippi, a human skeleton, along with some charcoal, is said to have been found, to which Dr. Dowler ascribes an antiquity of 50,000 years. Count Tourtalais found fossil human bones, consisting of jaws ; with some bones of the foot, in a calcareous conglomerate forming part of the coral reefs of Florida, which are estimated by Professor Agassiz to be 10,000 years old. At Natchez a human bone was discovered mingled with those of the mastodon and megalonyx. From these discoveries we anticipate a great many more in a few years to come.

Old as are the human remains found in the Danish shell-mounds and peat mosses in the lake dwellings, in the coral reefs of Florida, in cromlechs, barrows, and kist-vaens, much older than these, by far, are the flint implements and bones of man discovered in post-pliocene formations, in France, Belgium, and Sicily. In the valley of the Somme, in the valley of the Ouse, in the basin of the Seine, in the basin of the Thames, in the clay of the Hoxne, in the gravel of Icklingham, in the valley of the Ouse, in the caves of Engis, Engihoul, and Neanderthal, in a cavern near Wells, in the caves of Gower in Glamorganshire, in the Grotta di Maccagnone in Sicily, the indefatigable zeal and perseverance of the man of science, have traced out the bones of man and the rude stone tools used by him at a primitive stage of his existence, associated with the bones of numerous extinct species of animals, which passed away along with the telluric conditions to which their organism was related.

It is to M. Boucher de Perthes that the world owes the first discovery of these flint instruments in ancient alluvium containing the bones of extinct animals,—a discovery doubted for years, the sceptical suspecting that the tools were spurious ; but, at last, their genuineness has been completely established. No doubt there were impostures which justified the exercise of a degree of caution on the part of those who had not acquired the experimental skill in these matters, which readily distinguishes the real from the counterfeit. This skill, according to Sir Charles Lyell, was possessed by M. Boucher de Perthes, of whom he speaks in the following terms :—

“The antiquarian knowledge of their discoverer enabled him to recognise, in their rude and peculiar type, a character distinct from that of the polished stone weapons of a later period, usually called ‘celts.’”

The land and sea, the hills and valleys, the flora and fauna of Europe, have undergone vast and extraordinary mutations since man first trod upon its soil. Elephants and rhinoceroses grazed in the valleys of France and England ; hippopotamuses bathed in their rivers ; and cave lions and cave hyenas prowled in their forests, long after his appear-

ance in these countries. Long, indeed, must those men, whose remains are found in the post-pliocene deposit of the valley of the Somme, and in those singular caves in Belgium, England, and Sicily, mixed with the bones of these extinct animals, and which have so attracted the attention of men of science,—long must they have preceded those men whose remains are found in the shell-mounds of Denmark. Long, indeed, must have been the lapse of time from the period since those extinct species of animals abounded in large numbers till they disappeared entirely from the face of the earth! Countless generations of those men whose remains are found in the Danish peat-mosses and shell mounds, lived, died, and followed each other in succession through numerous ages and centuries; but with those extinct animals the earliest of these generations were not contemporaries.

Of Sir Charles's work seven chapters are devoted to the glacial period, from the twelfth to the eighteenth inclusive; and although, in the present state of our knowledge, this period is not so intimately connected with the question discussed, there being, as yet, no remains of man found in formations belonging to it, or preceding it; still it is the limit to the formations in which those remains have hitherto been discovered.

"It often happens," says our illustrious author, "that when in any given region we have pushed back our geological investigations as far as we can in search of evidence of the first appearance of man in Europe, we are stopped by arriving at what is called the 'boulder clay,' or 'northern drift.' This formation is usually quite destitute of organic remains, so that the thread of our inquiry into the history of the animate creation, as well as of man, is abruptly cut short. The interruption, however, is by no means encountered at the same point of time in every district. Several Anthropologists are of opinion that man lived on the earth during most of the glacial period; but no sufficiently authenticated remains of him can, in the meantime, be pointed out to support this view.

These seven chapters on the glacial period form decidedly the most interesting portion of the book. The reader, who has already read all the scattered papers and dry tedious articles which have appeared on this department of geology, cannot but admire the plastic intellect of the writer who has reduced to order such a chaotic mass of details, and who has imparted beauty and fresh glowing life to a cumbrous heap of dull matter. His vivid description of the appearance which the surface of the earth presented during this singular period, when cold and ice ruled triumphant in the northern hemisphere, may well bear comparison with some of the most brilliant passages of our most distinguished historians. As we read these chapters we are transported

from the present world around us to that of hundreds of thousands years ago, when frozen seas occupied the space where well-peopled countries, abounding in numerous large busy towns, are found ; in which seas huge icebergs floated in various directions, as is at present the case in the Arctic and Antarctic Oceans ; when arctic mollusks lived in the Mediterranean ; when the favoured land of Italy felt the chill of a northern climate ; and when the glorious land of the East,

“ Where all save the presence of man is divine,”

was familiar with ice ; glaciers covering these Syrian mountains, which, myriads of years thereafter, supplied those far-famed cedars that were used by Solomon in the building of the temple.

Long did this period last ; its duration may, indeed, be counted in hundreds of centuries ; and while it lasted, mighty were the changes which were effected ;—land was submerged, and the sea rolled over it for many centuries ;—the bottom of the “vasty deep” emerged, threw off the yoke of Neptune, and claimed the right of being dry land ; mountains, thousands of feet high, whose summits were lost in the azure vault of heaven, sank into the depths of the earth, and many fathoms of brine flowed over them ;—the strata which formed the bottom of the abyss defied and overcame the pressure of the ponderous ocean, and sprang up in tall peaks to the sky ;—more than once were these strange things enacted ;—and lands which sank emerged once more, while those that had formerly emerged, were submerged. At one stage of the glacial period, according to that theory of emergence and submergence, which, in Sir Charles’s opinion, best explains the phenomena, the mountains of Wales were much higher than at present ;—at another stage 2,300 feet lower ; at one stage of it, Scotland was 2,000 feet below its present level, and other parts of Britain 1,300 feet ; then Great Britain and Ireland consisted of a few groups of small islands formed by the mountains of Wales, Cumberland, the Scottish highlands, Munster and Connaught, and, probably, of a larger island formed by the portion of England south of the Severn and the Thames. When we look at the maps at Chap. xiv. of this work, how strange are the emotions awakened within us as we think of the German Ocean and the Irish Sea forming one continuous body of water, studded with a few groups of small islands, which, during that period, represented the large islands of Great Britain and Ireland ;—when we imagine ourselves standing upon a lofty peak in one of those islets, looking around on a sea covered with enormous masses of floating ice, and rolling its waves over strata which now form the rich territory where the large and populous towns of Edinburgh, Glasgow, Manchester, and Liverpool, at present stand ; whose extensive commerce employs those innumerable ships which sail, with their

white canvas swelling in the gale, on those two seas on each side of Great Britain, which are the remains of that continuous ice-covered ocean !

Whether man existed while this long period of glaciation prevailed has not yet been determined ; although his remains being found in contact with glacial formations corroborates the opinion of those who maintain that he did. The formations of the glacial period itself, as clearly pointed out by Sir Charles, are, for the most part, destitute of organic remains ; so that, if any indications of himself or of his works are to be discovered in connection with this period, it is in preglacial strata that archæologists and geologists are to look for them. On this point Sir Charles remarks :—

“ For the present we must be content to wait, and consider that we have made no investigations which entitle us to wonder that the bones or stone weapons of the era of the *Elephas meridionalis* have failed to come to light. If any such lie hid in those strata, and should hereafter be revealed to us, they would carry back the antiquity of man to a distance of time probably more than twice as great as that which separates our era from that of the most ancient of the tool-bearing gravels yet discovered in Picardy or elsewhere. But even then the reader will perceive that the age of man, though preglacial, would be so moderate in the great geological calendar, as given at p. 7, that he would scarcely date as far back as the commencement of the post-pliocene period.”

The last four chapters of the work are devoted to a consideration of the theories of “transmutation and progression,” of the doctrine of “variation and natural selection,” as propounded by Mr. Darwin, and of the “Aryan migrations and language.” Throughout these chapters we perceive a strong leaning towards Mr. Darwin's theory of the origin of species. Were we to suppose this theory true, and assume that all the races of mankind which at present inhabit the earth, are derived from one original race by “variation and natural selection,” we may arrive at some notions of the antiquity of man, by observing any changes which have taken place in the characteristics of these races, during that period of time in which history, sculpture, and other human records lend us their aid. But so far as these yield us their light, no change which scientific acumen can as yet discover, has taken place in the physical or mental primary qualities of any race ;—the Silurians, the native race of south Wales, are still dark, and the Caledonians, the native race of the north-east of Scotland, red-haired and large-limbed, as they were in the days of Tacitus ;—the modern Gaul is as easily elevated and depressed in spirit and as full of curiosity as his ancestor was in the age of Cæsar ;—Sir Archibald Alison points out in his History of Europe, that the modern Iberian displayed the

same patriotic enthusiastic courage in defending Saragossa, as the ancient Iberian did in defending Numantia;—under William the Silent, in defence of civil and religious liberty against the bigoted tyranny of Philip the Second, the Dutch manifested the same ferocious, sturdy, obstinate valour, and love of personal freedom, which led classical writers to designate their Batavian forefathers the bravest of the German nations;—the modern Copts and Nubians are identical in form and features with the ancient Egyptians;—the Negroes of to-day are identical with those of 4,000 years ago;—the Icelanders, whose Scandinavian ancestors settled in Iceland upwards of a thousand years ago, vary not in form, features, or character, from kindred peoples on the European continent;—and the peculiar physical and mental qualities of the same Scandinavian race, blended in various degrees with those of the Celts, are readily distinguishable in the Hebrides, along the shores of the western highlands, and in the east of Ireland; where the intermixture, although it took place a thousand years ago, has produced no new uniform race, but merely a mixed people. If all these races have been developed from one stock, and become what they are by a certain “law of variation and natural selection,” the rate of change has been so slow as not to be perceptible in 4,000 years; now, a change going on at an uniform rate, which is not perceptible in such a length of time, would not be very striking in ten times this number of years, or 40,000; and we may safely assert that it would not produce so great a difference as exists between the Australian and Scandinavian in ten times that number of years again, which would amount to 400,000 years. Were this theory therefore true, it would carry back the antiquity of man far beyond anything which geology has hitherto brought to light; but, however ingenious and attractive it may be, and however readily it may explain the phenomena of organic life, it must be said that in its present form, it is not thoroughly borne out by facts; while numerous objections, founded on the peculiar conditions of animal generation and descent, may, more especially, be brought against many of its extreme points.

“The Origin of Species,” displays the immense physiological information and rare talents of the author; while the suggestiveness of the general views, and the bold, rich, glowing speculative vein of thought which pervades the work, entitle it to hold the first rank among books on the philosophy of science; yet, in the meantime, we must express our dissent from its extreme conclusions, and our doubt of species having been produced within the same range of influences as varieties are. With all its faults, the student of nature can hardly take up any manual which gives a more profound insight into the laws that govern the animal world than Mr. Darwin's work; and Professor Huxley

may truly say that the Darwinian theory bears the same relation to a true physiological science, as the Copernican theory does to a true astronomical one. This comparison is altogether judicious; for when Copernicus placed the sun in the centre of the solar system, he laid the foundation of a true astronomy; but he made the planets move round him in circles; and this circular motion assumed for one which is really elliptical and spiral, is not unlike the doctrine of "variation and natural selection" carried to extremes. Let the *circularity* of the doctrine be a little modified and some *eccentricity* introduced, as has been done with regard to the Copernican theory, and there is a probability that the true theory is found. That species have been produced by "natural selection and variation," independently of general changes in the condition of the globe, is a point highly questionable, notwithstanding all that is said by Mr. Darwin on the pigeon race. The production of an endless number of varieties is highly possible; but we hold that there is a limit to their range. In looking at the animal world around us, we perceive that every species has a range of modification, which is entirely dependent on certain conditions; but the several modifications seem to resemble imperfect circles, an endless number of which can be described, all varying from each other, but bearing a resemblance more or less close to a perfect one. A breed of oxen, sheep, or horses, may be improved to a certain pitch; but here the improvement ceases; and, in a similar manner, education and other influences produce certain changes on the races of mankind; but to these changes also there is a limit—a barrier which cannot be passed. Nowhere has it been found that civilisation or climate has produced any effect on one race, tending to change it into another. In the East Indies Frisians have not been converted into Malays; in South America Iberians have not been converted into Red Indians; the Portuguese have not been transmuted into Negroes or Caffres in Africa, or into Chinese in Macao; the French are the same race in Cayenne, Guadaloupe, Louisiana, and Canada; in every zone, and under the influence of almost every climate, these peoples have retained the peculiar physical and mental characteristics of the races to which they respectively belong. If mankind were originally one race, the most probable explanation of the present diversity is, that it has been produced by great general changes in climate, as well as in other physical conditions of the globe. We learn from geology how often the climate of the earth has changed; but we do not yet, very well, understand how those changes were brought about; probably astronomy may, in a few years, throw some light on this obscure subject, and reveal the existence of some conditions by which the earth and her inhabitants are influenced at some periods more than at others, exactly

as is the case with the four seasons of the year. Then it may, perhaps, be ascertained that diversity of race has been produced in a shorter time than that in which the doctrine of "variation" would account for it. Eminent Anthropologists point out the recurrence of mixed races to the original native type, after a lapse of centuries, and adduce Spain, France, and Italy, as instances of countries in which the blood of the intrusive conquering peoples, has, to a great extent, disappeared, and whose present inhabitants are almost identical in racial qualities with those who preceded the intermixture with invaders. In families we observe that atavism is a wonderfully prevalent law; that there is nothing more frequent than to observe children closely resembling grandfathers and great-grandfathers; that, sometimes, the different features are inherited from different progenitors; that a peculiar form of nose, eye, chin, hand, or foot, may be traced out among several third and fourth cousins; that a colour of eye, which has disappeared in two generations, returns in the third; and that the colour of hair and shape of head, which have disappeared in three generations, return in the fourth. We observe, when parents differ in the colour of the hair, that, usually, the children have, alternately, the hair of father or mother. If the father has red hair and the mother flaxen, these colours do not mix, but the child is either flaxen-haired or red-haired; or if grandfather or grandmother was brown or black-haired, probably brown or black-haired. The same remarks apply to all the different parts of the body,—to the complexion, the colour of the skin, the voice, and the walk.

A similar law of recurrence pervades the animal kingdom, and is observed in families of horses, swine, oxen, sheep, dogs, and cats. The following is an instance of the law of succession in the case of cats:—The daughter and grandmother are similar in colour and form, the colour of each being dark grey spots on a white ground; the mother and great-grandmother, also, resemble each other in form and colour, the colour of each being red spots on a white ground. Similar instances might be multiplied in the case of other animals. It will be perceived, then, that here we have a limit to endless variation, by which varieties are circumscribed and held to a central normal type. When animals are brought from one country, or continent, to another, they undergo some change, as the case may be, corresponding to the new influences brought to bear upon them; but in a few generations they acquire a fixed form and character.

The usual boundary employed to separate species we believe to be wrongly fixed. Whether species breed together or not depends upon their nearness or remoteness. Those which are remote from one another do not breed, those which are somewhat near produce hybrids which do not breed with one another, and those which are nearer pro-

duce a mixed breed the duration of which is proportionate to their proximity. Difference and permanency of type is the true distinction of species. A modification of a permanent type constitutes a variety. The permanency of species may be said to be limited by geologic changes, accompanied by general changes of climate ; while variety is dependent on partial differences of climate in different parts of the earth, on local circumstances, and on artificial expedients. We learn, from geology, that the crust of the earth has undergone numerous successive changes, and that while these changes were being effected old species disappeared and new ones appeared. This appearance of new species and disappearance of old ones, is, certainly, more satisfactorily explained by the theory of transmutation than by any other hitherto offered, and this transmutation has, doubtless, been effected by peculiar conditions of the earth, and not in the ordinary manner in which varieties are produced. The strongest objections made to the theory of transmutation have, no doubt, been made, principally, in consequence of the conclusions to which it leads, viz., in uniting man so closely with the animal-creation ; but granting man to be developed from the lower animals, it does not necessarily make him one of them, any more than it makes an animal one of the vegetables by conceiving the animal kingdom to be derived from the latter. The several divisions of nature pass imperceptibly into one another ; and, as the line of demarcation is not very distinct, the difference is more properly seen at a distance from the boundary.

The different races are, no doubt, of different antiquity, and the lower ones, assuming the theory of progression to be true, are the oldest. Ten thousand years are but as yesterday in the antiquity of man ; races are, to all appearance, extinct now which inhabited the world myriads of years before Celts, Scandinavians, Saxons, Slavonians, or Iberians were in existence ; and, probably, Negroes, Hottentots, Australians, and Red Indians, played their part on the face of the globe a hundred thousand years before white skins, blue eyes, and light hair appeared in Europe.

Those ancient skulls which have been discovered within the last few years, have led to rare and interesting discussions, and their peculiar development strongly supports the theory of transmutation and progression. The Neanderthal skull has certainly acquired a celebrity which we may be sure its owner never expected in his lifetime ; and has suggested as many suppositions as were suggested to Hamlet by the skulls thrown up by the gravediggers. Several scientific men think that this skull belongs to an individual of a race which became extinct thousands of years preceding the historic period, but we must be cautious in our speculations until more of the kind are found.

The twenty-third chapter of Sir Charles's work on the Antiquity of Man is devoted to the subject of language. Philologists have discovered widely prevailing analogies among numerous groups of languages, in consequence of which they have been led to examine their structure with care and attention; and, from vigilant research, they have arrived at the conclusion that each of these groups has been derived from one common tongue. The most important of these groups is that usually called the Indo-European, or Aryan. These Aryan languages extend from the Ganges to the Atlantic; and it would of course, have required a great many ages for one language to ramify into so many others, which are now so widely different that common affinities can only be perceived and traced out by the ablest scholars. Of these languages Sanscrit is the farthest east, and Gaelic the farthest west. Were there a rate of change known so far as regards speech, it can readily be conceived that the time which has elapsed since the Aryan language was one till the present, might be estimated; but the rate at which language undergoes change, is so dependent upon peculiar circumstances, and so inconsistent, that it is exceedingly difficult to render its mutations available as a measure of duration. The Aryans are supposed to have extended themselves from central Asia eastward into India, and westward into Europe, forming several nations both in Europe and in Asia; but a strong objection to this theory of Aryan migration is, that the peoples and nations which speak these cognate languages, consist of widely different races, and that if they were all derived from this single Aryan race, a much larger time must be allowed for their conversion into several new races than the advocates of the Aryan theory assign to those migrations; but on the supposition that the Aryans were a conquering people, who subdued aboriginal races, intermixed with them, and imposed their language upon them, this difficulty is removed. In order to give a rational explanation of the phenomena of anthropology, it is certain that a much higher antiquity must be assigned to man than has hitherto been done, and doubtless Sir Charles Lyell has underrated rather than overrated it. A more temperate treatise than his could hardly be written on a question which, at present, excites the strongest interest in the scientific world.

The handling of such a subject as the Antiquity of Man, as may be easily conceived, requires to be done with circumspection; as any views that may clash with the present accepted interpretation of holy writ are sure to elicit the cry of heterodoxy from the bigoted; and disagreeable contests between the teachers of Christianity and the votaries of science, should be, as much as possible, avoided. That the teacher of religion should feel alarmed at any new speculations

which he may think lead to the diffusion of theological error, is nothing strange ; and, supposing he may give them undue opposition, he is, to a certain extent, to be excused for his zeal and well-meaning intentions ; also, if the enthusiastic man of science starts bold hypotheses, not sufficiently supported by facts or observation, he is still entitled to be treated with a degree of indulgence by the religious community. It is very much to be regretted that almost every advance which has for centuries been made in science, has been, at the commencement, violently opposed by many of the clergy. Surely the strong opposition which has so frequently been offered to new views on such matters, subsequently established, ought to teach those who are ready to risk the truth of scripture on received explanations, more caution. It may be safely affirmed that many of the current interpretations of the sacred text, cannot be reconciled with the facts of science ; but it is to be hoped that some of our erudite and profound divines will give this question their calm consideration, and so throw such light upon it as shall remove the contradictions between christian theology and anthropology.

POSITION OF THE FORAMEN MAGNUM.

By PROFESSOR JEFFREYS WYMAN, Corr. Memb. A.S.L.*

THE fact, to which attention was called by Daubenton, more than a century ago,† that the foramen magnum is situated farther back in apes than in man, naturally led anatomists to inquire whether any of the human races more nearly approach the apes in this respect than the rest. Soemmering made the assertion that such is the case in the Negro, and his statement has been quite generally repeated by subsequent writers. Prichard, however, satisfied himself that such is not the case, and after having examined "many Negro skulls," states that the foramen corresponds in position with that of the white races, viz. : "exactly behind the middle of the antero-posterior diameter of the basis cranii."‡ He, however, finds it necessary, in order that this should be the case, to make some allowance for the projection of the jaws. We have seen no account of the manner in which the measurements on which this opinion rests were made, except that the jaws

* From the *Proceedings of the Boston Natural History Society*, vol. x, 1868.

† "Sur la Difference du Grand Trou Occipital dans l'Homme et dans les autres Animaux. *Mémoires de l'Acad. des Sciences*, 1764.

‡ *Researches into the Physical History of Man*, vol. i, p. 285, London, 1851.

were included when the antero-posterior diameter of the head is spoken of. It is obvious that in comparing more or less prognathous races, the position of the foramen magnum may be found to vary, although there may be no variation when the cranium proper is alone considered. In other words the bones of the face may vary independently of the cranium.

The more common method adopted has been to measure from the anterior edge of the foramen magnum to the edge of the alveoli in the middle of the upper jaw, and from the foramen to the most prominent point of the occiput. It seems to us more correct to determine the position of the foramen, with regard to the cranium, than with regard to the cranium and face, especially as the chief interest which attaches to the foramen is an index of the relation of the spinal marrow to the cerebral mass.

In making the measurements on which the following table is based, we have kept this circumstance in view, and have adopted the following method. The long diameter, from the glabella to the occiput, having been previously measured with the callipers, is made horizontal by bringing the two ends of it to correspond with the points of the indices on the graduated uprights, and on which the indices are adjusted to the same elevation. Two moveable plumb lines, suspended from a wire stretched across the upper part of the frame, are then so adjusted that one dropping through the foramen magnum touches its anterior border, while the other touches the most prominent part of the occiput. The position of the foramen is indicated by the ratio of the distance comprised between the two plumb lines, to the long diameter of the cranium proper. The number expressing this ratio may be called *the index of the foramen magnum*, thus conforming to the method of expressing the ratio of the breadth, or the height to the length. When it is said that the index of the foramen magnum is 45.4, it is understood that the distance of the anterior edge of the foramen from the most projecting part of the occiput, is 45.4 parts of the long diameter, this last being considered 100, and both being projected on to the same plane.

	20 White.	5 Teutehi.	17 Negroes.	28 S. Islanders.	10 Hindoos.	48 N. American Indians.	3 Gorillas.	1 young Gorilla.	1 Chimpanzee.	3 young Chimpanzees.
Maximum,	50.0	47.2	48.7	47.5	45.4	47.8	26.8			39
Mean,	45.6	45.3	44.4	41.8	41.4	40.9	22.7	40	21	35.3
Minimum,	41.7	44	38.7	36.1	35.6	34.8	17.7			32
Range,	8.3	3.2	10.0	11.4	9.8	13.0				

To avoid error, it is important that the long diameter of the head should be made as nearly horizontal as possible, for the foramen magnum being on a higher plane, as the long diameter is tilted backwards or forwards, moves through an arc of a circle, which changes the position of the point where the vertical cuts the horizontal line.

The preceding table, in which the number of the skulls of each race examined is given at the top of the respective columns, shows that there is an actual difference in the position of the foramen magnum in the races compared, and of such an amount as to make it desirable to test the result with much larger collections, in order to determine more precisely the value of the position of this opening as a race character.

As far as this table can be accepted, it shows that while there is a difference between the human races as regards the position of the foramen magnum, it is quite small when compared with the difference between the human races and the apes; and, contrary to Soemmering's assertion, the Negro does not make the nearest approach to the latter; and on the other hand, although the negro cranium does not precisely agree with that of the white races, as stated by Prichard, it very nearly approaches it. It is the North-American Indian which has the lowest index.*

THE PROCESS OF DERIVATION OF THE SPANISH LANGUAGE FROM THE LATIN.

BEING PART OF THE "DISCURSO PRELIMINAR" TO THE "ROMANCERO Y CAN-
CIONERO." BY DON AGUSTIN DURAN.

Translated from the Spanish by J. G. Hincks.

It is difficult, if not impossible, to determine the period when the modern languages, emancipating themselves from the Latin, became common, and were constructed of forms essentially different to those of the primitive tongue. Observing, however, the course prescribed in similar cases by nature and necessity, we may presume somewhat upon the time and manner of their formation. This began with the

* The position of the foramen magnum, as will be seen by this table, is very different in the young from what it is in the adult apes, the former approaching much nearer to the human races than the latter. We have pointed out in a former volume of the *Proceedings* (ix, p. 203) other striking resemblances between the cranium of the young gorilla and the adult man, which are much diminished as age advances.

conquest of the Western Empire by the barbarous nations of the North. From that time, undoubtedly, the vulgar Latin began to decay, degenerate, and become mixed, ceding in its difficult and complicated construction to the rude intelligence of the conquerors. Its words being corrupted, it also adopted the simple syntax of the barbarous Northern tongues, and lost the rich and sonorous prosody belonging to languages of Oriental origin.

The rustic or provincial dialects (*linguas rústicas**) were produced by corrupting the Latin pronunciation, altering the sound of the letters, and forming their nouns, adjectives, and even verbs, some from the root only, † others from the desinences of some corresponding case or tense of the mother tongue.‡ The constant and most essential difference between the Latin and the modern languages derived from it, consists in the latter having—

- 1st. Suppressed the declension of the noun ;
- 2nd. Employed the anteposition of particles to distinguish the case ;
- 3rd. Adopted articles to determine gender and relation ; and
- 4th. Substituted for the direct conjugation of the passive voice, the union of the auxiliary with the past participle of the verb.

It is worthy of notice that the pronunciation of these languages §

* Thus are named the different jargons formed by corrupting the Latin prosody, pronunciation, and syntax.

† The *Provenzal* for instance. This language, as well as the *Francica* or *Theotisca*, was still in existence at the beginning of the French monarchy. The first must have originated among the Goths, who occupied the north of Spain and the South of France ; traces of the formation of some of its words are still to be met with in very old Latin documents. Several decrees ordered that sermons should be preached, and religious instruction given in, the *linguas rústicas* ; and, according to Meyer, in the seventh century, the Bishop of Tournay and Montemolin, elected after the death of St. Eloi, was as learned in the *Theotisca* idiom as in the Latin. In the eighth century, when the litanies were sung, the people replied *ora pro nos*, suppressing the desinence of *nobis*, and *tu lo juva*, placing the *Provenzal* particle, *lo*, before the verb instead of the Latin pronoun. In the document of the Moorish king of Coimbra, which is cited in the fifth note, we find words entirely *Provenzal*, *e* for *et*, *esparte* for *esparce*, *pecten* or *peiten* for *pectent* or *pendant*. According to Luitprand, in the year 728, the Catalan and the Valencian were considered established languages in Spain, and were consequently formed before the Arab conquest. This gives probability to the conjecture that the *Provenzal* took its origin among the Goths, who inhabited the south of France. Whoever cares to enter more thoroughly into this question, should consult the first volume of Raynouard's *Poesias originales de los Trovadores*.

‡ The Castilian, Italian, and French.

§ Each was distinguished by its affirmative particle, the *Provenzal* being called the language of *Oc*; the Walona, afterwards the French, that of *Owi*; the Castilian, Italian, and Portuguese, of *Si*, and the Teutonic, of *Ja*.

is more often more closely resembling the original, and less contracted, in proportion as the nations who speak them approach the South, thus proving how climate influences the vocal, guttural, and aural organs. We must, however, except the *Provençal*, which for its construction adopted Latin roots only. For this reason, and because it was the first formed, it serves as an intermediate step to the others.

But before any of these real languages, irregular jargons were formed, like those we now call *algarabias* or *francas*, which are used by nations who speak different idioms to communicate with each other.

In Spain, as in other parts, arose many of these jargons or *lenguas rústicas*, and among them undoubtedly that, which, cultivated and perfected, is now the dominant language,—the Castilian. Springing like the others from necessity, at first rude and incomplete like them all, it alone could be employed in arranging the indispensable communications between the conquerors and the conquered. The latter, being weakened, had no more power to preserve their dialect, than to defend their homes, and the former, a barbarous race, were neither able nor willing to study a language which, besides being complicated and difficult, had the disadvantage of belonging to a conquered and degraded race. The first, then, not attempting to struggle with the Latin idiom, and the last, not accommodating themselves to the rudeness and poverty of the Northern tongue, in each province resulted the final triumph of the *lengua rústica* which was most cultivated and complete, and with it the ruin, not only of its equals, but also of its elementaries.

No relic of the period before the Moorish invasion remains to us, written in that *lengua rústica** which, when perfected, was called Castilian, but the old narrative romance is still in existence, although belonging to a much later epoch, and modernised or altered by oral tradition, yet preserves so rude a diction and so barbarous a construction, that it may be easily inferred how informal and irregular must have been the language employed in anterior compositions.

* Before the Gothic invasion, the Cantabrian, Phœnician, Greek, Hebrew, Chaldean, Latin, and Celtiberian languages were spoken in Spain. The Arabic afterwards became general, and replaced them, putting an end to them in the provinces long possessed by the Moors, and in other parts being substituted for those which had formerly existed there. All the above-named languages contributed some words and etymologies to the Castilian; but the greater number of these belongs to the Latin. The Arabs also rendered tribute to the tongue of Virgil and Cicero; since, among the chronicles of Bishop Idacio, is a document made by the Moorish king of Coimbra, in the year 734, which begins thus:—“*Alboucen Iben-Mahumet Iben-Tarif, bellator fortis, vincitor Hispaniarum, dominator Cantabriæ Gothorum, et magnæ litis Roderici,*” etc.

It would be useless, were it possible, to ascertain whether these primitive people, after having discovered alphabetical characters, used them in writing poems before chronicles, or verse before prose. But it is certain that all, or nearly all, the civil and religious traditions of the origin of communities have been preserved in metrical language, because, this being an appropriate means of impressing on the memory what was worthy of remembrance, it must have supplied the place of writing in times when the latter art was unknown or little used.*

* The remote traditions of the origin and heroic age of communities are transmitted to us in poems, which appear rhythmical in language, and sententious in style. Although the learned Don Tomás Sanchez, opposing this idea, tries to prove that the books of Job and Genesis were originally written in prose, he does not succeed; because, not understanding Hebrew and Syriac prosody, he cannot well judge of the rhythm of those languages. On the contrary, taking into consideration the facts proved, and the analogous consequences deduced from them, we must needs believe that the books of Job and Genesis were composed in metrical language, because they consist of sententious versicles, which contain the idea within determined limits,—an art, perhaps, more difficult than that of versification, except when induced by versification itself. But when Sanchez stated his opinion respecting these books, he did not consequently prove that formerly there were not other works written in verse. The civilisation of the Hebrews and Egyptians was far too advanced for us to suppose that no other writings were then in existence, though they have not descended to us. Besides the enigmatical Veda of the Brahmins, the Persian traditions of the Ghebers, the Zendavesta of the second Zoroaster, the books of the Egyptian Osiris, and the Greek Orpheus, the Koran, and the Arab poems which precede it, appear written in metrical and sententious language. The Edda, the Voluspa, and the Havanna* strophes of the second Odin, the German Niebelungenlied, the Druidic and Celtic poems, and the Scotch ballads, which all belong to the civilisation of the north, and preserve its traditions,—all seem to be metrical works. If we descend to the relics of the middle ages, written in the *lenguas rústicas*, poetical compositions present themselves before prose. In the eleventh century appears a Portuguese poem on the *Perdida de España por el Rey Rodrigo*; in the twelfth, follows the Castilian *Cid*; and in the thirteenth, the poems of Alfonso el Sabio hold a prominent place. The *Cantigas* or *Lays*, and the *Provenzal tensidues* are of the date of the formation of nearly all the *lenguas rústicas*, and sustained their brilliancy until the crusade against the Albigenses destroyed the race of poets, and the language in which they composed. The works known to us, written in the Breton idiom of the province of Wales, and that of the Walones, much earlier than the book of *Bruty-Brenhined* (*Bruto de Bretaña*), belong to the end of the twelfth century and the beginning of the thirteenth. They are chivalric and genealogical poems, like *Rou* and *Florimon*, and others, in which are reproduced, though in an altered form, many of the Celtic and Teutonic traditions. No doubt historians, legislators, and other members of

* Probably the Hava-mál, contained in the Elder Edda.—TRANSLATOR.

Cadence and harmony, and consequently versification and song, have been the first resource of nations for transmitting to posterity the oral traditions illustrated by the rude monuments of the earliest epochs, and for preserving their traditions, while as yet there was no alphabetical system.

It is an undoubted fact that the latter being invented, was first used to write in verse the works committed to memory, the importance of which was so much the greater that in them was deposited and arranged whatever was known of history, civil and moral laws, and even imperfect and struggling arts and sciences.

The primitive languages are always more sonorous and harmonious than those secondarily formed in each country, but climate having so great an influence on the delicacy of the organs, particularly those of hearing and pronunciation, the oriental tongues far surpass those of the north in the above-named qualities. Primitive languages being founded on the direct imitation of natural sounds, necessarily abound in imitative harmony. The peal of thunder, the noise of the torrent, the soft murmuring of the brooks, the sweet song of the birds, the roar of the lion, such were the first sounds imitated by men to communicate one to another the impressions they received and the necessities they experienced. Savage languages are full of prolonged, rather than articulate, sounds, and seem better qualified to depict to the imagination than to speak to the understanding. Thus it is not strange that primitive nations, according to the greater or lesser mildness of their climate, sooner or later discovered the metrical system by which, in various poems, they have transmitted to us their various traditions. Perhaps there might even have been in certain lands a social epoch, when, under the almost exclusive influence of imagination and a sonorous and harmonious language, it was easier to be poet than orator. If such an epoch there ever were, it must have drawn to its close in proportion to the progress of civilisation, when men's ideas, multiplying with their necessities, a greater mass of intelligence was developed, and they found themselves obliged to create words to express abstract ideas, whose perfect analysis exacted the sacrifice of imitative harmony to method and exactness.

The majority of the modern languages is derived from the Latin, but as these imitated the sounds of the words, and thus indirectly natural ones, they lost the rich and sonorous prosody of the original, and are wanting in the rhythm and cadence of its versification. Thus

the primitive communities, found a substitute for alphabetical characters in versification and harmony, and employed them to preserve the laws, doctrines, and more important facts, which, when writing was discovered, were transferred to it, the same form being retained in preference to any other.

failing in prosody, the modern tongues have been obliged to adopt, in poetry, a metrical system which founds its harmonic resources not on the measure and time of pronunciation, but on the determined number of syllables, the combinations of a certain periodical rhythm and the art of placing the accents.* Such are, in general, the bases of the modern metrical system, so essentially different to the ancient.†

Thus in Spain, as in all Europe, were established after the Gothic conquest, various jargons or *dialectos rústicos*, which, with the native languages anterior and posterior to the Roman domination, increased the number existing in each province (see note 2, p. 2). Such a multitude of tongues, no doubt, produced great confusion, and this contributed, in no slight degree, to prolong the existence of Latin. It is necessary to the populations and provinces which had adopted different idioms, to make them understood by each other. After our Peninsula was invaded by the Arabs, the language of the conquerors became common, and in the provinces they governed caused the decay of the others, Latin included. But this did not happen in those parts whither the Arab rule had not extended, or where it was only temporary; there the existing languages were preserved and perfected.‡ Among them I shall distinguish, on account of its connection with the subject of the present essay, the *lenguaje rústico* of Asturias, which afterwards, extended and cultivated with the reconquest of the provinces, became the dominant language of Spain.

Before Arab civilisation fell, the remains of the Roman and Latin, ceasing to be a living tongue, was only employed in writing the laws, public acts, and learned works. For this reason no document of ancient date in the Asturian dialect remains to us, since, though rapidly extended by the continued triumphs of the Christian arms, it was yet neither perfect nor exact enough to be used in public assemblies or in the transcription of contracts and legislative codes.

The poem of the *Cid*, the translation of the *Fuero Juzgo*,§ *las Par-*

* This was not fixed, with any degree of certainty, until the sixteenth century.

† Vitiated, corrupted, and even forgotten, as the Latin pronunciation was, they began to compose it in hymns; in which we find syllabic number and consonant sounds supplying the place of long and short. Perhaps this was the beginning of the formation of the new metrical system adopted by the modern languages.

‡ The Biscayan provinces, and part of Navarre, preserved a Celtic dialect; the Galicians and Portuguese formed theirs by the admixture of the Suevians with a more contracted Latin than that used by the Castilians; and the Catalonians and Valencians adopted the Provençal with some modifications.

§ The translation of the *Fuero Juzgo*, of Cordoba, preceded and prepared the way for the work of the *Partidas*, projected in the reign of Ferdinand III, *el Santo*.

tidas, and the *Coplas* of Don Alfonso el Sabio, are the most remote written monuments to show us the state of the Castilian language at the end of the twelfth century and the beginning and middle of the thirteenth. The grace and boldness displayed in the style of the last two of these documents prove that the language must have undergone great changes before arriving at the point of flexibility and perfection in which we find it. It is impossible that it could have become so correctly formed and complete without having been previously cultivated by the learned, and others, in composing, if not in writing, works of much earlier date than those mentioned. It cannot be said with certainty whether these anterior works, the poem of the *Cid* excepted, were composed in prose or metre, but I am convinced that it was the latter, because people being obliged to trust to memory in the absence of writing, the object of preserving them would not be attained if suitable means were not employed. My conjecture rests upon the fact that the diction of the *Partidas*, polished, noble, and correct, already possesses the flexibility, harmony, and aptitude for good prose that languages acquire only after having been subjected to the turns and transpositions required in versification.

The irregularity and rudeness of the phrases, the want of grammatical sequence and connection between the ideas observable in the poem of the *Cid* induce me to consider it as an intermediate step between the *dialecto rústico* of the Asturians and the Castilian language of the thirteenth century. I have no hesitation, then, in looking upon it as a work composed in the twelfth century by a learned man of that time, who intended, though how little he succeeded is very apparent, to imitate Latin verse. In a word, I see in this poem* a progressive step taken by the language before the date of the *Fuero Juzgo* and the *Partidas*; but, considering its art and tendency to imitate models unknown to the *gente rústica*, I cannot consider it either the first production in the vulgar idiom, or look upon it as a specimen of popular poetry. Similar in style, but superior with respect to the latter point, we find the poems next in order, such as that of *Alijandro*, those of *Berceo*, and the *Archipreste de Hita*, which belong to a school imitating the Latin forms or the reminiscences belonging to them.

Besides, if we observe the slow march of nature towards perfection, we shall find that, notwithstanding the imperfect style and language of the *Cid*, we cannot imagine them to have arrived at even that point of cultivation without having been preceded by continued anterior

* In this historico-romantic poem, an attempt is made to imitate Latin verse; it is a pity that it is so badly executed. Notwithstanding its intolerable defects, the work has a certain candour, dignity, and interest which prove its author to have been a learned and, at times, an inspired man.

attempts, less studied and artificial, and better adapted for transmission to memory.

As the poem of the *Cid*, and others of its school, are wanting in the qualities proper to popular poetry, in those of another class, more easy, natural, simple, and remote, we must seek its original type. I say more remote, because it would be absurd to believe that from the point when Latin ceased to be a living language until the twelfth century, there were no songs of love and war, no hymns composed in the vulgar tongue, in which the people preserved, orally at least, their sentiments, fables, and history. We may therefore infer that the Castilian language and poetry began to progress seriously and uninterruptedly from the middle of the eighth century, when the independent Spaniards, who had taken refuge in Asturias, formed an established power and a true monarchy. In the time elapsing between the Arab invasion and the ninth century, several Christian states arose in the peninsula, and among others the kingdom of Leon was formed, consolidated and governed by Alphonso II. Then among his vassals began to be cultivated, made general, and established, that *dialecto rústico*, which afterwards, under the name of Castilian, became the principal language of Spain, triumphing over the primitives, such as the Biscayan, and the secondary tongues, like the Lemosino and the Galician, which were henceforward only spoken by the vulgar in certain determined districts.

The Catalonians and Arragonese maintained a treaty and communication with France and Italy, these countries having adopted the Provençal language, which, older than the other *lenguas rústicas* and being also their precursor, was first perfected. Those people, consequently, became civilised before the Asturians, who, surrounded by inaccessible mountains, were able to maintain their narrow limits only by the point of the sword, and at the cost of much blood shed in cruel battles with the Moorish usurpers of the Spanish soil.* Some glimmerings of social culture undoubtedly appeared in the reign of Alphonso II. Already the valiant Asturians began to breathe freely within more extended frontiers, their kingdom was stronger and better regulated, and they were forgetting, with their fears, the concentrated hatred which at first made them reject all amicable treaty with the Arabs, and repulse the enlightenment, arts, and civilisation brought by them into Spain. Then the enthusiasm for glory was substituted with

* We should, therefore, consider Asturias the cradle of the national language and poetry, without any admixture of foreign imitation. The inhabitants of this province had enough to do in repulsing the Moors, who left them no time to study Virgil and Horace, nor to appreciate the literature of their enemies, the Arabs.

advantage for blind courage, springing from the necessities of offence and defence. The chiefs who led the Christian forces to the field of honour, returned to their homes laden with booty and objects of luxury taken from the enemy. As an action of thanksgiving to the god of battles, they made use of their riches in erecting temples and endowing churches, and employed the arts, imperfect as they were, in raising monuments of gratitude to the Supreme and Protecting Being, who had assured them the victory. By this time Latin was already almost unknown, and the vulgar tongue could not have remained more idle than the arts, it being very probable that while these were employed in ornamenting the temples, it was used by the soldiers and people to express their sentiments, celebrate their chiefs, and preserve the memory of their deeds in metrical language. We do not know what these songs were, none of them have reached us, but we may infer their existence, deducing it from the natural order and necessity of things. Remarking, however, the character, nature, construction, and style of the most ancient language of which traces remain to us, and comparing them with the *Bable** dialect still preserved among the Asturians, I presume that the primitive songs must have consisted of short verses whose intonation gave the exact number of syllables, and in which the liberty of lengthening or shortening them in pronunciation supplied the place of rhythm and true consonance. If the necessity of these supplementary means to a complete and fixed system of versification is made known in reading the poems of *Alejandro*, those of *Berceo*, and of the *Archipreste de Hita*, composed by men of talent, with how much more reason will it not be found in the popular, chivalric, and historic romances belonging to and made by the *gente rústica*, which, if I dare not place them in so remote an epoch as that of the birth of our poetry, I believe at least retains traces of this primitive form in which versification first arose among us. In them are preserved, if not the words, yet the construction and cadence of the Asturian *lengua rústica*, and in many parts we can even trace the dialect now spoken by the inhabitants of that province. Taking into consideration the

* Few provinces of Spain have preserved more relics and records of venerable antiquity than Asturias. Its dialect, known as the *Bable*, is sonorous, smooth, and, if not extremely rich, less poor than is sometimes believed. In the interior of Asturias, the same language is used as was spoken in Spain in the middle ages; and many phrases and expressions, preserved in the poem of the *Cid*, are familiar to the Asturian labourers. Those words which were acquired from the Arabs, did not pass the boundaries of the province. It would be a pity to allow a dialect to be lost, which, properly studied, might explain the etymology of many Castilian words, and whence we could supply ourselves with expressions we might be in need of, instead of borrowing them from foreign languages.

rudeness of some portions of the chivalric and historic romances, and returning to the impression they make on me, I am quite convinced, though I have no means of proving it, that they are fragments of works of still greater antiquity, which have descended to us intercalated with more modern productions.

LE HON'S FOSSIL MAN.*

THE science of Archaic Anthropology may be divided thus:—Subjects which the English understand and the French do not; subjects which are understood by the French and ignored by the English; and subjects which neither of them understand. It might be supposed that the third category would be the largest, but, on careful consideration, most heads are comprised under the second; whilst the first is a mere box for microscopical objects. For this reason M. Le Hon's excellent book will prove highly interesting to Englishmen, and will place them *au courant* with the present state of the subject on the Continent. The whole book (considered as an avowed compilation) is one of the most valuable practical contributions to Archaic Anthropology that has ever been published. Far more convenient in form, written in better language, and more systematic in arrangement, than Sir C. Lyell's *Antiquity of Man*, it forms one of the most instructive works we have ever read; and we discern with pleasure that the friend of the accomplished Director of the Bruxelles Museum, Dr. Edouard Dupont, has incorporated in this work all that is now known about what has been infelicitously named the "Antrology" of Belgium. The discovery at La Naulette of the famous pithecoïd jaw (figured in this work), which is one of the most important *pièces justificatives* in the history of ancient man, was almost surpassed by the "find" in the *Trou Magrite* of the remains of cave-lion, which had reversed the usual order of things, and afforded sustenance for man. The Daniel who was in the lion's den at the *Trou Magrite* appears to have made a hearty meal on his equally carnivorous companions. We have rarely such valuable evidences of the customs of prehistoric man afforded to us; and we can only regret that, with the exception of Mr. Godwin Austen and Mr. J. Jones, so few English take much interest in Belgian discoveries. We trust that the investigation which was inaugurated by the Anthropological Society of London in 1866, acting in co-operation with Dr. E. Dupont, will

* *L'Homme Fossile en Europe; son industrie, ses mœurs, ses œuvres d'art.* Par H. Le Hon. Second edition, Bruxelles, 1868.

not be allowed to be altogether forgotten. The specimens upon which the antiquity of the human race can be most conveniently tested are those from the Belgian caves. The Aquitanian relics are of late date, and less value. The most important are those from Bruniquel, described by Professor Owen some time ago before the Royal Society, but of which the description is as yet unpublished. Some others are being described in the work published according to the will of the late Mr. Christy, including contributions by M. Lartet, the prince of French palæontologists, edited by Professor Rupert Jones. There has been certainly too much said about this work.

It has been several times attempted by the Rev. Dunbar Heath, to identify in some way the Aquitanian cave-dwellers with the "mute men," which, according to his theory of the origin of language, preceded the Aryan races in Western Europe. But when we examine the cranial characters of the skulls from Les Eyzies, we have no ground whatever to infer that they were destitute of language. It seems, moreover, improbable that a race which, on the whole, appeared to have possessed a considerable amount of knowledge of elementary art should have been destitute of language. It seems also scarcely logical to identify the "mute men" (if they ever existed) with the race of Aquitaine, any more than with the more pithecoïd and apparently more degraded individuals who lived at La Naulette and at Arcia. If either race was mute, the most pithecoïd and the least civilised should be chosen, in preference to the cave-dweller of Aquitaine, with his artistic skill and his vaulted cranium. The ages of the high level and low level gravels of the Somme valley are, since the publication of Mr. A. Tylor's paper before the Geological Society, exceedingly doubtful, and, for this reason, we refrain from synchronising the low level gravel with any of the French deposits.

M. Le Hon's introductory words give a general view of the present state of the science, as well as of the problems the scientific man has to solve. We are sorry that he should have thought fit to introduce the question of the derivation of the human race from the apes so early in the work as the twenty-ninth page, but have no doubt that his analysis of the subject is as valuable as that of any other previous writer, which is by no means too extravagant an encomium. A history is given of the mode by which the flint implements which, since the time of Mr. Frere, of Hoxne, have attracted so much attention, have been made: and the conditions under which cavern deposits have been accumulated are carefully laid down. We would commend this part of the work to all those who, like M. Desnoyers, have any doubts about the authenticity of certain cavern remains. It is true that in the infancy of the science various caverns (as *e.g.* Kirkdale)

Faunas.	Ages.	Human Industry.	France.	Belgium.	Stratigraphy of the Belgian Caverns.
Existing species.	Age of Polished Stone.	Instruments of	"Aryan" skulls.	Entrenched camps.	Beds which are forming at the present day.
Emigrated species and Existing species.		Polished Stone. Flint knives and worked bones.	without sculptures. with sculptures.	Dolmens, etc.		Sepulchral caverns, etc.
Extinct species. Emigrated species and Existing species.	Mammoth Age.—Reindeer Age.	Worked flints, with small splinters on the two faces. Worked bones.	{ La Madelaine. Les Eyzies— <i>Dolichocephalic skulls.</i> Laurerie basse.	{ Furfooz—"Turanian" skulls, <i>Ligurian type.</i> Chaleux.	"Limon hesbayen" (Loess). Deposit with angular pebbles (diluv. rouge).
			{ Laugerie haute.	{ Marches-les Dames.	
			{ Solutré.	{ Pont-à-Lesse (upper bed).	
			{ Moustjér. Gorge d'enfer.	{ Pont-à-Lesse (lower bed). Montaigle.	
		{ Coarse pottery.	{ Aurignac, etc.— <i>Human remains, type undetermined.</i> High level gravels of Somme valley.	{ La Naulette, etc.— "Pithecoïd" jaw of exaggerated "Slavonian" type.	Excavation of the valleys.
		{ Worked bones.			
					Limons fluviatiles and rolled pebbles.

were imperfectly described. It is also true that since that time French geologists have thoroughly laid down the conditions under which the age of various deposits in caverns can be comprehensively synchronised and referred to various and definite ages, according to the relative percentage of extant, emigrated, or existing species they may contain. English palæontologists have fallen into the wake of the French, and have bit by bit accumulated such evidences of patient research as Mr. Pengelly, in his celebrated Kent's hole exploration (under the auspices of a committee of the Royal Society) has presented.

With regard to the Moulin-Quignon jaw, M. Le Hon prudently relegates it to an obscure note at the end of a chapter, and does not commit the error common to too many French palæontologists of playing off the Moulin-Quignon jaw as a trump card in the controversy on the antiquity of man. He does not exhibit similar prudence respecting the Neanderthal skull, of which we have here a long account.

The whole chapter on the Man of the Mammoth and *Ursus spelæus* period is most interesting. The skulls of Engis, Eguisheim, Olmo, and Neanderthal, and the jaw of La Naulette, are carefully described. As the Olmo skull is scarcely known amongst Englishmen, we translate M. Le Hon's description:—

“M. Cocchi, of Florence, considers this to be anteglacial and more ancient than the Abbeville jaw. It was discovered in a railway cutting at Olmo, not far from Arezzo. This skull was at a depth of fifteen metres in a bed of lacustrine marl, which presented no trace of disturbance. This clay, of a level higher than that of the Arno alluvium, ought to be very ancient. It is surmounted by a bed of sandy gravel (ghiaie), by ancient and modern alluvia, and by vegetable earth. Near the skull was found a kind of flint *hache* or lance-head, chipped with large facets. At two metres above there was collected the tip of an elephant's tusk. These human remains seem rather to complicate the great ethnological (*sic*) question than to throw light upon it. The form generally classes the skull amongst the dolichocephali; the broad, low, and angular forehead in nothing resembles that of any fossil crania discovered up to the present time. M. Vogt, who has examined the Olmo skull, says that he does not know anything similar in ancient craniology. The anterior part of the skull is much depressed, whilst the occipital portion offers a considerable development. On the whole, especially in the posterior portion, the Olmo skull appears to resemble more the Negro type than that of any other race.”

The woodcut given, however, which exhibits a profile view of this skull, does not present any such remarkable peculiarities as those which M. Vogt seems to infer. It would, of course, be hazardous to infer from the profile view alone the considerable resemblance which this skull seems to bear to those, *e.g.* of the Borris and Blackwater river

beds, which exaggerate the extreme dolichocephalic type of the Dorsetshire long barrows and of the apostles' skulls of Switzerland. As, however, M. Vogt commits himself to the theory that the Olmo skull is *sui generis*, it would be unwise to contradict him on the mere ground of the resemblance the woodcut appears to bear to other and previously described dolichocephali. M. Le Hon argues in detail the question whether early man was cannibal. He quotes the discoveries of M. Spring in the cave of Chauveau, in Belgium, and M. H. De Ferry at Solutré, in the Maçonnais, which certainly bear out the theory. We are sorry to see, however, Mr. Laing's alleged discoveries in Caithness alluded to, and the scraps of mica-schist, which the ex-M.P. for Wick imagined to be works of human handiwork, described as "*silex*!" It is hardly necessary to say that no flint exists in Caithness.

The principal caverns of the age of the *Ursus spelæus* and of the Mammoth are the following:—Grotte de Vallières, De la Chaise, Grotte des Fées, Trou de la Fontaine, Sainte-Reine, Pontil, Moustier, Vergison, Massat, Kent's hole. A great deal of confusion has arisen by confounding these caves, which are of great antiquity, with the other ones of the reindeer age. These are also described by M. Le Hon in detail.

The account which is given by M. Le Hon of the caves of the reindeer period is especially valuable: and gives a far better account of them than in any book we have yet examined. Those described are Massat, Bise, Savigné, La Vache, Bruniquel, Des Eyzies, De la Balme, Bethenas, Chaleux, and Solutré, few of which have been described in English works on Archaic Anthropology. At the termination of this period took place that submergence of a large portion of northern Europe, during which the *Limon hesbayen* of Dumont was deposited. The waters in Belgium, according to M. Dupont's observation, attained the height at the epoch of the red drift (*argile jaune à blocaux*) of at least 250 metres.

We pass over a large portion of the work relating to the polished stone and bronze ages, inasmuch as our readers are already familiar with this period, which has been sufficiently described in English works. The analysis here given, however, is most valuable and comprehensive. At the conclusion of the work, however, is an epizoon, which rather detracts from its merits; i. e., an abridgment of the theory of Darwin, or "Transformism", translated from the Italian of Prof. Omboni, with prolegomena by M. Le Hon. This has absolutely nothing to do with the work itself; and we regret that so much space has been wasted on discussing elementary Darwinism, of which we have had quite enough. Whether "Darwinism", or "Derivation"* be the real method by which the various living beings

* Owen, *Comparative Anatomy of Vertebrates*, 8vo., Lond. 1868, vol. iii.

on the globe have been created, matters at present very little ; and has nothing to do with the question of "Fossil Man." If M. Le Hon had called his book one on the Origin of Man, the appendix would have been justifiable and necessary, but as it stands it is a blemish which we hope to see removed in the third edition. Belgium, however, in which country the most important evidences of the origin of man have been discovered, has just cause to be proud of the present work.

ANALYTICAL ACCOUNT OF THE CHIEF CHARACTERS
TENDING TO SEPARATE MAN FROM ANIMALS.*

By M. ROCHET.

MAN cannot be defined, as many naturalists have attempted, by a sacramental phrase. His distinctive characters are multiple, and it is by their ensemble that we are enabled to understand him ; he is a summary of all living beings, in some respects the conclusion ; and his infancy has not yet terminated. From our point of view man may be considered under five principal heads :—

1. *Man examined externally as regards form.*—There is not a single feature in the human face which, examined from an artistic stand-point, does not constitute a character of beauty and nobility foreign to the animal. He alone has an expressive and intelligent physiognomy. This applies also to the body. Thus the trunk of man is both supple and flexible ; it rotates on itself in a manner observed in no other animal ; like the head the body is of incomparable beauty, and shows a harmony of proportion not observed elsewhere." The erect stature, the perfection of the hand, and of the foot, are characters of the same value. The hand is especially characteristic. Man alone has a true hand ; he alone uses this admirable instrument for creating thousands of industrial and artistic masterpieces.

2. *The internal, sensitive, or moral man.*—Man is endowed with a moral sensibility altogether unknown to the rest of organised beings. Everything affects and agitates him. He loves, or believes in things animals have no notion of. He possesses the feeling of the beautiful, the ugly, of wrong and right. He alone is conscious of the morality or immorality of his acts. He alone in the whole universe is conscious

* Translated from the *Bulletins* of the Paris Anthropological Society. This is the summary of the author's important memoir on this subject.

of his existence, of that of the universe, of extension of space and duration. He knows that he is born, lives, grows old, and dies. Animals know nothing of all this. They feel that they will, but do not know it.

Man alone has an idea of God, and is attached to him by feeling and intelligence. By intelligence man arrives slowly at the idea of God. This one of those sublime abstractions which form the glory of human conceptions.

Considered in his social relations, even the most primitive and necessary, man alone of all animated beings forms a complete family, proceeding from the ascendant to descendants and collaterals. The animal takes life as it finds it without any way modifying it. Man, on the contrary, takes life according to his will; for all the regions on the globe form part of his domain; and he can in a thousand ways vary the mode of his existence.

3rd. *Man considered as an active being.*—Even in satisfying the lowest appetites, man differs from animals. He alone prepares his food by cooking it. Man alone provides himself with clothes to protect himself from the elements. When we treat of industry, instruments, and arms, the difference is enormous. The animal has no other weapons than those given to it by nature; man furnishes himself with a rich arsenal, and this aptitude he possessed when he first appeared upon the earth, as taught us by Archæology. Man finally possesses another important character, articulate speech. Where there is no word there is no idea, no thought, no intelligence. The extensive language of animals consists of simple interjections.

4th. *Of Man considered as an intelligent being, or of the faculties of the human mind.*—Animals possess in principle the same intellectual elements as man, but in a rudimentary state, so rudimentary that all comparison is impossible. Like ourselves, animals possess memory, or rather a memory, a faculty which is the basis of every intellectual operation. But in them it is a faculty founded only on wants, personal utility, without any true notion of the objects; whilst in man who, by means of language, acquires ideas, the facts of memory acquire great value. I have no intention of defining memory, but I estimate that a human brain may well contain from 300,000 to 400,000 images of things. Thus the memory of a philologist may contain more than 100,000 words without counting the variations, flexions, etc. The animal possesses nothing analogous to the free will of man. The choice of an animal is not a real deliberate choice; it is a simple option comparable to the decisions of a very young child or of an idiot.

The animal entirely wants imagination. I take this word in its poetical sense. It does not possess this faculty so precious for man's

happiness, the charm of life, the consolation and the remedy for his evils.

5th. *Man considered as a collective being.*—I merely here indicate how much man is superior to the animal by the mode in which he occupies the soil. The animal constantly loses territory which man gains. The day will arrive when there will be on the surface of the earth only such animals as are useful to man. The chief reason of man's great superiority over the animal is his faculty of association. Animality has no principle of cohesion in its members. Every animal lives only for itself. But men group together and combine their forces, and, although individually weak, they acquire an immense power. Man transmits his works and his conquests to his descendants. The animal perishes and leaves only his skeleton behind. And if man has frequently deified himself on the earth, it is because he found nothing on earth that can be compared to him.

BURTON'S EXPLORATIONS IN THE BRAZIL.*

THOSE anthropologists who, in the summer of 1865, watched the departure of Capt. Burton for a new and, to him, hitherto untrodden path of scientific travel, have waited long for the publication of the great work which should comprise his "experiences" of South American anthropology. The practical knowledge of man, alike in his highest and in his lowest aspects, which he had previously gained in India, in Arabia, in the Rocky Mountains, in Eastern Equatorial Africa, at Fernando Po, and in Dahome, naturally in a great degree qualified him for South American research. Now, however, we have the satisfaction of knowing that he has been promoted to a new field of labour in Syria; we doubt not that he will find that Abana and Pharpar, rivers of Damascus, are as much productive of anthropological fruit as even the São Francisco.

Glancing over the two enormous and closely printed volumes before us, we are utterly at a loss how to commence our criticism. Nearly every part of the work is a minute photograph of the country, the people, and the productions of the Brazil. A careful study of the

* *Explorations of the Highlands of the Brazil, with a full account of the Gold and Diamond Mines; also, Canoeing down 1,500 miles of the great river São Francisco, from Sabará to the sea.* By Captain Richard F. Burton, F.R.G.S., etc., Ex-President Anthropol. Soc. London, 2 vols. Tinsley Brothers.

authorities cited by him (made, we may parenthetically say, before Captain Burton's visit to the Brazil, and without any reference to the present work) has led us to the deliberate and mature generalisation that the present is one of the most important works on the Brazil ever published, and worthy to rank with Spix, Castelnau, or Neuwied. We shall commence with a few remarks on the subjective nature of descriptive anthropology.

Those who have themselves been in the tropics, and have watched the various modes in which the intrudent or colonising European population have assimilated with the physical features of the country, are able to appreciate the truth of the following remarks:—

“The first impression made by our Transatlantic cousins, speaking only of the farmer and little educated class, is peculiar and unpleasant. In them the bristly individuality of the Briton appears to have grown rank. Their ideas of persons and things are rigid, as if cast in iron: they are untaught, but ready to teach everything. Each one thinks purely and solely of self, from the smallest acts and offices of life, such as entering a room or sitting down at meals, to the important matter of buying land or of finding a home. All have eyes steadily fixed upon the main chance; every dodge to get on is allowable provided that it succeeds, and there is no tie except of blood, to prevent at any moment the party falling to pieces. Amongst themselves there is no geniality; of strangers, they are suspicious in the extreme, and they defraud themselves rather than run the risk of being defrauded. Nothing appears to satisfy them; whatever is done for them might have been done a ‘heap deal better.’ As the phrase is, they expect roast pig to be run before them, and even then they would grumble because the crittur was not properly fixed for them. This is not an agreeable account of the pioneers now leading the great Anglo-American movement in the Brazil. Yet we presently find out that these are the men wanted by the empire to teach practical mechanical knowledge, to create communications, and to leaven her population with rugged northern energy. Bred in a subtropical country, seasoned to fevers, and accustomed to employ Negroes, they will find the Mediterranean Brazil an improved edition of their old homes. Nothing is to be said against the German in this country, except that he is too fond of farming, as he often did in the United States, an *imperium in imperio*; moreover, his political ideas are apt to be in extremes. The Frenchman, like the Portuguese, comes out empty, as the old saying is, and goes back full. The Englishman, except under Morro Velho discipline, languishes and drinks. As regards bodily labour, he is inferior to the Negro. The Scotchman prefers great cities. The Irishman has been hitherto found unmanageable, but under the Anglo-American, who knows so well how to drive and manage him, he will be a valuable hand, the muscle and the working power of the country.”

There are more truths in this passage than the Saxon Englishman

will care to admit ; as a whole, it must be admitted that Anglo-Saxon emigration to, and acclimatisation in, the tropics is a failure. It was well suggested by Dr. Hunt that the men who are sent to the tropics should be selected in temperament, and that those should be preferred who appear to have temperaments most suited to the climate. This is so far so good. But we think that Dr. Hunt himself would not object to a further and more minute racial selection. We think ourselves that the Celt is the race *par excellence* for the tropics. The Saxon Englishman is too apt to suffer from nostalgia. "Vaterland," the "cottage homes of England," depraved, wretched, and degraded though they may be, have unspeakable charms for the Saxon. In the tropics, with their glorious soul-revivifying noonday sun, their calm and placid evening twilight, and their sharp "four o'clock in the morning" sensation of a delightful cool breeze, the Saxon finds no sources of enjoyment. The charms of scenery and climate, the new sensations of association with semi-savage life, and with a newly-spoken language, afford to him neither amusement nor consolation. He misses mutton, Protestantism, and beer ; the *tortillas*, *carné seco*, and *aguardiente* of the natives are at first repugnant to him, yet little by little he falls under the influence of the last named fluid, and the observant anthropologist sees the "unready Saxon" a moping, lazy, dissatisfied drunkard. Happily for his neighbour, there is a remedy, and the proximate epidemic speedily removes the lazy lout who has been imported into a land which is to him the reverse of Paradise.

It is far different with the Irishman or Frenchman. They have no social prejudices against associating with the Spaniard, and rapidly assimilate their diet with that of the native. So long as the Celt has work wherewith to feed his mind, the natural elasticity of his spirits precludes him from despair, and his inborn sense of honour, discipline, and veracity will render him susceptible of sensations which go far to make the apparently monotonous life in the tropics bearable. The writer (no phrenologist in the vulgar sense of the word) cannot but contrast the brains of the Celt and the Teuton. The enormous perceptive faculties of the first, coupled with his large basilar development, prefigure his power to observe and to enjoy surrounding nature, and to maintain vital force. The second has height and breadth, volume of voice, and rapidness of deduction ; as an inductive observer, the Teuton is simply nowhere, and in the Brazil he finds his level. It is so wherever we witness him. The flaxen-haired, fat, jolly, "sonsy" Anglo-Saxon, when contrasted with the wiry, intellectual, revengeful Celt, sinks into immeasurable inferiority. He tries to impress the natives with an idea that he is an Englishman, pays poor rates, and eats meat three times a-day ; he challenges them or his

Celtic superiors to pugilistic encounters ; and it is a relief to suffering humanity when a *cuchillada* ends the contest.

But to revert to the Brazil. It being admitted, not merely upon the showing of Capt. Burton, but upon the testimony of long experience, that the native of Southern Europe sympathises with, and assimilates to the native of America more than does the native of the later and lesser civilised nations of the north, let us examine what are the physical changes which his organisation undergoes. When a healthy European is for some time a resident in the Brazil, what differences are perceptible between himself and descendants on the one hand, and on the other hand the issue of the same parents in localities closely adjacent to their own ethnic centre ? The passages in the present work bearing reference to this question are numerous. We can only here select one of the more striking passages, referring, not merely to the mixed breeds but also to the Creole descendants of European parents. Apparently, according to Capt. Burton's theory, a greater deviation from the European type exists than is the case in Central America. For this we were prepared, remembering that in Central America the Negro blood forms a very small proportion of the mixed race, which is there almost entirely (except on the Mosquito coast) composed of white and aboriginal elements. In fact, the Brazilians are piebald, whereas the Central Americans are merely skewbald.

"The skull is generally dolichocephalic, and it is rather coronal than basilar ; rarely we find it massive at the base or in the region of the cerebellum [a great contrast to the Indians of the Western Coast] the sides are somewhat flat, and the constructive head is rare as a talent for architecture or mechanics. The cranium is rather the 'cocoa-nut head' than the bull head or the bullet head. The colour of the hair is of all shades between chestnut and blueblack ; red is rare ; when blonde and wavy, or crisp and frizzly, it usually shows mixture of blood ; it seldom falls off, nor does it turn grey till late in life—also a peculiarity of the aborigines. With us the nervous temperament is mostly known by their silky hair ; here we have the former accompanied by a 'mop.' I have heard Englishmen in Brazil declare that their hair has grown thicker than it was at home ; so Turks in Abyssinia have complained to me that their children, though born of European mothers, showed incipient signs of wool—they invariably attributed it to the dryness of the climate. Though hair in the Brazil is, indeed, an ornament to women, it seldom grows to a length proportionate with its thickness. The deepest eyes are straight and well-opened ; when not horizontally placed there is a suspicion of Indian blood ; the iris is a dark brown or black, and the cornea is a clear blue white—not dirty brown, as in the Negro. The eyebrows are seldom much arched, and sometimes they seem to be arched downwards ; the upper orbital region projects well forward. The

mouth is somewhat in the 'circumflex-accent shape;' and the thin ascetic lips are drawn down at the corners, as in the New England and the asthmatic sufferers in England. The teeth, of dead white, are unusually liable to decay; they require particular attention, and thus the dentist is an important person. Young men of twenty-five sometimes lose their upper incisors, a curious contrast of old mouth and young hair. The expression of the Mineiro's countenance is more serious than that of the European. In his gait, the slouch of the boor is exchanged for the light springing step of the Tupy. Hence he is an ardent sportsman, and the country squire delights in hunting parties, which extend from a week to two months. The nomad instinct is still strong within him, and he is always ready to travel; curiously enough, foreigners blame this propensity, and quote the old proverb about the rolling stone. All are riders from their childhood, and, like the northern backwoodsmen, they prefer the outstretched leg with only the toetip in the stirrup; this, they say, saves fatigue on a long journey; moreover, as they sit by balance, they can easily leave the animal when it falls. Our hunting seat and the hitched-up extremities of the Mongol would be to them equally unendurable.* It is to be observed that all the purely equestrian races ride either as if squatting or standing up; and both equally abhor what we call the *juste milieu*. Like the Bedouin and the Aborigine of the Brazil, the Mineiro is able to work hard upon a spare diet, but he will make up manfully for an enforced fast. Self-reliant and confident, he plunges into the forest, and disdains to live with others, and to cling in lines to the river bank."

Such is the Brazilian, *vide* Burton; and a description like the above will, we think, rarely be matched in the whole range of our literature of descriptive anthropology.

If we turn to the records of the past, what evidence is given us of prehistoric, or even of ancient existence in the Brazil? The appendix to the present work gives us a series of interesting facts, extracted from the *Revista Trimensal* of the *Instituto Historico e Geographico Brasileiro*, and which contain an account of a large, hidden, and very ancient city, without inhabitants, discovered in the year 1753. For interest we may say that this recital surpasses Stephens, and rivals Squier. For it gives us the account, for the first time in anthropological literature, of a mighty buried city in the mountain fastnesses of the Brazil, as well as five separate inscriptions which have been deciphered from these monuments. We are not ourselves about to offer any interpretations of these inscriptions. There has been quite enough nonsense printed during the last few years on the "Palæo-

* *Note by Reviewer.* What a contrast, however, is afforded between the short stirrups of the Central American *Mozo*, doubtless inherited from his Mauro-Spanish civilisers, and the long stirrups of the Texans and Californians, the descendants of the *rejectamenta* of Europe, who were never equestrians. The typical English jockey, or huntsman, however he may be in *medias res*, is far from being a model. The "cavalry seat" is, of course, wholly unsuitable to the practical man.

graphy of the New World" for us to wish to add one single shovelful of dirt more to the heap which has been already accumulated. Besides, "Maya alphabets" have had their day. But we may as well hint that the letters of the first inscription $\kappa\upsilon\phi\epsilon\xi$, have an unpleasantly Greek appearance, although they are to us unintelligible; whilst the Greek cross for three, the Latin cross for five, and the Arabic 5 for seven, make us a little suspicious that the inscription contains the scratchings of some joker. We have seen such things done before now. The little bit of Chinese, or Maya, or gibberish which is put in to represent the figure 8, does not shake our opinion. Nevertheless, we cannot but admit that the article in question may throw important light on the history of the early inhabitants of the Brazil, and we think that Mrs. Burton's plea for indulgence in favour of her excellent translation of the memoir may be frankly admitted. Few Englishwomen would have so easily mastered the difficulties of the language.

The passages in the present work relating to the gold mines of the Brazil are very important, especially in an anthropological sense, as it shows to what success British emigration to that country may be successful when the miners are under proper discipline, and when a large proportion of the men are permitted to have their wives with them. We are certain that the true civilisation of the tropics will be effected only when a certain proportion of European women are imported, to form the nucleus of a future white population. This pure white population—"Creole" in the literal sense of the word,—will extirpate the atrocious "mixed breed" that now crawls, like a disgusting reptile, over the fair face of the Brazil. Whether the best element to form the Creole population is Teuton or Romano-Celt, we have hinted above. In "rugged northern energy" we have no confidence whatever. Even the Teuton, however, is mentally and morally the vast superior over the cowardly, thievish "Ladino;" and when we glance at the miserable fate of our houseless, homeless poor in England, we cannot but hope that they may be induced to settle in a land where starvation, at least, is impossible. The formation of mixed breeds, however, is a direct social vice. Apart from all laws of morality with which we, *quâ* anthropologists, can have no immediate concern, we consider that any white man who aids in the production of a "mixed breed," should pay a fine of (say) twenty-five dollars to the civil authorities for deteriorating the population of the country. This may, at first sight, be thought severe; but white men should learn to restrain their passions, and refrain from producing a race prejudicial to the wellbeing of the state. The use of inoculation, and the spread of the rinderpest, have been checked by European law, without any regard to the feelings of the parent or

of the cattle-owner ; and there is no reason in ethics or in law why the mixed breed should not be "stamped out."

The weight of the pure blood Brazilian is estimated as about 128 lbs. ; and, according to Capt. Burton, he is rather wiry and agile than strong and sturdy. Hence, the Brazilian calls himself "Pé de Cabra," or goat-foot, opposed to the Portuguese, who is "Pé de Chumbo," foot of lead. We must commend the whole chapter on the Physical Man of Brazil to our readers, as it gives a far clearer notion of the population than any other work we remember. Capt. Burton certainly has a power of throwing himself into his subject, which no other modern traveller seems to possess. He has the vividness of Russell, without his occasional dulness ; the minute description of G. A. Sala, without his vulgarity ; and the accuracy of a photograph, without its deviation from focus. For to him anthropology is the focus around which all other sciences sink into distant perspective ; and if (to pursue the metaphor) he focusses too vividly now and then, so as to show the dirt-spots and the patches on the dress of his object, we have, after all, but an exact picture.

The dedication of the work is to Lord Stanley ; and we are glad to see that Capt. Burton signs himself "Ex-President of the Anthropological Society of London,"—a title which, in itself, is far more high than most of those commonly adopted in dedications. Mrs. Burton's preface is itself a model of good common sense ; and we are very glad to see that she appeals to the *gentle sex* not unduly to misjudge the present work, on account of the import of certain expressions used by the author, and which, perhaps, offend against the prejudices of the ignorant English public. Our own views with regard to the "religious and moral sentiments, which belie the good and chivalrous life" of Captain Burton, closely agree with those of the fair author of the preface, who has guided the delighted reader very well through the "anthropological sandbanks and hidden rocks" she appears to have noted, during her sojourn in the Brazil with her illustrious husband.

CARL VOGT'S LECTURES ON MAN.*

PROFESSOR CARL VOGT is styled by his countrymen the Darwin of Germany. Whatever resemblances there may be between these distinguished men of science, there is one important distinction to be borne in mind: Mr. Darwin has not in his great work on the Origin of Species directly applied to *Man* his theory of natural selection. That Darwin has not done so is dwelt upon by many as evidence that the illustrious naturalist never intended to imply man's origin by transmutation from some other animal, and his followers are censured for making him answerable for such a conclusion. (*Vide* Speech of Dr. Duncan on Mr. Dendy's Paper, Nov. 3, 1868, in J. A. S. L.) But as Mr. Darwin has not made man an exception to his theory of origin of species in general, it is utterly impossible to deny that the transmutation doctrine must involve man; *e.g.*, in the sweeping admission that *all* existing animals have descended from, at most, only four or five progenitors; and that analogy would even lead to the inference that "all the organic beings which have ever lived on this earth have descended from some one primordial form, into which life was at first breathed." Vogt, on the contrary, deals directly with man's origin, and, applying the hypothesis of Darwin, pushes it to its utmost limits. Those who still think that Darwinism permits man's genesis to be an exception from that of other species should read Professor Vogt's Lectures. That is not a difficult task to the student of scientific truth, whatever it might prove to the old-fashioned opponent of development. Thanks to the English Editor, this work may now become as popular in Britain as it is in Germany; a more charming work of science, and one better deserving of popularity, it would be difficult to find. It exemplifies the profundity and thoroughness which are characteristics of the German mind, with a lucidity of style which is not always a characteristic of German literature.

It would be obviously impossible in the limits of a brief notice, like the present, to go over the immense field of thought traversed by our author in sixteen lectures, comprising a volume of 469 pages, profusely illustrated with excellent woodcuts. Having to choose amid such an *embarras des richesses*, I shall confine myself to that portion of the

* *Lectures on Man, his place in Creation and in the History of the Earth*, by Dr. Carl Vogt, Hon. Fellow of the Anthropological Societies of Paris and London; Edited by James Hunt, Ph.D., F.S.A., F.R.S.L., &c. London, Longman & Co.; pp. 475, with 125 woodcuts; price 16s.

work bearing immediately on the profound and interesting question—the ancestry of the human species. If the genus *Homo* wishes for information on this point, Professor Vogt is quite ready to impart it in his Preface. Dr. Hunt observes: “Professor Vogt acknowledges that, to a great extent, he is willing to accept the conclusions of England’s great modern naturalist Charles Darwin; but, unlike many of that profound observer’s followers in this country, he entirely repudiates the opinions respecting man’s unity of origin, which a section of Darwinites in this country are now endeavouring to promulgate. “In this I concur. It appears to me quite consistent with Darwinism to believe in unity or plurality of human origin. The Darwinist may be monogenist or polygenist. I have expressed these views in a paper written before I had made acquaintance with Professor Vogt’s work.”*

In lecture six we have an elaborate comparison of man with the ape. Our author shows the fallacy of the popular idea that man is the only defenceless animal. The chimpanzee is equally unarmed; yet the chimpanzee has not become one of the lords of creation. The sheep butts with its hard skull; so does the Negro.

The advocates of generic distinction between human and simian brains point out that in man the convolutions are rounder; more complicated, more numerous, and less symmetrical. All very true, says our author, but these are only relative and quantitative, not qualitative differences. The general plan is and remains the same; this is proved by drawings of human and simian brains. Let the reader compare the drawings of the brains of the Hottentot Venus, Gauss, the celebrated mathematician, and the orang, pp. 184, 185. There is a greater similitude in the Hottentots and simian brains than in the two human brains. This appears fatal to the theory of a separate order and kingdom for man, based on a supposed fundamental diversity in brain structure between the genera *Homo* and *Simia*. In both the generic division of frontal, parietal, posterior, temporal lobes, Sylvian and other fissures correspond. We must agree, with Gratiolet, that “there is in man and ape a peculiar cerebral form; also in all these creatures a general type in the arrangement of the cerebral convolutions. This resemblance of man and ape in arrangement of the convolutions is worthy the attention of the philosopher. There is equally a particular type of the cerebral convolutions in bears, cats, dogs, makis, in short, in all natural families. Each of these families has its normal type; and in each of these groups the species may be connected solely according to the character of the cerebral convolutions.”

Our author proves that: “The difference between the brains of the

* See Paper on “The Ape-Origin of Mankind,” *Pop. Mag. Anthropology*, October, 1866.

microcephalus, an abnormally formed man, and that of the lowest race, the brain of a Bushman's wife (which, according to Gratiolet, would have produced idiocy in a white man), is greater than the difference between the idiot's and ape's brain. The idiot who has remained stationary in a primary stage, stands nearer to the ape than to his progenitor; the distance which his brain has to pass to perfect human development is greater than the distance it has passed from the simian stage" (p. 170). Professor Vogt "does not hesitate to uphold against Bischoff and Wagner, and even against Johannes Müller, that microcephali and born idiots present as perfect a series from man to ape as may be wished for;" and gives us further interesting details from a comparison of twenty cases of congenital idiocy:

"This is an arrested brain growth, chiefly affecting the anterior portion. Development is slow, such individuals learning to walk only in the fifth or sixth year. These idiots are frequently, though not always, dwarfs, like the Aztecs. The stooping walk, with curved knees, resembles that of the ape, causing them to appear shorter than they are. They usually die early. The impression produced by them is decidedly simious, or that the authorities even describe it as such. The arms seem disproportionately long, the legs short and weak; the head is that of an ape, the skull-cap is covered with thick woolly hair; the forehead nearly absent; the eyes stare from projecting orbital margins; nostrils wide; lower portion of the face muzzle-shaped; the teeth obliquely set. The head is disproportionately small in comparison with the body, viewed in profile the face occupies as large a space as the cranium. The large osseous pad above the root of nose, the projecting jaws, the facial angle of about 53-56 deg.; all these characters are decidedly simious. Viewed from below, the large occipital foramen situated farther back, the long parabolic palate, the open basilar suture, as well as traces of the intermaxillary suture, all these strike us as animal characters. We need only place skulls of Negro, chimpanzee, and idiots, side by side to show that the idiot holds, in every respect, an intermediate place between them.

He summarises idiotic forms thus: "In their brains and skulls resemblance to the human standard has been diminished by arrested development of anterior cerebral lobes, and only the secondary human character preserved, in the serried set of teeth and projecting chin." He asserts that "If a microcephalic skull were found without a lower jaw and an upper row of teeth, *every naturalist would at once declare it to be the cranium of an ape*, as in such a mutilated skull there would not be found the least characteristic mark which would justify an opposite inference." This, perhaps, is going too far; certainly the assertion does not appear to me to be borne out by the drawings of the idiot and chimpanzee skulls.

He then glances at the vital phenomena of idiots: "There are

scarcely any sexual manifestations ; movements rapid but unsteady ; walk tripping. Many never learn properly to use their hands ; they exhibit a restless activity ; attention excited and as quickly obliterated ; memory defective ; they are fond of play, but cannot learn the amusements of children ; they are tolerated like domestic animals, manifesting their wants by shrill sounds, understood as the hunter distinguishes the cries of animals, &c. Few acquire articulate language : the Aztecs pronounced some few words they had learned." Leubuscher says of the Aztecs : " They possess memory for such things as greatly excited their attention, for persons who had been long about them. When I measured them the boy recollected earlier proceedings of this kind. After the lapse of eight days he well recollected the previous process, so that on my questioning him what I had done, he described the lines round his head ; but, having interrupted my visits for several days, he had forgotten me and all the rest, as had also the girl. The extent of their intellectual capacity does not surpass that of an eighteen months' child, and, may be, falls below it. What we call ideas they probably do not possess, as this degree of intellectual development can only be formed upon the basis of individual self-consciousness." Vogt speaks of the so-called Aztecs as mulatto dwarfs ; it is curious to compare with the opinions of scientific men the newspaper puffs and flourishing articles about the time of the first exhibition of the Aztecs in London, and their recent receptions after marriage in 1867. As I am not like a friend, who said he never had occasion to change his views, and knew all that was necessary to be known at the age of eighteen, I am not ashamed to confess that I published an article on the Aztecs in the *Freemasons' Magazine*, June, 1855, under the impression that they were types of a distinct race. I have made some advances in the study of Anthropology since that time.

Vogt thinks, with Wagner, that a minute analysis of psychological phenomena in idiots might yield important results as regards intellectual activity in general ; and that some idiots might, by careful training, be raised in the intellectual scale.* From known facts intellectual capacity is closely connected with cranial and cerebral structure, and never admitted a well-articulated language. There is no trace in history of such decided human characters as ideas, a higher intelligence and abstraction, not even of such primitive notions of good and evil, nor of original moral qualities, as induce some modern French authorities to claim for man a separate kingdom. In many respects idiots stand below the animal ; they are more helpless, are unable to procure food for themselves, and to preserve life without assistance. Their whole

* A very interesting account of such phenomena is given by Miss Martineau. *Letters on Man's Nature and Development*, by Atkinson and Martineau.

appearance is simious: the deficient forehead, protruding, glassy, rolling eyes, projecting muzzle, stooping posture, long arms and short legs, minute analogies in cranial and cerebral structure, restlessness, spasmodic twitches, shrill notes of pleasure or anger—who does not here detect the ape? He concludes his picture of ape man as follows: “There is undoubtedly a mixture of human and simious character, the latter being produced by an arrested development of the foetus *in utero*, forming thus an intermediate stage between ape and man, produced by the progress of the laws of the development of human genus. If now it be possible that man, by arrest of development, may approximate the ape, the formative law must be the same for both; and so we cannot deny the possibility that just as man may, by arrest of development, sink down to the ape, so may the ape, by a progressive development, approximate to man.”

The intelligent student of Vogt will be struck with the remarkable approximation to the human type in the skulls of some American monkeys; *e. g.*, those of the brown sajou (*Cebus apella*), and the capuchin (*Cebus albifrons*). Illustrations are given of the top view, profile, and base of skull (Lecture 8). After these, let him look at drawings of monkey brains (pp. 212, 213), and following Vogt's advice, “compare with these the brains of the Hottentot Venus and the German Gausa. We may leave the inference to common sense.” He concludes, “the unprejudiced observer cannot fail to find that the sum of the difference between two species of apes is in no case greater, and in many cases much less, than those obtaining between two races of mankind, and he will arrive at the conclusion, that the races of mankind must either be considered as different species, or the species of apes must be designated races. But what is to become of systematic zoology, if long and short-tailed species of apes, differing so much in external form that they have been divided into genera, are to constitute only varieties or races? All systematic natural history would go to ruin; and all *Simiadae*, from the lowest onistiti up to the gorilla, would be fused into one whirlpool, which would swallow up man and all his races” (p. 214). “No man would certainly have doubted the specific difference in mankind, if the unity of the human race had not to be defended at any price,—if a tradition had not to be supported in opposition to the plainest facts,—a tradition which has been the more venerated because it runs counter to positive science. As regards species, then, we hold fast by the principle that the genus *Homo* consists of several species, which deviate from each other as much as, if not more so, than most *Simiadae*; if the principles of systematic zoology are to be of any value, they must be as applicable to the human as to the simious species” (p. 222).

I conclude by presenting Vogt's ante-monogenistic views of ape-origins of man. "Whilst we assume the actual descent of the human race from apes, and believe the differences between both, which will become greater by further development of man, result from selection and intermixture, we decidedly repudiate an inference we are charged with, that we must necessarily come back to the original unity of mankind, and consider Adam as an intermediate form between ape and man, etc. Never was there a more incorrect inference; as far as I know, no Darwinist has either raised that question, or drawn the above inferences, for the simple reason that it neither accords with the facts, nor their consequences.* *The ape-type does not culminate in one, but in three anthropoid apes*, which belong to at least different genera. Two of these, orang and gorilla, must be divided into different species; there are, perhaps, some varieties of them which form dispersive circles, like some around certain races of man. This much is certain; each of these anthropoid apes has its peculiar characters by which it approaches man: the chimpanzee, by cranial and dental structure; the orang, by its cerebral structure; the gorilla, by structure of the extremities. None of these stands next to man in all points,—the three forms approach man from different sides without reaching him," etc. (p. 464). "Let us imagine the three anthropoid apes continued to the human type,—which they do not reach, and, perhaps, never will reach; we shall then see developed from the three parallel series of apes, three different primary races of mankind, two dolichocephalic races descended from gorilla and chimpanzee, and one brachycephalic, descended from orang: that descended from gorilla is, perhaps, distinguished by development of teeth and chest; that descended from orang, by length of arms and light red hair; and that issued from chimpanzee, by black colour, slender bones, and less massive jaws."

The chimpanzee has a white, or rather a yellow face. M. du Chaillu tells us, the Negroes "have a notion that there is some mysterious connexion or affinity between the chimpanzee and the white man." He thinks it is owing to the pale face of the chimpanzee, which has suggested the notion that we are descended from it, as the Negro has descended from the black-faced gorilla."* Vogt continues: "When, therefore, we look upon apes and their developments as proceeding from different parallel series, the assumption of only one intermediate form between man and ape is unjustifiable, inasmuch as we know in

* The Editor of Vogt's Lectures adds in a note: "This is quite true, although the author is mistaken respecting there being no Darwinist advocates for unity. I have alluded to this in the Preface."—Ed.

† *Journey to Ashango Land*, p. 35.

our present creation three different sources for such intermediate forms. Schröder Van der Kolk and Vrolik agree with us in this respect, although they are opposed to Darwin's theory. 'We know,' say they, 'no species of apes which forms a direct transition to man. If man is to be derived from the ape, we must search for his head amongst the small monkeys which group themselves round the Cebus and Ouistitis; for his hand, we must go to the chimpanzee; for his skeleton, to the siamang; for his brain, to the orang [and, I add, for his foot, to the gorilla]. Putting aside difference in teeth, it is manifest that the general aspect of the skull of a Cebus or a Ouistiti, or some other cognate monkeys, resembles, though in miniature, more the skull of man, than the skull of an adult gorilla, chimpanzee, or orang.' Vogt adds: "It would thus be requisite to collect the human characters from five different apes; from one of America, from two of Africa, from one of Borneo, and from one of Sumatra; the primitive relations of man are accordingly so scattered, that we can hardly believe in one common stock. It is just this plurality of characters which confirms us in our view. If macaci in the Senegal, baboons in the Gambia, and gibbons in Borneo, could have become developed into anthropoid apes, we cannot see why American apes should not be capable of a similar development. If in different regions of the globe, anthropoid apes may issue from different stocks, we cannot see why these different stocks should be denied further development into the human type, and that only one stock should possess this privilege; in short, we cannot see why American races of men may not be derived from American apes, Negroes from African apes, or Negritos, perhaps, from Asiatic apes!"

After all, why not go still further, and look to another species altogether for man's parentage, in those countries where neither apes nor monkeys are found. The Australian native points to the kangaroo as his "old man." Why not? a very respectable progenitor! Some men appear to be still in the reptilian phase, of three chambered heart, sluggish blood, and their manner of crawling through life.

Vogt arrives at similar results in examining mankind and their history, tracing the plurality of species, not merely in historic, but in pre-historic times. "If this plurality of races be a fact,—if this constancy of character be another proof for the great antiquity of the various types, for their occurrence in diluvium, or even in older strata,—then all these facts do not lead to one common fundamental stock, to one intermediate form between man and ape, but to many parallel series, which, more or less locally confined, might have been developed from various parallel series of apes. If apes became de-

veloped into men, they had, in the Old World, a range from the equator up to England, and could thus form the autochthonic races upon the various spots where we have found the oldest species of mankind. This assumption equally leads to an original plurality of mankind, not to their derivation from a single stock, but from the various twigs of that tree, so rich in branches, which we surround with the Order of primates or apes. The simian type parts in various directions. It first divides into two chief branches,—monkeys of Old, and monkeys of New World; each of these main branches produces twigs, which seem more and more to part from each. But on arriving at perfection, the ends of the twigs turn again towards each other; so that from fundamentally distinct families of gibbons, macaci, and baboons are developed the three anthropoid apes, which, by a number of common characters, stand considerably nearer each other than the groups of which they are the heads.”

“Does not the history of man present something similar? The farther back we go in history the greater is the contrast between individual types—the most decided long-heads immediately by the side of the most decided shorthead. Our savage ancestors stand opposed to each other—stock against stock, race against race, species against species. By the constant working of his brain, man gradually emerges from his primitive barbarism; he begins to recognise his relations to other stocks, races, and species, with whom he finally intermixes and interbreeds. Innumerable mongrel races gradually fill up the spaces between originally so distinct types, and, notwithstanding the constancy of characters in spite of the tenacity with which primitive races resist alteration, they are by fusion slowly led towards unity.” (P. 468.)

Lest I be accused of undue partiality towards this able writer, I must concur with the regret expressed by Dr. Hunt in his Preface, that Professor Vogt should have displayed so decided an *animus* against theologians. I regret this for two reasons—first, that this display of animus is in itself unworthy of a man of science; secondly, that it is especially to be avoided, as calculated to make truth unpopular.

J. MACGREGOR ALLAN.

MR. BRAY ON THE SCIENCE OF MAN.*

MR. CHARLES BRAY has had the kindness to publish a pamphlet informing the Anthropologists of Europe of the way in which they ought in future to conduct their researches. The pamphlet is amusing if it is not very instructive. Mr. Bray's Preface runs as follows :—

“The object of Anthropological Science must be to improve the race of men, and to make Newtons and Shakespears to order. Our life and soul are part of the forces and powers of nature—of the spirit ocean that surrounds us. They are entirely supplied from the great fountain which works only in accordance with fixed law, and the conditions of their existence we can therefore discover and control. If the world's thanks are universally acknowledged to be due to the late Jonas Webb for improving the breed of short horns, and for teaching us how ‘to grow more mutton and wool to the acre,’ surely we shall owe more to the man who will teach us how to improve the breed of men, and to grow more ‘brains to the acre.’ Our Anthropological Societies, both of London and Paris, are occupied too exclusively with the past; with man's antiquity; with his origin, whether born or created; with race distinctions, being most assiduous in collecting skulls, and talking most learnedly of dolichocephalic and brachycephalic heads (long and short heads), without apparently a suspicion at present that brains are of any use. As the President of the London Society truly tells us, the attention of the Society has, during the four years of its existence, been ‘mostly directed to the physical characteristics of man;’ and he says, ‘I am not aware that a single fact of cerebral physiology has been brought under our consideration for investigation.’ The object of the present writer is to enter, doubtless, ‘the ignorant and egoistical’ but humble protest of an outsider against this mode of proceeding; and to point to the spacious and fertile fields that invite attention. Between the aspirations of the young lady who tremblingly asks, ‘why the nose is placed on the front of the face, pointing towards the infinite, if it is not to give, as it were, a foreshell of the illimitable,’ and the proceedings of the Anthropological Society, there is no doubt a wide range, but either extreme is probably equally useful. As there is so much to do, perhaps it would be better to take man as we now find him, than to begin at the very beginning, where the record may be considered by some a little obscure. Of course, it is fully admitted that all honest investigation, in every field of research, is of importance; it is simply a question of relative importance.”

Mr. Bray, we must admit, is a bold man; he is the first writer we know of who has openly proclaimed that the end and aim of the An-

* *The Science of Man: a bird's-eye view of the wide and fertile field of Anthropology.* By Charles Bray, author of *Force, and its Mental Correlates*. Longmans, 1868. Price 1s.

thropological Science must be to improve the breed of mankind. Mr. Bray deserves encouragement. The time may yet be far off when the Science of Anthropology will be ripe to lay down fixed laws for the improvement of the human species. We have yet to have in Europe our Anthropological gardens side by side with those of Zoology and Botany; this is the first step towards founding a real Science of Man. In this way alone can we ever discover the way to make our Newtons and Shakespeares to order.

The first part of Mr. Bray's pamphlet is occupied mostly with what reads like a complaint against modern Anthropologists. Mr. Bray says:—

“Anthropology ‘proposes to study man in all his leading aspects, physical, mental, and historical;’ and if it really is ‘the Science of Man,’ it must occupy itself principally with the present laws and conditions of his being. His past history—with which Anthropological Societies have hitherto too exclusively occupied themselves—as to whether he was created or born, or as to his age upon this earth, has really little to do with this science. The history of the past can be of use only so far as it bears upon the present. Except Mrs. Shelley's *Frankenstein*, we know of no man that has yet come into the world without being born; and as to his age, whether six thousand or six hundred thousand years, for practical purposes we cannot go beyond the comparatively modern date of written record. In deference, however, to those who think such matters of importance, we will consent to go half-way with them, and take woman's advent into this world upon authority. A modern sceptical philosopher, Dr. Whately, defines woman as ‘a creature incapable of the exercise of reason, and that pokes the fire from the top;’ but this is since the fall, for we have it on the recognised authority of Matthew Henry's Commentary, that man was dust refined, but that woman was dust double-refined, one remove further from the earth; and that Adam slept while his wife was in making, that no room might be left to imagine that he had herein “directed the Spirit of the Lord, or been his counsellor.” And also we are told by the same learned Commentator, having reference, doubtless, to the obedience that a woman is known to owe to man, ‘that the woman was made of a rib out of the side of Adam; not made out of his head to top him, not out of his feet to be trampled upon by him, but out of his side to be equal with him, under his arm to be protected, and near his heart to be beloved.’ Now we are willing to take all this about woman on such excellent authority, so that anything we have to say less orthodox about man may be condoned. A ‘Science of Man’ ought to teach us how to make a man according to the most approved pattern, and with all the modern improvements. Anthropology, it must be confessed, has advanced little in this direction at present, and has occupied itself too exclusively with scratching among the dry bones of past ages; but it is with living function and not dead form that we have to do.”

Mr. Bray says, “there exists a curious difference of opinion amongst

the Members of the London Anthropological Society on the subject of the physiology of the brain." We believe that on this and other subjects there must, of necessity, be great differences of opinion; if men were all of one opinion there would be no necessity for their meeting together to discuss subjects. Mr. Bray seems to be in a dreadful hurry that every one should believe as he does; he seems to be one of the few remaining mongrel philosophers who believe in Spurzheim as their god, and George Combe as his prophet. Mr. Bray may yet become himself an interesting object of study, as being the last of his kind. We are sorry for Mr. Bray; if he could only get phrenological jumble out of his blood he might yet write wisely. Mr. Bray asserts "the bridge between physics and metaphysics has been found." By whom? This we are not told. There is just a glimmer of hope that Mr. Bray may yet be saved from further folly when we read thus: Metaphysics "is based on physics;" we cannot say that such is the fact, but we admit it ought to be. We wish Mr. Bray would let us have a look at the metaphysics which is based purely on physics. Mr. Bray believes that phrenology is such a system; we are sorry for his delusion.

A specimen of Mr. Bray's views will assist to dispel the idea that we have yet discovered the physics of the brain. He says:—

"We might have brains translating the forces from without into mental impressions of an entirely different kind; as it is, no two persons' mental impressions are the same, but vary in clearness, in intensity, and in breadth, according to the size, and quality or temperament, of the organ or part of the brain with which they are connected. Transmuted forces thus passing through one portion of the brain, and acted upon by forces from without, create the world as it appears in our consciousness; passing through other larger portions of the brain, the organs of the propensities and sentiments, they create the world of our likes and antipathies, called the moral world. This world of ideas and feelings, about which we make such an undignified fuss, is purely phenomenal, and passes away with each turn of the great kaleidoscope—with each evolution and correlation of force. Our joys and sorrows, our hopes and fears, our sins and sorrows, our good and evil, are purely subjective, affecting only ourselves; of the One Great Reality, or Entity, or Spirit, or Power, or Force, that underlies *all* phenomena, we can know nothing; our own will-power alone constituting a distant analogy. We know, however, that,

'For love, and beauty, and delight
There is no death nor change'—*Shelley*.

With respect to races of men and the permanence of physical types, "the Darwinists assume that all animals, including man, are derived from a small number of simple beings, possibly from a primordial monad. The monogenists, with much less boldness, are of opinion that all human races are derived, if not from a single couple, at least from a certain number of primitive men perfectly resembling each

other. The Polygenists finally assert that human types are only liable to slight modifications ; that the chief physical characteristics are permanent ; and that, consequently, the actual diversity of races can only be attributed to the multiplicity of their origin.* We greatly incline to the latter hypothesis. Without going with the Darwinists to the very beginning, it seems probable that the causes that were equal to the production of the simple beings could have produced also the more complex, and still more probable that the causes that could have produced a single man could have equally produced all the varieties. We believe, with Professor Macdonald, in 'the separate centres of creation of the different races adapted to the different parts of the world, and that the east and midland mountains had peculiar creations adapted to them.' The Professor shows us how 'a due consideration of the progressive development of an embryo or germ within the Graafian vesicle would militate against Darwinism in any attempt to press hybridism beyond the boundary of nearly allied species, and also against breeding among hybrids, themselves being carried beyond the third or fourth generations, unless refreshed by one or other of the originating species.'†

"Races that had probably the same ancestral types, such as those which now inhabit Europe, are crossed with advantage, but the crossing of distinct races makes mongrels ; what the inferior gains the superior loses ; and there is always a tendency to revert to the original or ancestral type. It will be easier then to breed from good stock, and thus fill the world on the Malthusian principle, than to improve the inferior races, which, on the principle of natural selection, cannot fail to be 'civilised' off the face of the earth."

We must decline to follow our author into the second part of his pamphlet, entitled "The Occult Powers of Man." We quote the two concluding pages, and are glad to see that our author is not so severe on us at the end of his work as at the beginning. We will only hope that Anthropologists will, ere long, be favoured with the system of metaphysics, "which is based on physics." Mr. Bray thus ends his pamphlet :—

"Force is persistent, and both body and mind are indestructible, except in form ; and what new form they may take in the future it is impossible to say ; but, if it be such as has been assigned to them by the spiritualists, it is a dark look-out for us indeed. What is the nature or essence of that Agent, or Substance, or Being, or Entity, or Force, underlying all phenomena, but whose mode of action only is known to us, we do not know. By force or power we mean the cause of all things, that which can and does produce all phenomena ; but this power is as inseparable from its source, or that to which it belongs, as motion is from the thing that moves. If unity is claimed for the mind, it lies in that which underlies *all* phenomena, and not in its mode of action, alone known to us ; and however varied these phe-

* *Anthropological Review*, January, 1868, p. 42.

† *Journal of the Anthropological Society*, pp. 118-122, July, 1868.

nomena, it may be that a few simple laws underneath, attributes of the source of all power, produce all the variety: 'Pleasure and pain being to voluntary motion what attraction and repulsion are to inorganic matter, and the Science of Morality to the analysis of pleasure and pain what the Science of Chemistry is to the different substances that compose this globe.*' This unity of the noumenon, &c., may also account for all that at present seems so mysterious to us in clairvoyance and other normal and abnormal conditions of mind. Whether we have any powers or intuitions which enable us to see 'through phenomena to laws,' and through laws to the Lawgiver, is yet matter for investigation. It would seem as if there were occasional gleams through small chinks which will widen with the ages. We have 'a noumenal integer phenomenally differentiated into the glittering universe of things;' and to pass from one to the other, to be absorbed in universal being, is the great aim of the Buddhist, whose one infallible diagnostic is the belief in the infinite capacity of the human mind. The natural eye, he says, takes account only of appearances; it requires the severest discipline for a man to behold the reality. Prayer, fasting, and solitude constituted this discipline, and certainly as the brain is emptied of its natural force by these means, it is filled with force from without, often inducing a state of trance in which the barrier between individual and general mind seems at least to be partially broken down. But whatever may be the powers of man, and the relation of the concentrated forces which constitutes his individuality, to the natural forces around him, we can scarcely be said yet to have placed their investigation on anything like a scientific basis; and Mr. Le Gros Clark, in a lecture recently delivered to the Council and Members of the Royal College of Surgeons, said that the nature and functions fulfilled by the electric fluid in the sustaining of animal and vegetable life is still as profound a secret as was the law of gravitation before the days of Kepler and Newton. When this is done and the light of science is let into this department, we shall at least be able to do for the onward progress in mind as much as steam has done for mere material civilisation. The power of the ancient magician, the miracles of all religions, the powers of clairvoyance are real, and we have only to bring them under law to make them serviceable,—not, as heretofore, to chicanery and superstition, but to a great advance in mental science. Surely this is the legitimate function of the Anthropological Society. The *Anthropological Review*, April, 1867, says, 'To whatever cause it may be attributed, let us begin with the rather humiliating confession that, anthropology, both in its classification and terminology, is in a miserably confused and almost chaotic condition.' This, I fear, is too true, although the last number of the *Review* and *Journal* (July, 1868) shows a more living interest. Would not the objects of the society be better promoted if 'The Science of Man' were divided into departments, and committees were appointed to *investigate* and report not on what man *was*, and how and when and where he began, but on what he is now, here present, and what he may become under scientific development?"

* *Philosophy of Necessity*, p. 21, second edition.

ON THE WEIGHT OF THE BRAIN IN THE NEGRO.

To the Editor of the Anthropological Review.

SIR,—In the article of the last number of the *Anthropological Review*, entitled “The Negro as a Soldier,” said to be a “valuable report by Sandford B. Hunt, M.D.,” there is, at p. 51, what is entitled an “Ethnographical Table,” which appears really to be a *table of the weight of the brain* in four hundred and five soldiers, who died during the late war in the United States, and whose autopsies were “made under the direction of Surgeon Ira Russell.” This table is, perhaps, not so well authenticated as might have been desired, as, from the above statement, it cannot be quite unhesitatingly attributed to Dr. Ira Russell, and, next, no particulars are given with respect to the mode adopted in determining the weight of the brain. We are left in doubt, whether the brains were divested of their membranes and drained of their fluids, and whether the *medulla oblongata* were reckoned a portion of the brain and weighed with it, as is most likely to have been the case.

The determination of the weights of the brains of 405 adult men, in all probability in the vigour of life, by actual metrological observation, was in itself an investigation of very great interest and importance. Hence it is much to be regretted that there should be any doubt whether means were taken to render the observations as definite and exact as possible, and that explanations have not been given, so that the observations might be fully understood and perfectly relied upon.

Of the brains enumerated in this table, 141 are those of “black,” that is Negro, men. The average weight of the brain in these 141 Negroes is stated to have been 46·96 ounces avoirdupois. The largest weighed 56 ounces, the least 35·75 ozs., and, in other respects, they stood in these relations:—5 weighed between 55 and 60 ozs.; 42 between 50 and 55 ozs.; 51 between 45 and 50 ozs.; 38 between 40 and 45 ozs.; and 3 between 35 and 40 ozs. It will be seen that this enumeration accounts for only 139 of the brains, not the 141 of the table.

The writer, after giving the above table, next speaks of the same series of autopsies made by Dr. Ira Russell, in which the weight of the brain is given in the same number of cases, viz. 405, adding, “of which 24 were white and 391 black,” *i.e.*, reckoning all those to be black who had any degree of Negro blood.

But the point to which I particularly wish to draw the attention of

your readers is the general conclusion, as to the average weight of the Negro's brain. This deserves to be made a little more conspicuous than is done in the table. It is stated to be 46·96 oza. av., which is as nearly as possible 47 oza. Probably the most accurate and reliable previous observations on the weight of the brain of the Negro, ascertained by actual weighing, are those of Professor John Reid and of Dr. T. B. Peacock.* The average brain-weight of the Negro men was 44·34 oza., that of the women 43·50 oza., the mean of the sexes being 43·92 oza.; but it is with the men whose average brain-weight was 44·34 oza. that we have to do, when we compare this with that of the Negro soldier, which was larger, viz., 46·96 oz. In the tables formed by myself the following results of the brain-weights of *male* Negroes come out. In 12 skulls of "tribes unknown" the average was 44·30 oza.; in a Joloff, 46·92 oza.; in a Foulah, 43·42 oza.; in a Mandingoe, 47·14 oza.; in a Sergia, 46·92 oza.; in a Fantee, 41·60 oza.; in 3 Ashantees, 42·91 oza.; in 5 Dahomans, 46·63 oza.; in 2 Bakeles, 50·57 oza.; and in 2 Congos, 39·76 oza. These yield an average of 45 ounces. The weight of the brain of the male Guinea Negro examined by Professor L. Calon was only 44·44 oza.† So that Dr. Ira Russell's experiments afford a brain-weight for the male Negro rather heavier, from one to two ounces heavier, than those of other observers. Dr. S. B. Hunt allows that this weight is "over five ounces *less* than that of the white."

He next goes into the speculation whether what we name civilisation, freedom, and education, "the new nationality of America," has the effect of enlarging the brain, to which, as he remarks, general opinion leads. But, if this were so, we must attribute the large brains of the American Negro soldiers to some such influences in their cases, to which it is certain Dr. S. B. Hunt would not consent. The influences to which the Negro of the United States has been exposed are characterised by the *absence* of those which are supposed to enlarge the brain; thus Dr. S. B. Hunt's table proves too much; it proves that Negroes in a state of slavery have heavier brains than those in Africa, at the same time that it contradicts or refutes the above speculation. There is, however, not any good ground to think that the speculation, or the arguments founded upon it, are of any particular value. The weight of the brain, like all the other peculiarities of human races, is a *race character*, appertaining to each race specifically.

* "On the Weight of the Brain of the Negro, *Memoirs of the Anthropol. Soc. of London*, vol. i, p. 65 and 520.

† "Contributions towards determining the weight of the Brain in different Races of Men," *Philosophical Transactions*, 1868, p. 505.

‡ "The Brain of a Negro of Guinea," *Anthropol. Review*, No. xxii, 1868, p. 279.

In Dr. S. B. Hunt's concluding remark this position is hardly sufficiently attended to. He says "they (the American Negroes) have already the same cranial capacity with the Hindostanees, who have developed a high civilisation, a profound philosophy and a rational religion." Here Dr. S. B. Hunt is disposed to underrate the Negro of America, for he has, according to the table, a larger average brain-weight than the natives of Hindostan, whether we allow to the latter "a high civilisation, a profound philosophy, and a rational religion," or not. Dr. S. B. Hunt is, no doubt, comparing the civilisation, philosophy, and religion of the two races, Negroes and Hindostanees. In the tables above referred to the male Hindoos are shown to have a mean brain-weight of 44.22 ozs., and the mean of Dr. S. G. Morton's table was still less, only 41.74 ozs. So that we have a comparatively "high civilisation, a profound philosophy, and a rational religion" developed among a people who are distinguished among human races for the remarkable smallness of their brains.

If you consider these remarks of sufficient importance, please to give them a place in your next number.

I am, your obedient servant,

J. BARNARD DAVIS.

Shelton, Hanley, Staffordshire, March 2, 1869.

MAUDSLEY ON PHYSIOLOGY AND PATHOLOGY OF THE BRAIN.*

It is not very long since mental diseases have been considered as a kind of felony, and the poor patients treated as criminals, put into chains, imprisoned and condemned to corporal punishment, until the great Pinel came forward as an attorney for the poor and unhappy lunatics and pleaded their case in a most simple but very successful manner. His work, *Traité Médico-Philosophique sur l'aliénation mentale* (Paris, 1808), is one of the brightest ornaments in medical literature, and the success gained one of the most noble triumphs in the history of humanity.

We cannot wonder that under circumstances when mental maladies were considered the work of the devil, the treatment consisted in exorcisms, and the most perverted means were used in order to get rid of the evil spirit. Pathological anatomy remained silent, and thus

* *The Physiology and Pathology of the Mind*. By Henry Maudsley, M.D. Lond., Physician to the West London Hospital, etc., etc. London: Macmillan & Co.

it was possible that a genius like John Hunter could maintain that mental diseases leave no trace of their former existence impressed into the brain after the death of the patients. It was to show the fallacy of this conclusion that Dr. A. Marshall anatomised a great number of brains in the old Bethlehem Hospital, but his work, *The Morbid Anatomy of the Brain in Mania and Hydrophobia* was only published in 1815.

It is true that English literature is possessed of valuable works on mental diseases, written in the seventeenth and eighteenth centuries, and Burton, whose classical work, *Anatomy of Melancholy*, was published in 1627, has deservedly been called "the Shakespere amongst Psychologists." Yet it is only after Pinel's great reformatory efforts that English medical literature has contributed both in an extensive and excellent manner towards the humane edifice of which Pinel has laid the foundation stone.

Before the eighteenth century there were only two asylums in all England, viz., Bedlam and St. Luke's. The inmates of which, who were supposed to be influenced by the moon, were fettered at each change and flogged in order to prevent the irritation expected to be caused by that luminary, an unfortunate error to which Dr. Mead's work, *Medica Sacra*, 1749, has contributed not little.

The first asylum in which the new principle of Pinel bore sway was that erected by William Tuke, near York. Tuke, sixty-four years old in 1796, undertook the duties of superintendent to the hospital, to which he remained attached until his death in 1822. Although his humane principles became general only a long time afterwards, yet the literature of that branch of medical science took another turn, and the management of many asylums imitated the lucid example of William Tuke.

In our present day we find the most renowned names of English authors amongst the writers on the subject, such names as George Burrows, Prichard, W. C. Ellis, J. Williams, Thurnam, Monro, Winslow, and others.

The work of Dr. Maudsley, treating of the physiology and pathology of the mind, has been received with great applause and encomium by the medical profession, as well as by philosophers. The study of the human mind in our present days forms no longer part of abstract philosophy. To have a claim of any value, it must be based on observation, both in the living subject, healthy as well as diseased, and on extensive and minute pathological researches into the condition of the brain. This basis Dr. Maudsley takes as his ground to stand upon, whence he shows the direction in which the study of mind is to be pursued, and lays down the laws on which the healthy brain acts.

It is on this same ground that he shows the connection of mind and the nervous system, and on which emotion, volition, memory, imagination, and all the properties attributed to the mind are discussed. And all this is treated in a most genial philosophical manner, and written in a language clear and eloquent at once. When touching on former errors, the author hints to still existing prejudices, particularly influencing the study of mind which some would still like to look upon as belonging to the province of metaphysics.

“Can we wonder, then, that the erroneous method (metaphysical) was triumphant in Greece in the fourth century before Christ, when it is only recently in England, in the nineteenth century after Christ, that the barbarian’s reverence for the dead body has permitted an anatomical dissection, and when the finger-bone of a saint, or a rag of his clothing, is still treasured up, in some parts of the world, as a most precious relic, endowed with miraculous virtues! The evil of the metaphysical method was not intellectual deficiency only, but a corresponding baneful moral error.”

When mind was considered by philosophers who, perhaps, had never seen a brain in their lives, they generally started from the phenomena observed in adults, and took no notice of the first dawning of the soul in infants. Animals were entirely excluded from their consideration, as not possessing mind at all. Our present position, when the mental phenomena are studied by physiologists, is totally different. We know mind only in connection with the body, and are aware that the mental conditions change with alterations of the frame—*mens sana in corpore sano*—and, therefore, the condition of the body cannot be excluded from the study of the condition of what is called soul, mind, etc. But the most important part of investigation is the comparative pathology beginning where the first mental movement becomes perceptible and going through all stages of development, up to the adult human being. “Where,” says Dr. Maudsley, “has the animal any place in the accepted system of psychology? Or the child, the direction of whose early mental development is commonly decisive of its future destiny?” To speak of an induction, where so many important instances are neglected, and others are selected, according to caprice or the ease of convenience, is to rob the word of all definite meaning and most mischievously to misuse it. A psychology which is truly inductive must follow the order of nature, and begin where mind begins in the animal and infant, gradually rising thence to those higher and more complex mental phenomena, which the introspective philosopher discerns, or thinks he discerns. Certainly, it may be said, and it has been said, that inferences as to the mental phenomena of the child can be correctly formed from the phenomena of the adult mind. But

it is exactly because such erroneous inferences have been made that the mental phenomena of the child have been misunderstood and misinterpreted, and that psychology has not received the benefit of the correction which a faithful observation of them would have furnished. It was the physiologist who, by a careful observation of the lower animals, "having entered firmly on the true road, and submitting his understanding to things," arrived at generalisations which were found to explain many of the mental phenomena of the child, and which have furthermore thrown so much light upon the mental life of the adult. The careful study of the genesis of mind is as necessary to a true knowledge of mental phenomena as the study of its plan of development confessedly is to an adequate conception of the bodily life."

These few passages may suffice to indicate the direction in which Dr. Maudsley's method tends, whose excellent work, which has already become standard, we most urgently recommend to the careful study of all those who are interested in the physiology and pathology of the brain.

RESUMÉ OF THE "BULLETINS" OF THE PARIS ANTHROPOLOGICAL SOCIETY.

(From June 1867, to January 1868.)

By E. VILLIN, F.A.S.L., F.R.S.L.

THE Paris Society has published its labours, during the half-year ending December, 1868, in two numbers of "Bulletins," which we had promised to review ever since their publication; but the multiplicity of matters which this *Review* has had to deal with, has, until the present time, prevented us from fulfilling this pleasurable duty.

Anthropological labours in Paris are quite as interesting to us as the labours performed by the English Society. It is, however, impossible to give our readers a complete report, and we may be excused for only giving short abstracts of researches and papers, to which a complete translation alone could do justice, so replete with facts and matter are they. We therefore advise those students of anthropology, who desire to see the progress that this science has been making everywhere, to read the French "Bulletins" themselves, and we promise them to be amply repaid for the trouble; for, as Horace has it, "*Est operæ pretium.*"

In a short but learned paper, called "Phases Sociales," M. Letourneau, after a survey of the different races of man inhabiting the globe, comes to a conclusion with which we entirely agree; namely, that "individually and collectively man passes through a series of phases

succeeding and producing one another ; that at first—a being purely and simply *nutritive*—he becomes specially *sensitive*, then *moral*, and lastly *intellectual*. . . . The man in whom nutritive wants predominate, is at the bottom of the scale ; and the man who has moral and, above all, intellectual wants, stands at the summit of civilisation ; whilst the man whose wants are *sensitive*, stands in the middle of the social scale. But, adds M. Letourneau, humanity has not anywhere, as yet, attained the *intellectual* point. The man in whom all these aptitudes, all these wants would be coexisting—with no other differences than those of energy—would be, would constitute complete man.”

M. Lagneau, in a learned paper on the “Anthropology of France,” carefully reviews the types of nearly every province of the French empire. For this the author has consulted the best writers, and has availed himself of the observations made everywhere by the “Conseils de Révision” on the yearly military recruiting ; he also made many observations himself, and this contribution to the science of man seems altogether reliable. But it is too full of particular details for us to attempt to give an analysis of it ; we must therefore refer our readers to the original itself. One fact, however, we must not pass unnoticed : M. Lagneau insists upon the importance of studying the idioms and *patois* of various departments, some of which, as M. de Ranse has proved, directly descend from the original settlers.*

Dr. Destruges, of Guayaquil, on sending to the Paris Society a human head beautifully mummified, still ornamented with its flowing black hair, but reduced by an artificial process, after death, to the size of a small ape's head, also sent some information as regards the means employed by the Indians to obtain this curious result. As this subject has not yet been treated scientifically by English anthropologists, we shall give M. Destruges' letter in full :—

“The process through which the *Jibaros* reduce in size, and preserve for a very long time, the heads of their enemies killed in war, is no longer a mystery. They roll the leaves of a plant (to us unknown) into a ball, and this ball is heated to an elevated temperature by a gentle fire, until the external surface presents an almost incandescent aspect. This incandescent ball is then introduced into the soft parts of the head, by that time already separated from the bones of the skull. The soft parts immediately shrink, and receive from the burnt leaves antiseptic and preserving principles. It is these soft

* The Reviewer knows of a village in the Marne department, called *Cour-tisots*, where the *patois* is absolutely unintelligible to all the surrounding villages ; and there is a tradition in the place which, wrongly or rightly, makes the *Courtisians* a small colony of Huns, who remained there after Attila had been defeated a few miles off.

parts, dried and reduced in size, which the Indians call *chauca*. Upon festival occasions, they carry these *chauchas* dangling from the ends of their lances, and they relate the history and the exploits of the victim whose head now hangs from their weapons."

Are there no botanists who could tell us the name of the plant unknown to M. Destruges? and are there no anthropologists who could use the same means for preserving dead remains? We are fully aware that these mummies are deprived of those characteristics in feature and measurements which alone have any value in the eyes of students; but, at the same time, there are occasions when travellers can have no better means (the plant being known) of bringing specimens home; and when their object is merely to preserve tendons, muscles, or fibres, in their right position in nature, a reduced specimen may be well worth preserving. A traveller cannot possibly bring home, from Central America or Central Africa, a single bulky specimen in spirit of wine; whereas he could, with facility, pack many dry and reduced specimens that, in this shape, would be eagerly studied by the students at home. At a time when the subject of the Jívaro Indian head was comparatively new in England, a paper was published, in 1862, by Don Ramon de Silva-Ferro. This, however, does not give us the method of preservation, which Dr. Destruges has above described.

M. Bouvier has a short paper on "Comparative Craniology of Man and Animals," which led him to the same conclusion as that arrived at by Gratiolet,—“that, whilst admitting that the nervous apparatus, which pervade the cortical substance, have a limited and localised repartition; admitting, also, that special aptitudes can result from them in diverse individuals, I believe that every part of the cerebral envelope equally participates in the power of thought.”

M. Kopernicki, of Bucharest, has sent the description of a new Craniograph. This instrument, if well used, gives the measurements of contours with a mathematical accuracy; but it requires experience and time on the part of the craniologist. In spite of this drawback, its results are such that we wonder that the London Society should have delayed the acquisition of this beautiful instrument so long. Perfect accuracy, we must always bear in mind, can alone insure anthropology success.

“Polyzoism” is the title of a most interesting paper by M. Durand (de Gros). If the author of the contribution can establish his theory, it will undoubtedly be a revolution in science of immense importance: for it would reverse what has been considered almost a dogma for a long period. The conclusions of M. Durand, after enumerating his facts, are these:—

"Physiology, medicine, psychology, and morals have agreed, until the present day, in regarding man as a *unity*,—a unity, living, feeling, and thinking, entirely compact and irreducible, as an animated and *simple* body; and, upon this first and common belief, all their dogmatical and practical institutions were framed. However, new facts seem now to demonstrate that this belief is an error; that the human being is, in reality, a collection of organisms, a collection of lives and distinct "ego's", and that its apparent unity lies wholly in the harmony of a hierarchical *ensemble*, the elements of which, connected by a narrow coordination and subordination, yet carry, each in itself, all the essential attributes, all the primitive characters of the individual animal. Such a system is, doubtless, alarming for a vast system of established ideas and things; but let us follow it in its consequences, and we shall be convinced that, if it *destroys*, it also *builds*, and that its work, full of positive truths, is a thousand times preferable to the scaffolding of illusions to which this work will be substituted."

These views created quite a sensation in the Paris Society; and M. Dally, one of its most brilliant members, acknowledged that M. Durand's views upon the multiplicity of centres of vital action really deserved the most serious meditations. "Without being able," said he, "to form as yet an opinion upon their accuracy, I seize this opportunity for supporting his critique, as regards the *abyss* which, according to some naturalists, separates the invertebrates from the vertebrates. The idea that these two branches are constructed on a different plan, whilst evidently the functions are the same, the organic elements are identical, is based upon the sole difference that the apparatus are more or less perfect. Nervous system, circulation, digestion, locomotion, in the two branches, have everything in common; and we can establish the most rigorous analogies between the apparatus, even if we had not the *Amphioxus* and its fossil congeners. I then ask where the abyss is, since we have a ganglionic chain, and the cephalic ganglions of the annulosa, the vertebral channel of the crustaceans, and the pulmonary respiration of the arachnids, etc., etc., to bring against the organic systems of the vertebrates? It would be high time to renounce these pretended abysses, when everything can show or prove, even in the entire modern fauna, incomplete as it is, a more or less, but an undeniable series."

A very animated discussion, full of interest, was caused by a paper upon "The Proportions of the Body according to Races," by Dr. Weisbach. This discussion was carried on by the best Paris Anthropologists to great lengths, and we advise our London students to read it with care. The observations of Dr. Weisbach bear upon ten races,

and he has come to certain conclusions, which were not unanimously accepted, after comparing these races with the Europeans. "The greatest propinquity with the conformation of the anthropomorphic apes indicating the most inferior degree of the human race, we must conclude that the race which possesses the largest amount of simian proportions upon the greatest number of parts of the body, must be the most inferior. Yet we feel embarrassed to give an answer, because in the small number of points upon which we can make a comparison between man and the orang, *the simian resemblance is in no wise exclusively concentrated in ONE race; but it divides itself, as to the different parts, amongst the different races, and this so effectually that there remains to each a lesser or greater share of this parental inheritance. Even we, Europeans, cannot pretend to have entirely severed ourselves from this parentage; witness the shortness of our hand relatively to our arm, and amongst the Slavons and Roumans, the great length of the fore-arm relatively to the arm?*

"On examining the different races enumerated from this point, we see that none is completely deprived of dimensions of certain parts which reapproach it nearer to the type of the orang more than the others. The Javanese and Madurians are favoured, because they approach it by the smallest number of points. . . . Whereas the Australian presents the most numerous simian similarities,—in the length of the feet, the smallness of the legs, the broad nose and mouth, the elongated arm, the broad feet, and the thin calves."

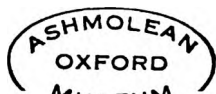
MM. Pruner-Bey, Alix, Rochet, Broca, Gavarret, Giraldés, Dally, Pouchet, Bertillon, and de Bligroières, we repeat, discussed this subject in a very scientific and almost exhaustive manner; and, in our opinion, the discussion by far surpasses the paper which caused it in importance. It is given *in extenso* in the "Paris Bulletins," and we regret not to be able now to translate it for the benefit of all our readers.

M. Broca has a Paper on the *Relative Proportions of the Superior and Inferior Limbs amongst the Negroes and the Europeans*, which, like every contribution from that *savant*, is quite an Anthropological treat, for it is full of measurements and facts masterly classified. We consider this paper as an excellent sequel to Dr. Weisbach's, above mentioned. The results arrived at by M. Broca are summed up thus:—

"1. The length of the superior limb, compared to that of the inferior, is less in the negro than in the European. In this the Negro is further from the simian type than the European.

"2. The length of the humerus compared with that of the femur, or with that of the inferior limb, is also less in the Negro, who, in this again, is more removed from the simian type than the European.

"3. The length of the humerus, compared to that of the radius, is much less in the black than in the white. This character brings the Negro nearer to the ape.



"4. The excess of length of the radius in the Negro, compared to the humerus, partly depends upon the shortness of the humerus, but not exclusively. The radius of the Negro is, in fact, longer than that of the white man, when it is compared with the inferior limb.

"5. The superior limb of the Negro, therefore, presents two opposite characters: for whilst, on the one hand, by the length of the radius, the Negro is nearer than the European to the simian type; he, on the other hand, is removed from it by the shortness of the humerus."

These intercrossings are not rare in the different races; they constitute facts little favourable to the idea that all the types of humanity are derived from one type, and they appear to M. Broca to give their testimony in favour of the opinion of the polygenists.

Other subjects, such as Languages, the Age of Stone, Miocene Man, Man during Geological times, and a great variety of skulls and bones, form a series of papers which we strongly recommend to the attention of the student of Anthropology; but we, unfortunately, cannot, for want of space, give any abstract of them. There is, however, a series of contributions on "Civilisation," and "Religions as bearing on Civilisation," which we had promised ourselves to succinctly analyse, so masterly were these subjects treated by MM. Letourneau, Condereau, Pellarin, and Bataillard, from different points of view; but we must forego this duty until the next number of this *Review*. We might say that these questions hardly belong to Anthropology, and this view was at first taken by the Paris Society; but, upon reconsideration, they resolved to give full scope to them, and with a tolerance which we commend to the example of the London Society, five or six learned treatises were read, discussed, and published, mostly upon religion. "A human produce," says M. Bataillard, "which has contributed to civilisation, has had all sorts of influences, and which the man of science, unless he be afraid of fanatics in all countries, cannot ignore, pass by, and treat as if it did not exist. We should therefore study it under all its aspects, as we study politics, art, or literature, since, like these, it contributed—although sometimes in a deplorable manner—to the development of mankind."

We really do not see why the English Society, living as it does in the midst of a tolerant people, Protestants, should be less tolerant than its Paris sister Society. We are convinced that, provided the discussion should be conducted with the same amenity of language as distinguishes our neighbours, no single Fellow of the Anthropological Society of London would at any time object to such important matters being brought under his notice.

ON THE LOCALISATION OF THE FUNCTIONS OF THE
BRAIN, WITH SPECIAL REFERENCE TO THE
FACULTY OF LANGUAGE.

By JAMES HUNT, Ph.D., F.S.A., F.A.S.L.

(Historical part continued from p. 116, No. 24.)

IN the preceding articles it has been abundantly shown that the fundamental principle that the brain is an aggregate of different parts, each subservient to the manifestation of some intellectual phenomena; and that the dispositions of men may be ascertained from the external form of the head, had been promulgated for many centuries before the time of Gall.* It was, however, reserved for Gall to infuse new vigour into the old doctrine of localisation, and to devise a system which was further elaborated by his disciples, and which constitutes now what I have elsewhere called the "bastard science of phrenology."† It would, however, be most unjust to make Gall responsible for all the sentimental cant and arrogance of those who have called themselves his disciples. Strange as it may appear, few such men as Gall have had a smaller number of disciples than this celebrated German physiologist and physiognomist. Gall appeared at a time when the whole of Europe was in a state of excitement, and his teaching was looked upon as tending to promote revolutionary ideas, materialism, and all the rest of the popular bogies in vogue even in scientific circles to the present day.

It is not now my intention to write the life of this remarkable man. Gall was, however, neither a prophet nor a very original thinker; but he was a close and patient observer of nature. He was, indeed, more than this: he was one of those rare instances in humanity who combined in his own person the careful observer with the acute and logical reasoner. Gall has had few, if any, followers worthy of him; the disciples have all been vastly inferior to their master.

We have said that Gall revived the old doctrine of localisation, and that this theory is now, or was until lately, known under the name of "Phrenology, or the doctrine of the mind." Alas! how poor Gall would have repented being the founder of such a jumble as modern phrenology! How his good sense would have revolted from having

* Franz Joseph Gall was born at Tiefenbrunn, 19th of March, 1758, died at Paris 1828.

† "A mixture of Physics and Metaphysics," see address to Dundee Anthropological Conference, *Anthropological Review*, No. 20, Jan. 1868, p. 77.

his observations on the "functions of the brain," called "phrenology or the doctrine of the mind!"

Gall has been in this respect nearly as unfortunate as Blumenbach, who, we are told by a recent writer,* was the "founder of ethnology." It is hardly necessary to observe that Blumenbach never invented or once used the word "ethnology"; although it is not so generally known that Gall never coined or used the word "phrenology." It is not a little remarkable that the fame of both these great men should have to suffer for the indiscretion of their so-called disciples. Blumenbach founded a special branch of science which he named over and over again "Anthropology." Gall in like manner elaborated the observations of his predecessors on the functions of the brain, or, in classical language, the science of encephalotomy, and called it "a system of physiognomy." When Gall first published his lectures some of his followers called his system "the science of craniology." Against this and all such names Gall protested, and said that such names misrepresented his labours, and that he was concerned in the first place with the functions of the brain, and in the second with the physiognomy of the skull.

We must, therefore, do the same justice to Gall as to Blumenbach, and never either call the one a phrenologist or the other an ethnologist. Gall cared no more about the nature of the mind than Blumenbach did about the composition of nations. Both the aggregate of phenomena called mind and the perhaps heterogeneous concourse of atoms constituting nations lie outside the domain of the science which they respectively founded.

It signifies little for science who it was that was so ill-judged as to describe observations on the functions of the brain as the doctrine of the mind, but the following facts are worth mentioning. The originator of the word "phrenology" was Dr. Forster. It gives no small insight into the character of one of Gall's so-called disciples—Dr. Spurzheim—that he claimed to have originated this word himself. Notwithstanding all these attempts to mislead the public as to the real nature of Gall's observations and theory, there now seems to be no doubt that the odium which Gall has incurred from having his name mixed up with phrenology will be as effectively removed as the name of Blumenbach has been vindicated from being the founder of ethnology. A stray writer here and there may yet try to sully the reputation of Gall by identifying his name with a mongrel science he never founded: but it is evident that the time has now come when scientific men are prepared to render equal justice to the founder of the science of mankind, or anthropology, and the founder of the science of the functions of the brain, or encephalotomy.

* Vide Professor Huxley, *Fortnightly Review*, No. 3, p. 263.

Gall's system consists essentially of two distinct propositions: first, in the assumption of a number of distinct cerebral organs for the different mental phenomena—organology; secondly, in the determination of the respective cerebral organs by the inspection and palpation of the cranium, which may be termed cephalonomy, or organoscopy.

A single glance at these propositions shows that they are in some respect independent of each other; for organology, *i.e.* the assumption of a plurality of cerebral organs, for different functions, may be true, and may form an important and reliable basis for the great science of encephalonomy, whilst cephalonomy, *i.e.* their determination by the external form of the cranium, may be false. On the other hand, cephalonomy in the above sense can have no existence as a science unless organology be true.

I wish it to be well understood that I am not dealing now with the whole of Dr. Gall's observations and theories; much less do I purpose now to attack or defend in detail the modern exponents of his system. Gall, like all other real scientific physiologists, was a student of the functions of organic structure. That he was not free from what is the great weakness of scientific men of the present day, *viz.*, the enunciation of speculative opinions, must be admitted; but the real bent of Gall's observations was far more sound and scientific than is the conduct of many who now attack his doctrines. We are not now called on to accept Gall's theories; but in duty bound we have to verify his observations. The present systems of phrenology, with all their assumptions and erroneous inferences, I do not hesitate to assert my belief will soon become a thing of the past. It is only by their complete destruction that we can ever hope to establish a reliable science of encephalonomy and cephalonomy, based on correct and lasting scientific principles.

All true science must, from its nature, be progressive: and this the modern elaborated system of "the doctrine of the mind" can never be. Let us all acknowledge most humbly that we know nothing of the "mind" apart from organisation. All our knowledge as scientific observers can alone be obtained by examining structure in action. Where structure is at rest there are no mental phenomena. Different organic forms when associated with different structures necessarily give rise to different phenomena. This is a law of all organic life, and is as applicable to the human brain as to any other organic structure.

Dr. Gall gave his first lectures on "Schädellehre" in Vienna, in the year 1796. The simple and tangible manner in which he appeared to lay open the secret workshop of human mental phenomena to profane inspection caused great excitement among the ignorant public and

great consternation among the theologians, mystic philosophers, and court impostors of the time. This coalition of rabblecraft, priestcraft, philosophycraft, and courtcraft proved too strong for Dr. Gall. His lectures were forbidden, and he sought an asylum in Paris, where henceforth he fixed his residence, and where he died in 1828, and was buried in the cemetery of Père la Chaise. Gall's head is now in the Natural History Museum of Paris.*

At Rome the Pope paid the same compliment to Gall as he did to Copernicus. In Germany Kotzebue played the same part as Aristophanes of old, and made Gall the laughing-stock of the people. The philosophers vented their rage at their occupation being taken away from them by a mere student of the functions of the brain. Schaller said that the theory was "so indefinite and presumptuous as not to be embarrassed by any facts it meets with." Jessen also thundered against organology, and joined with Volkmann, the physiologist, in misrepresenting the real character of Gall's theory. They charged Gall with only estimating the quantity and not the quality of the brain. This misrepresentation has been continually reiterated down to the present day. Gall, however, found zealous supporters in Reil and Loder in Germany, and Vimont and Broussais in France. Professor Bischoff, in his *Exposition of Gall's System* (Berlin, 1809), says :—

"You must see and hear the man yourself to find out how free he is from all charlatanry and transcendental enthusiasm. Endowed in a rare degree with acuteness and a talent for induction, grown up in nature and in constant intercourse with her, he grasps all the phenomena in the province of organic beings, compares those, which had hitherto been overlooked or superficially observed with the greatest ingenuity, draws his conclusions, and lays down principles which are the more valuable because they are purely empirical, and merely repeated after nature."

Hufeland wrote a similar estimate of him in nearly identical terms.

In England Dr. Gall has had few thorough-going disciples ; but of these I may specially mention the late Drs. Engledue and Elliotson, and Mr. H. Atkinson, the authors of *Man's Nature and Development*. The great mass of the phrenologists of the present day are followers of Spurzheim and Combe. As an anatomist, justice has been done to Gall by Mr. Green, Mr. South, and Mr. Solly. On this point his merits

* According to Dr. Fossati, an intimate friend of Gall, the cranioscopic examination of Gall gave the following diagnosis : locality, sense of persons, language, number, order, tune, colour, constructiveness, were all feebly developed ; whilst comparison, causality, individuality, eventuality, and firmness were uncommonly large.

are unquestionable and I need only quote the emphatic words of the last-mentioned distinguished anatomist,* who says:—

“Every honest and erudite anatomist must acknowledge that we are indebted mainly to Gall and Spurzheim for the improvements which have been made in our mode of studying the brain.”

Mr. Solly observes, respecting the physiological pathological aspects of this question, that the brain†—

“Is made up of many instruments, each having its individual function to perform. The symptoms of the disease will, therefore, vary according to the portion which is diseased. It is true that all the ganglia within the skull are so closely united that any single ganglion can scarcely be affected without the rest sympathising. Still inflammation is sometimes restricted and the symptoms peculiar.”

The history of the origin, rise, and decay of phrenology is a subject of not only great interest, but one from which many practical lessons may be learnt. Looking at the question as a whole, I cannot but think that it has deserved its present fate. Much has been said against practical organoscopy, and no doubt a great part of this censure has been well deserved. I know of one remnant of the old Scotch Metaphysical Phrenological School, who has devoted the last forty years of his life to the subject of organology; and although possessing a skull of considerable circumference, has yet, during the whole of this period, never done anything either to advance our knowledge of the “innate faculties of the human mind,” or to correct any of the aberrations of his predecessors. This is, I believe, not a solitary instance, but one of many of a like character, tending to illustrate the stagnant character of the “doctrine of the mind.” Let us hope that the question of the functions of the brain, in relation to mental phenomena, is now finally emerging both from the theological and metaphysical stages through which it has necessarily had to pass.

I am painfully conscious of the large amount of ignorance and prejudice which exists respecting Gall's theory, partly on account of the odium brought upon it by some of its English disciples.

Much of the prejudice is, however, due to another cause. Gall's theory, if true, unmasks all impostors. No man appears to a disciple of Gall other than he is; and this is utterly repulsive to some men of high scientific and social position.

Having stated this much on the general question of the localisation of the functions of the brain, I shall confine myself, for the present, to the history of the localisation of the faculty of language and speech. The determination of the organ of language by the conforma-

* *The Human Brain*, by Samuel Solly, F.R.S., second edition, 1847, p. x.

† *Loc. cit.*, p. 396.

tion of the eye concerns us here only so far as it was the starting-point from which Gall proceeded. It was the *external* aspect of the eye, its prominence in certain of his schoolfellows, which struck the boy Gall; and it was only at a later period, when reasoning on this fact, and tracing the external sign to an internal cause—the expansion of a certain portion of the brain—that Gall felt induced to place the organ of speech in the anterior lobes.

In all the biographies of Gall, we are told that already when a boy at school he was a keen observer of the differences of talents among his schoolfellows; how he observed that his “ox-eyed” companion, as he called him, invariably beat him in learning lessons by heart; and how, whilst studying medicine at the University of Vienna, he found among the students, professors, and other literary characters of great linguistic attainments, his early impression fully confirmed—namely, that prominent eyes indicate a talent for languages; and how, proceeding step by step, he fancied that he found external marks for each separate talent or propensity, and that he could discern the intellectual and moral character of an individual by his cranial formation.*

As what Gall actually said on the faculty of language and verbal memory has frequently been misrepresented, I shall quote his own words. It will thus be seen that he makes a difference between verbal memory and the faculty of language; but he connects their cerebral organs, and places them both in the frontal convolution, without, however, pointing out their respective limits:—

“I consider as the organ of the memory of words that part of the brain which rests upon the posterior half of the supra-orbital plate. We have not in the engravings indicated by figures the portion in question, as we look upon the sense of words to be only a fragment of the sense of language, of speech.”†

Sense of Language; Talent of Philology.—“When the greatest portion of the middle part of the inferior anterior convolutions placed upon the orbital plate is much developed, this wall is not merely flattened, but even depressed; hence results a peculiar position of the eyes. In such a case the eyes are both prominent and depressed towards the cheeks, so that there is a certain interval between the bulb

* See Huarte, in the preceding article.

† *Sens des mots, sens des noms, mémoire des mots, mémoire verbale.*

“Je regarde comme l'organe de la mémoire des mots, cette partie cérébrale qui repose sur la moitié postérieure de la voûte de l'orbite. Nous n'avons pas donné dans les gravures des chiffres particuliers à la partie dont il est question, parceque nous avons considéré le sens des mots comme n'étant qu'un fragment du sens du langage de parole.”—*Sur les Fonctions du Cerveau, &c.* Par F. J. Gall. Paris: 1825. Tom. v, p. 18.

and the superior arch. The bulb, thus depressed, acts upon the lower arch and increases the curvature. This strong curve produces in the living subject, when the eyelids are open, the appearance of a little sack or pocket filled with water; hence the name 'pocket eyes.'

"Persons who have eyes so formed possess not merely an excellent verbal memory, but they have a peculiar disposition for the study of languages, criticism, in general for everything relating to literature. They write dictionaries, history; they are much adapted to exercise the functions of librarians and conservators; they collect the treasures of all centuries; they compile learned volumes; they fathom antiquity; and if at the same time they are endowed with some other faculties, they gain the admiration of the world for their great erudition."*

Gall does not seem quite clear about persons with prominent eyes having always a good memory. This much, however, he says is certain, that some persons who learn easily by heart may have a bad memory for names; whilst others easily learn names, but cannot recite prose or verses.

Gall also rejects the assumption that thought is impossible without speech. The organs of our faculties, he observes, are alone anterior to the acquisition of speech, and manifest themselves by gestures, sounds, or by both.

If it were true that without signs we could not think, and that only articulate words lead us to abstract ideas, children could not think before they have learned to speak. But experience shows that children have acquired an infinity of notions before speaking.

* *Sens du langage de parole; talent de la philologie*, p. 30.

"Lorsque la plus grande partie de la portion moyenne des circonvolutions inférieures-antérieures placées sur le plancher supérieur de l'orbite ou sur la voûte, est très développée, cette partie est non seulement aplatie, mais même déprimée. Il en résulte une position particulière des yeux. Dans ce cas, les yeux sont à-la-fois à fleur de tête et déprimés vers les joues, de façon qu'il se trouve un certain intervalle entre le bulbe et l'arcade supérieure. Le bulbe ainsi déprimé agit sur l'arcade inférieure et augment l'échancrure. Cette forte échancrure produit chez le sujet vivant, lorsqu'il a les paupières ouvertes, l'apparence d'une petite poche remplie d'eau, de là le nom d'yeux pochetés.

"Les personnes qui ont les yeux ainsi conformés possèdent non-seulement une mémoire de mots excellente, mais elles se sentent une disposition particulière pour l'étude des langues, pour la critique, en général pour tout ce qui a rapport à la littérature. Elles redigent des dictionnaires, écrivent l'histoire, elles sont très propres aux fonctions de bibliothécaire et de conservateur; elles rassemblent les richesses éparses de tous les siècles; elles compilent de savans volumes; elles approfondissent les antiquités, et pourvu qu'elles aient d'autres facultés encore, elles font l'admiration de tout le monde par leur vaste érudition."

Gall's theory as regards the localisation of the faculty of language in the anterior lobes was not long in finding a skilful advocate.

On the 21st of February, 1825, Dr. Bouillaud read before the *Académie Royale de Médecine* a memoir, entitled *Recherches cliniques propres à démontrer que la perte de la parole correspond à la lésion des Lobules Antérieurs du Cerveau, et à confirmer l'opinion de M. Gall sur le siège de l'Organe du Langage articulé.** (Clinical researches demonstrating that the loss of speech corresponds with the lesion of the anterior lobes, and confirming the opinion of Gall as regards the seat of articulate speech.)

As this treatise was not only the first written on this subject, but contains the gist of the whole matter, I shall quote from it at some length.

"I don't know how it is," says Dr. Bouillaud, "that it has hitherto not been taught in the schools that the movements of the speech-organs required in the brain a special centre—a truth which appears to me so simple and natural. In order to demonstrate this, we can show by observation that the tongue and its allied organs may be paralysed isolately, and that they may preserve their movements, whilst other parts—the limbs, for instance—are deprived of their motions. This I shall prove first, and then I shall determine the seat of the nervous centre which governs the mechanism of the organs of speech."

Dr. Bouillaud then gives three cases in which there was loss of articulate speech with preservation of the intelligence, as the patients understood everything, and could express their ideas by gestures and writing. In two of these cases the autopsy showed that the anterior lobe of the brain was in one instance reduced to a purulent mass, and in the other the anterior lobe was softened. The third patient recovered.

"It is not sufficient," says this distinguished Pathologist, "to know that there exists in the brain a particular *force* destined to *co-ordinate* the marvellous movements by which man expresses his feelings and communicates his ideas,—it is important to know the seat of this force in the brain. Now, from my own observations, and from those I have collected from other authors, I am of opinion that the nervous principle in question, which may be called the legislating organ of speech (*organe législateur de la parole*), resides in the anterior lobes of the brain."

After illustrating his position by numerous cases, Dr. Bouillaud arrived at the following conclusions:—

1. In man the brain plays an essential rôle in the mechanism of a great number of movements: it governs all that are subject to the dominion of the intelligence and the will.

2. There exist in the brain special organs, each of which has under its dependence special muscular movements.

* This memoir was also published in vol. viii of the *Archives Générales de Médecine*, 1825, from which we quote.

3. The movements of the speech-organs particularly are governed by a special, distinct, and independent cerebral centre.

4. This cerebral centre occupies the anterior lobes.

5. The loss of speech depends sometimes on the loss of verbal memory ; sometimes on that of the muscular movements requisite for speech, or what amounts to the same thing ; sometimes on the lesion of the grey matter ; and sometimes on the lesion of the white substance of the anterior lobes.

6. The loss of speech does not involve the loss of movements of the tongue, considered as an organ of prehension, mastication, and deglutition, nor the loss of taste, which presupposes that the tongue has in the nervous centre three distinct sources of action—an hypothesis, or rather a truth, which admirably accords with the presence of a triple nervous organ in the tissue of the tongue.

7. Several nerves have their origin in the brain itself, or rather are connected with it by anastomotic fibres. The nerves animating the muscles which concur in the production of speech, for instance, take their origin in the anterior lobes, or at least have necessary communications with them.

In 1848, M. Bouillaud read a second memoir before the Academy, entitled, *Nouvelles Recherches*, etc., in which the number of cases in support of his views amounted to many hundreds. He then offered a premium of five hundred francs for any case of loss of speech without lesion of the anterior lobes.

The question of the localisation of the intellectual faculties, and especially of the faculty of speech, made, nevertheless, but little progress until 1861.

In February, 1861, a communication to the Anthropological Society of Paris by Dr. Gratiolet, relative to the signification of the volume of the encephalon, gave rise to long and interesting discussions on the volume and form of the brain, and on the principle of cerebral localisation. Dr. Auburtin, a pupil of M. Bouillaud, chiefly confined himself to the faculty of language, and considered that its seat in the frontal lobes, as sustained by M. Bouillaud, was abundantly proved both by traumatic cases, which may be considered as so many vivisections, and by pathological cases. He knew of no case of the destruction of both frontal lobes and the preservation of speech. He was ready to renounce the doctrine of M. Bouillaud should such a case occur. He alluded to a patient named Bach, in the Hospital for Incurables, who had lost his speech, but preserved his intelligence. This man was dying, and he diagnosed a softening of the anterior lobes ; if these should be found in a condition of integrity, he would give up his opinion. The autopsy of this patient showed a lesion of

the third frontal convolution of the left anterior lobe. Dr. Broca was at that period still sceptical as regards special localisation ; for we find him, at the sitting of the Anthropological Society, May 2nd, 1861, thus expressing himself :—

“ I have at the last sitting shown you the brain of a man in whom a lesion of the frontal convolutions had abolished speech (the brain of Tan, see cases). It was a curious coincidence that this case occurred at the time when MM. Gratiolet and Auburtin carried on a discussion on the faculty of speech. But although I am rather inclining towards the opinion of M. Auburtin, I had no intention of taking part in the debate. I am neither for nor against special localisations. I merely try to lay down a general principle in considering the convolutions, not separately, but by groups, or, if you like, by regions.”*

From this period Dr. Broca omitted no opportunity of investigating this subject, until he arrived at the conviction that the principle of localising the faculty of speech in the frontal lobes was correct in the main. He went further, and not only placed the faculty of speech in the left hemisphere, but restricted the limits of this faculty to the posterior half of the third left frontal convolution. Thus M. Broca became the chief exponent of the doctrine which now agitates not only Anthropologists but the scientific public generally.

What induced M. Broca to confine the lesion to the left hemisphere, and to the third frontal convolution, had better be stated in his own words used at a sitting of the Paris Anthropological Society, April 2, 1868 :—

“ I communicated to the Anatomical Society a case of loss of speech, which I call *aphemia*, in which the lesion occupied the third left frontal convolution. Soon after, I dissected an old aphemic subject who, during his life, had only five words at his disposal. We found an old hemorrhagic focus about two centimetres from the posterior extremity of the third left frontal convolution. Since that time M. Charcot had three aphemics whose cerebral lesions were exactly in the same spot. M. Gubler presented a similar case to the Biological Society. But here are two very important cases.—M. Charcot presented to the Biological Society a brain of an aphemic in which, as he stated, the lesion was in the parietal lobe. I confess I was rather startled, but when I dissected the membranes I found that the softening ran along the fissure of Sylvius and reached the third convolution, which is destroyed in its lower half. M. Duchenne (de Boulogne) told me one day that there was a case under Dr. Trousseau, in the *Hôtel Dieu*, opposed to my idea of the seat of articulate speech. I went to the hospital and found indeed the parietal lobe diseased ; but on introducing the scalpel into the third convolution I announced that a lesion would be found, and effectually the convolution was found altered to

* *Bulletins de la Société Anthropol. de Paris*, 1861, p. 320.

the extent of three centimetres. Here then are eight cases in which the lesion was in the posterior third of the left frontal convolution, which appear to me sufficient to afford strong presumptive evidence in favour of my theory. I nevertheless await new facts.”*

The most powerful adversary in France of Gall's Organology was unquestionably M. Lelut. In his treatise entitled *Qu'est-ce que la Phrénologie* (Paris, 1836), and in that bearing the title *Rejet de la Phrénologie*, published in 1843, he stigmatises phrenology as a pseudo-science. It is not a little remarkable that in this second work M. Bouillaud's name is not even mentioned. It is the usual, and perhaps commendable, practice to appoint a committee to report on a paper, and to select members holding different opinions on the subject-matter. We are, therefore, not surprised at the election of M. Lelut to serve on that committee, but we agree with him that holding such decided and *unalterable* opinions on the subject in question he ought, perhaps, to have declined the task.

Discussion in the "Imperial Academie de Médecine." Sitting of Dec. 6, 1864.—The Academy having charged MM. Bouillaud, Beclard, and Lelut to report on a treatise, entitled “Observations tending to prove the constant Coincidence of Speech disorders with Lesions of the Left Hemisphere,”† M. Lelut said that he regretted that the Academy had imposed upon him this task, which he ought to have declined. There are many points in physio-psychological science on which he was quite ready to modify his opinion, but there are some points on which his opinions could never be changed or modified. Of these are the relations which it is attempted to establish between certain mental faculties and certain parts of the nervous centre, and amongst these the attribution of the faculty of language to some part of the nervous system. This is neither more nor less than phrenology, and he had paid too much attention to this pseudo-science to recur to it. Such being the case, he would only speak in his own name, leaving it to his colleagues to express their own opinions separately. Dr. Dax, it appears, had collected about one hundred and forty cases, nearly all not of his own experience, in which speech disorders were always found connected with some lesion of the left hemisphere; the lesions of the right hemisphere producing no disorders of this kind. If such a fact were true, then the brain—that mysterious organ—would be still more mysterious. Dr. Lelut concluded by citing what he called

* “*Bulletins de la Soc. d'Anthropol.*,” tom. iv, p. 202, 1863.

† “*Observations tendant à prouver la coincidence constante des derangements de la parole avec une lésion de l'hémisphère gauche du cerveau,*” par Dr. G. Dax. *Bulletins de l'Académie Impériale de Médecine*,” tom. xxx, Nos. 14 & 15, Avril 15 et Mai 15, 1865.

a very magnificent fact (*bien magnifique*), that of an epileptic in whom the whole left hemisphere was reduced to a pulpy mass, and whose speech was free to the moment of death.

M. Bouillaud, alluding to the "*fait magnifique*" cited by M. Lelut of the reduction of the whole left hemisphere into a pulpy mass, which lesion was not as much as suspected during life, said that such "magnificent facts" were nothing but the negation of all physiological and pathological science. They are open to great doubts, and may be considered as pseudo-facts. He would now, as M. Lelut has done, make his profession of faith in the following terms:—

"My experiments on living animals and my clinical observations have only enabled me formally to pronounce an opinion on two localisations proposed by Gall.

"1. The localisation of the faculty of language and of the faculty of articulate speech in the anterior lobes of the brain.

"2. The localisation of the generative faculty, or of the instinct of generation, in the cerebellum."

He had not only, as Gall has done, studied the purely intellectual element of speech, but also the mechanical element superadded to the former—viz., the movements requisite for articulate speech. After being convinced that the *co-ordinating* or legislating principle (*principe co-ordinateur ou législateur*) of these movements had its seat in the anterior lobes of the brain, he followed up his researches, applying them to the *intellectual element* of speech, and he found that this element also had its seat in the anterior portion of the brain. It was then that in the title of the memoir which he published on the subject in question, he announced that his researches confirmed the doctrine of Gall on the seat of articulate speech and verbal memory.

As regards the second localisation of the instinct of generation in the cerebellum, he had always rejected it, whilst respecting the fundamental principle of the plurality and speciality of the cerebral organs.

Dr. Bouillaud concluded his discourse in the following terms:—

"The simultaneousness of the lesions of the faculty of speech and of reading and writing, which is not uncommon, induces me to think that the seat of the principle of these faculties must be a near neighbour of the faculty of speech.

"It may be said that cases contradictory to ours as regards localisation have been brought forward. No doubt of it; but we have weighed these cases, and we have found that none of them unite the conditions of a *well observed* case.

"For twenty years past we have offered a prize of five hundred francs to the author of a *well conducted* observation of a contradictory kind, but no one has claimed the prize. Let our opponents offer a prize of five hundred francs for a *well conducted* observation of a lesion bearing exclusively on the anterior lobes of the brain, and they will

not have to wait twenty years before there will be many claimants for the prize."

Here it is necessary to observe that Dr. Bouillaud takes his stand on the following propositions—viz., that the act of speaking presents two distinct phenomena—the faculty of creating words, and the power of co-ordinating the movements necessary for articulation. It is this latter faculty which he calls *pouvoir législateur de la parole*, which he places in the anterior lobes of the brain. He says nothing about confining the organ of this faculty to either of the hemispheres, nor to any particular convolution of the frontal lobes. All subsequent efforts, especially those of M. Broca, were chiefly directed to circumscribe and better to define the limits of the cerebral organ of speech.

In the discussion at the Academy, April, 1865, M. Trousseau said :—

"We are not here to discuss either the doctrines of Gall or of Bouillaud, but a Memoir of Dr. G. Dax, son of Dr. Marc Dax, in which he endeavours to prove the constant coincidence of speech disorders and lesion of the left hemisphere."

"What is the symptom or the *ensemble* of symptoms which I call *aphasia*? I shall at once put myself at ease by refusing to give a definition. I know nothing, in fact, more difficult than to give a good definition."

"The aphasic is often paralysed, most frequently on the right side, so that we might believe that gesture and speech are obstructed by paralysis. Nothing of the kind. The man struck with hemiplegia who is not aphasic stutters; but he can still express his thoughts, although in an imperfect manner. He can write and draw, although badly. I call him an aphasic in whom the signs of thought cannot manifest themselves (*celui chez lequel les signes de la pensée ne peuvent plus se manifester*)."

Dr. Trousseau concluded as follows :—

"After what I have stated, it seems to me that we might arrive at the conclusion that aphasia is not a disease, but a symptom; that this symptom results nearly always from the perturbation of the various faculties of the intellect, especially of memory and attention. Numerous well observed cases equally authorise us to conclude that various regions of the encephalon concur to the formation of language, although the anterior lobes of the brain take the greatest part in it."

I have been unable to procure this memoir of Dr. G. Dax which gave rise to the discussion before the Académie. He refers in it to a treatise written by his father, Dr. Marc Dax, of Sommières, and read before the Medical Congress held at Montpellier in the year 1836. The title of the treatise was *Lésions de la moitié gauche de l'encephale, coïncidant avec trouble de la pensée*. In his own memoir Dr. G. Dax sustains not merely that the lesion in the loss of articulate speech is

always in the left hemisphere, but he limits the lesion to the anterior and external portion of the middle lobe, namely to the region adjoining the insula and the posterior part of the third left frontal convolution. In justice to M. Broca, who has been blamed for not mentioning Dr. Marc Dax, who, as asserted by Dr. George Dax, had long ago maintained that the lesions which destroyed the faculty of language had their seat in the left hemisphere, and that a paper to this effect had been read before the Medical Congress, held at Montpellier in 1836, we extract the following passage from Dr. Broca's brochure* :—

“ I desire that it may no longer be believed that I sinned either from ignorance or from wilful neglect. The existence of the memoir of M. Dax, senior, was as little known at Montpellier as it was in Paris. After vainly searching the journals of 1836 for some account of this memoir, I requested M. Gordon, the librarian of the Faculty of Montpellier to institute inquiries. M. Gordon was not more fortunate than myself. The congress held its last sittings at Montpellier from July 1 to July 10, 1836. The *Revue de Montpellier* (1836, I, II) gives an abstract of the subjects discussed ; but the question of language is not mentioned. M. Gordon personally inquired of twenty physicians then resident at Montpellier ; but they knew nothing of such a memoir having been read. I will not, however, deny the authenticity of the said memoir ; for it may have been written for the congress, although not read. I merely wish to state that I could not guess the existence of a manuscript which has only been disinterred two years after my first publication on Aphemia.”

[To be continued.]

Anthropological News.

In the course of a few days will be published a work, by Dr. C. M. Ingleby, a gentleman well known for his contributions to Elizabethan criticism, bearing the somewhat indefinite title of *Introduction to Metaphysics* ; it will be sold by Mr. Ayres (the Clerk of the Royal Society of Literature) at No. 4 St. Martin's Place, Charing Cross, in consequence (as we hear) of a disagreement between the author and his publishers. We have seen the table of contents of this work, which are very comprehensive, and of the greatest interest. It is somewhat difficult to state in a few words the exact drift of this book. It is intended to be introductory to a work to be called by the somewhat peculiar name of *Material Logic*. The Introduction comprises a sketch of the principal psychological problems which concern perception through the senses, and the functions of the intellect. Dr. Ingleby grounds himself on Kant, and is evidently so ambitious as to dream of a fresh outcome from the critical philosophy, distinct from those of Fichte and of Hegel. He seems to have carefully criticised the systems of Reid, Berkely, Kant, Hamilton, and J. S.

* “ Sur le siège de la Faculté du langage articulé.” (Paris, 1865).

Mill. In the first book he utilises the recent discoveries and inventions in optics, especially those relating to binocular vision. The second book appears to contain an exhaustive account of analytical and synthetical judgments, and a thorough investigation of great principles of substance and accident, cause and effect, action and re-action; showing how the laws of nature (as the laws of motion) flow directly from those principles. Dr. Ingleby seems to be aiming at the determination of a great central idea, of which materialism, spiritualism, necessitarianism, and free-will are equally true and, we suppose, also equally untrue. It is plain that if such a work be executed with adequate power and knowledge, it will be a most valuable gathering up into unity of many details of knowledge which have hitherto failed to contribute to the great work of philosophy.

THE NOVA SCOTIAN GIANTNESS.—A correspondent had the opportunity of inspecting this remarkably large female during the exhibition at the Egyptian Hall, and forwards the following notes:—The placards at the street corners represent Miss Anna Swan as being 8 feet 11 inches high, and the exhibitor describes her as nearly 8 feet. The observer, who is 5 feet 10½ inches high, stood by her side, when his head reached exactly to the acromion process of her scapula. He estimates her height at about 7 feet 4 or 5 inches, certainly not more. The head, although absolutely large, is relatively to the bulk of the body small. Its contours closely resemble those of the microcephale *Margaretha Maehler*, figured on pl. xix of Carl Vogt's *Mémoire sur les microcephales*, only on a much larger scale. The frontal bone is depressed, and the superciliaries are large. The muzzle is protruding, and under the chin is a large development of adipose tissue, forming a double chin. The hand is spatulous; the fingers short and subequal in length. The mammeæ are projecting, and the feet are large. The voice is low, and the gait rickety. The specimen is less interesting than the much larger Chinese giant, Chang, which was exhibited some years ago at the Crystal Palace.

ARCHAIC ANTHROPOLOGY IN IRELAND.—At a meeting in the Museum of the Naturalists' Field Club, Belfast, on the 4th March, a paper was read by J. S. Holden, M.D., F.A.S.L., of Glenarm, on "Archaic Anthropology." He stated that the object of anthropology was not to prove the ape origin of man, as was generally supposed, but to study the natural history of man as he was and as he is. Its present position resembles astronomy and geology in their early days, when they had to battle against popular prejudice and hereditary lines of thought, and like them will triumph. Palæontology has revealed, that the past life on our globe evidences an orderly succession and progression in the arrival of its numerous species, more an ideal than a perfectly continuous lineal series, as many blanks occur in the gallery of nature, "missing links" which may or may not be recovered. Yet there are enough facts to prove the transition from species to species, as the law of the animal kingdom. How does this law operate? is man's legitimate inquiry, and, as no law of nature is revealed, it must be sought for in nature itself; and, just as Kepler pursued the planets through many circles and curves before he discovered their true elliptic orbits, so many theories will be exhausted before the secret law controlling animal series is arrived at. The doctrines of transcendental anatomy first brought forward by Oken and Gœthe, that all animals are formed on one great plan, was accepted by Cuvier, and elucidated by Owen, while Darwin, to explain the continuity of the plan, started the bold theory of natural selection. Given unlimited time, the first created animal or prototype, developed into every phase of life, crossed the impass-

able chasm between the vertebrata and invertebrata, and ever evolving upwards, rolled through fish, rodent, and monkey into man. The anthropologist accepts Darwin's facts, but not all his fancies. Man's place in nature, when viewed anatomically, is certainly next door to the anthropoid apes, still we do not fancy the relationship. We claim the Bojesman, but we repudiate the gorilla. He has not our opposable thumb; his eye-teeth are like tusks, and his brain is not half the size of that of the little Bojesman. It is quite possible that some thousands of years ago the distance between the lowest man and the highest ape was less than it is now, as forms of both have become extinct. It is a singular fact that the large apes of Asia, as the orang, and the large apes of Africa, as the gorilla and chimpanzee, differ from each other by the same characters which distinguish the men of these two continents, viz., colour and cranium. The orang is brown and round-headed, like the Malay. The gorilla and chimpanzee are black and long-headed, like the Negro; yet it does not follow that Darwinism should come in and allow these apes to climb to the top of our ancestral tree. Referring to the antiquity of man, Dr. Holden said marks of his presence are found prior to the glacial period, as flint implements and weapons in the Upper Pliocene beds, and even some traces have been discovered in the Miocene. During the Quaternary period he was contemporary with the extinct mammoth and cave bear, and has, to our surprise, left us, in the *débris* of caves in France and Belgium, carvings and sketches of the reindeer and other departed animals much superior to the crude designs on Celtic monuments of a vastly later date. Dr. Holden gave a description of the earliest human crania (inferring the savage condition of man in the mammoth and reindeer periods), also of the Danish kitchen middens, tumuli, the Swiss lake dwellings, and the late researches among the long and round barrows of England. In conclusion, he showed that the three great race types of the present day were linked with the distant past. The black, yellow, and white, or Negroid, Turanian, and Caucasian. The Negroid type representing man of the Palæolithic age, distributed over South Africa and parts of Polynesia, at a time when those remote lands formed one continuous tropical continent—if this be so, this primitive type is of an antiquity so vast as to confound calculation. The Turanian—a higher race—probably drove the last to the south, afterwards to be driven itself from Europe to the north and east of Asia. Archaic anthropology, though still in its youth, declares the vast antiquity of man. No more can the age of the human species be numbered by years, unless by years the geological strata and fossil fauna along with which man has left his remains can be reckoned. No more can the dawn of humanity be assumed as a golden age of virtue and intelligence, but as a stone age of barbarism and savagery. Nevertheless, man takes the highest place in the organic series of progression, subject to the inexorable laws of nature. As on the vast ocean of time successive waves of types and species have risen and fallen, have come and gone, so man has appeared, lived, and disappeared; race has followed race, and races, like species, have their day and no more. We see the dark races of the world declining before the exterminating march of civilisation; the Caucasian is now dominant—for how long? Past analogy may indicate the future; and nature seemingly—

“So careful of the type; but no!
From scarped cliff and quarried stone,
She cries—‘a thousand types are gone,
I care for nothing, all shall go.’”

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TREE AND SERPENT WORSHIP IN INDIA.*

THIS great work, brought out under the patronage of our Indian government, in which Mr. Fergusson gives the crowning effort to the labours of his predecessors by restoring as far as possible two very ancient Buddhist topes, a word conveying a similar meaning to our word temples, of India, has an especially anthropological side, which has indeed been brought into view, and even discussed by Mr. Fergusson himself. Indeed it is an essentially anthropological book. Still, there is in it quite sufficient materials for other inquirers, and other views than those advocated by its learned author.

His first attempt is to show that, among primitive superstitions, tree and serpent worship have been very general in all quarters of the globe, almost universal. In this he has fully succeeded. That trees clothed with beauty, and also with mystery, which soar far above the regions to which man can attain, which commune with the heavens, with the spirit of the storm, and are familiar with the lightning's flash, which teem with myriads of virtues, and of beneficent uses to man, should be associated with supernatural notions in his mind, might have been expected, if we had not learned their sacred character in almost every region, in the east as well as the west. The Kirgiss Tartar sees in them an object of adoration, and the native Irish venerate them. It is equally apparent that the mysterious gliding reptile, endowed with such lethal forces as to exercise the power of life and death, was certain to ensure the dread, and attract the devotion of primeval man. In Egypt, in Greece, and in India, serpents have

* *Tree and Serpent Worship: or Illustrations of Mythology and Art in India in the First and Fourth Centuries after Christ. From the Sculptures of the Buddhist Topes at Sanchi and Amravatt. Prepared under the authority of the Secretary of State for India in Council. With introductory essays and descriptions of the plates. By James Fergusson, Esq., F.R.S. London, Indian Museum, 1868.*

been objects of worship of one kind or another in all ages. So that Mr. Fergusson has fully made out the position he has maintained in the introductory chapters of this book. The connection with the main subject of the work is not at once seen to be so intimate and so necessary as might have been expected. It is true that we have repeated over and over again in the sculptures of these wonderful structures, the worship of both trees and serpents, as well as that of many other material objects. Mr. Fergusson's opinion is, that tree and serpent worship are the superstitions of a Turanian race, and that they are altogether antagonistic to the tastes and feelings of the Aryans. Hence his pointed allusions to these themes.

The ancient topes of India were sacred structures of a somewhat similar nature in principle to barrows or tumuli, which cover the remains or relics of the dead, and in this way acquire sanctity in the eyes of succeeding generations. They appear to be especially connected with Buddhism. The more celebrated ones are of great magnitude, and have received such accessions and enlargements by the efforts of successive devotees, as to equal, if not exceed, in some respects, the grandest temples of other lands. In this way they became sacred places dedicated to religious purposes, where numerous ceremonies were performed, and where great multitudes of people congregated, devoting their labours and their offerings to adorn and to magnify these topes.

Mr. Fergusson's work is dedicated to the illustration of two of the ancient topes, that of Sanchi and that of Amravati. The former is situated in Central India, to the north of the Vindhya mountains and the river Nerbudda, between the towns of Bhilsa and Bhopal; the latter lower down in the Peninsula, in Guntoor, on the southern bank of the river Kistna, about sixty miles from its mouth. The remains of the Sanchi tope are more entire by far than those of that at Amravati. It is the largest of a series of topes in this neighbourhood, which extends over a district of about seventeen miles in an east and west direction, and ten miles north and south, some of which descend to the size of an ordinary tumulus. But the great one "consists first of a basement of a hundred and twenty-one feet in diameter, and fourteen feet in height. On the top of this is a terrace or procession path, five feet six inches wide, within which the dome or tumulus rises in the form of a truncated hemisphere to a height of thirty-nine feet. This was originally coated with chunam to a thickness of about four inches." Chunam is lime or plaster, and forms upon the tope a coating, something like a coating of bricks. "The most remarkable feature connected with this monument is the rail which surrounds it at a distance of nine feet six inches at the base, except on the south,

where the double flight of steps leading to the berm, or procession-path, reduces the width to six feet four inches. The rail is eleven feet in height, and consisted apparently of a hundred pillars, exclusively of the four gateways, two of which remain, which were added about the Christian era, and are covered with sculptured decorations of the most elaborate kind." (P. 87.) The age of the Sanchi tope itself is considered by Mr. Fergusson to date from the time of Asoka, 250 B. C.

Mr. Fergusson is inclined, upon the discussion of all the evidence that can be obtained upon the date of the Amravati tope, to conclude "that like our own cathedrals, the erection of this tope may have lasted for two or three centuries, or say from 200 to 500 A.D." (p. 162.) This tope is much more thoroughly destroyed than that at Sanchi, so that its remains are now only to be dug out of the mounds on the spot. Its entire diameter was originally about two hundred feet. It was surrounded by two sculptured rails, an inner and an outer one, between which was an elevated procession-path, paved with slabs thirteen feet long, running across the pathway. It seems to have been quite unlike the tope at Sanchi, for the inner rail surrounded an inclosure with buildings upon it, and having in the centre a Dagoba, or tumulus, only about thirty feet in diameter. The procession-path must have been, in its original state, of considerable magnificence. On the outer side it was surrounded with the rail of twelve feet in height; on the inner with one of six feet high, both of which with their pillars were sculptured with innumerable figures, representing a great variety of scenes, probably mainly sacred; but some of them appear to be historical, and others domestic. It is difficult to give an idea of the elaborateness and elegance of the sculptures upon these rails, without an examination of the original marbles, or of Mr. Fergusson's photographs and lithographs. He says, those of the inner rail resemble ivory carvings more than anything else. He observes in one place, "At Amravati there were apparently twenty-four pillars in each quadrant, and eight, at least, in each gateway, say 112 to 120 in all. This involves 230 to 240 central carved discs, all of which were sculptured; and as each of these contains from twenty to thirty figures at least, there must have been in them alone from 6,000 to 7,000 figures. If we add to these the continuous frieze above, and the sculptures above and below the discs on the pillars, there probably were not less than 120 to 140 figures, for each intercolumniation, say 12,000 to 14,000 in all. The inner rail contains probably even a greater number of figures than this, but they are so small as more to resemble ivory carving. Except the great frieze at Nakhon Vat, there is not, perhaps, even in India, and certainly not in any other

part of the world, a storied page of sculpture equal in extent to what this must have been when complete. If not quite it must have been nearly perfect, in all probability less than a century ago." (p. 166.) This may afford some idea of the immense work of destruction done and doing by the great civilised nations of Europe in modern days, and in all parts of the world.

The primary object of Mr. Fergusson's volume is to give the western world some adequate idea of these two ancient Indian topes, and of the profusion of sculptures executed upon their gateways and rails. Many of the marbles are in the Indian Museum in this country, and of others, very careful and accurate drawings have been made at both topes, some years ago, chiefly by two Indian officers, Lieut.-Col. Maisey and Col. Mackenzie. The marbles in London have been photographed with great skill by Mr. W. Griggs, who has besides executed the lithographs, and to him, as well as to Mr. Fergusson, we are much indebted for the proper illustration of these wonderful structures. The latter carefully describes each of the subjects of the plates as they pass in succession before him, and gives the reader the aid of his great knowledge of art in general, and of Indian art in particular, and of his learned researches into Indian history and religion, in explaining the design and purport of the scenes represented in the sculptures.

As already hinted, Mr. Fergusson attributes both these topes, with all their elaborate decorations, to the disciples of Buddha, and of this there cannot be any doubt. They are both of them sacred structures of the Buddhists, whose disciples do not any longer tread the soil of this portion of India, or, indeed, any other portion of India proper. Buddhism was a very ancient religion in India. It may be said without any hesitation that it originated in metaphysical speculations upon matter and upon man, his origin and destiny. It is probable that Brahmanism, the religion of India at this day, is as ancient, if not more ancient, than Buddhism, and it is not so essentially a dissimilar doctrine, at least in its origin, and its philosophy. General Cunningham, a very high authority, speaking of Buddhism, after the days of Sakya Muni, or Gotama, whom some regard as its founder, others as the great reviver and reformer of Buddhism, gives this view of the subject.

"I believe that as Buddhism gradually attained an ascendancy over men's minds, the whole of the Brahmanical school, by an easy change of phraseology, accommodated their own doctrines, so as not to clash with those of the dominant party. At least it is only by a supposition of this kind that I can account for the great similarity which exists between the philosophical systems of Buddhism and those of the Brahmanical Sankhyas. This similarity, which has already

been noticed by Colebrooke, is, indeed, so great as to render it difficult to discriminate the doctrines of the one from those of the other. The phraseology varies, but the ideas are the same; so that there is a distinction, but without a difference.*

The disciples of these two religions, the doctrines of which we will pass over as they are very recondite and complicated, and may be safely said to be differently propounded by different authorities,† have manifested from the earliest period of Indian tradition a great antagonism, which has been displayed in fanatical opposition and strife. Still the similarity of doctrine has been vouched by one of the first of Indian scholars, as we have seen. Mr. Fergusson appears not to take this view. We shall see by-and-by that his hypothesis, as displayed in all parts of this volume, is quite different. He represents the religions as essentially at variance; so much so, that they are the different results or products of two very distinct races of people, whose minds may be said to be constructed upon different, almost opposite, principles, operating upon the grand subject of religion; so that Buddhism and Brahmanism are the effects of two quite distinct causes. Brahmanism he regards from a higher point; probably in its supposed Aryan origin, as a pure and spiritual religion, the religion of the most exalted minds; whilst Buddhism is the religious manifestation of a much lower and baser intellect. In the commendatory tone he maintains towards the former he is much influenced by the ancient Sanskrit poems called Vedas, which are considered to be the oldest and the purest expressions of this faith.‡

* *The Bhilsa Topes; or, Buddhist Monuments of Central India*, p. 38. Lond. 1854.

† Modern Darwinism may clearly claim a Buddhist origin. "The basis of the system is a declaration of the eternity of matter, and its submission at remote intervals to decay and reformation; this and the organisation of animal life are but the results of spontaneity and procession"; something like the "continuity" of a modern philosopher, "not the products of will and design, on the part of an all-powerful Creator."—*Ceylon*, by Sir Jas. Emerson Tennant. Third edition, i, 531.

‡ The definiteness, if not the exalted purity, of doctrine of the Vedic poems, may be judged of by the first sentence of Professor Max Müller's "Prospectus of a Translation of portions of the Rig-Veda": "After twenty years spent in collecting and publishing the text of the Rig-Veda with the voluminous Commentary of Sáyana, I intend to lay before the public my translation of some of the hymns contained in that collection of primeval poetry. I cannot promise a translation of all the hymns, for the simple reason that, notwithstanding Sáyana's traditional explanation of every word, and in spite of every effort to decipher the original text, either by an inter-comparison of all passages in which the same word occurs, or by etymological analysis, or by consulting the vocabulary and grammar of cognate languages, there remain large portions of the Rig-Veda, which, as yet, yield no intelligible sense."

But it will be better to state Mr. Fergusson's views as far as we can in his own words. Mr. Fergusson tells us that the hardy and warlike Aryans, or Sanskrit-speaking race of people, derived from the countries now known as Bokhara and Afghanistan, entered India across the Upper Indus—there seems no good reason for doubting that it was at or near Attock—and eventually spread themselves throughout the whole of the valley of the Ganges and the countries between the Vindhya and the Himalaya mountains. That, at intervals of from five to ten centuries, horde after horde of these Aryans have crossed the Indus and settled in the fertile plains of India. Another race,—

“A Turanian race, known as the Dravidians, and speaking Tamul, or languages closely allied to it, entered India probably earlier than the Aryans, but across the Lower Indus, and now occupy the whole of the southern part of the peninsula nearly up to the Vindhya mountains. . . . It is not quite so clear whether there was not a third race occupying the countries north of the Vindhya and between them and the Himalayas, of which they were dispossessed by the Aryans. The language of the superior race has so completely taken possession of every department of literature at the earliest period to which our knowledge extends, that we have no written record of the existence of this aboriginal people; and the blood of all has in modern times been so mixed by migration and colonisation, that it seems impossible to dig back to the roots through the jumble of languages and races that now exist in the valley.” (P. 57).

There are few passages in which Mr. Fergusson explains his views on the subject of the races of India and other parts of the world more fully than that in which he speaks of the legendary tales collected by the brothers Grimm, concerning serpents, dwarfs, giants, and other monsters of fairy stories, which have had such an extensive prevalence over Germany, Scandinavia, and anciently Greece; still, no doubt, with great variations. He says,—

“The usual mode of accounting for this identity, which can hardly be accidental, is to *assume* that the tales were originally invented by Aryan nurses beside the cradles of the race in Balkh and Bokhara, and that they were carried east and west by the alumni when they set out on their travels some four or five thousand years ago. The results of my reading have led me to conclusions widely different from this fashionable hypothesis. My belief is that all the serpents and dragons, all the dwarfs and magicians of these tales, all the fairy mythology, in fact, of the east and west, belong to the Turanian races. These, as I have frequently had occasion to mention, underlie the Aryan races everywhere in Europe as in Asia, and occasionally crop up here and there through the upper crust, often when least expected. So far as I understand the idiosyncrasy of the two races, nothing can be more antagonistic to the tastes and feelings of the Aryans than these wild imaginings; while few things, on the contrary, could be more con-

genial to the comparatively infantile intellect of the Turanian race." (P. 73).

This view it may be safely said is an advance upon the "fashionable hypothesis," which is at the same time highly improbable, although it is by no means a relinquishment of the extravagance of deriving the Aryans from the east to come into Europe, to establish civilisation and the nations of Europe. This Mr. Fergusson appears still to suppose to be true.

Taking the author's statement literally, it is the Turanian immigrants who occupied the country of the Dravidians. Hence we should anticipate that this region would be the special seat of Buddhist remains, as Buddhism was especially the Turanian religion. But such is not the fact. Amravati is situated nearly on the border of this region, and "though there were Buddhists in Dravida-desa, there are no traces of Buddhist buildings or establishments now to be found south of Amravati." (P. 58). And Mr. Fergusson says distinctly that it does not appear that the Dravidian races ever were converted to Buddhism.

We appear thus to be thrown entirely upon the people who occupied Central India and the Valley of the Ganges, before the presumed immigration of the Aryans for the origin of Buddhism. In one place Mr. Fergusson says expressly, "the province now known as Upper Bengal, more especially the districts of Tirhoot and Behar, were assuredly the cradle of Buddhism." (P. 225). These people the author would have us to recognise as Turanians, or, what other ethnographers name, aborigines. And here we hope to be excused for saying, this seems to be a weak point in Mr. Fergusson's hypothesis. He assuredly would not put back the origin of Buddhism to a period anterior to the earliest invasion of the Aryans; indeed, on the contrary, in some passages he appears to regard Sakya Muni (623-543 B.C.) as the founder of this religion. But, if we err in taking these expressions too literally, as is very probable, we are still justified in saying, he assuredly would not put back the origin of Buddhism to a period anterior to the earliest invasion and settlement of the Aryans in this portion of India. Hence we must be reduced to the necessity of assuming that this peculiarly Turanian religion took its rise among a Turanian race, which had been invaded and conquered by Aryans and had mingled with Aryans for ages before this origin. A Turanian race thoroughly subdued by the hardy and warlike Aryans, or Sanskrit-speaking race, "to whom is to be attributed that language which has so completely taken possession of every department of literature at the earliest period to which our knowledge extends."

Our author ascribes great importance to a mixture of blood, and

explains this singular phenomenon by such a mixture. He says, after making use of the term *Hindus*—"meaning by that term the civilised race who had been the dominant class in India for at least two thousand years before the time to which we are now referring. Originally these people were no doubt pure immigrant Aryans; but, before Sakya Muni preached his reform, their blood had become so mixed with that of the aboriginal and inferior races, as to render the success of that new gospel possible. They still, however, retained the civilisation and the pre-eminence which the original intellectual superiority of the Aryans had imparted to them." (P. 92.) This is as if we were to attribute a great religious reform in France at the present day, not to the Frankish blood which exists in that country, but to the Celtic blood, on the ground that we thought the new religion was essentially a Celtic faith, perhaps something like Druidism.

It should also be recollected that Mr. Fergusson admits that Sakya Muni himself was an Aryan, and yet he preached a religion so repugnant to Aryans, that our author says, "it may be safely asserted that no Aryan race, while existing in anything like purity, was ever converted to Buddhism, or could permanently adopt its doctrines." (P. 57.)

Mr. Fergusson's work is of great interest in relation to serpent worship, or the manifestation of religious veneration towards serpents. He has striven to show that this kind of religious sentiment has prevailed in almost all countries. In India it is met with at the remotest period to which we can refer, and it exists now. It seems to us, as already explained, to be an expression of a blind sentiment towards the supernatural implanted in the mind of primeval man. In India it has always played an important and extended part in mythology, under the name of "Naga," the Sanskrit term for serpent. In the ancient poems there are endless fables about a naga race of people, and they constantly recognise naga royal families, as well as an infinitude of other absurdities. Mr. Fergusson considers that there is an intimate relation between this naga race, and also serpent worship itself, with the Turanian people. Besides the use of the term in the sense of a snake, it is also applied to some of the wild or aboriginal tribes of India, in the northern parts of Asam. These are not known to be devoted to serpent-worship; but it will be readily seen how the fables of the Indian poems may have had their origin in the hill tribes. Mr. Fergusson, as just mentioned, is much disposed to consider serpent-worship, wherever it exists, as a mark of a Turanian race. It may be doubtful whether these Buddhist sculptures carry out this view. He uses the term Turanian in such a comprehensive manner, as already hinted, that it has the meaning of an aboriginal race. He thus expresses his views upon this subject.

“If there is one point which comes out more clearly than another in the course of this investigation, it is that serpent worship is essentially that of a Turanian, or at least of a non-Aryan people. In the present state of the inquiry it would be too bold a generalisation to assert that all Turanian races were serpent worshippers; and still less can it be affirmed that all who looked on the serpent as a God belonged to that family of mankind. It is safer, however, to assume that the whole tendency of the facts hitherto brought to light, lies in that direction; and it seems probable that eventually the worship of the serpent may become a valuable ethnographic test of the presence of Turanian blood in the veins of any people among whom it is found to prevail.” (P. 40.)

When we come to examine the sculptures themselves, which are well represented in the plates, we find, apparently, judging chiefly from the dress and other peculiarities, different tribes, or races of people. Mr. Fergusson has directed his attention to the interpretation of these, but they will probably admit of much further study. He considers that the people represented may be divided into two classes. The first he designates “Hindoo,” or the original Aryan race, who had been the dominant class in India for at least two thousand years before the erection of the Sanchi Tope, during which time they had mixed their blood with the aboriginal and inferior races. These are generally distinguishable by their costume, which is the *dhoti*, i. e., a scarf wound round the loins, and then brought up between the legs and thrust under the folds which cross behind, or sometimes before. This is the manner in which the *dhoti* is worn at the present day. The turban covers the head. Sometimes they have a cloth passed over the shoulders and obliquely across the back, which Mr. Fergusson calls by the modern name Chudder. This costume is pretty much the same as that of the present inhabitants of India, not Mahomedans, which is distinguishable by not being shaped, not being needle-made, but worn as woven by the loom.

For ornaments both men and women wear bangles round the wrists and round the ankles, and have a large ear-ornament, which is a thick object thrust through the lobe of the ear, the women having besides heavy bead necklaces. What is most remarkable in these women, is the exceeding scantiness of their dress. With a large bordered head-dress, hanging half way, and, in some cases, all the way down the back, the ear-ornaments and bangles above-mentioned, and a highly ornamental girdle, passing low down around the hips, they are many of them fully clothed. This nude condition is not universal, although very general, as a few wear *dhotis*.

In many of the photographs, particularly of those from the Amravati tope, we see people with handsome features, mostly of a heavy

cast, some of them with pleasing countenances, with good noses, people who greatly resemble the Hindoos of the present day. There is much room for anthropological purposes, for a series of careful photographs of the most characteristic heads, of a good size, taken from the marbles, so as to afford studies of the people represented in the sculptures. All the photographic delineations in this volume have been taken as it were for architectural purposes, or at most for art purposes. The marbles should be studied more minutely for ethnological purposes. And it would be a very proper and also desirable thing if a few of such photographs as have been suggested of the ancient inhabitants of India, were added to the great work now issuing by the Indian government, under the title of "*The People of India.*"

But the photographs of this volume, the lithographs not possessing the same physiognomical value, which are mostly small, as far as the portraits of the people are concerned, may, like those of the Egyptian and Assyrian monuments, be quoted in proof of the permanency of race. All careful observers have concurred in the opinion, that the people represented in the sculptures and paintings of the Egyptian tombs are the same race as the people who inhabit the Nile valley at the present day. Those remarkably fine people of the most ancient civilisation on the face of the globe, who in a recent ethnological concatenation have been identified with the most uncivilised and most uncivilisable race of which we know anything in any period of the world's history, have left their lineal and unmistakable descendants among the subjects of the present Pasha. And it is the same with the Assyrian monuments, which depict a people quite contrasted with the ancient Egyptians. Those who have studied them in juxtaposition with the present inhabitants of the valley of the Euphrates, tell us that there exists the greatest resemblance between the two. Here in India we have the same phenomenon, the Hindoos of the present day being sculptured in the marbles of the topes dating from the period of the Christian era. These are all striking evidences of the same law of permanence of type. Whether the resemblance of the Hindoos of that remote period with the Hindoos of to-day, will afford any support, or otherwise, to the Aryan hypothesis, we will not say. For it does not appear that by going back from the present time, when the philologers consider themselves under the necessity of supposing an Aryan origin for the Hindoos, for nearly two thousand years, we meet with any proof of arriving nearer to an epoch when the supposition was not equally needed upon the same grounds. This, we are fully aware, is no difficulty in the way of those who maintain the Aryan hypothesis; for they tell us that at

least five thousand years ago the Aryans descended from Bokhara and Afghanistan to the Gangetic valley, and brought Sanskrit with them. Still, it cannot be denied that the appearances are all in favour of the endurance of the same race of people in India from the remotest times to the present. If there have been any great changes, which we are required to suppose even by Mr. Fergusson, there is no evidence of subsequent change from the time of the building of the Sanchi tope to this day.

The other, or second great class of people of the sculptures distinguished by Mr. Fergusson, have a different costume. They are clothed in a kilt, fastened round the loins by a cord, a cloak, or tippet, and something like a conical cap, which Mr. Fergusson considers to be either their plaited hair, or a piece of cloth or rope wound round the head in this conical shape. But their most remarkable peculiarity is that they wear beards of a peaked shape, whereas all those of the first class are devoid of beards and even moustaches. Their garments are shaped and made with a needle, not like those of the first class, which are worn just as they came from the loom. Mr. Fergusson is unwilling to affix any general name to the people of this second class, still he calls them "Dasyus," for this term, he says, has been given in the Vedas to the aboriginal people of India. He regards this second class as being the ancient representatives of the wild tribes of India, such as the Gonds, the Khonds, etc., of the present day. Their women also are readily distinguishable from those of the "Hindoo" race. They wear a petticoat striped like the kilts of the men, which appears to be gathered in at the knees, and a cloak or tippet is thrown over one shoulder. Although our author is disposed to regard this really better clad people as the aborigines of India, and as the inferior race, among whom the "Hindoo" people, having some tinge of Aryan blood in their veins, stand out as their superiors, it should be noted that this was not the opinion of his predecessors in this inquiry. General Cunningham and Colonel Maisey were inclined to regard this second class as priests or ascetics, *i. e.*, really a class superior in the eyes of the general population. Notwithstanding these difficulties, it must be admitted that Mr. Fergusson's opinion, the result of great research, must always have considerable weight.

There does not appear to be that distinction among the worshippers, or in the objects of their worship, which we might have expected or desired. Whether this may arise from the unsectarian, tolerant spirit of Buddhism is doubtful. But in the case of Plate lxx, which represents one of the pillars of the great rail at Amravati, we have in the centre the bearded people, who are there, wearing a breech-cloth and a close cap, worshipping a Buddhist emblem, the trisul; in the

compartment on the left hand, the same people also seated worshipping the serpent emblem, or five-headed naga, to which are actually attached the sacred feet of Buddha ; and, in the compartment on the right hand, we have a group of lamas, or Buddhist priests, fully clothed in flowing robes, no doubt of yellow silk, as they have come down to the present day, with shaven heads, worshipping the trisul on a pillar, to the base of which the sacred feet are equally attached. In the seventy-first plate we have, in figure 1, the beardless and turbaned people, with their women, engaged in worship on one side of a pillar bearing the trisul, and having the sacred feet, and, on the other side, the lamas worshipping the same emblems.

This confusion of people and of objects of worship is most embarrassing in different ways, for it shows that there was no repugnance on the part of the worshippers, whether Hindoos or aborigines, to the worship of the serpent or of Buddha, that confusion was the rule in every respect, although the artist adhered to the delineation of each people and sect, if the term may be used, in their proper costume. Still it is remarkable that they are generally represented in separate compartments ; for instance, the lamas are not mixed with the other people, but stand or sit by themselves.

There is a hopeful expression of Mr. Fergusson's which must excite interest with anthropologists, where he says :

“ We are very far indeed from any such knowledge of the modes of sepulture among the aborigines, as to be able to speak regarding them with anything like certainty. Ample materials, however, exist in India, and so soon as any one will take the trouble to collect and classify them, we shall from their graves be able to discriminate between the different races, and assign to each its proper locality, with a precision now entirely wanting to such researches.” (P. 152.)

In the photograph, Fig. 4 of Plate xci, which is, according to Mr. Fergusson, the representation of Suddhodana, the father of Buddha, and his friends, a subject very similar in this religion to the annunciation of Christian artists, there is an appearance in the four men who are seated upon stools around the prince, which is not commented upon by the author. All these four persons have their right hands raised, the two first fingers extended, and the others closed, which reminds us of the sign used by Christian priests in “ blessing,” as it is called. In Plate lxxiv, Suddhodana is seated, with a halo round his head, holding up his right hand ; the forefinger and thumb are joined, and the rest of the fingers held upright,—no doubt, another sign.

When speaking of the worship of the horse in one place, for this animal is introduced as sacred in the sculptures, the author evidently makes some acknowledgment of Aryan difficulties. He says :

“ This does not preclude the idea of this form of worship being

borrowed from Scythia. On the contrary, everything we learn from either Sanchi or Amravati points to the north-west, and to countries beyond the Indus as the source whence everything took its origin. What the Buddhists derived from those countries was, however, directly antagonistic to anything which we know that the Aryans either possessed or affected, and must consequently be derived from some other race." (P. 216.)

Another singular anomaly in the views of Mr. Fergusson ought not to be passed over, especially as it is almost a postulate with our author that the Aryans are not an architectural race; at first view, an extraordinary position, when it is usually affirmed that the Greeks were primarily Aryans. He says, that the Turanians are the great builders everywhere. In fact, he accounts not only for the temples but for the religion also of the Greeks from the prevalence of Turanian blood in Greece. This may seem to be a necessity if the Aryan hypothesis is to be upheld.

"Assuming the Veda and Zend Avesta to be exponents of the religious feelings of the Aryans, it is impossible to understand—if language is any test in such a matter—how a people speaking a tongue so purely Aryan as the Greek, could so completely have lapsed into a Turanian ancestral worship as we find that of Greece in its great age. Unless a great substratum of the inhabitants of Greece belonged to the Turanian family, their religion, like their language, ought to have presented a much closer affinity to the earlier scriptures of the Aryan race than we find to be the case. The curious anthropic mythology of the Grecian Pantheon seems only explicable on the assumption of a potential Turanian element in the population, though the study of the language fails to reveal to us its existence." (P. 12.)

In other words, language is the true and only basis of the Aryan hypothesis; but the facts relating to religion require the admission of a non-Aryan race of people in Greece. On turning to language to support this admission, it at once becomes valueless as a test of the existence of this non-Aryan race.

One of the most important principles laid down by our author, upon which Mr. Fergusson's opinion as an artist and architect has the greatest weight, is that which he everywhere expresses upon the influence of Bactrian art as seen in the most ancient monuments of India. He is inclined to consider that this influence is displayed in the purest form in the time of Asoka, 250 B. C., to which he refers the Sanchi Tope. He says:

"We can now assert with confidence that all the permanent forms of art arose in India after its inhabitants were brought into contact with western civilisation, by the establishment of the Grecian kingdom of Bactria. It seems probable that such sculptures as we have of Asoka's reign were actually executed by Grecian, or at least by Yavana artists." (P. 221.)

An earlier passage to the same effect, which is also connected with

one of Mr. Fergusson's ethnological hypotheses, may possibly serve to explain this latter term.

"The knowledge that we have now gained of the early history of the art of sculpture in India, from the study of the examples at Sanchi and Amravati, enables us to point with equal certainty to Bactria as the fountain-head from which it was introduced. . . . We are now able to trace the Yavanas step by step, as they penetrated over the Upper Indus, and spread their influence and their arts across the continent of India to the very shores of the Bay of Bengal, at Cuttack, and Amravati. . . . But the people who did all this were not Greeks themselves, and did not carry with them the Pantheon of Greece or Rome, or the tenets of Christianity. They were a people of Turanian race, and the form of worship they took with them and introduced everywhere was that of trees and serpents, fading afterwards into a modified form of Buddhism." (P. 98.)*

This, upon the origin of Indian art, is very significant testimony when derived from such a source. The taste of that great people, led by Alexander to his eastern conquests, confessedly laid the foundations of Indian art as we see it in all subsequent ages, and we know nothing of Indian art before that epoch. This is a very important foundation should the scholars of a future period be led to inquire, what was the full extent of Grecian influence upon the oriental world in other matters, especially language.

* To this passage of our author a little more attention, of an ethnological kind, ought to be directed. The Aryan system, it is well known, is a system of inferences from beginning to end; still it may be questioned whether this practice of inferring race after race, which is Mr. Fergusson's method, should not be under some restraint. Here we have him inferring the invasion of India by a Turanian race across the Upper Indus, we might reasonably suppose, after the foundations of the Bactrian province, as they appear to have brought Greek art with them. We do not wish to insist upon the interpretation of Mr. Fergusson's language too literally, and allow that he may mean that his inferred Yavana Turanians crossed the Upper Indus long before Alexander's invasion. What we especially wish to call attention to is the fact that our author in all other parts of his work regards these invasions across the Upper Indus as the work of the hardy and warlike Aryans. Here he is constrained to infer an invasion of Turanians from the same source too.

QUATREFAGES ON THE PROGRESS OF ANTHROPOLOGY.*

HOWEVER well founded on reason any science may be, it is necessary not only that its truth be demonstrable, but that the reasons on which it is established be made known to the reading public,—to those who are disposed to inquire fairly and dispassionately into the reality of its pretensions,—ere it can be expected to command the assent, or obtain the study of the generality of mankind. And however extensive or however satisfactory may be the data from which the principles of any science are derived, until they are collected and systematically arranged so as to arrest the attention of those who are inclined to engage themselves in abstruse studies, the science itself can hardly be expected to make much way in the learned world. To Professor de Quatrefages, both the science of Anthropology and the learned world in general, are deeply indebted for his invaluable papers in the production of the work before us, which reduces to a complete and intelligible system the abstruse and difficult, and to many the incomprehensible, science of anthropology, embracing, during his investigations, a wide range of topics, and arranging disjointed facts in due order, so as at once to evince their bearing upon the subject. His disquisitions are always able, and his reasonings sound; and although we cannot pledge ourselves to adopt every conclusion at which he arrives, we are delighted to accompany, in the pursuit of this or any other science, so enlightened, so earnest, and so dispassionate an inquirer after truth. Indeed, every student of philosophy, more especially of the highest branch of it, the philosophy of man, must join in a tribute of gratitude to the individual whose ability, whose bearing, and whose energy have been devoted to the production of the very valuable, interesting, and important work, the contents of which we are desirous of bringing before the English public.

Our author, at the commencement of his work, proceeds to the definition of the science of Anthropology, as "The History of Mankind considered from a specific point of view," *Introd.*, p. 1. This definition may not be considered by some to be in itself very determinate or very satisfactory; but our author's meaning is more precisely evinced as he proceeds. He subsequently goes on to expatiate on the vastness of the science, as embracing the various human groups; and remarks (p. 3) that, in treating on them, the anthropologist is

* *Rapport sur le Progrès de l'Anthropologie.* Par M. A. de Quatrefages, Membre de l'Institut, Professeur au Muséum. Publication faite sous les auspices du Ministre de l'Instruction Publique. Paris, 1867.

not occupied only by mere physical, but that the intellectual and moral part of his nature equally demand our attention. He inquires, with great justice, at p. 5, "if the study of a plant or of an animal has merited the honourable name of *science*, how can we refuse it to the study of man?" Even in the study of bodies, "according to M. Chevreul, it is necessary to study three groups of properties,—the property physical, the property chemical, and the property organic" (p. 6). "Consequently, Anthropology, which I have already defined, constitutes a special science in every acceptation of the word" (p. 6.)

The first part of the book, which is devoted to an historical survey of the science, commences with (Ap. 1) the first period, extending, since Buffon, until the works of the Ethnographical Society (p. 9). What appears to us to be a somewhat inconvenient plan, has been adopted in placing the table of contents at the end of the work instead of at the beginning, where it would be most useful for reference. There is also a great want of an index to a voluminous and important work of this nature, containing such a vast amount of matter, and in which the different points of consequence, requiring to be referred to, are scattered about throughout the volume. Indeed, of all works, this one seems specially to require an index, as not only useful but indispensable. We venture to hope that both suggestions may be made use of, not only in the future editions in French, through which, we trust, the work is destined to pass: but also in the English edition of it, which we hope to see published shortly, which the work in every way deserves, and which, we feel certain, will be most welcome to a large and intelligent class of English readers.

In the first chapter, our author proceeds to take a survey of the opinions of Buffon, and other high authorities. He here remarks, with equal force and truth, that "when two men arrive at identical conclusions, by ways as different as the linguistic and that of physical examination, one is able to accept their assertions; there is every chance of their being true. Their discordance intimates at once where there are special difficulties, or whatever error has been committed on the part of either, it gives birth to reasonable doubts, and excites new researches,—it is, with them, a means to attain the truth" (p. 16). Buffon, Blumenbach, and certain linguists whom he mentions, he pronounces to be the founders of the science of Anthropology. He places a high value, also, on the works of Dr. J. C. Prichard, who, he says, is essentially of the school of Buffon.

In this part of his work, Prof. de Quatrefages speaks strongly as to the value of the information which anthropology has obtained through the efforts of missionaries, to whose proceedings anthro-

logists have been thought by some persons, although very erroneously, to be opposed ; while, on the other hand, missionaries have acted very unwisely in not availing themselves of the information, and that of the most reliable and practical kind, obtained respecting the people with whom they desire to hold intercourse, and the best means of doing so, supplied by anthropologists. Our author observes, respecting missionaries in general, that "the missionaries have always followed closely upon travellers, whether geographic or naturalists. Several times they have even preceded them. In the pursuit of their habitual occupations they have often studied men more thoroughly than the most eminent lay travellers. Anthropology owes them much. Whether catholics or protestants, orthodox or dissenters, they appear occasionally to have exerted an energy which has done great service to science. . . . It is mainly to missionaries that we are indebted "for our knowledge of many parts of the world" (p. 25).

And, again, in a subsequent part of his work, he tells us that "the missionaries of all communions have most frequently opened the way to geographic discoveries ; and, thanks to their habitual occupations, they have collected on the subject of man many observations which the most eminent lay travellers neglected to make. More than one of them has lately rendered his tribute to science by important publications" (p. 41).

The history of the science of anthropology is followed up in the second chapter of this work, "comprising the last twenty years." He here remarks passingly, with equal force and truth, that among travellers "it too frequently happens that they inquire more about a country than its inhabitants, and describe more minutely the mammiferous animals or the birds than they do men. If they are occupied with him, they describe his habitation, his clothes, and his articles of dress, without saying anything about his actual character. This is no less the case, even in our day" (p. 36).

This is, doubtless, more the case with modern travellers than with those of ages gone by. Captain Cook, for instance, enters much more into the character, intellectual and moral, of the natives of distant lands, not before visited, with whom he came in contact, than most if any recent writers have been in the habit of doing. The missionaries have done some service in this respect, but not to the extent which might have been reasonably and fairly expected, considering how directly the nature of their occupation led them to observe minutely and in various ways the character and habits of those with whom they have had to deal.

In the present chapter Professor de Quatrefages gives a summary of works indispensable to the anthropologist, which develop the leading

principles of the science, and which were all of them produced during the present century. We have been rather led to regret, in connection with this part of the subject, that the present treatise has not embraced a review of the productions of the older writers on subjects connected with anthropology, long before it was formed into, or attempted to be classed as a separate science, many of whose investigations and observations are of the deepest interest and the highest value. Indeed, the study of anthropology is, in reality, as old as the days of Aristotle, certain of whose works, as also many of those of Plato, are of great value to anthropologists, although anthropology was not then recognised as an independent pursuit. From his days to our own, all the profoundest philosophical writers have treated more or less on anthropology, especially the writers of the middle ages, to several of whose works allusion has lately been made in this *Review*.* Sir Matthew Hale's great work on "The Primitive Origination of Mankind, considered and examined according to the light of nature," is devoted to the examination of subjects, such as the unity of the species, which have peculiarly of late years occupied the attention of anthropologists. Jacob Behmen, too, whom even Newton delighted to consult, must not be overlooked here. Among writers of this class, however, Des Cartes† and Malebranche deserve especially to be mentioned, as also our own writers Hobbes and Locke. In conjunction with the efforts of travellers and naturalists, the observations upon man in general, more especially as regards his intellectual and moral nature, form a mine of wealth to the anthropologist, which has yet to be explored, and to be worked as well. Among the French writers the President Montesquieu, and of his works his "Spirit of Laws," deserve especial notice. All his legal principles may be said to be based on anthropology, which is, indeed, more or less the case with the greatest and most profound jurisprudential writers, especially Puffendorf and Burlamaqui, thereby at once affording direct proof of the practical value of anthropology to legislators and jurists.

The second section of the chapter now before us contains an account of the formation of different anthropological societies. Speaking of the constitution of that at Paris, he observes :—

* Nos. 23, 24, 25, *On the Localisation of the Functions of the Brain*, etc.

† During a recent visit to Paris, we paid a visit to the church of St. Germain des Prés, the resting-place of the remains of Des Cartes, which is situated near the Institut; and learned with equal surprise and regret that no memorial of any kind whatever—not even a common slab-stone—has been placed to mark the spot where the ashes of this very great and original genius, who has done so much for philosophy in France, are laid. Surely, the Institut ought to do something to rescue from neglect so noble an ornament to the rank of philosophers in their enlightened country.

“Composed at first almost exclusively of medical men and naturalists, it has attracted to its ranks a very large number of travellers, linguists, historians, geographers, and archæologists. If it has to complain of anything, it is that the men who cultivate these different sciences have not replied in sufficiently great numbers to its appeal ; for the more it advances the more it perceives that to study the science thoroughly a man requires to know everything” (p. 46).

Among the societies out of France, he alludes to those of London and Manchester, as also to that at Madrid, which has been for some time nearly defunct, owing to the jealousy and arbitrary interference of the then ruling powers ; while those ruling powers, in their turn, have shared the same fate, and have now as little influence over Spain as is possessed by the Madrid Anthropological Society.—*Sic transit gloria mundi.*

As regards the mode of studying men, our author remarks truly and philosophically :—“Man, as a problem not being understood, and consequently not being able to render us any solution of it, it becomes necessary to inquire among the plants and animals, to investigate the general laws common to all living beings, and to employ them in the solution of the question” (p. 60). This is an enlarged and comprehensive, as well as truly philosophical mode of following up the study of anthropology ; but an important light may be thrown on the nature of man by the observation, not only of beasts and birds, but also of fishes and reptiles, and even of insects and vegetables. The question as to the influence of difference of sex in our own species may obtain extensive elucidation from the observation both of plants and insects. The habits of beasts and of birds will serve also to illustrate many perplexing mooted questions in morals.

In the opening chapter of the second part of this treatise, “man’s place among living beings” is discussed at large. It is here remarked that—“In reality man is the only being in whom one meets with the following essential characteristics : 1, the notion of moral good and evil ; 2, the belief in another life ; 3, the belief in beings who are superior to him” (p. 76). On the latter point he, however, subsequently remarks that “in this respect domestic animals are religious, for they readily obey those who influence them with the rod and with sugar” (p. 85). They also render homage to a superior being in the case of man. Indeed, he afterwards observes that “there is no difference between the Negro who worships a dangerous animal, and the dog who crouches at his master’s feet to obtain pardon for a fault” (p. 86). And, as he also remarks in another part, “animals fly to man for protection, as a believing being does to his God” (p. 87).

Chapter ii is devoted to the much vexed question, even among anthropologists, of “the unity of the human species.” He here re-

marks that "in France, as in other countries, anthropologists are divided into two parties upon a question essentially fundamental, for upon the solution of it arrived at depends very often the mode in which all the others are to be dealt with" (p. 94). He here, however, assumes, somewhat unfairly and unreasonably, as it appears to us, that the dogma of the unity of the species has the direct and positive support of the Bible, the incorrectness of which was pointed out in an article in this *Review** by one of our contributors some time ago, and into which it is, therefore, unnecessary here to enter. Professor de Quatrefages consequently speaks very incorrectly, of the unity of the species as "a dogma supported on the authority of a book which Christians, Jews, and Mussulmans almost equally respect" (p. 95), and as having been for a long time received without dispute; of which, too, as has been several times shewn, there is at least very great doubt. He then proceeds to observe,—“Peyrere, supported principally by the first chapters of Genesis, endeavours to demonstrate that Adam and Eve were the ancestors only of the Jewish nation; that they had been preceded by other men; that the Preadamites, ancestors of all the Gentiles, were created at the same time with the animals, and upon all parts of the habitable world” (p. 95). After that he goes on at considerable length to contend for the monogeneity of our race, although he is liberal enough to remark that “the polygenists are too often accused of impiety. One forgets that the same reproach has been cast upon many other doctrines which are at this day admitted by the firmest believers” (p. 96). He subsequently refers (p. 100) to animals and plants in order to solve the problem. And he afterwards observes, that while “there is a unity of species, the different races are fractions of the unity; or, again, the species is the trunk of the tree, while the races represent the principal branches, the boughs, and the twigs” (pp. 106, 107). In another part he asserts that “a rigorous comparison places it beyond doubt that with man the limits of variation of character are in all respects less extensive than with certain races of animals of one particular kind” (p. 110). And he subsequently informs us that “at the end of so many generations one is obliged entirely to recommence the series of crossings, because the products return to the primitive species, as is the case with vegetables” (p. 122).

“The formation of vegetable and animal races; hereditary and medium (*milieu*); applications to man;” is the title of chapter iii. He remarks here that “man does not himself exercise the selection which he employs in the case of the domestic species; and this explains in part how it is that we have found in his case that the limits of variety are always more restrained than they are with animals. . . .

* Vide *Anthrop. Review* for April, 1867, No. 17, p. 175.

It is not, therefore, surprising that there is nothing between man and man of the distance which separates so many of the races of the animal world" (pp. 139, 140). In another part he inquires—"What is degenerating, unless it be the transformation of one race into another?" (p. 141). In a subsequent page he thus defines the somewhat doubtful and perplexing term of what he terms the medium (*le milieu*):—"With me the medium comprehends the sum total of all the conditions of the empire, where either plant, animal, or man establishes itself, and advances itself to the state of germ, of embryo, youth, and adult" (p. 143). To some, possibly, the definition may appear more perfectly perplexing than even the term itself, and, instead of dissipating, may serve only to complete the obscurity. We believe, however, that, on the whole, it entirely meets the author's meaning; and that no other description could so completely comprehend the condition in question; the perfect accomplishment of which is necessarily a task of great difficulty.

On the general subject of the pursuit of anthropology, and the enlarged and comprehensive mode in which our studies ought to be followed, Professor de Quatrefages admirably remarks that "we can, and we ought to study the history of cultivated vegetables, and of domestic animals, to throw light on our own history. . . . Our orchards, our kitchen gardens, our stables, are the proper laboratories where we should work upon these organised beings, instead of confining ourselves to the materials afforded by the brute creation" (p. 144). He subsequently refers to the great variety in the races of dogs, as illustrative of that in the human species. The study of vegetables he shows to be also very useful in this way.

Chapter iv is entitled—"The primitive cantonment of the human species—the centre of the human creation." On the subject of this chapter our author observes that "certain facts allow us to conjecture with very great probability, that the centre of the creation of man will be found mainly in Asia, not far from the region at this day occupied by the central part of the structure. Indeed, round about this structure, or upon its flanks, we find the three fundamental types of humanity reunited by their intermediate portions, whether by the fusion of races one with another, or by the primary and very extensive modifications effected by the medium. Round about the same structure are distributed very different languages in vogue at the same time, and representing the three grand linguistic divisions universally admitted" (p. 171).

"The antiquity of the human species" and "fossil man" forms the subject of chapter v. "The peopling of the globe" and "migrations" that of chapter vi. "Acclimatisation" that of chapter vii. And in the eighth

chapter is considered "the origin of man ; man primitive ; man fossil ; the first European originators." Commenting here on the difference between men and monkeys, he remarks,—“The first is a walking animal, and walks upon its hinder members. All the monkeys are climbing animals” (p. 244). This is, however, hardly to be considered as an essential difference in itself, although it may be the result of a difference in their respective constitutions. A difference in habits and manners does not of itself prove a difference in man ; although it proves that their pursuits or their constitutions may have been different, which eventually led to their being different in the former respect.

The third part of Professor de Quatrefages's valuable and comprehensive work treats upon "the general character of the human race." He here observes that, "however incomplete is our actual knowledge, it embraces, nevertheless, nearly the whole of humanity, more or less the most essential groups, and the great majority of the secondary groups. . . . In order to enable the anthropologist to form a correct idea of the nature and the importance of physical peculiarities, and of those which are intellectual or moral, characteristic of the human groups," what we know of the human race is sufficient to qualify us for the pursuit (p. 275). Chapter i of the present part treats on "physical characters." On the subject of "proportions" he remarks that "in all our domestic races, the relative proportions of different regions of the body supply important characters. It is the same with man" (p. 281). On the subject of colour he observes—"With all the anthropologists I attach great importance to the colour of the skin, the eyes, the hair, etc." (p. 284). The eye generally, its vivacity, its brilliancy, its mode of action, doubtless affords a marked indication of character of each kind, physical, intellectual, and moral ; but it may surely be doubted much whether its mere colour is sufficient for this purpose, being dependent on the general complexion of the rest of the frame, which is not certainly indicative in this respect. Indeed, he afterwards states that "the colour of the eyes is not of the same importance as the colour of the skin" (p. 288). But, as we have already hinted, is not the colour of the eyes mainly, if not wholly, dependent on that of the skin ?

In a subsequent part of the present chapter he remarks,—“One is led to ask whether smell (*odeur*) can be a characteristic of race. . . . The senses of savages, more exercised than ours, extend further. They can distinguish smells as we distinguish colours” (pp. 290, 291). On the subject of the trunk and the extremities, he observes that “among the well-to-do and intelligent classes of society, the body is sacrificed to the spirit ; among the necessitous classes it is often sacrificed to industry, and too often to vices, when civilisation alike favours

their development, and affords them the means of gratifying them" (p. 294). He subsequently refers, on the authority of Gratiolet, to "the intellectual youth (*jeunesse intellectuelle*), so remarkable among men who have constantly exercised their minds" (p. 302). We are not quite clear here, however, as to the precise meaning of our author. Does he intend to assert that in old age the mind of cultivated men appears young and vigorous, and in a peculiar degree to retain its force and clearness? Or does he mean us to suppose that the youths of a cultivated race display a degree of intelligence beyond the children of persons not highly educated? These are questions of deep interest to the anthropologist, and of considerable importance to mankind at large, on which we do not now wish to offer an opinion, but hope on some future occasion to see them fully discussed and fairly disposed of.

A fact somewhat damaging to the theories of our friends the phrenologists, and which we commend to their serious attention, is thus stated by our author:—"The brain is not alone in the cerebral case, but it is there with all its coverings (*envelopes*). Now it seems to me but little probable that they should always be of the same thickness, always steeped in an equal amount of liquid, and that the cavities (*sinus*) shall have the same dimensions, etc. On these different points, as upon all others, it is necessary that differences should exist, perhaps considerable, between one individual and another, and very probably also between race and race. No one has as yet made any precise research with the object of ascertaining these differences, and of determining their importance (*valeur*). In the meantime it is evident what this influence is upon the volume of the regions of the brain (*l'encephale*") (p. 303). It surely, however, would not be difficult, while it is at the same time very important, to ascertain these differences. Experiments for the purpose might be made upon the heads of animals as well as those of men. We may venture to infer, however, that the average difference would be much the same in different heads, so that in the great majority of instances,—in all where some peculiarity does not intervene to cause a variation,—the shape of the skull will be found pretty correctly indicative of that of the brain.

Professor de Quatrefages, however, informs us that "Gratiolet concludes that the development of the skull is, up to a certain point, independent of that of the brain, and that different parts of the region of the brain (*l'encephale*) develop themselves also, up to a certain point, independent of each other" (p. 304). But admitting all this, each part must ultimately attain its full growth and development, and so all these different parts will probably find their proper level at last.

[*To be continued.*]

DR. WISE ON RACE IN MEDICINE.*

THE work before us affords a mine of matter interesting to the student of the history of medicine, and in the portion of it relating to the origin and progress of medicine among the Hindus, we find traced out the germs of ideas which were subsequented, appropriated, and developed by the great men who were the fathers of European medicine. A large proportion of the most ardent wooers of anthropology are found among the professors and practitioners of medicine, but it is not from their point of view that we propose to review this book ; and we shall here only say, with respect to its general merits, that the untiring industry and well-known and various learning of Dr. Wise are everywhere conspicuous therein.

But these two volumes, which deal with the history of medicine among the Hindus and other Asiatics, furnish many facts for the consideration of the anthropologist, which are almost wholly disconnected from the region of medicine. Take, for example, the following passage from the introduction :—

“The cultivation of the mind improves the character of a people ; and the difference is marked between the ancient and modern Hindu family of Aryan physicians, educated during many generations, and the barber-surgeons of the Turanian race, without any education. As the subject was important, I selected an educated Voidia physician, and a barber-surgeon, quite uneducated, from among my assistants when in India, in order to examine the difference. The former, who was named Neem Chaund Doss Gupta, belonged to one of the four Voidya classes, which Bullal-Sen, the great Voidya king, instituted. His family had been for many generations the chief physicians of the province he inhabited ; and, in his authenticated family history, it is stated that they have been from time immemorial distinguished as physicians. For fourteen generations particulars of each succeeding individual are given, which, allowing only twenty-three years for the length of each life, would carry back the history of the family for a period of more than three hundred years, to about the time of Telenga Mukund Deb, the last able and independent king of Orissa. After a brave resistance, that monarch was conquered by the Mussulmans, and the distinguished men he had employed about his court were dispersed. It was at this time that Narayan Doss Gupta distinguished himself by his learning, etc., etc. . . . His son, and seven of his successors, supported a gratuitous Sanskrit school, in which the medical shasters were taught. . . . The thirteenth was physician to Rajah Roybullah. . . . His son, Neem Chaund Doss, was my friend, the fourteenth of

* *History of Medicine*, by Thomas A. Wise, M.D., etc., etc., vols. i and ii. London : Churchill.

this honourable list. In order to study the English system of medicine, he attended regularly the Dacca Dispensary and Hospital, and there he attracted my notice by his diligence and attention, and by his great intelligence and industry. I procured for him a situation under Government, with a small salary sufficient for his humble wants, and modest and retiring habits. He had an accurate and extensive knowledge of the medical shastres, a great part of which he knew by heart ; and quickly distinguished himself in practice, by his activity and correctness, and by the judgment he displayed in the treatment of disease.

“To mark the effect of the pursuit of learning, during so many generations, and of the want of education, on the physical organisation of the Asiatic, I sketched the profiles of two medical men. Fig. 1 is the profile of Neem Chaund, and forms a striking contrast to No. 2, the profile of a barber-surgeon, who was born of low-caste parents, that had for generations received no education, and got their living by shaving, cleaning the ears, trimming the nails, inoculating the small-pox, performing phlebotomy, extracting teeth, and assisting at certain Pagan ceremonies, as that of fixing the hooks in the flesh of those who swing round on a pole at the Ratgatra. I had frequent opportunities of observing the character of this individual. He was ignorant and superstitious, but kind, affectionate, and methodical, with a good deal of cunning. Such a low branch of the healing art is not connected with any caste, rank, or religion. Still, there are individuals among them (the barber-surgeons) who acquire much expertness in such a calling. They seem to transmit a degree of manual expertness to their descendants, who sometimes distinguish themselves as lithotomists, oculists, etc.”

It should be here remarked that the Voidya or Ambastha caste, to which the physician above described, Neem Chaund Doss Gupta, belonged, is alleged by the Hindus to have sprung from the marriage of a Brahmin with a Vaishya, the Vaishyas ranking as the third caste, and being, or claiming to be, Aryan. Whatever amount of credit we may give to such a genealogy, it indicates the opinion of the Hindus that the physician caste sprang from among the gifted invading race, not from among the indigenous or previous occupants of the land.

It may be gathered from the passages quoted above, that Dr. Wise entertains decided views as to the importance of hereditary influence in the transmission of mental and moral qualities. Accordingly, he visits the caste system with less reprobation than it usually meets with from Europeans. “The institution of caste,” he says, “at first accelerated the advancement of knowledge, by accumulating the experience of generations, enabling them to acquire a degree of hereditary aptitude and manual expertness, and develop an extent of ingenuity, that has scarcely been equalled in Europe.” Subsequently, he allows, the very system which had produced this rapid development served only to petrify and arrest it.

The two heads figured by Dr. Wise give us the impression of belonging to men differing in race, taking the word in an extended sense. The physician has a head of what we commonly call the Caucasian or Indo-European type, with well-developed forehead and moderately prominent occiput, while the head of the barber-surgeon is globular or pyramidal, short, with sloping forehead and deficiency in the occipitoparietal region, resembling in type the heads of many of the races called Turanian, or of the peasantry in some parts of Italy. We have observed this latter type in the person of a gentleman of much intelligence and education, who belongs to the Kaistha or writer caste, who, though they hold a very respectable position, and have for many generations been educated men, are acknowledged to be Sudras, *i.e.* of indigenous blood, and whose physical type has not been elevated by Aryan admixture.

PENGELLY ON THE ARCHAIC ANTHROPOLOGY OF THE SOUTH-WEST OF ENGLAND.

AMONG the difficult and, as yet, unsolved questions of the day, few excite a greater interest than the antiquity of mankind. The Anthropological Society of London was established partly for the purpose of investigating this abstruse subject, and of collecting into one focus the scattered data on which the science of man must be raised. The facts and deductions are of only recent discovery, and are still in process of accumulation. It has long been incomprehensible to scientific inquirers that the short period of a few thousand years can have completed the rise and progress of man, with all his varieties of race and language. Variations of race take place so slowly and imperceptibly that ages must pass before a clearly defined distinction can be recognised. In appealing to history for information on the origin of the Negro or the Red Indian, we find that all is blank, obscure, and uncertain. If we go back to tradition, mere ridiculous fable and allegory take the place of facts; but when history and tradition are silent, archaic anthropology steps in to assist us, and we are enabled to learn something of the habits of the early races by the implements they have left behind in the strata in which they have been imbedded.

The gravel beds and bone caverns of England and France have afforded us the most ancient traces of man yet discovered. Professor

Worsaae and the Scandinavian antiquaries have divided into three epochs the prehistoric period. The earliest has been called the stone age, the long period of primitive barbarism: the first effort of human reason in self-defence was accomplished; a feat which none of the inferior animals has been able to accomplish. There is, however, a difference of skill displayed by the earlier and later workers in flint and stone. Then followed the use of bronze weapons, and these again the use of iron, and thus an iron and a bronze age form epochs of characteristic importance in the history of man. The flint folk seem to have been contemporary with the mammoth (*Elephas primigenius*), woolly rhinoceros (*R. tichorhinus*), and other species of mammalia now extinct. The records they have left behind in numerous localities in Europe prove their extensive range over a wide area. Boucher de Perthes traced their reliquæ on the banks of the Somme, when the river flowed at a much higher level than at present. Mr. Prestwich has ably confirmed and extended the views of the French geologist. Throughout the whole area hitherto examined, the same type of flint implements, tools, and weapons prevails. In the splinter of flint the early savage found his best cutting instrument; chipped to a point it formed a boring tool; flaked into oval or leaf-shaped forms it formed spear or arrow-heads; larger masses were used as missiles, or as battle-axes useful and formidable either in the chase or in war. Probably the act of chipping the flint with some hard ore of iron brought the flint folk to the discovery of fire: the Esquimaux and the Lapps still adopt this primitive method of obtaining fire. At all events, the ashes found at Wookey Hole, and at the mouth of the cave of Aurignac prove that fire was not unknown at the early period of their inhabitation. The process of smelting must have preceded the age of bronze, and long previous to the discovery of this art must some such easy process of obtaining fire have been known.

M. Lartet examined the contents of the cave of Aurignac in 1860; but in 1858 the systematic exploration of the Brixham cavern was made by Mr. Prestwich, Mr. Pengelly, and others; and this, as Sir Charles Lyell has remarked, "prepared the way for the general admission that scepticism, in regard to the bearing of cave evidence in favour of the antiquity of man, had previously been pushed to an extreme."

This essay of Mr. Pengelly, reprinted from the *Transactions* of the Devonshire Association for the Advancement of Science, Literature, and Art, throws some light on the changes which must have taken place in the relative adjustments of land and sea since the Brixham cavern received its deposits. On the floor of this cavern the flint tools of man and the bones of extinct quadrupeds were found in close

juxtaposition. If this deposit be rightly interpreted, the evidence is overwhelming that the extinct mammalia must have been contemporary with the existence of man, and preceded the age of that submarine forest, which covers a large portion of the bottom of Torbay, having been traced as far from the shore as the five-fathom line. It probably reached its present level by a gentle and gradual subsidence, for the trunks and roots of trees remain *in situ*. Long before the growth of that forest, which once crowned the surface of that inlet of the British Channel which now forms Torbay, man must have existed. But before we can form any idea of an answer to the question, how long? we must approximate our conceptions of time to some definite idea as to when Torbay was formed by the subsidence of the land on which that forest grew. The sea, however, is not the only covering of this ancient forest, for in the mining districts of Cornwall the workmen have penetrated through thick accumulations of material until they have reached these vegetable remains extending very far inland. And in this deposit at a depth of forty and fifty-five feet human skulls have been found at Gentman and Carnon;* also, at the former locality, a piece of oak which the hand of man had shaped, at the depth of forty-four feet. Who can estimate the remoteness of that period when these skulls were entombed? But a more remote period still must be that in which the remains of the Brixham cavern were deposited by the action of a mountain torrent. In reference to these questions, Mr. Pengelly observes:—

“Though the time required for and represented by the foregoing changes must have been great, it failed to fill the interval between the present day and the earliest traces of man in Devonshire. The submergence of the forests was not the thing of yesterday. In order to a determination of the antiquity of man in south-western England, to the time already demanded must be added that which has elapsed since the last adjustment of the relative level of sea and land” (p. 3).

This interesting question receives a large share of consideration in this pamphlet, indeed it is principally devoted to the history, legends and traditions of St. Michael's Mount, which archæologists may safely identify with the Ictis of Diodorus Siculus; and yet nineteen centuries have passed away since that description of the Greek historian was written, and no appreciable change has taken place between the physical relations of the island and the mainland. We shall not, however, follow Mr. Pengelly into these historical and traditional matters, interesting and valuable as they are, as they throw but little light over the more strictly anthropological subjects, which the study of the Brixham cavern and its deposits brings before us for our con-

* One of these skulls is in the Geological Museum at Penzance. It is very desirable to have a detailed description of it.

templation ; but we recommend them to the attention of archæologists. The author sums up his statement thus :—

“ . . . Since the era of that tranquil, uniform, and general subsidence, which resulted in the submergence of the forests, whose remains are found on the strands of all the British seas and channels, thick accumulations have been lodged in the valleys or the forest ground, and broad foreshores have been formed by the retreat of the cliffs before the waves, yet, at least, nineteen centuries have failed to produce an appreciable change in the character of the mount, or its relation to the mainland ; prior to this subsidence was the period of the forest growth, when the mount was unquestionably a ‘ hoar rock in a wood,’ but which, in all probability, it had ceased to be very long before any language now known to philologists was spoken in the district ; before this again was the period of the deposition of the blue clay and of the tin-ground, in which the forests grew ; earlier still was the epoch of the excavation, or re-excavation of the valleys, in whose boundary hills are the caverns of South Devon ; and in a still more remote antiquity, when the bottoms of the valleys were, at least, one hundred feet above their present levels, persistent streams or fitful land-floods carried the characteristic red loam into these caverns. Great as is the age of these deposits of cave-earth, it does not exceed the antiquity of man in the south-west of England.”

THE ORIGIN OF THE GAULS.*

THE appearance of M. de Belloguet’s work calls somewhat painfully to mind the fact that anthropological studies are regarded with far more favour in France than in England. M. Amédée Thierry’s *Histoire des Gaulois* has already attained a sixth edition. The volume before us is the third part of a work which can already boast a second edition of its first part, and that first presents no more attractive title than *Glossaire Gaulois*. The writings of Dr. Broca and M. Pouchet are probably better known in France than those of any English anthropologist in England. And, though some English anthropological publications exist of which Englishmen may be proud, it would be difficult to point out one of which the first edition has been fairly sold out.

To us, therefore, on this side of the channel it seems somewhat strange when a Frenchman complains of the difficulty with which new and more correct views are adopted. M. Belloguet laments that

* *Ethnogénie Gauloise*, par Roget Bon. de Belloguet. Troisième partie,—“ Le Génie Gaulois.”

proofs drawn from history and from science are ignored in the latest editions of popular works, and plagiarist after plagiarist repeats the errors of his predecessors. His indignation is excited because M. Amédée Thierry still recognises a distinction between the Gael and the Cymry. What would he say if he lived in England and saw a work (brought out under the auspices of Oxford University) of which the first volume reiterates again and again, in defiance of historical criticism and physical facts, the astounding statement that Englishmen are Dutchmen ?

In France matters are certainly better understood, because they have been longer and more carefully studied. Although the French are separated from the Germans by no more formidable barrier than the Rhine, Frenchmen of all ranks are quite satisfied that they are not of Teutonic origin. Though Britain is separated from Germany by the sea, there are still many Englishmen who believe that a few marauders from Jutland and Holstein have sufficed to people nearly the whole of Great Britain. So far as names are concerned, France and England are on the same footing, for each has adopted the name of a German tribe. In England, however, *littérateurs* and historians have fallen down and worshipped the word as a god ; and only scientific inquirers are at present convinced that the word is in no degree an indication of the fact. In France, on the contrary, common sense, if not a more diffused knowledge of science, has impressed upon the national mind the conviction that great races are not annihilated by invasion. In spite of his name, and in spite of his language, the Frenchman never dreams that he is either a Roman or a Frank. He admits that both the Romans and the Franks have had an influence upon his history, but he prides himself on being what he knows that is, a Gaul by descent.

The application of anthropology to minor race problems affecting the inhabitants of France is thus rendered far easier than its application to similar problems in England. Here we still have to struggle for the establishment of first principles ; there first principles, which have received the sanction of anthropologists, are firmly implanted in the public mind ; and while we are labouring (not without success, it is true) to prove that if race means anything it means radical distinction between Germans and Englishmen, our French friends can limit their inquiries to the constitution of that Gallic nation which Cæsar subdued.

M. de Belloguet entertains, or rather appears at first sight to entertain, an opinion wholly different from those of Messrs. A. Thierry, Edwards, and Broca, concerning the signification of the term Celt. He regards the true Celts or Gauls as a race spread at various times over

a very wide area—from the British Isles to the mouths of the Danube—and characterised everywhere by “a milk-white skin, a lofty stature, a long face, and very fair hair.” He repudiates the distinction commonly drawn between the Gael and the Cymry, and admits only one Celtic people, which, according to his view, subjugated a round-headed brown race, previously master of Gaul, by whom the Celts were, to a great extent, absorbed. All who are acquainted with the writings of Dr. Broca, the great master of French anthropology, will remember that to this short-headed brown race, which still survives almost pure in Auvergne, he gives the name of Celts as distinguished from the tall long-headed and somewhat fair-haired race whom he distinguishes by the name Cymry. So far as the Cymry are concerned, he agrees with M. Amédée Thierry and M. Edwards, from whom, however, he differs in making Celt a term of special, instead of generic, meaning. And it is not too much to say that all these unfortunate differences have arisen from the old-fashioned and pernicious theory that language and race are always cœxtensive. The war is a war, not of facts, but of words.

It is quite possible that M. de Belloguet, M. Thierry, M. Edwards, and Dr. Broca may all be perfectly right—much as they seem to differ from each other. M. de Belloguet, as we understand him, asserts that the long-headed race, which he says was fair-haired, spoke a Celtic dialect; the other authors do not dispute the position. M. Thierry, discovering certain marked differences between the High and the Low Celtic dialects, assumes a corresponding difference of race; but even M. de Belloguet cannot deny that the linguistic differences exist. M. Edwards does but draw the distinction between the long-headed and the short-headed races; and M. de Belloguet admits the distinction, though he cannot agree with M. Thierry's nomenclature. Dr. Broca boldly denies the value of philology in questions of race, gives an arbitrary definition to his terms, and when given maintains it consistently; but his facts agree with the facts of the other three authors. It appears from all this, that an international anthropological congress is very much needed to settle with authority the sense in which ethnic and other terms should be used. There is great waste of valuable force in these disputes which might be rendered impossible by common consent.

A man must be very bigoted who would refuse to abandon his own definition, however correct in his opinion, for the sake of uniformity; and until some definite understanding has been arrived at, each author who does not wish to fall behind the age would do well to define his own terms. It may be that the words Cymry, Celt, Gael, etc., will have to be abandoned one day by scientific anthropologists, and will become the mere playthings of third-rate anthropological philologists;

it will probably be found impossible in practice to disconnect the terms from some of their old associations. They must always be used to distinguish languages, and their use in anthropology will, therefore, always have a tendency to confuse language with race. Should M. de Belloguet's work have the effect of producing such a change, he will have been a very great benefactor to science.

So far as the leading facts are concerned, it does not appear that M. de Belloguet has brought to light very much that was not previously known to English anthropologists. M. de Belloguet's great point, however, is that the short-headed race which forms the chief constituent element in the Gallic nation, is to be identified with the Ligures of classical writers, with the "Lloegrwys" of the Welsh triads, and with the Gwyddil, Gaedhail, or Gaels. "We claim," he says, "the honour of having first presented them to the world of *savans* as the true root of our genealogical tree, by distinguishing them from the Iberians, with whom the ancients had confounded them, and who are, like the Celts, grafted in the west, on their prehistoric trunk." This Ligurian people M. de Belloguet believes to have been sober, accustomed to labour, well able to bear fatigue and privations, warlike, and remarkable for their courage. They were accused of perfidy and cruelty; but their two best marked characteristics were cunning and an indomitable obstinacy. They were at all times avaricious, and in war eager for pillage. They possessed quickness of perception, great natural eloquence, a keen sense of the ridiculous, a restless spirit of inquiry, and the faculties of invention and imitation. On the other hand, they were wanting, says M. de Belloguet, in "the religious sense," though, according to Cæsar, the whole of the Gauls were plunged in the most revolting superstitions.

This description naturally excites the inquiry—how is it possible to distinguish the character of the Ligurians from that of the dominant caste, the Gauls, if such a caste ever existed? A strict application of the principles of historical criticism compels us to pause before accepting M. de Belloguet's picture as an authentic portrait, though the same principle forbids us to assert that the portrait may not be correct. The truth is, that there is but little historical material in the writings of the Greeks and Romans, by means of which it is possible to draw even an outline of the character of any very ancient people considered as a whole, except, of course, of the Greeks and Romans themselves. And there is still less material for an analysis of the psychical characteristics of the component elements of any very ancient people. In the present case an attempt has been made to distinguish the Ligurians from the Gauls proper upon the most slender possible evidence. A few vague allusions from some of the poets, the notes of a commentator,

and the superficial remarks of one or two travellers may be given as the catalogue of authorities upon which the author relies, and which certainly appears to be quite insufficient for his purpose.

It would, however, be unjust to M. Belloguet to represent him as insensible to the difficulties which beset him on every side from want of materials. He is perfectly aware of the delicacy of his task, and endeavours to strengthen his position by those "considerations of general ethnology," which he has stated in the previous parts of his work. And he believes that the contradictions of various ancient writers upon the manners and customs of the Gauls considered as a nation are only to be explained by his hypothesis concerning the two component elements. Having assigned certain mental and moral qualities to the Ligurians, he assigns certain others to the Gauls proper according to his nomenclature—to the conquering race. The latter, though remarkable for beauty of form and feature, were, in his opinion, characterised by a fierce and impetuous love of action, by the want of reflection and fiery energy of the brute, by intemperance, and by a passion for ornament—qualities hardly redeemed by a certain simplicity and frankness, by credulity, and by a magnificent hospitality. It would require more proof than M. de Belloguet can adduce to convince the majority of men that nearly all the worst mental manifestations were exhibited by the race of better *physique* and nearly all the best manifestations by the race of worse *physique*.

All attempts to distinguish races by their psychical characteristics are dangerous even when the evidence appears to be ample and the differences well marked. There is a great tendency in this, as in many other subjects, to mistake words of little or of ambiguous meaning for facts of great importance. Take, for instance, such terms as "quickness of perception," "warlike disposition," "sense of religion," and consider what they may imply, according to the different views of different persons. They may mean almost anything, or next to nothing. Quickness of perception may be applied to a woman's eye for her neighbour's dress, or a man's generalisation of scientific facts. The definition of a warlike disposition must of necessity differ with the age which is under consideration, and the point of view from which it is regarded. The "religious sense" is, perhaps, the most unfortunate term which could be chosen for the discrimination of races. From different points of view it would be possible to maintain that any nation possesses a religious sense, or that any nation is without it. To the bigot nothing is a religious sense except that kind of sense which causes other men to think as he thinks himself. To the student of religion in general—of the sum of the religious manifestations in the world—there appears to be, if not a religious sense (which is too vague

an expression for scientific use), at least a common element of mind which causes human beings, however differently constituted in other respects, to accept a religious belief of some kind or other.

It appears without doubt, at first sight, to be a matter of little difficulty to describe the mental characteristics of any nation, or at least their salient features. But this is a branch of study, which, if it can be safely undertaken by anyone, can be safely undertaken only by a psychologist; and psychology is by no means the easiest of the sciences. Popular language may be very useful for an appeal to popular feelings, but scientific accuracy is not to be attained without the use of technical terms. Nothing is added to our knowledge when the character of a nation, or even of an individual, is given by a string of ambiguous adjectives. That kind of methodless ethnographical psychology is fit only for the Calibans of literature or the Plagiaries of science; and it is not desirable in the interests of anthropology, that the scientific world should be peopled either with Plagiaries or with Calibans.

Either ignorance or a deliberate disregard of admitted psychological laws would be excusable only if greater precision could be attained by the adoption of some new method. The discovery of the laws of association which have now been recognised by psychologists of every school, the works of Professor Bain, of Mr. Herbert Spencer, of Mr. G. H. Lewes, and of Professor Masson, have not been thought worthy of notice by M. de Belloguet, nor is there any trace of scientific method in *Le Génie Gaulois*. Psychology there is; but it is the psychology of the *littérateur*, not of the psychologist.

This literary superficial mode of treating mental phenomena throws over every proposition a haze which is not to be penetrated by the scientific eye. Thus, we not only have descriptions of character which would be almost equally applicable to a modern Eskimo and an ancient Greek, but we have endless repetitions in various forms of the old-fashioned jargon concerning the recognition of "A Higher Power." In one place we are told that a tribe is wanting in "the religious sense;" in another that "a sentiment, more or less instinctive, led the first Aryans to recognise above their heads a Supreme Author of all things, a general and omnipotent principle of existence." It would, perhaps, be impossible to invent a sentence which would more obviously display the absence of all psychological training than that which has just been quoted. Where could anyone hope to discover a more exquisite contrast than that which exists between the extreme vagueness of the "general omnipotent principle of existence," and the extreme precision with which the "general principle" has its place assigned "above the heads" of the first Aryans? Whatever may be the

true definition of instinct, it is quite certain that the instinct of brutes would be of very little use to them, did it not enable them to discover facts very much more definite than general and omnipotent principles.

But all this comes of attaching too much importance to words. It is only what might be expected of an author who announces that the language of the Celts "proves" their eastern origin. It is the fault not of intellect but of a mischievous training in old-fashioned prejudices. Though we have not spoken in terms of very high praise concerning the third volume of M. de Belloguet's work, we nevertheless entertain a high respect for M. de Belloguet himself. His faults are the faults of the pernicious literary system which he has adopted, or in which he has been reared; but his merits are all his own. He is credulous in historical matters, he is blindly partial to the philological school of ethnology, but he is a man of rare erudition, and when he does not start with a foregone conclusion he shows powers of criticism and of combination which might have rendered his book a masterpiece.

He is well acquainted with the works of Adalbert Kuhn, and of Max Müller, and he criticises, while he adopts, some of their views on comparative mythology. Here again, it is true, appears the man of letters rather than the man of science, but still it is the man of letters of first rank; and that is always his position except where he travels beyond his sphere. Comparative mythology belongs at present to the domain of *Belles Lettres* rather than to that of science, and the discovery that M. de Belloguet has given great attention to it excites no surprise. He attempts to apply some of the principles of comparative mythology to the religion of the Druids. But, inasmuch as both the Druids and comparative mythology are very large subjects, we are quite unable to discuss them in a review which has already grown to a considerable length. We have only to remark, that we fear less is known about the Druids from trustworthy sources than M. de Belloguet supposes, but that, in spite of all its faults, his work is very interesting and even valuable by reason of the mass of facts which he has brought together.

OWEN'S COMPARATIVE ANATOMY OF VERTEBRATES,
VOL. III.*

THE publication of the third and concluding portion of Prof. Owen's great anatomical work is unquestionably an event which marks an era in anthropological science. We have already laid before our readers our observations on the two earlier volumes, and we shall endeavour to point out the principal passages of the present volume which are of interest to anthropological students, as well as to the student of those higher biological problems, on the truth of which sound anthropology must depend.

The most important part of this third volume is unquestionably that in which Professor Owen "revendicates" for himself the honour of being for many years a staunch and consistent advocate of the origin of species by a slow process of derivation by secondary law. It has been too much the fashion amongst the pseudo-scientific men of the present day to represent Owen as a believer in the eternity of species, and to have been an advocate against transmutation, *i.e.* against the derivative law having operated in the production of living beings. He, however, so long ago as 1850 ("On Genus *Dinornis*," part iv, *Zool. Trans.*, vol. iv, p. 15), illustrated the operation of this law. He naturally met with opposition, and many of our readers will, no doubt, be surprised when they read the following passage, which was used by Professor Huxley in the year 1854.† We quote it at length:—

"The object he had in view was to point out the general arguments adduced by those theorists who contend that there has been a progressive development of life since the globe first became habitable, commencing with the simplest forms of organisation, and proceeding regularly upwards to the most complex, and then to show that such a view of creation is not compatible with the facts disclosed by geological researches. . . . Mr. Huxley entered minutely into the differences exhibited in those fishes and in salmon, with a view to show that the development of an expanded tail could be traced anterior to the single tail of cartilaginous fishes, and, therefore, that this point on which progressionists have placed so much reliance entirely failed them. In several other respects also the organic remains in the lower series of rocks exhibit a higher degree of development than appears in animals of the same class in subsequent periods. Thus, though a superficial

* *On the Anatomy of Vertebrates*, vol. iii. By Richard Owen, F.R.S., Superintendent of the Natural History Department of the British Museum, Foreign Associate of the Institute of France, etc. London: Longmans, 1868.

† Huxley *On Progressive Development of Life in time*. Royal Institution, 1855.

view of the successive classes of animal life may appear to sanction the opinions advocated in such works as the *Vestiges of Creation*, a more close examination dispels the notion of progressive development, and proves that it has no solid foundation."

When such opposition as this was led, not merely to "vestigism," but to any scheme of transmutation, or progressive development, it is not remarkable that a large proportion of our scientific men refrained from accepting the derivative theories of Owen. The publication of Darwin's work popularised a scheme of development which was as old as science. The principle of natural selection had little in it new, though much which was true, and had been previously demonstrated. The systems of Lamarck and the *Vestiges*, inaccurate though they may be, had a far more philosophical basis than modern Darwinism. To Lamarck especially is due our highest thanks, for having been the first to develop a theory of transmutation and progressive development, based on a semi-Lucretian foundation. Darwinism in 1869 has had already the test of nearly ten years' experience, and during that time has failed to acquire many more votaries than those which it acquired during the first few months of its existence. The reason of this is that it is merely a scheme, and not a *μεθοδος*: it is an hypothesis, not a theory, and, as such, will never be acceptable to strict scientific analysers. Fulsome adulators of Darwinism have compared his hypothesis with the Copernican theory: but there is really no higher scientific excellence in Darwinism than its sister sciences, mesmerism, phrenology, spiritualism, teetotalism, besique, or velocipedism; and there is a correlation between these sciences which is often presented by the leading Darwinists. Some Darwinists are phrenologists; some mesmerists; whilst the chief leaders are spiritualists. The reason why these somewhat equivocal sciences are connected in the mind of the same individual may not appear manifest, and we can only account for the fact that Mr. Wallace, *e.g.* is an eminent Darwinist, and a still more eminent believer in spiritual manifestations, on the theory of accidental correlation, *e.g.* that blue-eyed cats are generally deaf, and that short-beaked pigeons have small feet.*

But there has been a cry raised that Professor Owen is not sufficiently frank, not sufficiently liberal, and that he is in fact a representative of "official" and cautious science. This charge is most unjust. It comes especially unjustly when it is applied to a man, who even in the moral and mental corruption produced in the present day by pampering to the imaginary desires of the lower classes, has never, so far as we know, degraded himself or prostituted science by giving series of lectures to "working men," and has endeavoured to preserve

* Darwin, *Origin of Species*, ed. 1861, p. 12.

science exact and truthful, whether or not it may be widely diffused. Yet it is suggested that the constant and habitual reticence which Professor Owen has always exercised proceeds from an indisposition to make public his thoughts, or to be on the unpopular side. We dissent entirely from these opinions. Nobody should proclaim anything to be true, or should teach, until his own mind is decidedly made up; and Owen, who has long advocated the derivative law, at a period prior to the publication of Darwin's work, should not be twitted with reluctance to express his conviction.

It is certainly according to our interpretation of the laws of criticism both severe and unmerited to put a commentary on words which, on the face of them, do not advocate a certain theory by reference to the author's known opinions. Bolgeni, in an analogous case, says "Il dire che in quei casi niuno ha diritto d'interrogare; che le parole significano secondo la convenzione comune fra gli uomini; e cose simili, che da alcuni autori si dicono per esimere da peccato la bugia in quei casi; questo è un attaccarsi a ragione frivole, e soggette a molte repliche quando si ha la ragione evidente della citata impossibilità" [*Il Possesso*, c. 48]. Professor Owen's style is usually so thoroughly exact, that careless critics may slip into many pitfalls, if they do not entirely master the habitual language in which our great master inculcates his methods of thought, and always, not merely tells the whole verity, but avoids the error by which the incautious teacher prætergresses the limits, not merely of necessary truth, but of absolute verity. Many of his reviewers, however, do not appreciate the merits of a style which

" Eluding, ne'er deludest,
Nor deceiv'st, nor art deceived,
But including, still excludest,
Fully known, yet not perceived."

His style is not sufficiently "frank," not sufficiently gushing for them. It will not do for "working men," except for those who admit that "Si autem jurans dolum non adhibeat, obligatur secundum intentionem jurantis." The fact is, people in the nineteenth century are so little accustomed to have actual truth told them, that they think it looks mediæval.

Professor Owen, however, can confidently appeal to future generations, when his work the *Anatomy of Vertebrates*, will be read with profit and instruction by thousands of future students. The small jets of fluid which little beings may discharge on the corners of mighty monuments seldom affect the period during which the architecture may be preserved. The eloquent words of Dr. Ingleby, in his recently published *Introduction to Metaphysic*, may be here applied with great profit. He says:—

"The few whose faculties and leisure have been devoted to the abstractions of philosophy will have little fruition from an incommunicable discovery, or from a success which they can only celebrate 'like children sitting in the market-place.' Nevertheless, the few who, undismayed by the certainty of neglect, have made philosophy a life-long labour . . . will assuredly not keep silence, though their words are doomed to perish speedily, or to contend painfully and slowly with an outer darkness far more hopeless than that of the tomb."*

We now turn to the more especially anthropological parts of the work, and the first passage we shall notice is that which refers to the complexion of the races of men, in which certainly Professor Owen details his theory at considerable length.

"In the human subject the amount and colour of the subcuticular pigmental cells relate, but not absolutely as regards existing continents and peoples, to the degree of solar influence to which the skin is exposed. A fair complexion and light hair do not characterise any race indigenous to tropical and warmer temperate latitudes, but are limited to cooler temperate and warm climes, which, from the present excess of dry land in that hemisphere, are northern or arctic. The continent of Europe, if the complexion of its people be compared from Scandinavia to the Mediterranean, exemplifies the progressive deepening of the tints of skin, hair, and eyes, as the sun exerts more power. But the Asiatic part of the old world shows this relation to a minor degree. The aborigines of Northern Asia to Kamtschatka are like the Japanese of a brownish-yellow complexion; the same prevails through all the latitudes of the vast Chinese empire; but the southern extensions of that people into Cochin China, Siam, and Burma, do show a deeper brown. The Hindoos retain the same almost black tint over a range of twenty-six degrees of latitude and twenty-four degrees of longitude; but these are tropical, or nearly so. The Malays of the Indian Archipelago preserve the same deep brown tint over eighteen degrees of latitude, reckoned from the equator northward, and the tint would seem still to relate to such excess of solar influence; although the sway of other causes is exemplified by the darker Mincopies, Cingalese, and Hindoos, under similar influences. Still more strikingly is this shown by the blackness of the Melanian aborigines of New Guinea, Australia, and Tasmania, retained from the sixth to the forty-third degree of south latitude; and especially of those of the outlying islands in proximity with others inhabited by the olive brown Polynesians, whose complexion prevails from lat. 12° south to 46° south (New Zealand). But the most instructive example of the chosen relationship of tint to race than to climate is afforded by the aborigines of the New World, which hold nearly the same depth of copper-brown or reddish tint, latitudinally from Tierra del Fuego to Hudson's Bay, and longitudinally from the Atlantic to the Pacific. The contrast between the South American Indians and the African Negro would seem to be decisive against the hypothesis of degrees of solar influence

* *Loc. cit.*, p. 206.

being the causes of degrees of darkness of complexion. But there is an element in the problem which ought to be taken into consideration, viz. *time*. If Africa be an older continent than South America, its aborigines may have been subjected to solar influences through a longer series of generations. We know not the extent of such series; some may deem that were the intertropical South American Indians subject to a vertical sun during the long ages of Africa's emersion, they would acquire a darker complexion. Climate, however, depends on other influences than sunshine. Degrees of moisture, and whatever influences cause a contrast or gradation of seasons, etc., may have their influences upon complexion. Filthy habits, foul air, and bad food affecting biliary and other secretions, have their share in darkening the skins or allowing the complexions of the Esquimaux, Fins, and Laps, *e.g.* as compared with the cleaner and more healthily living and better nourished Scandinavians residing some degrees further from the pole. But assuming, as the general result of the above survey of human complexions, that such complexions do, in the main, show a certain dependent relationship on solar light and heat, and postulating the effect of long periods of such subjection, we might then be led to conclude the darkest of the intertropical and warm temperate peoples to be the oldest; that the Melanians, scattered on islands to the east of the Indian Ocean, inhabit relics of a continent, as old as, perhaps older than, Africa; and that the lighter-tinted races on intercalated or contiguous portions of dry land are subsequent immigrations or derivatives from lands less affected by solar influences. On this hypothesis it may be inferred that the deepest tinted races existing in the islands of the Malayan Archipelago are the oldest inhabitants of such—those most entitled to be termed aborigines. The Hindoos, by the same pigmental test, would be deemed older than the Parsee or Mohammedan natives of Hindostan, as history indeed testifies. In extratropical latitudes human generations may have succeeded each other for the same duration of time as in tropical ones, without further deepening or development of pigment than such diminishing influence of the sun may effect. Such peoples, migrating to tropical countries, may long maintain their inherited complexions; just as the black races migrating to extratropical latitudes long retain the tint inherited from forefathers in whom it has been established primarily by the requisite continuance of exposure to extreme solar heat and light" (p. 614-616, vol. iii).

The passages in Professor Owen's work which relate to the muscular system of man and the apes should be read with the greatest care, as they are conceived in a most exact spirit. We especially commend to our readers the diagram in which the muscular systems of the foot of man and the gorilla are placed side by side, and the important distinction between the tendons very well shown. This distinction it has been of late years the fashion to ignore, and was the subject of an animated discussion between Messrs. Rolleston and Carter Blake at the Newcastle meeting of the British Association

(1863). The facts which Mr. Carter Blake then asserted have been amply corroborated by Professor Owen's description in the present work ; and if Professor Rolleston reads the passage cited, he, perhaps, will see that his charges were not merely intemperate, but inaccurate. The voice of contemporary science has long since rectified the matter. With regard to the nervous system, Professor Owen's researches are of the most important character. He collects and incorporates in the present work a large amount of the notes of his Hunterian courses of lectures before the Royal College of Surgeons many years ago, in which the characters of the gyri, sulci, and convolutions are most carefully described. We think that every F.A.S.L. who is a student of the characters, anatomical, physiological, psychological, of the human brain should read Professor Owen's analysis of the method by which, taking the lowest and most smooth-brained gyrencephale as a starting point, the convolutions of the brain are *seriatim* developed, till at last we reach man. Professor Owen suggests a new classification of the cerebral folds, arranged in the order of their constancy in mammals, and differing from those of Rolando, Leuret, Gratiolet, and Broca, the three first of which he exhibits in parallel columns to his own, in a very lucid table on his 137th page. There are in all forty-five cerebral folds and forty-five cerebral fissures described by him. He notes all fissures by numbers, and all folds by letters, as in his memoir on the Anatomy of the Cheetah (1833). This system is highly convenient, although as Professor Owen points out, the "mode of notation has been reversed by a subsequent author, but no advantage from the innovation is pointed out, or seems to be gained thereby."

The chapter with regard to development needs also to be carefully studied, as it places the reader entirely on a level with the latest researches of the recent German embryologists on this most difficult and most complicated point of biology. We trust that no one will criticise either this chapter, or that on "general conclusions," who has not read and thoroughly comprehended the whole three thick volumes which precede. If anyone skips Professor Owen's facts, and flies at once to his 821st page of vol. iii, he probably will be somewhat puzzled. Metaphysics and theology are alike discussed therein, and Professor Owen deems it his duty to expound his belief on the relation between physiology and theology. The following passages we think are plain enough, and we commend them to our readers as evidence that Owen is not deterred by what has been justly called "weak Exeter Hall drivell"* from expressing his full belief. He says:—

"I am most averse to travel beyond my proper province ; but a general physiological conclusion from the phenomena of the nervous

* *Tablet*, March 20th, 1869.

system inevitably brings on collision with a dogmatic affirmation or definition of the cause of the highest class of those phenomena instilled as an article of religious faith into fellow Christians, and on which is based their mode of thought affecting dearest hopes and highest aspirations. . . . If the hypothesis that an abstract entity produces psychological phenomena by playing upon the brain as a musician upon his instrument, producing bad music when the fibres or cords are out of tune, be rejected, and these phenomena be held to be the result of cerebral actions, an objection is made that the latter view is 'materialistic' and adverse to the notion of an independent, indivisible 'immaterial' mental principle or soul. What 'materialistic' means in the mind of the objector I nowhere find intelligibly laid down; but it is generally felt to be something 'inconsistent with, or shaking, the foundations of an article of faith,' as Stillingfleet would have said" (p. 821).

"In the endeavour to clearly comprehend and explain the functions of the combination of forces called 'brain,' the physiologist is hindered and troubled by the views of the nature of those cerebral forces which the needs of dogmatic theology have imposed on mankind" (p. 823).

"If the physiologist reject the theological sense to the term 'life' without giving cause for the charge of unsoundness in religious principles, does he lay himself more open to the charge by rejecting also the theologian's meaning of the term 'spirit,' of the term 'soul,' of the term 'mind,' and we might add of 'sin' or 'death!'" (p. 824.)

"We know of nothing more 'material' than the 'centres of force,' our ideas of things without as within the 'ego' are the action and reaction of forces, as 'material' or 'immaterial' as the ideas themselves" (p. 824).

In the above passages the trumpet gives out no uncertain sound, and the meaning of the author is clearly expressed without any regard to the value of popular beliefs or to the mere evanescent prejudices of the nineteenth century. No fear of odium has here deterred Owen from "showing his colours."

Professor Owen may, perhaps, feel that, after he has taught, not merely anthropotomy, but the groundwork on which anthropological science is based, that a new generation of unscientific and semiscientific men may neglect his teaching and disown his doctrines. He has never been a "fashionable" teacher. Yet, when he contemplates the little energy and the feeble amount of vital force, which it is necessary to expend to become a teacher of modern English science, he may, perhaps, as many anthropologists now do, recall the words of Thiers (*Histoire de la Révolution*, p. 512):—"Depuis ces temps où Tacite la vit applaudir aux crimes des empereurs, la vile populace n'a pas changé. Toujours brusque en ses mouvements, tantôt elle élève l'autel de la patrie, tantôt elle dresse des échafauds, et n'est belle et noble à voir, que lorsque, entraînée dans les armées, elle se précipite

sur les bataillons ennemis." Teachers of comparative anatomy have little to hope or to fear from the epidemic disease termed "public opinion."

INAUGURAL ADDRESS TO THE PSYCHOLOGICAL ASSOCIATION OF GLASGOW.*

By J. W. JACKSON, Esq., F.A.S.L., President.

PSYCHOLOGY may be defined as the science of the inner life of mind in contradistinction to the outer life of the body, with its subdivisions of anatomy or structure, physiology or function, pathology or disease, and we may, perhaps, add hygiene or health. Psychology also has its subdivisions. There is the mind in its normal and abnormal condition; in vigilance, in somnolence, in exaltation, and in derangement, with the experiences peculiar to each. And lastly, there is comparative psychology, embracing the mental constitution of the various races of men, and the different species of animals—a rather extensive programme, as will be seen when we come to fill up this bare outline with its appropriate details. Let us glance at some of these.

There is mind in its normal condition, and as all our experiences of this have been in connection with a corporeal structure, one of the first subjects for our investigation is the nature and extent of this connection. Is mind necessarily, and so always, united with a physical organisation as an unavoidable condition, if not of its existence, then, at least, of its manifestation? And, if so, then to what extent and in what manner is it dependent upon this organisation? Are our mental operations merely a function of our corporeal structure, or is the latter simply an instrument provided for, and, in a sense, developed by the former? And, in either case, to what extent is corporeal structure indicative of mental endowment? Here we are brought face to face with phrenology, physiognomy, the psychognomy of the hand, and those other real or pseudo branches of science that profess to afford a diagnosis of character from corporeal indications. Is there any truth in these things, and, if so, to what extent is it mingled with error in the present state of these interesting, though scarcely recognised, departments of inquiry?

Then we have mind in its normal condition of vigilance, with its powers of perception, memory, reflection, and imagination; its moral

* Delivered February 23, 1869.

sentiments, its domestic affections, and its animal propensities. Now, what is perception? Is there in truth an objective sphere on which it can be exercised, and, if not, then are we to regard it as a purely subjective experience? And, granting that there is an objective sphere, what is our relation to its phenomena; to what extent are they modified by our subjectivity in the process of their apprehension; in other words, how far are actual things in congruity with our ideas?

Then, what is memory? By what process do we recall the past? This again involves the stupendous question, what is our relation to the time-sphere? By what law of our being does this immediate present that we term "now" become that remote past which we term "then"? Can we illustrate this speciality of duration by the corresponding speciality of extension, in virtue of which we are enabled to speak of "here" and "there"? Are time and space in very truth mere forms of thought, that is of *our* thought; and if so, by what speciality in our mental constitution are we thus compelled to contemplate events in sequence, and to perceive things in place? Does phrenology throw any light on this subject by its revelation of the fact that we have an organ of time and locality in immediate proximity to the perceptive faculties, and so placed between them and the reflective powers as to impress the ideas of duration and extension on all the varied subject-matter of thought?

And what are we to say to our powers of thought? By what sublime chemistry does the mind transmute the perishing facts of experience into the everlasting principles of things; by what process does it ascend from phenomena to the laws on which they depend? Have we any definite and satisfactory conception of the process by which we advance from an effect to the cause which has produced it? Nay, are we quite sure that this is the process which we really do perform? Are phenomena aught other than the play of our waking subjectivity, like the phenomena of dreamland, admittedly the play of our sleeping subjectivity? Is there, nay, *can* there, be aught *real* save that which is absolute and unconditioned, and if so, what is perception but thought apparently ultimated into fact, in certain states of the spiritual percipient?

And what is imagination? By what process do we frame ideas of things that are not? Have we not, indeed, some grounds for regarding imagination as a species of spiritual perception, a prelude to that which we shall presumably exercise on the higher plane of a future life? Has it not all the characteristics we might expect from perception in an environment more obedient to the plastic power of the spirit than that in which we are now placed, its apparent want of reality being due to the fact that it does not pertain to our present but to a prospective sphere of existence?

And what are our moral sentiments? Through what elements in our nature are we so related to truth and rectitude that their violation gives us pain—the indication that an injury is being done to our higher being? And how are we so related to that which is above us that we revere it? Is the sentiment of veneration our consciousness of the process by which we are growing into the likeness of that which is superior to our present condition? What is our sense of responsibility? In what present endowments does it originate, and what future possibilities does it indicate?

And what shall we say of the passions, of those more violent impulses and more grovelling propensities which we share in common with the brutes? Of what elements and relationships are these the indication? By what speciality of organic structure or mental constitution, does man, who mounts skywards to the empyrean in thought and aspiration, nevertheless sink earthwards into the mire and clay of sensuality, through these inferior attributes? Have we yet admeasured the stupendous *breadth* of nature implied in this dread ability to touch simultaneously two such wide extremes? Are not these passions the elements of action, still imperfectly disciplined, a remnant of chaos not yet fashioned into the order and beauty of creation; not the fragrant blossoms and beautiful flowers of the spirit, but the dark and unsightly *roots* of our being, and so, perhaps, necessarily somewhat of the earth, earthy?

And what are our domestic affections, whereby we escape from the narrowness of self into the more expansive realm of the family and the neighbourhood? Whence do these kindly susceptibilities originate, and of what higher spiritual attributes are they the symbols, and in a sense, perhaps, the germs? Are they the beginning and the promise of that universal love which only attains to completeness on the plane of the infinite, where the divine mind comprehends creation, encircling its manifold provinces in that all-embracing affection, from which no form of being is excluded as an alien to the great family of God?

And now, still keeping to mind in its normal condition, what is sleep, and how are we to define and account for dreams? Is unconscious slumber really dreamless? Do the experiences of our mesmeric subjects, when in the magnetic sleep, warrant any such conclusion? Are they not equally unconscious of the thought and action whereof we have been the witnesses, and in which they were the agents, but of which they awake utterly oblivious? And what are the scenery and *dramatis personæ* of dreamland? Why do we believe, night after night, in their reality, though we wake morning after morning to a vivid perception of their fictitious character? But are they fictitious—on the dream-plane? Has not somnolence its world as well as vigilance, their relation to

the consciousness being diverse, while their reality as psychological phenomena and their importance as educational instrumentalities may, for aught that appears to the contrary, be equal? At the lowest estimate, are not our nocturnal experiences "a dream within a dream;" life with all its stupendous interests being but "such stuff as dreams are made of;" that is, subjective conditions, projected by the play of the consciousness into an apparent objectivity, whose reality is relative, not absolute?

Can we experimentalise on this subject by the aid of phrenomesmerism? Are not the experiences and manifestations of our magnetised subjects, of the nature of dreams, artificially induced and scientifically regulated? And are not the indications thus obtained very strongly indicative of the fact, that subjective conditions are the determining element of (apparent) objective projection? Thus, for example, by the excitation of philoprogenitiveness we induce activity in that phase of affection which consists in the love of children or animals, and a baby or a quadrupedal pet becomes at once present to the consciousness of the subject, who for the time believes in the objective reality of this subjective experience, with all the undoubting faith of a true dreamer. It is the same with benevolence, whose activity is almost invariably accompanied by a visional presentment of the hungry or ill-clad recipient of its bounty; while veneration, when duly evoked, will in a similar manner conduce to the attitudes and accessories of devotion. Now, with such an instrumentality at our command for the investigation of mental phenomena by experiment, we shall be exceedingly blameworthy if something be not done in this direction, to throw additional light on the conditions and processes of ordinary dreaming and even of visional ecstasy; while in accomplishing this, we shall, perhaps, also help to illustrate the laws of thought and imagination, as manifested in the condition of normal vigilance.

Perhaps the last sentence demands some expansion. As you are doubtless aware, the wondrous and altogether unexampled progress of physics during the last two centuries and a-half is wholly due to the inductive method of investigation, under which fact superseded hypothesis, and every theory, however plausible, was subjected to the test of experiment. Now the grand desideratum in mental science is this supercession of hypothesis by experiment, in other words, the substitution of the *à posteriori* for the *à priori* method of investigation. Nor can anyone who has watched the direction of the profounder intellectual currents of modern Europe doubt that this great revolution in metaphysics is steadily and surely approaching. Nor can we be mistaken in affirming that when it has arrived speculation will be subordinated to observation. But for the effective illustration of the laws

of mind, as of matter, we require something more than an accurate observation of spontaneous phenomena. We must also be able occasionally to institute an experiment, to put nature to the question, and evoke an answer at our pleasure. Now for this purpose phrenomesmerism is invaluable. By this stupendous instrumentality we can first reduce our subject to the profoundly dormant and unconscious condition, attainable only in the magnetic sleep; and then at our pleasure we can evoke any one of the passions, affections, sentiments, or faculties into isolated manifestation; or we can combine two or more, and watch the manner in which they modify each other, or are acted on in turn by the introduction of a third or a fourth, as the experimentalist may determine. That such an instrumentality should have been so long neglected, while *à priori* hypotheses of perception and thought, of memory and imagination, together with the association of ideas, and all the time-honoured notions of the old metaphysics are still taught with professorial authority at all our universities, can only be paralleled by the corresponding fact, that the Ptolemaic Astronomy still had its endowed chairs, long after the calculations of Copernicus and the discoveries of Galileo had demonstrated its absurdity.

But, to return to our dream-life; there is yet one other subject in this connection which it behoves us to investigate; I allude to the symbolism said to underlie the weird forms of our nocturnal experience. As you are doubtless aware, the Bible, as a venerable Oriental record, contains several magnificent instances of this asserted spiritual correspondency, in the dreams of Joseph, and of the baker and butler of Pharaoh, together with those of that monarch himself, and also, we may add, of Nebuchadnezzar, as narrated in the book of Daniel. Now the question is, what amount of truth underlies this wide-spread belief of the older generations, whose almost universal prevalence indicates an element of veracity as its basis? Is the apparently chaotic imagery of our dream-life the symbolic vehicle of spiritual truth, perhaps no otherwise communicable; and if so, of what relationship to other, and perhaps higher planes of being, is this the mysterious indication?

Now from these very imperfect and fragmentary suggestions you will at once perceive that some most stupendous problems are still awaiting solution at the hands of psychologists, without transgressing the limits of that normal experience which is common to all men. But we shall greatly underestimate the range and importance of this branch of science, if we regard it as applicable only to the doubts and difficulties already enumerated. There is another province equally demanding the labours of a competent explorer. I allude to the mystic domain of those abnormal and exceptional conditions of mind which are not

common to all, but only to the favoured few, who enjoy the exaltation, or the pitiable many, who suffer from the confusion and derangement attendant on a departure from the ordinary standard of mental health and vigour.

And first of exaltation. What is genius? How are we to define it? In what does it consist? Has it any relation to corporeal structure? To what extent is it dependent upon circumstances for manifestation or for the form which its productions are to assume? Are all original thinkers endowed with this attribute? In what does genius differ from talent, and how far do those who possess it constitute a special order in the great hierarchy of intellect? Again, what are its distinctions and gradations? For example, by what elements is the painter distinguished from the poet? and how is the composer differenced from either? and by what speciality in the inspiration of the prophet is he elevated above the bard? What is inspiration? From what fountain does it flow? and on what speciality in the human recipient does it depend for the character and quality of the manifestations in which it is to eventuate? Was Raphael of necessity an artist? Had Shakespeare lived in any other than the Elizabethan age, and during a dramatic era, could he have produced Hamlet and King Lear? What is "the spirit of the age"? and how far are individual men, even of the most commanding order, its blind instruments and obedient spokesmen? This opens up the great question,—What is the relation of the individual to the mass? Does humanity constitute a vast spiritual unity, of which the masterminds of thought and action are but the special organs? and if so, what is the place of this unity in the scale of universal being?

We have spoken of the prophet. Now what is he, more especially in his highest aspect, as a religious founder? Can we, by the lowly road of induction, even remotely approach, to scan with profane eye, the sublime altitude on which he so serenely reposes as the regal hierophant of the ages? Let us try the lower steps of this angels' ladder, which, like that of Jacob, reaches from earth to heaven. What are presentiments? How do "coming events cast their shadows before," so that we become dimly conscious of the impending good or evil awaiting us on our predestined pathway through the wilderness of time? And what is the essential character of the yet clearer revelation afforded by actual prevision? What does this occasional liberation of the human mind from the limitations of the timesphere indicate? Can we experimentalise in these things? What, for example, is the clairvoyance of a mesmeric subject? and how does it differ from the lucidity of a spontaneous ecstatic? What is supersensuous perception? and on what organic or other conditions in the seer or his surroundings does

it depend? Is a prophet, even of the highest order, only an ecstatic lucide? and if so, do our clairvoyant patients approximate in any manner or measure to his condition? In short, are the great architects of faith simply arch-ecstatics, the most sensitive recipients, and so the representative spokesmen of the finer influences, or as we say, religious spirit of their respective ages?

Perhaps at some future period we may have a paper specially devoted to this subject; in the meantime I would observe that the authoritative creeds of men, and the forms of their worship, are all worthy of the most serious attention of the psychologist. Whether past or present, fossilised or vital, the various religions of mankind demand our profoundest study. Originating in the most exalted seerdom, often accompanied by great thaumaturgic power on the part of their founders, and requiring the most ardent faith on that of their early converts, they present us with psychological phenomena on the grandest scale and of the sublimest order, which, if wise, we shall not neglect, or again consign to the practical oblivion of ecclesiastical history. It is the same with the lives of saints and martyrs, whose visions, ecstasies, and inspirations are an invaluable storehouse of psychological experience; which a blind superstition may have preserved, and a shallow scepticism refused to accept, but which a true psychology, profounder than either, will employ for illustrating the laws of mental exaltation.

Perhaps some of you shiver in the glacial cold, and palpitate in the thin air of these Alpine heights of thought; so let us descend to a somewhat lower level,—I mean the once dread, but now despised, province of the occult. What was the ancient magic, and how were its wonders effected? To what extent were they dependent upon the mental condition of the operator? What was the old thaumaturgia, and what is modern spiritualism? No true psychologist will neglect either the one or the other. Were and are the results produced through their instrumentality of an objective or subjective character? What was a magician, and what is a medium? We must be prepared to investigate these subjects without the superstition of the past, or the superficiality of the present. Our duty is neither to accept nor reject a mystery as such, but as far as possible to lift the veil beneath which its processes are effected and its results accomplished; and I accordingly rejoice to know that a certain section of our association intend to devote their attention to a carefully conducted series of experiments, with a view to the elucidation of those extraordinary phenomena whereto modern spiritualists have so honourably borne their fearless testimony. This is what we need, if psychology is to become a science; namely, experimental investigation, conducted by

competent persons, provided with the requisite instrumentalities, and who will approach the subject devoid of those preconceived ideas which have hitherto fatally vitiated all inquiries in this direction. Nor in saying this would I be understood as referring only to the opponents of spiritualism; for the uninquiring acquiescence of a facile believer is often as damaging to the efficiency of inductive investigation as the blind opposition of the most bigoted antagonist; for if the latter sees less, the former as often perceives more than the facts warrant. Let us, then, endeavour to avoid either extreme; and we cannot do so more surely than by strict obedience to the rules of the great master of Induction, so clearly laid down for our guidance in his remarks on *Idola*, in the aphorisms of his "*Novum Organum*."

And here let me recommend that, in such investigations, you do not neglect the domain of popular superstitions. The psychology that despises ghosts, wraiths, doppelgangers, and second sight, is on a level with that which has so long regarded phrenology and mesmerism with distrust, and esteemed dreams and presentiments as beneath its serious notice. Such a psychology may be very respectable and inoffensive. Like other tame mediocrities, it may have few bitter enemies, and excite little serious opposition; but I must warn you that it will accomplish no great results. Popular superstition is a vast storehouse of records relating to the spontaneous occurrence of psychological phenomena, and our duty is not to reject the whole of this testimony without inquiry, because the fortunately situated observers of these rare phenomena were mostly incompetent; but to sift and compare their narratives, and where possible, to illustrate and parallel the spontaneous by the induced. Neither will a true psychology despise the phenomena of insanity, or even of idiocy. With the former, there is often a combination of some of the specialities of exaltation; so much so, indeed, that many of the ancient prophets would, doubtless, have been consigned to a lunatic asylum had they flourished in modern Britain in place of ancient Palestine. While amidst the deficiencies of the latter, we may often detect the animal instincts in a state of activity and predominance, normal only on a lower plane of being; but here so far united with a certain measure of human intelligence, that we may obtain additional knowledge of their essential character by the insight occasionally afforded through this exceptional combination. Hitherto these phases of mental obscurity have been regarded almost solely from the standpoint of modern medical empiricism, careful only of the cure, and regardless of the psychology of the case, as compared with its pathology,—to the disadvantage, perhaps, even of the latter, for shallowness and superficiality are seldom the most assured roads to success, even in matters practical.

But extensive as our survey may have seemed, and manifold as are the various provinces of inquiry we have enumerated, they by no means embrace the entire domain of psychology, which, like anatomy, boasts of the comparative among its other departments. What are the psychological specialities of the various races of men? How are they differenced by their respective passional, affectional, moral, and intellectual endowments? To what extent do they vary in their aptitude for art, in their ability for science, in their talent for literature, and in their capacity for government? Are these diversities inherent and unalterable, or merely the passing effect of casual circumstances? To what extent are they connected with and dependent upon organic specialities, and how far are they the expression and reflection of telluric and climatic influences, acting with the steadily accumulative force acquired by hereditary transmission through many successive generations?

It need scarcely be said that to answer these queries satisfactorily, we shall need to define what man is, contemplated psychologically. And to accomplish this, comparative psychology must embrace the entire animate scale, with all its diversified classes, orders, genera, and species of sentient being. What is a brute? How does he differ from a man? By what process of subtraction shall we define his lower place in the great scheme of conscious existence? Are his specialities reflected in his organisation? From the worm to the lion, is brute mind emblemed in brute structure; and if so, shall we ever prevail to read it off with precision? Are the teeth and talons of the tiger simply its ferocity and cruelty, ultimated in predatory instrumentalities? Is the dove a fair embodiment of love and gentleness? and are opposite qualities equally reflected in the structure of the eagle and the falcon? This, again, brings us back to the connexion between mental aptitudes and organic conditions, a problem whose solution must, as we have said, embrace the various races of men as well as the different species of animals.

Now, it must not be supposed from what has been just said that I would have you enter upon the investigation of all these subjects at once. They embrace problems whose solution will probably demand the labour of many generations. But it is well that, while devoting ourselves to special departments of inquiry, we should not wholly lose sight of the vastitude of the area which extends before us, and whose effective illustration will doubtless tax not only our energies and resources, but also those of our successors. But it is a noble field, and will amply repay whatever labour we may bestow upon it; and although, whether as individuals or as an association, we can only hope to contribute an insignificant fraction, "the widow's mite," to-

wards the great fund of knowledge which is being slowly accumulated on this subject, still it is our duty to make this offering; nor can we doubt that in the effort to accomplish it, we shall have our reward in those habits of more accurate observation and of profounder thought, to which our labours, as experimental psychologists, can scarcely fail to prove the precursors.

THE PHYSIOLOGY OF THE BRAIN.

To the Editor of the Anthropological Review.

SIR,—In your last number, in a notice of my pamphlet on the “Science of Man,” you say, “Mr. Bray seems in a dreadful hurry that every one should believe as he does; he seems to be one of the few remaining mongrel philosophers who believe in Spurzheim as their god, and George Combe as his prophet. . . . We are sorry for Mr. Bray; if he could only get phrenological jumble out of his blood he might yet write wisely. Mr. Bray asserts, ‘the bridge between physics and metaphysics has been found.’ By whom? this we are not told.” Now, Sir, will you allow me a short space to show why I cannot get “phrenological jumble out of my blood,” and why “I am in a dreadful hurry that every one should believe as I do”? In my book, “Force and its Mental Correlates,” I have shown that mind is a correlate of the physical force, and that thus metaphysics is necessarily based on physics; but I claim no merit as a discoverer, and Herbert Spencer and others have been before me in the same field. Herbert Spencer says, “that no idea or feeling arises, save as the result of some physical force expended in producing it, is fast becoming a common place of science.” But to this subject I shall be glad to return, if you will allow me, on a future occasion; at present I will confine myself to the other questions.

I think these may best be answered, if your readers will excuse the apparent egotism, by a short account of my “conversion” to phrenology, and my “experiences” since. Surely the life-experience of a really earnest man, who is not a “professional” anything, must be of some interest, and perhaps of some value to those who care for the truth only. I started with as strong a prejudice against phrenology as any of your present readers can possibly have. I was well up in the old and modern metaphysicians, and in my young conceit I regarded the new pseudo-science as unworthy of notice; in fact, beneath contempt. In the spring of 1835, exactly thirty-four years ago, I was staying in

the Isle of Wight, and engaged in writing some lectures on education for our Mechanics' Institution ; I had occasion to send to town for Combe's *Physiology*, and by some mistake, which I could not account for, the publisher sent me Combe's *Phrenology*. Having nothing else to do I began to read it ; I soon got interested, and before I had read far my prejudice was gone, and I wished phrenology might be true, as its list of faculties and its mental system were so much more complete and perfect and practical for educational purposes than those with which I was then engaged. I threw my educational lectures into the fire, for I saw I had to begin again, and my "Education of the Feelings," now in its third edition, was the result. In this work I give the use and abuse of each faculty, and endeavour to show how each may be best trained and cultivated. But I became very anxious to know what truth there was in the organology of phrenology, and I accordingly hastened off to town, had my head shaved, and got Mr. Deville, of the Strand, to take a cast, to be examined by myself at my leisure, to see how far what phrenologists might have said of it corresponded with what I knew of my own character. Of course, as I discovered afterwards, it was not necessary to have my head shaved, and I merely mention it to show that I was in earnest. I have no doubt you, Mr. Editor, or some of your readers, would think it a very desirable, if not a necessary thing, to do on my own account, and you would probably look with some interest at the cast to find the crack. I also purchased of Deville one hundred casts of heads, which contained illustrations of all the organs, both fully developed and small. I must confess that at first I had some difficulty in being able in all cases to see this difference, but I never missed an opportunity of examining every head that I could get at where I knew anything of the character. After three years I had verified much of what phrenologists considered established. But my principal difficulty was with the forehead, "the straightened forehead of the fool." I had found most of the organs both large and small, and functions in accordance, but I repeatedly found, particularly in ladies, what appeared to be very large foreheads, without a corresponding amount of intellect ; in fact, with very foolish people. Hitherto I had no personal instructor, I had followed Gall's method ; wherever I heard of any peculiar talent, any mental or moral characteristic, I examined the head—but, fortunately for me, about that time (1838), George Combe, who was lecturing at Birmingham, came to stay with me, and I mentioned my difficulties about the forehead to him. He wished me to get some skulls ; I selected a large handkerchief-full from a heap, I will not say where, but none of their original owners have since applied for them. We sawed them in two, and he showed me that the part of the brain connected with the intellect was that which

lies upon the supraorbital plate, of which the forehead, particularly in women, as seen in front, was a very imperfect and often delusive indication, as the hair in some people went back almost to the middle of the head, the bald part showing a forehead; and where the intellect was very shallow the forehead was often very high, as it then included the feelings in the moral region above it. He taught me how to measure the size of the supraorbital plate, and of the anterior lobe which lies upon it; and thus, aided by George Combe's experience, my difficulties in that and in some other directions vanished.

You speak, Sir, in one of your annual addresses, as President of the Anthropological Society, of Mr. George Combe as an enthusiast: he was, I think, the most cautious Scotchman I ever knew; his cry was always for facts, facts, facts, and he would listen to no theories, however plausible, without. He was one of the very last men to make "assumptions," or to accept "erroneous inferences." He perhaps paid too much deference to public opinion, keeping some things back lest the public should not accept others; but I am quite unable to appreciate, or even to understand, the difference you seem to wish to make between Gall, and Spurzheim and Combe. I have all their works, and have read them carefully more than once, and certainly Combe's last and fifth edition of his *System of Phrenology* contains all the discoveries of the other two, and much more. As to diversity of opinion on the question, as to whether the brain is the organ of a separate entity called the mind, or the mind is a function or power of the brain, I think such differences ought not to separate us from all the facts that have been collected and recorded, and from the very useful inferences that have been drawn from them. Neither do I think the name by which we shall agree to call this collection of facts and inferences of much importance, whether Encephalotomy or Phrenology. I prefer the latter certainly, not only because it is easier to pronounce, shorter, and more generally known, but because it is really with the mind, and not the brain, that we have to do. Whatever we may *infer* with respect to the brain, and matter, and forces outside ourselves, and the way in which they may create and act upon our consciousness, it is that *consciousness* only of which we *know* anything. The objects of knowledge, in reality, are ideas, not things.

But to return to my own experience. I believe I was able to verify most of the separate "functions of the brain," said to be established by phrenologists. I do not mean to say that each of the thirty-six orthodox organs were simple or primitive in their functions, but that the functions ascribed to that particular part of the brain, whether simple or complex, belonged to it; the American phrenologists have subdivided the organs into about one hundred, with how much truth

I cannot state ; neither do I mean to confine the organs to thirty-six ; Mr. H. G. Atkinson has made discoveries of organs lying within the falciform process, and I think I have discovered two or three on ground yet unappropriated, besides the discovery at once, from the shape of my own cast, that the organ called by Spurzheim Inhabitiveness, and by Combe Concentrativeness, is in reality two, and both gentlemen were right. The eye gradually educated itself, so that differences in the shape of the head, at first unnoticed or seen with difficulty, became evident at a glance ; the same as in a good judge of horse-flesh, the eye falls at once upon the different points and muscles required for the different services. The simplest division of the brain is into animal, moral, and intellectual faculties ; a less simple, but equally recognisable one, with a little experience, is into the social, the self-protecting, the self-regarding, the moral, the religious, the æsthetic feelings, and into the perceptive and the reflective faculties. These divisions the eye of the practised phrenologist recognises at once, and with a little closer attention the modifications and combinations.

Let a student begin with the simplest. Take a line from the angle of the eye and see how much the forehead hangs over the face as a measure of the anterior lobe, the general intellect ; next, let him rest his hands on the top of the ears and bring the thumbs to meet at the upper part of the forehead ; the portion of the brain above that is connected with the moral region ; and the part behind the ear and in front of it at the base of the brain, is connected with the animal feelings. A good shaped head, measured from the opening of the ear upwards, should be as high to the top as it is broad across or between the ears, and it should be square at the top ; if it slopes too rapidly on each side it shows firmness large, and conscientiousness less so, and firmness may be equally the servant of the lower as of the higher feelings. Our most respectable and highly intelligent superintendent of police I found had long been a phrenologist without knowing it. In choosing his men he said he rejected small heads, and chose over-hanging foreheads and high heads, as far removed as possible from the criminal type, with which he seemed to be perfectly familiar. Even the knowledge so far gained of character is of the highest importance. Breeding, education, and the reticence now the great and almost universal characteristic of good society, make it as difficult to judge of character under this smooth and smiling surface, as it is to realise the storm at sea under the calm blue sunshine and gentle ripples of the wave upon the shore. A well educated man, with no higher feeling than a desire to please, can reflect, or assume for the time, any character that the society he is then in requires and most values, whether of high or low feeling ; but follow that man home and you find a mere selfish animal. The highest

virtues are often the quietest and the most retiring, and the spiritual faculties are out of place and invisible in the world at large, and the garb and language of them can be put on for the time and for a purpose by the most selfish ; but the least experienced phrenologist sees at a glance the kind of man he has to deal with, which knowledge is only acquired by others on more intimate acquaintance. Alas, *that* knowledge with too many comes too late ! I distinguish at once the selfish from the unselfish ; the affectionate from the cold-hearted ; the proud, and vain, and boastful,—all whose geese are swans— from the modest and retiring ; I know at once the man who is in a constant state of opposition and turmoil, and who fancies all the world is quarrelling with *him* ; the revengeful and vindictive ; the desponding or hopeful ; the open or reserved ; the coward or the brave ; the miser and the book-worm ; the kind, the courteous, the conscientious, and the firm ; the credulous or the sceptic ; the poet and the wit ; the man who, with a great spiritual and poetical sense, and feeling out of harmony with the world around him, is as great a mystery to himself as to the people on a lower phase of feeling beneath him ; &c., &c.

Then as regards the intellect. As we have calculating boys, with a large organ of number, so other faculties may be as abnormally large, and give special talents, or they may combine and give special genius, or they may be all large, with active temperament, and give universal genius ; so, again, in deficiency ; one person in eighteen, Sir David Brewster showed, could not distinguish some colours from others, and about one in eighty was colour-blind ; not from defect in the eye, but in the brain. And it is the same with all the other mental faculties ; they may all be similarly deficient, and this constitutes idiocy ; if deficient only in some particular faculties, that is partial idiocy. A person may be as blind, or incompetent, in the reasoning powers from deficiency of brain as in the perception of colour, but what is very extraordinary is that people very rarely find out their own shortcomings in this respect, and a good memory for facts and events, and a good talking power too often hide them from the world ; and we have people with small brains, much talk, and little judgment, placed in high places, to the infinite damage of the wisest interests. I maintain, after an experience of more than thirty years, that whatever may be the deficiencies of phrenology—and doubtless it is at present anything but a perfect system—it enables us to see these things at a glance, and we know at once the kind of man we have to deal with, so that a wise man may look upon the world as a sort of zoological garden, where every animal has to be fed and treated according to its nature.

Surely this is the most valuable of all knowledge, and you ought not to be surprised if I am in "a dreadful hurry that more people should believe as I do;" that there were more "mongrel philosophers" with my experience; and that I am a little impatient that anthropologists should be confining their researches to dead matter and mere bodily characters, instead of living mental functions. Beauty and harmonious development of the brain are now inseparably connected in my mind; and your cautious induction, Mr. Editor, on the special faculty of language, with Dr. Bouillaud's "Observations and Experiments," appear to me *just the same* as if from careful examination of the structure of the eye, and pathological observation, and the use of the ophthalmoscope, you had just discovered that its probable function was to see with; that is, the left eye, but by no means the right. I have no objection to begin *de novo*, if we are not called upon to give up what we do know, and if our knowledge by thus beginning again can be made more definite and certain. But we must use Gall's method, which is to judge of mental function or power from what it does; we know that we see with our eyes, and we have not learned that fact from cutting up the eye, or from blind people, although anatomy and pathology may sometimes tell us why some people cannot see. We know equally well that a particular position of the eye-ball indicates what is vulgarly called the "gift of the gab," that is, it indicates good verbal memory, or facility in associating words or names with ideas. We know that this position of the eye-ball is owing to an indentation in the supraorbital plate caused by the abnormal size of a convolution of the brain. No doubt we have still much to learn about this faculty, and verbal memory may be its primitive function, but its manifestation or mode of action depends very much upon its association with other mental powers. Granting that there is the power I have indicated of judging of character, and I do not think I have been deceiving myself all these years, no doubt you are prepared *fully to admit* its great utility. It enables us to choose our servants and assistants in all departments; and I have always been, with one exception, the particulars of which it is not necessary to mention, well served, because I have been able to put the right man into the right place. I have done more—I have been able to start at least half-a-dozen young men in the direction that nature had *especially* intended them for; I took the square pegs out of the round holes, and in each case with complete success. It has enabled me also to choose my friends, for we know at once, and not by too often painful experience, upon whom we can implicitly rely, or whose friendship or principle is sure to break down under pressure.

But phrenology is not only practically useful wherever man is con-

cerned; it not only, by the very general admission even of those who deny its organology, presents the best system of mental philosophy, but it seems to me to furnish the key to all those deep metaphysical problems upon which mankind have hitherto been so hopelessly divided. It shows how part has been added to part in the brain as we rise in the scale of animal power and intelligence, with varied function in proportion to increased complexity of structure. It shows exactly how, and by the aid of what faculties, the world is created within us; and not only the physical world, but, through our likes and antipathies, the moral world also. As the fly, with its microscopic eye, and thousand lenses, is thus enabled to live in a world of its own, so the addition of a single mental faculty in man might place him in a very different world to that in which he now lives; for he knows of the world only as it acts upon him, and there may be thousands of influences that never reach his thick and limited perceptions. "There are," says Professor Tyndall, "numberless waves emitted by the sun and other luminous bodies which reach the retina, but which are incompetent to excite the sensation of light. If the lengths of the waves exceed a certain limit, or if they fall short of a certain other limit, they cannot generate vision; and it is to be particularly borne in mind that the capacity to produce *light* does not depend so much on the *strength* of the waves as on their *periods of recurrence*. I have often permitted waves to enter my own eye of a power which, if differently distributed, would have instantly and utterly ruined the optic nerve, but which failed to produce any impression whatever upon consciousness, because their periods were not those demanded by the retina." (*The Fortnightly Review*, Feb. 1869.)

But I cannot now pursue this part of the subject; perhaps you will allow me at some time to return to it. Let us rather take one or two of the practical questions that are now before the world, and view them by the light that phrenology throws upon them. Let us take the Civil Service competition examination. It may be quite right that no one should be employed who is not sufficiently well informed to pass such an examination, but to employ men *because* they pass is exceeding folly, as such an examination furnishes no test of *character* whatever. It does not even correctly measure the intellectual power; for a person may be as blind in judgment as some are in the power of seeing colours and yet pass such an examination. With the faculty of language, and of simple and relative perception, well developed, a person may be easily crammed to pass such an examination and yet be weak in body, idiotic in reflective power, and altogether deficient in the moral sense. Supposing that even an examination tested the whole intellect, instead of a few faculties, great intellect is too often at the

expense of bodily and vital power, and its possession gives no guarantee as to how it will be used. Such an examination is as likely to furnish only a clever rogue, as an honest, persevering, good man ; and yet how the world chuckles at its wisdom, and congratulates itself on its great advance in this department !

The *Pall Mall Gazette*, commenting on the result of this system, now in operation for the last fourteen years, says (April 27, 1869), with reference to the Civil Service clerks : "Some, of course, had been inordinately crammed, and have found their level ; others were shady characters, and went (as the Bishop of Cork would say) to the — ; but the greater proportion at once showed themselves to be intelligent, educated young gentlemen, ready for anything that might be put before them, and eager for work." No doubt, *ready for anything*,—at least, there is no reason in their examination why they should not be ; still, this little glimmer of common sense has proved to be better than the previous system based on jobbery.

Let me give one more illustration. I have shown that in proportion as the animal, moral, or intellectual region of the brain predominates, do we get a man or a mere animal. If the intellect and moral region predominate, we have a man who is ordinarily a "law unto himself," and who, if he falls into crime, does so inadvertently or under strong temptation. If the three regions are equally developed, the man will depend upon education and the circumstances, favourable or unfavourable, in which he is placed ; if the animal region decidedly predominates, we have a brutal animal ; if the animal region and intellect, often a clever rogue ; but in either case, when at large, always preying upon society. Now, in February, 1836, Sir G. S. Mackenzie petitioned Lord Glenelg, then Secretary to the Colonies, that the knowledge we have upon the subject might be used in the classification of our criminals. "At present," he said, "they are shipped off, and distributed to the settlers, without the least regard to their character or history." "There ought," he said, "to be an officer qualified to investigate the history of convicts, and to select them on phrenological principles. That such principles are the only secure grounds on which the treatment of convicts can be founded ; proof may be demanded, and it is ready for production," etc. In a separate letter, Sir George said, "men of philosophical understanding and habits of investigation have been brought to perceive that a discovery of the true mental constitution of man has been made, and that it furnishes us with an all-powerful means to improve our race. . . . Differences in talent, intelligence, and moral character, are now ascertained to be the effects of differences in organisation. . . . The differences of organisation are, as the certificates which accom-

pany this show, sufficient to indicate *externally* general dispositions, as they are proportioned among one another. Hence, we have the means of estimating, with something like precision, the actual natural characters of convicts (as of all human beings), so that we may at once determine the means best adapted for their reformation; or discover their incapacity of improvement, and their being proper subjects of continual restraint, in order to prevent their further injuring society. . . . And if, as thousands of the most talented men in Europe and America confidently anticipate, experience shall convince you, your Lordship will at once perceive a source from which prosperity and happiness will flow in abundance over all our possessions. In the hands of enlightened governors, phrenology will be an engine of unlimited improving power in perfecting human institutions, and bringing about universal good order, peace, prosperity, and happiness."

This petition was backed by a whole bookful of certificates, principally of celebrated medical men, and many of them quite equal in scientific eminence to any of the professors of the present day; among whom are Sir W. C. Ellis, M.D., Dr. C. Otto, of Copenhagen, Dr. Joseph Vimont, of Paris, Dr. Wm. Gregory, F.R.S.E., Dr. Whateley, Archbishop of Dublin, etc., etc.; and yet this is now quite forgotten, and we have a generation brought up in ignorance of phrenology, and taught to despise it; and we have our *Anthropological Journal* declaring that "the present system of phrenologists, with all their assumptions and erroneous inferences, will soon become a theory of the past;" and we find its really talented editor groping about, *like a blind man*, after the very first organ that Gall discovered.

About the same time (April 1836), George Combe was a candidate for the chair of Logic in the University of Edinburgh, and he also has printed a whole volume of testimonials from the leading men of the age, not only in this country, but in Europe and America, who certify—

"That phrenology, viewed as the abstract science of mind, is superior to any system of mental philosophy which has preceded it.

"That it contains a true exposition of the physiology of the brain.

They also certify "to its application in discriminating the varieties of insanity.

"To its bearing on the classification and treatment of criminals.

"And to its application to the purposes of education."

What an extraordinary hallucination must, then, have seized the educated and scientific world at this time, Mr. Editor, if phrenology be what you now describe it? Sir William Hamilton was chosen on that occasion, and not Mr. Combe, and I do not hesitate to say that the mental and moral philosophy of the world has been put back at least a quarter of a century in consequence.

Of course, the prayer of Sir George Mackenzie's petition could not be granted. What would all the parsons have said to the doctrine, that "differences in moral character are now ascertained to be the effects of difference in organisation"! What becomes of freedom of will and responsibility, on that view! We should have required a new system of ethics, based on the fact that mind is as much the subject of law as matter,* and that that is free, as defined by Spinoza, "whose action is determined by itself (whether that self be in its nature good or bad), and not by another." We must have laid aside our notions of retributive justice, and have been obliged to admit that no punishment is just that is not for the good of the individual offender; and that this being the case, nature's punishments are the same whether our actions are voluntary or involuntary. In fact, we should have been obliged to make precisely the same reforms in our criminal system and in our gaols as we have, during the present century, effected in our lunatic asylums, and on precisely the same principles. But society was not, and is not, prepared for this.

There are many reasons to assign for the present position of phrenology in public estimation. The first, and I have no doubt the strongest of all, is the *odium theologicum*; for there is no denying that its doctrines are opposed to the popular theology; theologians have, therefore, talked of its materialism, and have given it a bad name. It was George Combe's attempt to hide this that brought his favourite science and himself into disrepute and disfavour among the class of men who ought to have been the first to acknowledge the merits of both.

There is also much in what you say, that "Gall's theory, if true, unmask all impostors. No man appears to a disciple of Gall other than he is; and this is utterly repulsive to some men of high scientific and social position." This is true also, because a very small brain and limited intellectual capacity are quite compatible with "high scientific and social position;" and there is also a very large class—people with large secretiveness—who instinctively hate to have the internal workings of their mind, their thoughts, and feelings, and capacities, dragged into the light. There is also, as you say, much in the odium brought upon it by some of its English disciples. Incompetent and uneducated professors make a trade of it, and profess to give characters from a shilling a head upwards; and although there is no reason why a properly qualified person should not practise phre-

* In my *Philosophy of Necessity* I have endeavoured to present a system of ethics based on this fact, and to show that we have no cause to fear for the interests of virtue and morality, which are based upon laws as fixed and determinate as the law of gravitation.

nology as a profession, quite as much as a medical man, and with more benefit to the world, yet there is no diploma, and the quacks predominate. Scientific men of position dread to be associated in any way with this sort of thing; but what most influences them, I have no doubt, is that phrenology is what Professor Masson describes it, "a science of mind made easy." When once discovered, like many other great truths, it is very simple; and men of science are looking for that which is abstruse and difficult, and not for that which every fool could understand. They therefore prefer metaphysics, where each man can have his own system, which neither he himself nor any one else can understand. We have, perhaps, all heard of the celebrated watch of a certain railway official, who would remark, on consulting it, "If the sun is not over the hill in a minute and a half, he'll be late." I have noticed that most scientific men are blessed with a watch of this kind, that tells the time in mental science so correctly, that all facts that do not come up to its time are beneath their notice.

I have to apologise for the length to which this paper has unpremeditatedly extended, and for its personal tone; but I have given it this form purposely, in the hope of inducing people to follow my example, and to examine phrenology in the way I have done, for themselves, uninfluenced by public opinion, which, in this instance, would mislead them. If they will do this, I feel certain that they must come mainly to the same conclusions. I do not know a single person who, upon such careful examination, has rejected them. The objections that are ordinarily brought forward about the frontal sinus, want of parallelism in the external and internal lobes of the skull; the hardness of the skull, as preventing expansion of the brain; difference in temperament or quality of brain; hereditary tendencies and transmitted mental aptitudes, etc., have no practical weight, and present little or no impediment in practice. The temperament, or the degree in which the muscular, cellular, vital, or nervous systems predominate, is the most serious difficulty; but the experienced phrenologist knows as well what degree of activity of brain to expect, as the experienced physician is able to judge of the action of other parts of the bodily system, both in health and disease, from the complexion. If people will study the subject, it will amply repay them. Let them begin with Gall "On the Functions of the Brain, and of each of its parts; with observations on the possibility of determining the instincts, propensities, talents, and the moral and intellectual dispositions of men and animals, by the configuration of the brain and head." Spurzheim's works will be found invaluable for their plates of the brain of man and animals, and other illustrations of development; and George

Combe's fifth and last edition of his *System of Phrenology* contains all that is required for ordinary study of the subject. In the twenty volumes of the *Phrenological Journal* will be found a full discussion of the whole question from its first introduction into this country, with precisely the same objections, and the answers to them, as in the present day.

Coventry, May, 1869.

CHARLES BRAY.

THE ORIGIN OF THE ENGLISH.—PIKE v. NICHOLAS.

A most important trial to British Anthropologists, and to literary men in general, has been recently decided in Vice-Chancellor James's court. The case of Pike *versus* Nicholas had been, for several months previous to the trial, known to be one which produced the greatest interest, and when, on the 27th of April, the cause commenced, a large number of Fellows of the Anthropological Society, and many celebrated literary men, were in court.

Mr. Grove, Q.C. (late President of the British Association for the Advancement of Science), and Mr. Jemmett, were for the plaintiff; Mr. Kay, Q.C., and Mr. Osborne Morgan, M.P., for the defendant.

Mr. Grove, in his opening address, gave an outline of the history of the suit. Mr. Pike, he said, had been an open scholar of Brasenose College, Oxford, and had passed through the usual stages up to the degree of M.A. He had been called to the bar in 1864; but, instead of practising, had devoted himself to literary and scientific pursuits, and especially the study of Anthropology in its various branches. He had, as early as 1858, made some jottings for the philological portion of his work, *The English and their Origin*; he had collected various materials bearing upon the subject, in many of its aspects, before the year 1864.

In the autumn of that year, there appeared an advertisement offering a prize of one hundred guineas for the best Essay upon the *Origin of the English Nation*, in English, Welsh, French, or German. The money was to be paid partly by Mr. Arthur Johnes, and partly by the National Eisteddfod. Mr. Pike, after some correspondence, in which he stated that he had already collected materials for the work, agreed to compete, on condition that, if unsuccessful, his MS. should be returned to him. Eleven essays were sent in on the 1st of March, 1865, and the decision of the judges was made known in the autumn of that year. The judges were Prince Lucien Buonaparte, Mr. Arthur Johnes, and the Rev. Basil (now Archdeacon) Jones. The last mentioned gentleman expressed high approbation of Mr. Pike's work as "a remarkable production;" hoped that it would be published, and would receive the prize, and declared that no other essay was worthy of consideration, or possessed any originality. Mr. Arthur Johnes also declared Mr. Pike's essay to be the best; and though he differed from its conclusions, thought that it

would be for the benefit of science that it should be published. Prince Lucien Buonaparte, without giving any opinion on the relative merits of the competing essays, declined to enter into arguments which were not philological, and [Mr. Pike having spoken somewhat slightly of Philological Ethnology] recommended that the prize should not be awarded. In the official report of the Eisteddfod, it was announced that Mr. Pike's claims were not set aside, but only deferred, and that the prize was offered again for the following year. Mr. Pike, however, did not see fit to accept this invitation, or to change his matured opinions in accordance with the opinions of those who differed from him. He spent some months in revising and correcting his work, and published it in May, 1866.

Dr. Nicholas was a competitor, under the name of "Multis Unus", in 1865 (when both Mr. Basil Jones and Mr. Arthur Johnes pronounced his work to be the second best), and again in 1866. It appears that in the latter year, the essays were not sent in until the 2nd of July, some time after the publication of Mr. Pike's book. Dr. Nicholas's *nom de plume* was, on this occasion, A. B. C. Z., and the judge was Lord Strangford. The latter, in his adjudication, referred to the appearance of Mr. Pike's book, and assigned that as a reason for again withholding the prize. The plan, arrangement, and some of the matter of A. B. C. Z.'s essay he mentioned in laudatory terms; but added significantly, that it was "typically second-hand," and that the world would lose little, if it never saw the light.

In July, 1867, Mr. Pike received a letter from Mr. C. Carter Blake, enclosing a prospectus issued by Dr. Nicholas, and calling his serious attention to the extraordinary similarity between the language and arguments in it and in Mr. Pike's book. The book, for which subscriptions were asked in this prospectus, was published in the beginning of 1868, under the title of *The Pedigree of the English People*. The plaintiff first became aware of its publication when he was requested to review it for the *Anthropological Review* in March, 1868,—both Mr. Pike's and Dr. Nicholas's book, it should be observed, were published by the firm of Longmans,—and after some correspondence and an interview with Mr. Wm. Longman, consulted his solicitors. They advised him to file a bill, and obtain an order for the production of Dr. Nicholas's MSS. of 1865 and 1866, as well as of the MS. from which Dr. Nicholas's book was printed. This was accordingly done; and the plaintiff's case rested, therefore, not simply on the two books, but also upon the indicia of the MSS.

The plaintiff's charge was that nearly the whole of the argument contained in the third portion of the defendant's book, was copied from, and a piracy of, the plaintiff's book; and that the defendant had made an unfair and illegitimate use of the plaintiff's book, so that the book of the defendant did not constitute, as it professed to do, an original work.

Mr. Grove then proceeded to comment upon the identity in plan of the two books. The two plans were set out in the plaintiff's bill in the following manner:—

Plan of the Plaintiff's book.

*Plan of the Defendant Thomas
Nicholas's book in Part III.*

CHAPTER I.

The Historical Evidence.

CHAPTER I.

The Historical Argument.

<p>CHAPTER II. The Philological Evidence.</p>	}	<p>CHAPTER II. The Evidence of Philology.</p>
	.....	<p>CHAPTER III. Same subject continued.</p>
	}	<p>CHAPTER IV. Development of Early English Law.</p>
<p>CHAPTER III. The Evidence of Physical Characteristics.</p>	}	<p>CHAPTER V. Sec. 1. Evidence of Physical Characteristics.</p>
<p>CHAPTER IV. The Evidence of Psychical Characteristics.</p>	}	<p>Sec. 2. Evidence of Mental and Moral Characteristics.</p>

Mr. KAY here interrupted with a remark, that he should have something to say about the manner in which those parallel plans had been drawn out; but for the present he would only observe that the words "Mental" and "Moral" were different from the word "Psychical", which the defendant had not used.

Mr. GROVE said his learned friend might possibly discover, before the case was concluded, that the defendant had used that word "Psychical"; but for the present he would content himself with calling attention to some of the most striking instances of verbal similarity, though these of course did not constitute the substance of what he relied on. He would begin with the criticism of Gildas in the two books, and in the defendant's prospectus.

We give these passages in parallel columns :—

Plaintiff's book, p. 21.
 "Gildas is the only authority an Englishman can appeal to. Who, then, was Gildas?"
 The latter sentence also appears at p. 20.

Defendant's Prospectus.
 "Gildas is the great original authority."
 "But who was Gildas?"

Plaintiff, p. 16.
 "A necessary part of a child's education."
 "A Cambridge Professor of History does not scruple to dilate upon the merits of our Teutonic race."

Defendant, p. 245-6.
 "This belief, instilled to this day alike into the child's mind in the nursery, and the student's mind in the lecture-room."

Pike, p. 23.
 "Allowing, then, that Gildas, no matter who he may have been, lived in the sixth century, we come to our third and most important question, How far may we trust him?"

Nicholas, p. 252 and 250.
 "But allowing that Gildas was an authentic person, the author of the *Excidium Britannia*, how far is his book an adequate authority for the belief founded upon its representation?" P. 252.

Plaintiff, p. 25.
 "It is impossible to glance either at 'the history' or at the 'epistle' without coming to the conclusion

Defendant, p. 258.
 "It is utterly impossible to receive his statements as anything else than the splenetic exaggerations of an ill-

that the author's mind was in an un-informed and prejudiced monk. healthy condition.

Mr. GRÖVZ, after reading these passages, said there was not only identity of words, such as he had pointed out, but identity of argument, identity of quotations, identity of purpose, for which the criticism was used; and the same phenomenon ran through the whole of the passages, of which complaint was made, in the defendant's book. There was a series of curious coincidences which it was impossible to explain according to the law of probabilities, except on the hypothesis that one book had been copied from the other. The whole of the passages upon hair-colour, and skull-form, had been taken, he submitted, by the defendant from the plaintiff, and he would give some curious instances of verbal agreement in illustration.

Pike.

"And now let us ask, Are the English a fair-haired people? Can it be said that 90 per cent. of them are fair-haired? Most certainly not." P. 132.

"The second hypothesis is, that a preponderance of Cymric blood in the invaders, who came from the Cimbric Chersonese and its neighbourhood, may have caused, wholly or in part, that resemblance which is to be traced between the ancient Britons and the modern English." P. 243.

"To Greek and Roman eyes, the Germans did certainly appear, in general terms, to be all light-haired. There is no evidence whatever on the opposite side. But if we suppose the Greeks and Romans to have been generally dark-haired, and to have regarded fair hair as a rare and very great beauty, they would necessarily have been very much struck by a proportion of light hair among the Germans, greatly in excess of that which they found among themselves." P. 138.

"As in the case of the Germans, so in the case of the Celts; we must believe no more than that the eyes of the Romans and Greeks were struck by the greater proportion of fair hair among the Celts than among their own people. But there is reason to believe that they were less struck

Nicholas.

"But now comes the question, Do the English people, who are said to have descended from those ancient Germans, display these same characteristics of race? Are they prevalingly blue-eyed and red or yellow-haired?" Nothing of the sort. P. 506.

"We do not question but that this junction may, to some extent, have taken place in the Cimbric Chersonese; probability lies strong in favour of such a supposition." P. 522.

"Let us premise that it is more than probable that the Greeks and Romans, to whose writers we are indebted for certain minute descriptions of the personal characteristics of the ancient Teutons and Celts, were themselves of a prevalingly dark complexion. Hence it is that, according to the usual rule of setting a high value on that which is rare, they took especial notice of the light or 'yellow' hair of the Germans, and of the less light hair of the Gauls and Britons, as a feature of comeliness." P. 502.

with this phenomenon among the Celts than among the Germans." P. 147.

"That dingy hue, neither light nor dark, which is very common among Germans." P. 139.

From p. 158 to p. 178 Mr. Pike discusses skull-forms.

From p. 172 to p. 176, Mr. Pike considers the Greek head-form, because it illustrates some of his previous and subsequent arguments.

"It is a dingy tan, produced nowhere but under the German sky." P. 505.

Dr. Nicholas gives an abstract (without acknowledgment, of course) of Mr. Pike's argument. He further goes out of his way to remark that Greek heads are of the same class of form as the Celtic, though the form of the Greek head has no bearing upon his final conclusions. P. 519.

Mr. Groves went on to remark that, in addition to the piracy of whole sections of the book, the defendant had filched a number of arguments and illustrations, which he had scattered about in various portions of his printed work. He dwelt especially upon an instance of this in the preface, where each author quite unnecessarily goes into a discussion, and takes exactly the same view of the question of classical orthography. Of still greater importance, however, was the fact that Dr. Nicholas had copied Mr. Pike's blunders.

The following parallel passages were important in many ways:—

Pike.

Nicholas.

"Livy, too, describes the Gauls as having *rutilata comæ* (reddened hair, or hair made light), not *rutila comæ* (red or light hair)." P. 148.

"Livy writes that they [the Gauls] had not *rutila comæ* (red hair, but *rutilata comæ* (reddened hair)" p. 514, and again, p. 515.

In this last passage, both plaintiff and defendant appeared to have fallen into a very remarkable error. Both gave Livy as their authority; but Dr. Nicholas had omitted to mention Livy in his list of authorities. The passage in question was a speech of Cn. Manlius, intended to encourage Roman soldiers who were about to engage the Galatians. "The Galli," he says, "have the most warlike reputation of all the Asiatics. They may have the *rutilata comæ*." But, he goes on to explain that wherever a colony has settled under similar circumstances, it has been absorbed by the native population. "These men," he says, "are no exception; they are a mixed breed and degenerate; they were but Phrygians with the arms of Gauls." They did not, therefore, prove the point which both Nicholas and Pike were attempting to prove.

There was an excellent instance of copied blunder, and of blunder aggravated by copying, in Nicholas's list of works consulted (p. 9); he had "Blumenbach (J. Fried.) *Decades Craniorum*, Göttingen, 1828." (Mr. Pike had in his list of works consulted (p. xv), "Blumenbach (Johann Friedrich) *vi Decades et Nova Pentas Craniorum*, Göttingen, 4to, 1828.

There were no *Decades Craniorum* published by Blumenbach in 1828. In order to divert suspicion, Dr. Nicholas had omitted the *Nova Pentas* from his list, and this, strangely enough; was the only portion of Blumenbach's collection published in 1828. The *Decades*, to which alone Dr. Nicholas refers, were published at intervals ranging between 1790 and 1820. Mr. Pike, in giving the date of the whole collection (including the *Nova Pentas*), ought

to have written 1790-1828. Dr. Nicholas (excluding the *Nova Pentas*) ought to have given the date as 1790-1820. He was content to copy Mr. Pike, and went entirely wrong. Even in writing the author's name, Dr. Nicholas had copied an inaccuracy of Mr. Pike's. The work is in Latin; the titlepages of each decade are also in Latin, and the author's name appears thus,—“Jo. Frid. Blumenbach.” Mr. Pike gave the name in German,—“Johann Friedrich”,—not according to the titlepage. Dr. Nicholas likewise introduced the letter *e* into the second name, after the German fashion, and wrote it “J. Fried.”

There was another instance of a blunder of the Plaintiff copied by Dr. Nicholas at p. 498. He referred vaguely to “Our Population Abstracts”, published by direction of government; while Mr. Pike referred to “The Population Abstract” published in 1843 (Census 1841).

Mr. Pike, though he neglected to ascertain the results of the census taken in 1851, and of that taken in 1861, nevertheless carefully expressed himself in the past tense [“were born”]. Dr. Nicholas, however, in the hope of concealing his plagiarism, had changed the tense [“are born”]; and thus, by referring to “Population Abstracts” in general, implied that he had consulted those of more recent date. Now, had he looked at the return of the Census taken in 1861,—which is easily accessible, far more easily than that of the Census taken in 1841,—he would have been under no necessity to take the counties of Surrey and Middlesex, but would have found a table (to which reference is made in the Contents) giving the percentage of those persons inhabiting London who were born in London itself.

Mr. GROVE then commented on the case as a whole. He said it was a case of cumulative circumstantial evidence,—a case in which all the circumstances fitted into one theory, and could not be made to fit into any other. There was exactly the same plan, exactly the same line of argument, exactly the same illustrations, and, in many cases, an exact agreement in verbal expression. The chances against these coincidences having occurred, independently of any plagiarism, were so great that they might be held to amount to absolute certainty. It only remained for him to call witnesses in support of what he had alleged.

Mr. LUKE OWEN PIKE, the Plaintiff, a Vice-President of the Anthropological Society, was the first witness, and was examined by Mr. Jemmett. He confirmed the statements made in Mr. Grove's opening address, and gave a history of the manner in which he wrote his book, and in which he arrived at his conclusions. He had traced back all the assertions concerning the destruction of the ancient Britons to Gildas; had formed the conclusion that Gildas was not a contemporary author, and was, for various other reasons, untrustworthy, and he had quoted Mr. Hardy for some of the facts upon which his conclusion was based. Having but little faith in philology as an index to race, he had fallen back upon physical and psychological characteristics. He had devoted much labour, time, and expense in collecting evidence for his argument from physical characteristics, which, whatever might be its value, he believed to be original. He had paid special attention to the colour of the hair and the form of the skull. He had, from his own observation, compiled a table of hair-colours by a peculiar method of his own. The table appeared at p. 134 of his book. The defendant had given a similar table, very closely agreeing with his, at p. 507 of the defendant's book. He was decidedly of opinion that the defendant could not have observed the numbers given by him in the manner stated by him, and he certainly could

not have done so himself. He believed his argument concerning the hair-colour of the English, considered in relation with the hair-colour of the ancient and modern Teutons, and of the ancient and modern Celts, to be original. He believed his argument concerning the skull-form of the English, in relation with the skull-forms of the ancient and modern Teutons, and of the ancient and modern Celts, to be original. He had arrived at it by a long process of sifting evidence, which was very contradictory. He had not only read a number of works on the subject, but he had made independent observations and measurements of his own, especially at Netley Hospital. [His instruments were produced in court.] He obtained considerable information from various hatters. Except where he had made acknowledgment, all the statements in his book were the result of his own observations or inference.

Mr. PIKE then went on to give evidence concerning the state of the Defendant's MSS. when first produced, in obedience to the summons, and the alterations subsequently made in them. In the MS. essay of 1865 he said, there were missing at that time pages 5-8, 71-166, and 309-322, which had recently been produced. In the MS. of 1866, from which the Defendant printed, the passage concerning Gildas was missing when the book was first produced; and it appeared that the MS. had since that time been taken to pieces and rebound. The passage in question, as recently introduced, was pagged in a different way from the rest of the book, the numbers of the pages not running in regular order. The corresponding catch-words, "Gildas examined," in the table of contents were interlined. In the essay of 1865, so far from Gildas being criticised as the original authority, there was a statement that "Gildas copied Bede," Gildas having in fact lived a century and a half before Bede. [The Defendant's MS. and his rough draft containing the same statement, were handed up to the Vice-Chancellor.]

Cross-examined by Mr. KAY. Mr. PIKE repeated that he had prepared materials for his work before the appearance of the advertisement issued by the Eisteddfod, and in particular that he had made notes upon Celtic philology as early as 1858 and 1859. He had copied them into his note-book produced; and other rough notes bearing upon the subject, and made at various times, had been pasted into the same note-book at the time of the appearance of the advertisement. In addition to the copy of the Defendant's prospectus sent to him by Mr. Blake, he had received one from Dr. Nicholas himself, but only after an interval of several days, and after he had spoken to a great number of persons on the subject. He repeated his statement concerning the way in which he arrived at his opinion concerning Gildas; he had looked into all the histories of England in his own possession, and all which he could find at the Museum, and traced back the statements concerning the extinction of Britons to Gildas; he always found either that Gildas was mentioned by name, or that Gildas's statements were adopted. The names of all these histories were not given in his list of authorities simply because the principle on which he had compiled that list was to give the books in which he had found information, and not those in which he had failed to discover any. He had acted on the same principle throughout.

Mr. KAY then asked a number of questions, of which the object was to show that all writers on anthropological subjects treat the subject in the same way. Mr. PIKE's replies were to the effect that there are several different schools of anthropology, some of which put aside physical characteristics altogether; and that even those which accept the evidence of physical character-

istics differ in their estimate of the value of hair-colour and skull-form. Prichard, for instance, had an opinion entirely different from his own of the value of such indications.

Mr. KAY wished to know which of the books in Mr. Pike's list had been consulted for the purpose of discovering the evidence of physical characteristics. To this Mr. PIKE replied, that he was quite willing to go through the whole list, and describe precisely what use he made of each work in it, but he objected to giving a selection merely from memory. This offer, which was repeated, Mr. Kay did not accept. Asked whether he had not found the idea of getting information from hatters in Professor Wilson's paper, published in the *Anthropological Review*, he pointed out that the paper in question appeared in 1865, while the letters from the hatters, produced in Court, bore the date 1864. After seeing Professor Wilson's paper, he added a note to what he had previously written, and mentioned this agreement in method, with Professor Wilson's name, and the note appeared in his book as printed. Mr. Pike was then cross-examined at great length concerning the absence of the criticism of Gildas from the 1866 MS. of the Defendant. He persisted in his former statement that it was missing when he first saw the MS., and that it had since been bound in. He produced a note to the effect that the passage concerning Gildas was wanting, and he was very positive in stating that this note was made at the time of the first inspection.

Re-examined by Mr. GROVE. Mr. PIKE again repeated all that he had said concerning the pages missing, both from the MS. of 1865 (about which there was no dispute) and from the MS. of 1866. Mr. Grove read the letters from the hatters to Mr. Pike, which contained some very curious information, and were admitted as evidence of the labour bestowed by Mr. Pike upon that branch of his subject. He elicited that no notice had been given to Mr. Pike, or his solicitors, of the restoration of any of the missing pages.

Examined by the VICE-CHANCELLOR. Mr. PIKE said he was acquainted with French, German, the classical languages, and, to some extent, with Welsh. He had consulted the Myvyrian Archaiology of Wales in Welsh.

The next witness was Mr. RICHARD STEPHENS TAYLOR, Junior, one of the Plaintiff's solicitors. He corroborated all that Mr. Pike had said concerning the absence of the section on Gildas from the Defendant's MS. of 1866, and concerning the absence of a number of pages from the MS. of 1865 at the time of the first inspection. He added that when he applied for a second inspection he was told, by Dr. Nicholas's solicitors, that the MS. had been sent back to the Defendant for him to prepare his brief.

This concluded the first day's evidence (April 27th).

On the second day the first witness called was Dr. JOHN BEDDOR. Examined by Mr. GROVE, he said he was President of the Anthropological Society of London, and a corresponding member of many foreign learned societies. He had for many years given his attention to anthropological science. He had read Mr. Pike's book, and considered the criticism of Gildas in it to be original. He had examined the tables of hair-colour in Mr. Pike's book and compared them with those in Dr. Nicholas's; he had found so very close a resemblance between the tables in the two books, in their proportions, that he did not think they could have been drawn up by two independent observers. Different observers differed extremely in their ideas about colour; he had proved that by setting different people to work on the subject. He did not believe that Dr. Nicholas, who was a very short man, could have collected eleven thousand instances in twenty assemblages. There were great

physical difficulties in the way, both by day and by night, both in-doors and out-of doors; he had himself collected as many instances but had been a very long time about it, though he had very keen sight. He had written several papers on the subject of hair-colours, but those which had been quoted by Mr. Pike were precisely those which were quoted by Dr. Nicholas, and those omitted by Mr. Pike were omitted by Dr. Nicholas. Two of these neglected papers were of at least equal importance to the subject with those referred to.

Cross-examined by Mr. KAY. He said that he had formed the opinion that Mr. Pike's criticism of Gildas was original from a considerable amount of reading on the subject, and he had himself written an essay on the Origin of the English. He was aware that Gibbon and others had discredited Gildas, but not for the same purpose nor by the same arguments as Mr. Pike. He considered his own method of tabulating hair-colours statistically was original. Prichard had vaguely recorded some of his impressions, but had given no figures; no one had previously made observations of any value for the purposes of science. It was very difficult to arrive at any result in-doors, owing to the variety of shades in different parts of the room. A man in a pulpit might be better than another, but a man in a pulpit had something else to do besides observing heads of hair; the value of the evidence of hair and skulls in ethnological investigations was a matter of opinion. Writers of the philological school rejected that evidence altogether, but he thought they were wrong.

Re-examined by Mr. GROVE. He said again, he thought Mr. Pike's criticism of Gildas was original, and he thought the Defendant's criticism was substantially the same. He thought the course of argument in Mr. Pike's book, and the deductions from the colour of the hair, the form of the skull, and their relations to the proportion of the British and Saxon people in England were original, and they differed considerably from his own opinions. He found the same course of argument in the Defendant's book.

Examined by the VICE-CHANCELLOR. He said he could take down all the instances of hair-colour which it was possible to take in the court in a very few minutes, but the difficulty of light was so great that there were very few instances which he could take down at all.

Mr. CHARLES CARTER BLAKE, examined by Mr. Jemmett, said he was Lecturer on Comparative Anatomy at Westminster Hospital, and had been Hon. Secretary of the Anthropological Society. He had received a copy of the defendant's prospectus in July, 1867, and immediately called Mr. Pike's attention to it in a letter, enclosing the prospectus itself. He saw the defendant's book on his return from abroad, in July, 1868. He had given attention to the subject of the two books for many years. He had not seen Gildas treated in a manner or with phraseology similar to that of Mr. Pike anywhere except in Dr. Nicholas's book. He had given his attention more especially to the subject of physical characteristics, and had pointed out in a review of Mr. Pike's book in the *Medical Times and Gazette*, that there were many authors whom Mr. Pike might have cited, but had omitted to cite in proof of his conclusions. Those were precisely the works omitted by the defendant in his list of authorities, and there was no reference to them anywhere in the defendant's book. The works referred to by the defendant were precisely the works referred to by the plaintiff. Mr. Pike's argument from the skulls was novel at the time at which it appeared, and not only the train of argument, but the generalisations upon which it was founded con-

cerning the shape of Celtic skulls. The identification of Greek with Celtic skulls was also novel. To all this he had observed a great resemblance in the defendant's book, even to the point of the Greek skulls, and an absolute identity in the phraseology. As regarded the defendant's tabulation of 11,000 hair-colours in twenty assemblages he had tried the experiment; and he believed the thing to be impossible. There was a plate in the defendant's book with representations of four skulls; they gave him the impression that they had been put there by a person unacquainted with the subject; they had been taken from two elementary works; and the four skulls were drawn in three different positions, so that any comparison between them was utterly impossible.

Cross-examined by Mr. OSBORNE MORGAN. He was acquainted generally with Gildas; and the arguments on that subject of the plaintiff appeared to him new; he was not in the habit of reading the *Saturday Review*, nor was he acquainted with Mr. Hardy's works. Both the plaintiff and the defendant discredited Gildas, and they both used a certain phraseology in discrediting him. He believed the fact that the modern English possess long skulls was first established by the plaintiff, and that the plaintiff had first combined the propositions that the Celtic skull was long, that the Teutonic skull was short, that the modern English skull is long, and that, therefore, the English are descendants of the ancient Britons. That was perfectly new.

Re-examined by Mr. GROVE. There were ten different heads in the defendant's book which agreed with ten heads in the plaintiff's book. He found them put in the same way, and bearing on the same subject in the same way; and the phraseology, if not agreeing letter by letter, was substantially similar.

The VICE-CHANCELLOR. "You have been in the habit of writing on the subject?"

Mr. BLAKE. "I have."

The VICE-CHANCELLOR. "You have been in the habit apparently of writing reviews upon works?"

Mr. BLAKE. "I have."

The VICE-CHANCELLOR. "Supposing these two books were put in your hands for the first time, with your experience as a writer and a reviewer, would you come to the conclusion that one was borrowed from the other, or that both were borrowed from a common source? One of these two hypotheses must be true."

Mr. BLAKE. "I should say that one was certainly borrowed from the other."

The VICE-CHANCELLOR. "The other hypothesis is that they might be both borrowed from a common source."

Mr. BLAKE. "That hypothesis would be impossible to my mind."

Mr. JEMMETT then addressed his Honour on behalf of the plaintiff. He said after the opening of his learned leader he would not occupy much of the time of the court. But there were one or two points which would add weight to the great mass of cumulative evidence already brought to bear upon the subject. His Honour had seen how Dr. Nicholas was so ignorant of the first duties of a historical critic in 1865 that he actually supposed Gildas lived after Bede and copied him, while the scope of his criticism, as published, was to show that Bede copied Gildas, and was, therefore, not to be trusted. But Dr. Nicholas had never even made this criticism his own; it was in direct contradiction to other parts of his book where he quoted Gildas, Bede,

and Nennius as trustworthy authorities. Even the quotation from Mr. Hardy, which appeared in both books (and which threw discredit on Gildas because he gave a wrong account of the abandonment of Britain by the Romans), had never been understood, but had been blindly copied by Dr. Nicholas. The mistake of which Gildas was there accused was that he had represented the Romans as finally abandoning Britain in A.D. 383, under Maximus, whereas, in fact, they did not really leave until the year 410, under Honorius. Now, not only had Dr. Nicholas taken the assertion of Gildas as correct, but he had, in a part of his book not copied from Mr. Pike, shown that he supposed Maximus to have been a contemporary of Honorius, and to have left Britain in the year 410, whereas Maximus had, in fact, died in the year 388. There could be no stronger proof that Dr. Nicholas had, in implicit reliance upon Mr. Pike, copied a criticism which he did not in the least understand. Mr. Jemmett then proceeded to read some parallel passages in addition to those already cited by Mr. Grove. He also pointed out that Dr. Nicholas's table of hair-colours for London was simply a multiple of Mr. Pike's percentages. The number used as multiplier was 60. Dr. Nicholas had divided one of Mr. Pike's classes into two, had disregarded the decimals, or rather substituted more convenient fractions, had then multiplied by 60, and by that very compendious process had saved himself a considerable amount of labour at Mr. Pike's expense.

Mr. KAY, in opening the case for the defence, complained at great length of the manner in which the plans of the two books had been drawn out side by side in the bill. He was, however, repeatedly interrupted by the Vice-Chancellor, who said that the bill was correctly drawn, that it gave notice to the defendant of what was alleged against him, and that it was idle to suppose that a Judge's mind could be unfairly influenced by that mode of stating the case. Mr. Kay then complained that no notice had been given to his client of the precise passages which were said to have been pirated, and he was dilating on this point when the Vice-Chancellor again interrupted him, saying,—“If you really mean to say that you have in any way been taken by surprise, the case shall be adjourned.”

Mr. KAY referred the matter to Dr. Nicholas, who preferred to go on. He then resumed his argument, which was to the effect that all the passages alleged to have been pirated were, with the exception of the criticism of Gildas, written before the defendant had seen the plaintiff's book, and that Dr. Nicholas would establish this by his oath. He argued, however, that, supposing even Dr. Nicholas had had a number of ideas suggested to him by Pike's book, there was no piracy involved. Copy-right meant the right of producing copies, and there was no copy-right in arguments or ideas. But he would go further than this, and say that an author, not only had the right but was bound by his duty to his readers, to consult all preceding works on the subject on which he was writing. He then proceeded to cite cases with a view of showing that any author might take new heads of argument, and the arguments themselves from another work without any infringement of copy-right. He argued that Mr. Pike must have been mistaken in his assertion that the section on Gildas was missing from the MS. of 1866, and mistaken also in the time at which he made a note to that effect. The absence of the leaves from the MS. of 1865 was admitted, and would be explained by Dr. Nicholas. With respect to the criticism of Gildas itself, he denied that the alleged similarity existed between it and Mr. Pike's criticism. The verbal resemblances relied on by the plaintiff he said were not verbal

resemblances at all, and the passages quoted in common were open to one author as well as another. In the same way, he said, all the other verbal resemblances in the two books, if they could be called resemblances, were the result of chance. [As we have already given some of the passages in parallel columns without Mr. Grove's remarks upon them, it is hardly necessary to give Mr. Kay's remarks upon them. They must speak for themselves.] With respect to the copied mistakes, Mr. Kay said there was no error which two authors might not have fallen into independently. As for the expression, "*rutilata comæ* not *rutila comæ*," he did not think Dr. Nicholas implied that the whole expression occurred in Livy. It was a very natural distinction for two authors to draw. As for the confusion between the Gauls and their degenerate descendants, it was hardly to be called a mistake, and was, if a mistake at all, one which two independent authors might very naturally fall into. He did not see that any copied error had been made out in the case of the population abstracts. What had been done was just what anybody might do. Nor could he see that any error had been copied in the description of Blumenbach's work. He believed he should be able to show that the whole collection of skulls was known by the name of "Decades," and that Dr. Nicholas had arrived at his description in the course of his reading. He submitted that there was no case for the interference of the court. It was true his learned friend Mr. Grove had mysteriously hinted at something which had not yet been brought forward, but he hoped if any new matter really remained to be introduced, he should have the opportunity of replying to it.

Dr. THOMAS NICHOLAS, examined by Mr. Osborne Morgan, said he was a Doctor of Philosophy of a German University, was a Welshman by birth, and conversant with the Welsh language. He was educated at the Lancashire College, and brought up for the ministry of the English Independents. He had for seven years filled the chair at Carmarthen College, where he was Professor of Mental and Moral Science, of Ecclesiastical History, of the German Language, and of General Literature. As Secretary to the proposed Welsh University, he had been in the habit of addressing public meetings. He said the pages at first missing from the MS. of 1865 had been torn out by him in order that his luggage might be light when he was travelling about, and composing his essay of 1866, which was written principally while he was moving from place to place. The loose pages after being used were put into a box at his house at Carmarthen before the competition of 1866, and the box was never opened until recently, when the pages were discovered in it quite by accident and replaced in the book. The rough-draft book D, which contained the evidence of physical characteristics, and the table about which so much had been said, had been written before the end of 1865. He wrote his second essay with a view to publication, and intended to publish it, whether it obtained the prize or not. He finished it on the 13th June, 1866, but did not send it in until the 2nd of July, the last day appointed. He never heard of Mr. Pike's book until September, 1866, when he saw an advertisement of it in the *Saturday Review*, and he bought a copy of it in the following October. He did not get his MS. back from the Secretary of the Eisteddfod until early in that month, and left it with Professor Max Müller on his way up to London. It was afterwards sent to Dr. Rowland Williams and Dr. Davidson. No alterations or additions were made in it before it was sent to those gentlemen. He did not get it back from them until July, 1867, when he sent it to the Rev. Enoch Mellor, who kept it a month longer.

He published his book in March, 1868. He then went through the whole of the MS. from which his book was printed, stating what were the additions since it was sent in to the Eisteddfod. These were not important in the case except in the one instance of the criticism of Gildas, which Dr. Nicholas said he had substituted for a long note. But this section on Gildas was in the MS. book when first produced in obedience to the summons. No alteration had been made in the book or in the binding since that time. He sent a copy of his prospectus to Mr. Pike among the first, and a note of which he had not preserved a copy. He had made no alterations in the leaves of the 1865 MS. which had been torn out.

At this point the court rose.

The hearing was resumed on the 30th April, when

Dr. NICHOLAS proceeded to say that he had taken the title of the "*Decades Craniorum*" from Gliddon's *Types of Mankind*. In dealing with Gildas he referred to no book particularly except Hardy's *Monumenta* and Gildas' own works. He first saw the passage quoted by him from Stevenson in Hardy. He did not take a single word about Gildas from the plaintiff's book.

[At this juncture a copy of Bohn's translation of Gildas was handed to Mr. Jemmett by Mr. Pike.]

Dr. NICHOLAS then said, "Will you allow me to make a remark: I found the passage from Stevenson in the preface to Gildas's works in Bohn's edition. I afterwards referred to Stevenson's own volume, and found it out."

He had made the note about population abstracts from his own reference to the Census Returns of 1861.

With respect to the table of hair-colours, he said, he compiled it by counting heads in public assemblies. He first saw the passage from Livy which contains the words "*rutilatæ comæ*" in Prichard; Retzius was his great authority on the question of skulls. The idea of comparing the Greek with the Celtic skull was suggested to him by Lyell. Upon being asked again, he said it was suggested to him by Prichard.

Cross-examined by Mr. GROVE. Dr. NICHOLAS said, that he could not recollect to what places he went when he tore the leaves out of his MS. book, except that he was at Carmarthen. He had written a very large portion of his book while on his travels to places of which he could not recollect the names; he was chiefly at Carmarthen. He could not recollect the names of places where he wrote portions of his work, and none of the passages recalled to mind the places where they were written. He could not recollect where he was before he went to Carmarthen. He could not tell, even approximately, the time when he tore the leaves out, nor where he went with them, nor where he used them. He had a house at Carmarthen.

[The MS. of 1866, from which he printed, was handed to him, and he was requested to look at the Table of Contents of Chapter V, and say when the alterations in it were made.] He said they were made, as far as he could recollect, before the Essay was sent in. The word erased under the words "Mental and Moral" was "Psychological." He did not know that it had been partly erased with a knife. He could not make out that the head of the P and the tail of the y had alone been erased with the knife, or some such instrument; it might be so, but he could not make it out. He was quite certain the word erased was not "Psychical," because he had an objection to it and never used it. Whatever the word was he could not say why it was so much more elaborately erased than any other word in that or the adjoining pages. He could not tell why there were certain considerable alterations

made in the rough draft of his table of hair-colours, nor where he was when he wrote those tables. When he made the calculations at the twenty assemblages mentioned by him, he did not put the numbers down at the time but put the numbers down on slips of paper, and used them afterwards. He had not got any of these slips of paper. He had not mentioned any of those matters in his diary. At each assembly he put down the numbers present and the numbers of each colour as a total, but did not jot down each individual. He could not say when he first consulted Hardy's *Monumenta*, nor when he first consulted Retzius. He had a copy of Retzius in Court. He could not say exactly when he got it. He had not had it long, but would be very glad to say how long if he could. He believed he had got it this year; though he was now in the month of April he could not say whether he got it in January, February, or March. He got it from Germany, through Nutt in the Strand. He could not say what copy he consulted before he got his own; it was rather a common book. It could be purchased in this country. Mr. Nutt had not one in his stock. He did not know that he had applied to any other bookseller. He was not sure where he consulted the copy of Retzius to which he had referred in his book, very possibly at the British Museum, but he could not say. He could not give a reference to a single copy of Retzius in the British Museum, or any other place or library, except that which he purchased this year. He had consulted an original copy of Retzius somewhere.

Mr. GROVE. "Will you swear that?"

The VICE-CHANCELLOR. "I do not like that form of question."

Mr. GROVE. "I do not doubt it is objectionable."

Dr. NICHOLAS continued by saying, he could not state that he took those particular items from Retzius, though he had consulted the work. He had no doubt he had sought for Retzius at the British Museum.

The copy of Pouchet, mentioned in his list of authorities, he had had himself, but could not say when he got it, even approximately. He thought he first consulted it in the Anthropological Society's Library. He was not quite sure whether he took it away with him, but had consulted it at the British Museum a long time ago. Of that he was quite sure, but he could not say for certain that he had seen it at the Anthropological Society's Library. Asked more precisely about the French Edition of Pouchet published in 1864, which was the edition mentioned in his list of authorities, he said he fancied he saw it at the British Museum. He was not sure about it. The edition of Pouchet in his own possession was the translation published by the Anthropological Society. He had not got the French edition of 1864. He believed he had seen it somewhere, but could not say where.

The only passage of Livy quoted by Prichard, containing the words "*rutilata comæ*," was in vol. iii, pages 195-6; that described the Galatians, and Prichard accepted it as evidence that they were naturally of xanthous complexion. He had not meant to say that either he or Mr. Pike took their theories from Prichard, only that the passage was quoted there.

He had not had many books from the Anthropological Society's library. He had had the *Anthropological Review*. He had not, to the best of his recollection, had any books from the library except the *Anthropological Review*. He was not quite sure that he had ever consulted a book in the library. He had been in the library and looked at the books, but could not say that he had spent any time in consulting them.

Mr. GROVE. "You cannot tell me that you ever consulted a book."

Dr. NICHOLAS. "I think the library, on the whole, is a very defective one."

The VICE-CHANCELLOR. "Do not make observations; confine yourself to evidence."

Dr. NICHOLAS in continuation stated, that he could not say when or where or from what copy of Gliddon he took the description of Blumenbach's "Decades." In the passages quoted from Gildas he had taken the translation of Bohn. He had done so because he felt diffident of translating the Latin himself.

Re-examined by Mr. KAY. Dr. NICHOLAS said that the word "Psychical," or "Psychological," or whatever it was, that had been erased, was not copied from Mr. Pike's book. The erasure had been made before the Essay was sent in for competition. A note made by Dr. Rowland Williams in pencil on the page about "*rutilatæ comæ*," had been made when the MS. was sent to him after the Eisteddfod of 1866.

Dr. ROWLAND WILLIAMS examined by Mr. KAY, said he was a Doctor of Divinity of the University of Cambridge, and vicar of Broadchalke. He had directed his attention to early English history, and had read a paper before the British Association on the Silurian types. He was very slightly acquainted with Dr. Nicholas. Dr. Nicholas's MS. was sent to him late in 1866. He had made no note of the date, but had been told it was in September or October. It was in his possession a few weeks when he returned it to Dr. Nicholas, but he could not give the exact date at which he returned it. He gave it a fair amount of perusal. He wrote the note in pencil while the MS. was in his possession. He believed the MS. to be substantially the same as when he saw it, but the part about Gildas had been added. He thought there had been a note about Gildas before, but could not swear to it positively. Mr. Pike had not spoken of Gildas as being a "monk," and Dr. Nicholas had. He had not only an impression that Dr. Nicholas had not taken his criticism from Mr. Pike, but he spoke positively on the point. He had not instituted a critical comparison between the two books, but had formed an estimate of them. He would like distinctly to state that as regarded the bulk and body of Dr. Nicholas's volume, and he thought a perusal of the two books would show—

Mr. GROVE objected. He said he could have produced plenty of evidence of this kind on his side.

The VICE-CHANCELLOR. "It may arise out of a question which I think I ought not to have asked. I did ask Mr. Carter Blake a question which probably I ought not to have asked, as to what his judgment would have been as a person accustomed to reviewing."

Cross-examined by Mr. GROVE. Dr. Williams said he could not swear to the month in which he saw Dr. Nicholas's MS. Mr. Pike had spoken of Gildas as exercising some ecclesiastical function, but that was not the same thing as being a monk. Gildas was generally considered to be a monk. He was a monk if he was the same person as Aneurin. There was much dispute about him.

Rev. Dr. DAVIDSON, examined by Mr. MORGAN, said he was a Doctor of Law and Divinity. He had no great knowledge of the subject matter of the two books. Dr. Nicholas's MS. was sent to him in January, 1867, and he kept it three months. It was substantially the same MS. as that which was produced in Court. There was a note in it about Gildas, but of what length he did not know. Hardy was quoted in it. He had not read the section on Gildas in the printed book.

Cross-examined by Mr. GROVE. He was intimately acquainted with Dr. Nicholas, who had written on his behalf on a controversial matter.

Mr. SAMUEL KINGSLAND SHEEBORN (a printer) identified the pages on which the criticism of Gildas was written as those from which the corresponding pages had been printed.

Mr. CHARLES REYNOLDS WILLIAMS (one of the Defendant's solicitors), said he could identify the pages on which the criticism of Gildas was written as having been in the MS. when it was first brought to his office. He had been told that the passage had been added since the Essay was sent in for competition in 1866, and for that reason had written the word "Interpolation" in the corresponding part of his printed book.

This closed the case for the defence.

Mr. OSBORNE MORGAN, M.P., summed up on behalf of the Defendant. He said Dr. Nicholas's criticism of Gildas, about which there had been so much discussion, was not identical with that of Mr. Pike, and that, in point of fact, every one who took the views of Mr. Pike and Dr. Nicholas must of necessity discredit Gildas. It was true that both had cited common passages from Gildas himself and from Mr. Hardy, but there was no piracy in that; and the view taken of Gildas's character was not precisely the same, for "splenetic" was not the same thing as "melancholy," and Mr. Pike had not used the words "ignorant and prejudiced monk." And this criticism of Gildas was every thing of importance which had been written since the Defendant had seen the Plaintiff's book. The sections on hair-colour and skull-form had been written, as Dr. Nicholas had sworn, before he had even heard the name of Mr. Pike. He did not know whether his learned friend Mr. Grove intended to impute the most flagrant perjury to Dr. Nicholas, but, if not, the case was fully answered. He would not, however, rely solely upon Dr. Nicholas's evidence; he would deal with the case upon its merits. He argued, like Mr. Kay, that an author might take heads of argument, arguments themselves, ideas, illustrations, and references second hand from another author. None of these things constituted piracy, but he could not see that Dr. Nicholas had done them or any of them, and the instances of verbal similarity were not sufficient to support the case, as his learned leader had already pointed out.

The VICE-CHANCELLOR here remarked, "But you have not yet explained away that passage about '*rutilata comæ*, not *rutila comæ*.'"

Mr. MORGAN said, the quotation from Livy, if not the comments on it, was to be found in Prichard, and he could not see that a mere resemblance in the wording of the comments would go far towards convicting Dr. Nicholas of piracy. And even allowing that Mr. Pike's book came out on the 31st of May and that Dr. Nicholas's was not sent in for the competition until the 2nd of July, it was impossible that so large a MS. could have been written in the time. It had been shown that the MS. had been sent after it was returned from the Eisteddfod to Professor Max Müller, and then to Dr. Rowland Williams and other gentlemen; and Dr. Rowland Williams had identified his own note made then upon the very passage concerning the "*rutilata comæ*." If the copying had been done at all it must have been done at some time or other, but he submitted that there was no time at which it could have been done. The evidence of copied blunders had failed; for it was not a blunder to regard the Galatians as Gauls, the Galatians having been of Gallic descent. There was no point in the alleged mistake about the Population Abstracts. The mode in which the description of Blumenbach's works had been given had been explained, and nothing was left except such similarities as would necessarily occur when two authors, writing upon the same subject, took the same view.

The identity of conclusion was easily explained by the fact that no essay would have any chance at the Eisteddfod if it took any other view than that the English were Britons.

It was nearly half-past two when Mr. GROVE rose to reply. He said the case had assumed a most disagreeable aspect. His learned friend on the other side had used the *argumentum ad perjurium*, which, if it were pushed to its extreme limits, would place the plaintiff in any suit at the mercy of an unscrupulous defendant who chose to swear that he had not committed the acts imputed to him. Unfortunately a conflict of testimony was becoming the rule rather than the exception in every trial; but, however lamentable that fact might be to the moralist, it was an indication that the word of a defendant was not under ordinary circumstances to be accepted as a sufficient answer to a specific charge supported by numerous converging trains of circumstantial evidence. In this particular case he would ask his Honour to recollect the demeanour of Dr. Nicholas in the witness-box. He was not bringing a criminal charge against Dr. Nicholas; he was simply answering his learned friend's *argumentum ad perjurium*, the argument that every word spoken by Dr. Nicholas must be considered true, because to doubt it was to make an accusation of perjury. He submitted that such an argument as this would be of no value, even if there were no conflict of testimony; but there actually was a conflict of testimony concerning the condition of the defendant's 1866 MS. when produced at the solicitor's office. The plaintiff and his solicitor had both distinctly sworn that the section entitled "Gildas examined," did not form a portion of that MS. when first produced, but had been inserted at some time between last summer and the time of the trial. The defendant and his solicitor, on the contrary, swore that no change had been made in the MS. since its first production. It was for his Honour, who had had an opportunity of comparing the demeanour of the plaintiff with that of the defendant, to judge of their respective credibility. There was, without doubt, some difficulty in discovering a reason why the MS. from which the section "Gildas examined" was printed should not have been produced at first, especially as it had been admitted that the section in question had been written after Dr. Nicholas had seen Mr. Pike's book. His (Mr. Grove's) theory, however, was that there had been a change of tactics. He thought Dr. Nicholas had not at first liked to produce the MS. written on different paper from other parts of the book, written on both sides, and showing the marks of interpolation in the paging. But, upon reflection, it might have occurred to the defendant that the absence of the pages would be most damaging, while their presence, together with a confession of the time at which they were written, would have an air of frankness which might be beneficial. For this reason, and perhaps, too, in the hope of discrediting the plaintiff, they were restored. But the fact remained that Mr. Pike had looked specially for that passage in the MS., had discovered the place in which it should have appeared, had identified that place by the side-note abruptly broken off, had made a note at the time that the passage was missing, and had been confirmed by the testimony of his solicitor who went with him to inspect the MS. In confirmation of his theory respecting the change of tactics, Mr. Grove then proceeded to comment upon the glaring contradiction between the statement made on oath by Dr. Nicholas in his answer to the bill, and his statement on oath in the witness-box concerning the addition of "Gildas examined" to his work. In

his answer he swore that the whole of the published work was, with the exception of some philological tables substantially the same as that which he sent in to the Eisteddfod in 1866. In the witness-box he admitted that the whole of the criticism of Gildas had been written long after that time, and this very criticism had formed a most important feature in his prospectus issued to attract subscribers. As regarded the credibility of the witness, said Mr. Grove, the facts spoke for themselves.

Passing for the moment from the MS. of 1866, to the MS. of 1865, Mr. Grove quietly remarked that, in a suit in which there were so many curious coincidences of a wholly fortuitous nature, it was hardly a matter for wonder that the 125 pages missing, when the summons for documents was issued, should have been discovered, without any search on the defendant's part, before the trial came on. In this case, at least, it was not denied that the pages had been missing; they were found in a box which had not been opened for years, when Dr. Nicholas was looking, not for them, but for something else! And when they were found, no notice was given to the plaintiff or his solicitors, although the defendant had made affidavit, on the first production of his MSS., that he had not, and never had had, any other documents connected with the suit in his possession. Nor was it difficult to see why these pages had been kept back. The differences which were to be traced between them and the corresponding parts of the 1863 MS., the tags at the end of sections, the side notes in different ink, were all illustrative of the curious coincidence of the wonderful box. They all fitted in exactly with the other trains of cumulative circumstantial evidence. On that point, however, he would not then detain his Honour any longer, but would recur once more to the MS. of 1866, and would call his Honour's attention to an erasure which Dr. Nicholas, when in the witness-box, had first said that he could not see, and had afterwards admitted that he might possibly have made. That erasure was in the table of contents, and his Honour would see that where the words "Mental and Moral" then stood, the word "Psychical" had stood before. The head of the P and the tail of the y had been most carefully erased with a penknife, or some such instrument, and a number of strokes had been added to increase the apparent length of the word.

The Vice-Chancellor here asked, "But even supposing that has been done, what is your point, Mr. Grove?"

Mr. GROVE continued. My point, Sir, is that the use of this word "Psychical" gives a complete verbal identity in the plans of the two books, though Dr. Nicholas has attempted to conceal that identity by substituting the words "Mental and Moral" for the word "Psychical".

The VICE-CHANCELLOR: Oh, I thought you had some point there.

Mr. GROVE: Yes, sir, and a most important point, which is illustrated by another similar erasure in the body of the MS.

At this interesting juncture, the court rose for the day.

On the following morning, Saturday, May 1st, the cause was set down for hearing after the unopposed motions, and Mr. Grove resumed his reply at a quarter before twelve o'clock. His speech was such a masterpiece of clear and brilliant exposition, and it was assisted by such dramatic incidents that we shall henceforward abandon the *narratio obliqua*, and give as nearly as possible his own words.

Mr. GROVE said,—Your Honour will remember that when the court rose yesterday, I was calling attention to the erasure of the word "Psychical" in

the table of contents of the MS. of 1866. My learned friend Mr. Kay at an early period in this trial interrupted me somewhat triumphantly to remark that the plans of the two books are not identical, because Mr. Pike speaks of the evidence of psychical characteristics, while Dr. Nicholas speaks of the evidence of mental and moral characteristics. Whatever force there may have been in that remark is turned against himself by this excessively careful erasure of the very word "psychical." The word has not simply had the pen run through it, as would be done by anyone correcting a MS. for the printer; but extraordinary pains have been taken, though taken in vain, to destroy with a knife, as well as a pen, all trace of the word which gives a clue to the piracy. And the very same thing has been done in the body of the MS. in the heading of the section corresponding with the table of contents. There also either the word "Psychological" or the word "psychical" (and I am confident that it is the word "psychical") has been manipulated in the same way for the purpose of concealing the fact that the word has been used. And I ought to tell your Honour that, although most of the facts have been furnished by the persons instructing me, I have myself made the discovery of this second erasure, and a most important discovery it is, as showing the defendant's *animus*.

The VICE-CHANCELLOR. As this is a new point not previously brought forward in evidence, either Mr. Kay or Mr. Morgan will have a right to reply upon it.

Mr. GROVE. Certainly; upon the second erasure alone. Here, then, we have a complete identity of plan—even to the very words which Dr. Nicholas has attempted to conceal—"the historical evidence" in the one book, "the historical argument" in the other; "the philological evidence" in one book, "the evidence of philology" in the other; "the evidence of physical characteristics" in one book, "the evidence of physical characteristics" in the other; and, finally, "the evidence of psychical characteristics" in one book, and "the evidence of psychical characteristics" in the other. After the observations made by your Honour, I need not dwell further upon the remarks of my learned friend, Mr. Kay concerning the manner in which the plans of the two books have been set out in the bill. He insisted much on the fact that no chapter or section is headed either "The Evidence of Physical Characteristics," or "The Evidence of Mental and Moral Characteristics," but, as your Honour has perceived, the chapter is headed "The Evidence of Physical, Mental, and Moral Characteristics," and of that chapter the first section treats of the "physical," the second of the "mental and moral characteristics of the English people. The words "The Evidence" have simply been brought down from the heading of the whole chapter to the headings of the sections, and the plan of Dr. Nicholas's book is quite correctly stated in our bill.

Before I pass from the identical plans to the identical passages in the two books, I have a word to say upon the manner in which Dr. Nicholas tells us that he composed his work. We have 168 different books mentioned in his list of authorities (I have not myself counted them, but I take the computation of my learned friend Mr. Kay) 168 books consulted by a gentleman who wrote most of his work while he was travelling about! Is it a matter for surprise that he could not tell us where he saw any one of the authorities about which I asked him? Where did he see Pouchet? He did not know; he could not say! It might have been at the rooms of the Anthropological

Society, but he was not, as it turned out, prepared to assert that he ever consulted a single book there in his life.

THE VICE-CHANCELLOR. He was not a member of the Society at the time.

MR. GROVE. No, sir, he was not; but I was willing to suppose that the Anthropological Society is a hospitable body, and that if a stranger wished to consult a book he might be permitted to do so. But I can give your Honour another reason why Dr. Nicholas would not state positively that he saw Pouchet in the library of the Anthropological Society. It was because we had in court an officer of that Society who would have proved that he never consulted any book whatever in that library before the appearance of his own work. I can give your Honour a reason why he would not state positively that he consulted Retzius at the British Museum; it was because we had in court an officer from the museum who would have shown that Retzius was not in the library at the time.

THE VICE-CHANCELLOR. I have written to inquire about both Pouchet and Retzius, and I expect an answer shortly from Mr. Watts, the keeper of the books at the Museum.

MR. GROVE. Then I will pass on to another point, and make a remark upon Dr. Nicholas's memory. It was extraordinary what a perfect recollection he had of every date, of every minute fact, of every locality, when my learned friend Mr. Morgan was examining him in chief. But it was still more extraordinary that he was unable to remember anything when he was cross-examined by me. Time, place, and every detail had become quite suddenly a blank to him. It is a difficult thing to deal with such a witness as that, and I confess that he tried my patience. I confess that when I thought I was pinning him down to one solitary definite statement, I made use of an expression which was not suited to this court, and asked him whether he would swear it, although he was already upon his oath.

THE VICE-CHANCELLOR. You need not apologise again for that, Mr. Grove.

MR. GROVE. It was his demeanour in the witness-box that wrung the expression from me.

THE VICE-CHANCELLOR. Here is the letter from Mr. Watts. [The purport of this letter was that the French edition of Pouchet, published in 1864, and mentioned by Dr. Nicholas in his list of authorities, was not in the Museum at all (though other editions were), and that Retzius had only been added quite recently to the library of the Museum.]

MR. GROVE. That, sir, is what we knew to be the case; but I have another word to say about Retzius. [To Dr. Nicholas's solicitor.] Give me your copy of Retzius. [A new and unsoiled copy was handed up to him.] [To Mr. Pike's solicitor.] Now let me have Mr. Pike's copy. [An old and much worn copy was handed up to him. He took the new copy in his left hand and the old copy in his right, and held them out before him.] Here, he continued, your Honour will perceive the characters of the two men. Here in my right hand are seen the marks of honest industry, of persevering research, of the midnight oil; there in my left is Dr. Nicholas's representative, bought a few weeks ago, and consulted only for the purposes of the present suit. [This burst following upon the letter from the Museum caused no small sensation in court.]

MR. GROVE resumed: It is not only Retzius, nor even Retzius and Pouchet alone, that Dr. Nicholas has professed but omitted to consult. Your Honour has heard him confess that he would not venture to translate Gildas for

himself and took his translations from Bohn. And when he was reading his Bohn, and compiling his great list of 168 original authorities, he was travelling about the country so lightly equipped that he could not even carry the whole of his MS. of 1865 with him, but had to tear out leaves in order to lighten his luggage? Yet this MS. book is not a large one; and where were then the 168 authorities. Need I suggest to your Honour that, if he was travelling about at all, he was travelling with no works of reference but Pike and Bohn in his carpet bag?

The VICE-CHANCELLOR. That is your theory, of course.

Mr. GROVE. That is my theory, certainly, on the assumption that he was travelling in Wales, though on this point, as on many others, his memory was so defective that I cannot understand where he was during any part of his journey.

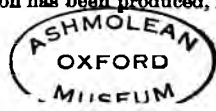
The VICE-CHANCELLOR. I could not quite understand it. There was something about his head-quarters being at Carmarthen.

Mr. GROVE. So I understood at last, though my first impression was that he started from London. But, wherever his head-quarters may have been, he was very positive in stating that this work, with all this list of authorities, was written while he was travelling, he cannot say where. It may be that this will afford some explanation of the identity of passages in the two books and I propose to go through the criticism of Gildas and the sections on hair colour and skull-form to show your Honour that there is hardly a paragraph in them which does not closely agree with something to be found in Mr. Pike's book.

Mr. GROVE, in commenting upon the various passages, said an attempt has been made to show that Dr. Nicholas's criticism differs from Mr. Pike's because the former uses the word "monk" and the latter does not. Mr. Pike, however, says Gildas exercised an ecclesiastical function, and he could hardly have done that in those days unless he had been a monk. An attempt has also been made to show that the words "*rutilata comæ* not *rutilæ comæ*," have been taken by both authors from Prichard. But, as your Honour has seen, Prichard, though he quotes Livy, makes no such comment, and uses the expression "*rutilata comæ*" for a wholly different purpose. He does not, like Mr. Pike and Dr. Nicholas, confound the degenerate Galatians of Asia with the true Gauls of Europe, but speaks of them as being what they really were, and actually treats the word "*rutilata*" as though it were equivalent to "*rutilæ*," by saying that the Galatians had naturally a xanthous complexion. And while on this topic I may as well point out to your Honour that Prichard's whole system and opinions are so far from being the foundation of any part of Mr. Pike's book that the two are in direct opposition. Prichard says he does not know how to account for the fact that the English have dark hair, when all their possible ancestors, Celtic and Teutonic alike, had fair hair. Mr. Pike says the English are descended from the Britons because the Britons had dark hair. Again Prichard says that resemblances and differences of skull-form and other physical characteristics afford no ground for assuming identity or difference of race, while Mr. Pike, followed by Dr. Nicholas, lays special stress on the argument from skulls and hair.

[The learned counsel here cited a number of passages from Prichard's *Physical History and Natural History of Man*.]

So much for the argument from Prichard, which was to have destroyed one of our positions. Then as to the copied blunder in the description of Blumenbach: a copy of Gliddon has been produced, in which the whole collection



is described as "Decades," but Dr. Nicholas could not tell us when or where or from what copy of Gliddon he got that description. And he has still left unexplained the fact that he introduces the letter *e* between *i* and *d* in the Christian name, which in the title-pages of Blumenbach's collection is written Frid. It is, no doubt, only another of the curious fortuitous coincidences, of which we have so many, that Mr. Pike had previously done precisely the same thing. It is curious, too, that Dr. Nicholas has nowhere mentioned Gliddon in his book; and then, again, it is curious that both Mr. Pike and Dr. Nicholas should erroneously take Middlesex and Surrey as the representatives of London, when Dr. Nicholas might have found a table giving all the particulars he wanted for London itself, without putting himself to half so much trouble. He wanted the proportion of the inhabitants of London born out of London; he says he consulted the Census Returns of 1861; yet there is the very information he wanted ready to his hand, and nothing which could induce him to follow the inaccuracy of Mr. Pike, who went to the return of 1841.

Much has been said about the impossibility of the piracy having been committed at any time when Dr. Nicholas's MS. was in his possession after the appearance of Mr. Pike's book. It is not for me to give the exact time when each particular passage was taken. There was a considerable interval between May 31st, when Mr. Pike's book was published, and the 2nd of July, when Dr. Nicholas's Essay was sent in. And the time between the holding of the Eisteddfod and the sending of the MS. to Dr. Rowland Williams we really know nothing at all about. Dr. Williams does not tell us positively when he got the MS. It might have been in September, or in October, or—

The VICE-CHANCELLOR. He said he had been told that in Court.

Mr. GROVE. He said he had been told that; and even if we admit it, nothing is proved by it. The MS. was sent to Mr. Max Müller before it was sent to Dr. Williams. Why then was not Mr. Max Müller called? It is idle to say that Dr. Nicholas had no opportunity of adding to his MS. after the Eisteddfod on such evidence as this. We have no evidence when the MS. was sent to Dr. Williams, or where it was before it was sent to him. Then we have been told, or have had it insinuated, that every one who treats on the subject must have exactly the same plan, and every one who takes a view opposed to our Teutonic origin must discredit Gildas. The simplest answer to that is that Dr. Nicholas's Essay of 1865 was not on the same plan, and did not contain a criticism of Gildas. And then my learned friend Mr. Osborne Morgan says that every essay sent in must of necessity make out the English to be descended from the ancient Britons or it would have no chance of success. Why, that is the very opposite of the truth. The Welsh, it is true, believe themselves descendants of the ancient Britons, but they believe that of themselves in contradistinction to the English, and they pride themselves upon it in opposition to the "Saxon." In fact, the common expression "Dim Seisnig" is the true index to their real feelings.

And now I am glad to say I have arrived at the end of a case which has been most difficult and most painful to me; but I hope your Honour will see that there is an amount of cumulative evidence brought forward which admits of only one hypothesis except that of a miracle.

Mr. MORGAN, having the right of reply on the second erasure, said: My explanation of it is that the word erased is neither "Psychological" nor "Psychical" but "Physiological." The fact is my client's book shows in many places that he has a most imperfect knowledge of Greek, and I believe he did not know how to spell the word "Physiological." It seems to me that he

left out the *h*, and when he discovered his mistake he was so much ashamed of it that he tried to conceal what he had written. That I believe to be the true explanation.

Mr. GROVE said, he would not controvert his learned friend's opinion of Dr. Nicholas's attainments in Greek or English, but he believed his Honour would see that the word erased was not "physiological", but "psychical", or if not that, "psychological", and either of the two would serve his purpose.

The VICE-CHANCELLOR said, that so many important issues were involved that he should reserve his judgment until after the vacation.

Judgment in the cause was given on May 24th. The Court, as before, was crowded with literary and scientific men, and the most profound silence was maintained whilst his Honour, after stating the object of the suit, pronounced judgment as follows :

"The plaintiff says in substance, 'I wrote my book in support of a theory that the English are not, as generally supposed, mainly and substantially of Anglo-Saxon or Teutonic race ; but that, on the contrary, they are plainly and substantially of the old Celtic race,—the same people which possessed this land before the invasion of the Romans. I proceeded,' he says, 'to consider the subject under the heads of—1. The Historical Evidence ; 2. the Philological Evidence ; 3. the Evidence of Physical Characteristics ; 4. The Evidence of Psychological Characteristics.' The defendant has pursued in the third part, which occupies by far the greater portion of his book, precisely the same plan, with this difference, that he has added a chapter on English law ; that he has made a separate chapter of the evidence of topographical and personal names ; and that for the word 'psychical' he has used 'mental and moral.' The plaintiff says, 'that plan, which is in substance identical with mine, is copied from mine.' He further says, 'It was necessary to my argument to get rid of a good deal of what had been taught us as history of the Anglo-Saxon invasion, and I accordingly proceeded to show that the stories of Hengist and Horsa, of Vortigern and Vortimer, of the complete expulsion of the British race by the Saxon invaders, were mythical. In the investigation of that subject, I traced the whole of what has passed for history to Gildas, and I proceeded to inquire to what extent, according to the canons of modern historical criticism, reliance could be placed on the narrative of Gildas, and I came to the conclusion, on several grounds, that the narrative is wholly untrustworthy. In the defendant's book, I find that he adopts exactly the same course of argument, the early history treated as of the same legendary character. I find it traced to Gildas as the sole foundation for it. I find the authority of Gildas then tested by the same canons, and the same conclusion which I had arrived at also reproduced, and on the same, or substantially the same, grounds. It is not only the logic

which is the same, but the rhetoric shows most singular coincidences.' (His Honour here referred to passages from the works of plaintiff and defendant.) The plaintiff further says, 'I took especial pains with respect to certain physical characteristics, the colour of the hair and the form of the skull. I said that there was a popular theory starting with two assumptions:—1. That the Anglo-Saxons were a fair-haired, red-haired, or flaxen-haired people: 2. That the English are a fair-haired, red-haired or flaxen-haired people. I proceeded to demolish both these assumptions. The defendant has done the same. As to the second assumption, I proceeded to give the results of my personal examination of 4,848 heads in London; and proceeded further to show, from the population abstracts, that London might be considered a fair representative of the whole of England; that it is peopled not exclusively by Londoners, but by natives of all parts of the country. I find,' the plaintiff says, 'in the defendant's book a similar statement of identical results of personal investigation; and, what is very extraordinary, I find that though the defendant's results are given as arrived at both in London and the north of England,—6,000 in the one, and 5,000 in the other,—he, too, proceeds to show, and to show from the population abstracts, that the population of London is drawn from all parts of the island. I proceeded,' the plaintiff says, 'to ascertain what was said by ancient authors, and with what qualifications these statements were to be received as to the hair, colour, eyes, and complexion, of the ancient inhabitants of these islands, the Gauls, and the ancient Germans. The defendant has referred to the same descriptions, and made the same qualifications. For example, I pointed out that when Tacitus and other writers asserted that all the Germans had blue eyes and *rutilæ comæ*, it was to be noted that the Greeks and Romans were generally dark-haired, and may have regarded fair hair as a rare and great beauty, and may have been struck by a proportion of light hair greatly in excess of that which they found among themselves. Again, having premised that the passages in which the Gauls or Celts are described have been carefully collected by Prichard, I made a comment on the passage quoted by Prichard from Livy, that the expression was '*rutilatæ comæ*', and not '*rutilæ comæ*', 'reddened,' not 'red'. Having come to the conclusion that the Gauls were in the habit of dyeing their hair of a lighter hue, I made a passing reference to the alleged custom, now prevalent in France and England, of dyeing the hair red. The defendant has made the same fashion the subject of a rhetorical paragraph.'"

His Honour, after mentioning other charges made by the plaintiff against the defendant of having adopted his results without inde-

pendent investigation, especially in reference to the argument derived from a comparison of skulls, proceeded as follows :—

“ These are some, and some only, of the points to which the plaintiff’s counsel has drawn my attention. I have read both the books carefully in the parts complained of, and if the matter rested on a comparison of the two works, I could have no doubt whatever that the defendant’s work was, in these parts, a palpable crib from the plaintiff’s, transposed, altered, and added to,—to use the words of Lord Strangford’s award, ‘ essentially, indeed typically, second-hand, run off easily from the pen by a well-trained writer’,—a writer, I would add, skilful in appropriating the labours of another, and in disguising, by literary artifices, the appropriation.

“ But the defendant has pledged his oath to this, that his work is an independent work, written substantially before he had seen the plaintiff’s work, and that the resemblances are due to the nature of the subject,—to the object, which was common to both, of establishing for the ancient British a large share in the production of the great British nation of the present day,—to the obvious nature of the topics which such an object would suggest to any persons who had followed the course of modern historical criticism, and of ethnological and anthropological research and speculation, and the like obviousness of the authorities which such persons would refer to and quote. His answer contains the following passage :—

“ I say that the MS. from which my said book was printed, with the exception of appendices A, B, and C, which I afterwards inserted at the suggestion of Professor Max Müller, and of the index, and of some additional sentences and notes, principally suggested by Professor Max Müller and Dr. Rowland Williams, is *verbatim* the same MS. as that which I submitted for competition at the Eisteddfod in 1866, some months before I had ever seen or heard of the publication of the plaintiff’s work’, etc.”

His Honour proceeded :—“ The defendant has been examined and cross-examined before me at considerable length. He adheres to his statement in the answer, with one most notable exception. He now states that the whole chapter about Gildas was written, or as he calls it, re-written, after he had seen the plaintiff’s book, and after the MS. had been submitted to Professor Max Müller and Dr. Rowland Williams, and he, not an illiterate man, but an author accustomed to test the weight of historic texts, can give no further explanation of the deliberate and emphatic statement in paragraph 18 (the passage quoted from the answer) than that it is stronger than his instructions to his solicitor went. It has been pressed on me that I cannot decide against the positive oath of the defendant without convicting him of

wilful and corrupt perjury. I have had occasion more than once to say that this is not a criminal court ; that I am trying no one for any crime ; I am here bound by my own judicial oath to well and truly try the issue joined between the parties, and a true verdict give according to the evidence ; that is to say, according as I, weighing all the evidence by all the lights I can get, and as best I may, find the testimony credible or incredible, trustworthy or the reverse. The law which admitted the testimony of the parties, and of interested persons, was passed in full reliance on the judges and on the juries that they would carefully scrutinise such testimony, and would give it such weight as it deserved, and no more, or no weight at all. Is the result of the defendant's examination, or cross-examination, such as to enable me to place reliance on his story ?

“ To begin with, I have read through carefully the whole of the notes marked A and B, which were the materials for his first essay, and I am satisfied that he had not, at the time he wrote them, the remotest idea of that which is now found in the parts of his book complained of. To the author of A and B the common school histories of England were genuine history. Hengist and Horsa, Vortimer, and Vortigern were historic persons ; there is no trace whatever of the sceptical criticism which will have it that the whole of that history, fit only for the nursery, is to be carried back to Gildas only, and that Gildas, if not himself a mythical or shadowy personage, is a historic witness wholly untrustworthy. Indeed, the author was so little versed in the subject, that he talks of Gildas copying Bede, and putting in darker colours. There is no trace whatever in these notes of the examination of the ancient authorities as to hair and complexion of Britons, Gauls, and Germans, and of the numbering of the colours and shades of hair of the present people of the country. There is no trace whatever in those notes of the examination of the evidence afforded by ancient skulls, and of the comparison between that evidence and the results of a careful examination of the existing types of modern heads, English and German. The plaintiff says, ‘ If you did not take all this from my book, tell me where you took it from. Where are the materials from which you elaborated it ? ’ The defendant is unable to say when or where he gathered the materials, or when or where, indeed, he wrote any part of his present essay. The collection of materials for a genuine literary work is a thing of time and labour. You cannot walk by instinct to the proper shelf of a library, take down the right book, open it at the right page, and hit on the right passage, and just the book, the page, and the passage, which somebody else has found before you. The defendant has not a single rough note to produce, no trace of his quarrying in the British Museum, or

any other like quarry, from which the stones of the literary edifice were to be built up. His Honour then referred to defendant's diary from February, 1866, up to July 2, when the prize essay was sent in, and observed,—It is certainly very singular that an author should not be able to give a single place or time when or where he consulted a high authority, and that he should not be able to produce a single original note, extract, or quotation. Then there were some special matters on which he was especially pressed :—‘ You have quoted Retzius, where did you find him ? ‘ I cannot say.’ ‘ You have quoted Georges Pouchet, *Pluralité des Races Humaines*, Paris, 8vo, 1864), where did you find him ? ‘ I cannot say.’ It is to be observed that these books are not in the British Museum. Again, he was asked about the public meetings at which it is stated in the book that 10,000 complexions had been marked for the purpose of this essay, with the detailed figures of the results obtained, ‘ Can you produce the times and places of these meetings ? ‘ He is again unable to fix time and place. I have been, therefore, obliged to arrive at the conclusion that the account which the defendant has given of his composition of his work, in the matters complained of, is not probable, is not credible, is not trustworthy ; and the result of his answer, his examination, and his cross-examination, on my mind, so far from displacing, has confirmed the conclusion produced by the internal evidence and the comparison of the two works.

“ This conclusion, however, is not sufficient to dispose of the case. Plagiarism does not necessarily amount to a legal invasion of copyright. A man publishing a work gives it to the world, and, so far as it adds to the world's knowledge, adds to the materials which any other author has a right to use, and may even be bound not to neglect. The question, then, is between a legitimate and a piratical use of an author's work. In considering this I have not been unmindful of the small comparative extent of literary composition which is traceable from the one to the other ; I have not been unmindful that there was some not immaterial exercise of literary labour and skill in the transfusion and transposition which I have held to have been made, and I have endeavoured to guard myself against any prejudices derived from my hostile conclusions against the defendant which I have stated. I have considered it as if the defendant had openly borrowed from the plaintiff's book, and had candidly acknowledged the source. And I think there is a good deal which he might have done, so doing it. There is no monopoly in the main theory of the plaintiff, or in the theories and speculations by which he has supported it, nor even in the use of the published results of his own observations. But the plaintiff has a right to this—that no one is to be permitted, whether

with or without acknowledgment, to take a material and substantial portion of his work, of his argument, his illustrations, his authorities, for the purpose of making or improving a rival publication. That the part taken in this case is material and is substantial there is no better evidence than the defendant's own circular inviting subscriptions.

"The plaintiff, therefore, has in my judgment, made out his case, and he is entitled to an injunction to restrain the publication of the book in its present state, or of any book containing the 7th section of chapter 1, part III, or section 1 of chapter 5, of part III, and an order for the cancellation of those parts. He is entitled to his costs of the suit, and to an account and payment of his damages. I stated at the outset that my view of the damages in cases of literary piracy is that the defendant is to account for every copy of his book sold as if it had been a copy of the plaintiff's, and to pay the plaintiff the profit which he would have received from the sale of so many additional copies, and I adhere to that mode of assessment."

MUSIC IN RACE.*

IF there is anything to cheer the student of anthropology it is the daily growing influence his science exerts on other and often on very distant fields of inquiry as soon as that inquiry begins to assume a really scientific character. Of the many instances thereof which have lately come under our notice one is too significant to be entirely omitted from this *Review*, although we are unable, from want of space, to give of it so full an account as it in some respects deserves.

Whilst the Anthropological Society of London has been discussing about the connection between race and religion, a very fierce dispute was carried on amongst the musicians and critics of Germany about the Jewish element in modern music. Of course, the subject is eminently one which falls to the domain of anthropology, and nobody but a student of the science of man will be entitled to speak with

*¹ *Das Judenthum in der Music*. Von Richard Wagner. Leipzig: den J. J. Weber, 1869.

² Wilhelm Lübecke und Eduard Hanslick über Richard Wagner. Berlin: Louis Gerschel, 1869.

³ Offnes billet-doux, etc., an Herrn Richard Wagner. Von E. M. Oettinger. Dresden: L. Wolf, 1869.

⁴ *Das Judenthum und Richard Wagner*. Berlin: W. Adolf and Co., 1869.

⁵ *Histoire du Lied ou la Chanson Populaire en Allemagne*, par Edouard Schuré. Paris: Librairie Internationale, 1868.

authority in such a discussion. As in religious and political questions, when race has once been admitted, it becomes a factor of the highest importance, so now in a musical controversy ; the science of race is therefore, we repeat it, quite indispensable to form a judgment on many subjects apparently distant and far removed from it ; and to its opponents, who threaten the very existence of such a science, the poet has said,—

“ Ils disent qu'elle est morte,
Moi, je la crois vivante.”

Richard Wagner has played for a quarter of a century so prominent a part in the music and literature of Germany, that we cannot but be pleased to see him enter on an ethnological inquiry and give us his views about the influence of race on music and art, language and literature. Unfortunately for him, he has mixed up personal matter to such an extent with his theory, that it impairs very seriously the value of his pamphlet. On the other hand, there is in everyone of the numerous replies which have appeared to it a violent if not offensive tone of invective utterly at variance with the calmness and equanimity which ought to characterise the treatment of scientific topics ; the cause of it is no doubt an indignation not altogether unnatural at Wagner's undisguised and unmeasured attacks on Jewish composers and writers of eminence whose works have endeared them to their contemporaries. Of course, we are far, very far from anything like a settlement of the race question or any part of it ; but so much is certain, the time has gone by for simply ignoring the element of race in human affairs ; it is a difficulty we must grapple with ; a know-nothing-policy will not solve it. We, consequently, cannot agree with those who blame and vilify Wagner for having drawn attention to a subject of importance, however much we may dissent from his views and object to the language in which they are couched. The arrogant and self-opinionated style of his former writings has always been a source of complaint to his friends, and a weapon of ridicule in the hands of his enemies ; still the book under our notice is in its personal parts far surpassing the faults observed in his previous works, many passages bordering on the ludicrous if not actually so. To separate from the ever-intruding self of the author what bears on the question of race, and is perhaps valuable, requires an effort in which only an enthusiastic student of science will be successful ; his opponents, however, have replied more fully to the personal than to the theoretical portions of the essay ; we can refer to the latter only.

Wagner maintains that up to the present day the Jews are strangers in the countries in which they are born ; that they speak and write their languages as foreigners do ; that the national element in art

(including poetry, music, &c.) being essential, the Jews cannot exercise any wholesome influence in the progress and development of art and literature: no attempt is made to prove these sweeping assertions; instead of a proof, we merely meet with an appeal to our senses and feelings. But as Tennyson says,—

“They are dangerous guides the feelings,”

and in this instance we are disposed to agree with him. Wagner's adversaries parade a host of well known names to substantiate the claims of contemporary Jews to eminence in literature and art. Still we do not find any exhaustive answer to some of Wagner's remarks; the creative genius of true poetry appears no doubt in an enfeebled form in the modern Hebrew, and the only apparent exception of which we are aware is the case of Heinrich Heine, whose father was a Jew, whilst his mother, if we may judge by a sonnet addressed to her, sprung from a noble family of German extraction. The subject is too wide to be more than alluded to in the present notice, and we must make haste to come to the musical part of the controversy.

It is, we believe, an established opinion that music is the branch of art in which the Jewish element is most conspicuous and successful. Wagner who in his former writings has been exerting himself to detract from the glory which by his admiring countrymen is shed round the heroes of their favourite art, Gluck, Mozart, and Beethoven, who were not of Jewish origin, now undertakes to annihilate the fame of Mendelssohn and Meyerbeer, who undoubtedly were Jews; but instead of sound and impartial criticism of their works we are treated to an argument of the impossibility of Jews composing anything of value at all.

It is stated that if you have no thoughts of your own to express in music you may still go on composing a vast number of works by reproducing in a varied form and manner the thoughts of others. According to Wagner the Jews excel in this particular, and composers of another nationality if influenced by them or by the prevailing (Jewish) taste of the period are apt to do the same. It does now-a-days, he tells us, not matter to the public or the critics, what is said in music, but how it is said. This low estimate of our concerts and operas and their frequenters strangely contrasts with the notion that never at any period was good and genuine music more cultivated and cherished than it is now. Wagner's enemies, therefore, retort that he only becomes a *laudator temporis acti*, because his own pretensions as a leading composer are at present very little appreciated. Another assertion, equally startling, is that Jews are incapable of being good actors or singers or performers on the stage; amongst the causes alleged for this defect we find an allusion, not sufficiently worked out,

to a racial peculiarity in uttering sounds, and to absence of general artistic ability in the modern Jew originating in his selfishness and his unsympathetic and dispassionate mental organisation. Unfortunately Wagner hardly ever condescends to particulars ; we must therefore take a great deal more upon trust than we feel disposed to do, and there can be no doubt that his opponents have mostly the best of the argument when they bring forward notorious cases in which the successes of Jews upset the theories advocated by Wagner.

Still that does not go to the root of the matter. There may be some important truth underlying a theory which, unless confined to proper limits, appears to be in contradiction to daily observed facts ; this is but of too frequent occurrence with writers who do not proceed systematically with their subjects, and certainly the absence of all scientific method and scientific spirit in the essay of Wagner and in the replies it has called forth is sincerely to be regretted. We can look upon them only as material not entirely valueless to a future enquirer into the place which the Jews occupy in nature ; a subject of considerable interest to the anthropologist, one which has often been touched upon incidentally by authors of all kinds and all nations, but never yet treated comprehensively, impartially, and from a scientific point of view.

We cannot conclude this notice without warmly recommending Monsieur Schur's *Histoire du Lied* to all students of the subject ; it treats in a masterly manner a subject which is not entirely disconnected with the subject-matter of the Wagner-controversy, although published without reference to the latter, and in fact some weeks before it commenced. To all anthropologists interested in folk-lore, the character of the Germans, or music, this history of German song will be a welcome gift, all the more so as it is written in an easy and elegant style not at all inconsistent with learned research and laborious study.

WALLACE'S MALAY ARCHIPELAGO.*

MR. WALLACE is well known as an accomplished naturalist and an indefatigable traveller, and in the work before us we have the fruits of his scientific labour during a seven years' residence in the Malay Archipelago. During this period, Mr. Wallace travelled upwards of fourteen thousand miles, making sixty or seventy separate journeys within the archipelago, with no despicable result, if we may judge from the number of specimens in natural history he obtained, embracing many new species. The details he gives of animal life in the far east are full of interest, his account of the bird of Paradise being especially interesting to the naturalist. Our readers, as anthropologists, will, however, take a keener interest in the particulars our author gives relative to the great man-like ape of Borneo,—the orang-utan, or *mias*, as it is called by the aborigines. Any details of the habits of this animal must be acceptable, as bearing on the vexed question of man's relationship to the ape tribe. Mr. Wallace was so fortunate as to obtain a young female *mias* alive and unhurt, and although it was extremely young, he was able to keep it alive for nearly three months. During this period he had much opportunity of observing its habits, and it is curious to notice how closely they resembled those of a human baby. This was the more noticeable, as a young hare-lip monkey (*Macacus cynomolgus*), of apparently about the same age as the *mias*, was much more active than the latter, and displayed a much greater intelligence. Thus, "the *mias*, like a very young baby, lying on its back quite helpless, and rolling lazily from side to side, stretching out all four hands into the air, wishing to grasp something, but hardly able to guide its fingers to any definite object; and when dissatisfied, opening wide its almost toothless mouth, and expressing its wants by a most infantine scream. The little monkey, on the other hand, in constant motion; running and jumping about wherever it pleased, examining everything around it, seizing hold of the smallest objects with the greatest precision, balancing itself on the edge of the box or running up a post, and helping itself to anything eatable that came in its way." The continual effort to grasp something with the hands, observed of the *mias*, and the satisfaction exhibited when it obtained possession of a stick or a rag, are remarkably babylike. Hardly so the pleasure it took in being placed "under the pump" and afterwards

* *The Malay Archipelago*, by Alfred Russel Wallace. London: Macmillan and Co., 1869.

rubbed dry, although it is not fair to judge on this point between a young ape and the hairless, sensitive infant of civilisation. It might be different with the Aïno, if we may trust the Japanese reports of the hairiness of its parents, or even with the baby-swimmer of Polynesia. The mias, at least, as our author tells us, seemed to be perfectly happy under the process, "lying quite still, with its arms and legs stretched out, while I thoroughly brushed the long hair of its back and arms."

The way in which it expressed approval or dislike of its food was amusing, and much akin to that usually supposed to be characteristic of human infancy. "Thus," says Mr. Wallace, "the poor little thing would lick its lips, draw in its cheeks, and turn up its eyes with an expression of the most supreme satisfaction when it had a mouthful particularly to its taste. On the other hand, when its food was not sufficiently sweet or palatable, it would turn the mouthful about with its tongue for a moment as if trying to extract what flavour there was, and then push it all out between its lips. If the same food was continued, it would set up a scream and kick about violently, exactly like a baby in a passion." This screaming was its usual plan of attracting attention if it thought itself neglected, although it showed its superiority over the human infant by becoming quiet after awhile if its cries were not attended to, only, however, to renew them again immediately it heard anyone's footstep. Unfortunately, Mr. Wallace was not able to keep this interesting little animal longer than the period we have named; but even in its illness it presented phenomena such as those exhibited by man. It had an attack of diarrhoea, of which, however, it was cured by a dose of castor-oil, but it soon afterwards presented symptoms which "were exactly those of intermittent fever, accompanied by watery swellings on the feet and head." Of this disease it died, much it may be well imagined to our author's regret.

As to the habits of the adult mias, Mr. Wallace gives us some interesting information. According to him, the representations of its walking with a stick are entirely imaginary, and he says that "the orang never walks erect unless when using its hands to support itself by branches overhead, or when attacked." Indeed, it appears seldom to quit the trees, along the branches of which it walks "almost as quickly as a person can run through the forest beneath." The mias appears to be a remarkably unsocial animal. Mr. Wallace says he never saw two full-grown ones together, although both males and females are occasionally seen with half-grown young ones, or three or four young ones may be in company. The liking of the mias for unripe, sour fruits is remarkable, but its most curious habit is that of

making a nest for use at night. Mr. Wallace observed this in a male animal he had wounded, and which immediately sought a place of safety at the top of an immense tree. "It was very interesting," says our author, "to see how well he had chosen his place, and how rapidly he stretched out his unwounded arm in every direction, breaking off good sized boughs with the greatest ease, and laying them back across each other, so that, in a few minutes, he had formed a compact mass of foliage which entirely concealed him from our sight. Mr. Wallace records that on three occasions he observed the mias to throw down branches when irritated, although he appears to think that this habit is confined to the female animal; probably dictated by a desire to protect her young.

The limited range within which the large man-like apes are met with is very remarkable. There can be little doubt that, in the Malayan Archipelago, the mias is restricted to the islands of Sumatra and Borneo, which, as our author observes, are almost the last inhabited by the higher mammalia. It may be, perhaps, that the reason why this animal is confined to certain districts of those islands will, in some measure, also explain its absence from the other islands. Thus, in Borneo it is found only "when the country is low-level and swampy, and at the same time covered with a lofty virgin forest," which appears to be necessary to the "comfortable existence" of the mias. It disappears when the country "becomes slightly elevated, and the soil dry." Mr. Wallace refers to several exaggerated statements as to the size of the mias. One, which was described by the sailors who killed it as being seven feet high, is found, on measuring its skin, to be only about four feet in height. The largest of nine adult males measured by our author himself, stood only four feet two inches when fully erect, the extent of the outstretched arms of the whole series varying "from seven feet two inches to seven feet eight inches, and the width of the face from ten inches to thirteen inches and a half." The mias is more remarkable for strength than for height; and Mr. Wallace was told by the natives, that of all the animals of the forest only the crocodile and the python dare attack it: even these are beaten in the conflict which ensues.

Although Mr. Wallace during his residence in the Malayan Archipelago was chiefly engaged in the practical study of natural history, yet so good an observer could not help glean much information respecting the races of man with whom he came in contact. The anthropological details he gives are of great value, although, perhaps, they are somewhat directed towards the support of a particular theory. Mr. Wallace says that "before he had arrived at the conviction that the eastern and western halves of the Archipelago belonged to distinct

primary regions of the earth, I had been led to group the natives of the Archipelago under two decidedly distinct races." When, therefore, he found that there was this separation between the eastern and western halves of the archipelago, our author would naturally look for the marks of distinction between the races of man inhabiting them, and it may be that he did not sufficiently notice those which had the opposite tendency. We are quite willing, however, to accept Mr. Wallace's data, and to try the justice of his conclusions by the evidence furnished by them. Mr. Earle some time ago pointed out "that a shallow sea connected the great islands of Sumatra, Java, and Borneo with the Asiatic continent, with which their natural productions generally agreed; while a similar shallow sea connected New Guinea and some of the adjacent islands to Australia, all being characterised by the presence of marsupials." The truth of this important statement is now confirmed by Mr. Wallace, and the details he gives in its support and the conclusions arrived at from them form the most valuable part of the work before us. It may now be taken as settled that there is a strong contrast between the natural productions of the eastern and western halves of the area comprised in the Malayan Archipelago; the especial importance of this fact to anthropologists being that there is apparently an analogous contrast between the human races inhabiting this area. The line of separation, however, owing to the migratory habits of the Malays, being somewhat eastward of that which divides the Indo-Malayan and Austro-Malayan geographical regions. According to Mr. Wallace, this line is, however, clearly traceable, and it is marked in the valuable physical map in illustration of these conclusions given in the first volume of his work. On the subject of the distribution of the human race in the Malayan Archipelago, our author says, "I believe that all the peoples of the various islands can be grouped either with the Malays or the Papuans; and that these two have no traceable affinity to each other. I believe, further, that all the races east of the line I have drawn have more affinity for each other than they have for any of the races west of that line; that, in fact, the Asiatic races include the Malays, and all have a continental origin, while the Pacific races, including all to the east of the former (except, perhaps, some in the north Pacific) are derived, not from any existing continent, but from lands which now exist or have recently existed in the Pacific Ocean." Mr. Wallace is undoubtedly correct when he says that in this conclusion he differs from most other writers on the subject. He is not singular in ascribing an Asiatic affinity to the Malays—a question which is, however, entirely distinct from that of their continental origin, as the dialects of their language are placed by philologists in the southern division of the

Turanian family of languages, and this conclusion is confirmed by the researches of anthropologists. Nor is Mr. Wallace alone in supposing the Papuans, with whom he classes the Polynesian islanders, to have had a local origin. This has long been a favourite idea, of French writers more especially, although we had thought it to be now sufficiently established that the ancestors of the present inhabitants of the Pacific islands reached them by oceanic migration from the Malayan archipelago. This would not, however, materially affect our author's position if the sacred island of the Polynesians can, as Mr. Williams suggests, be identified with *Bouru*, an island adjoining Ceram to the west of and within the Austro-Malayan region, although at present occupied by both Malays and Papuans. The important conclusion in which Mr. Wallace is almost singular is that these peoples belong to totally distinct races. He says, "Observation soon showed me that Malays and Papuans differed radically in every physical, mental, and moral character." If this be so, much labour has been wasted by other writers, whose chief efforts have been directed to ascertaining whether the Malays or the Papuans are the most primitive people, nearly all of them agreeing that one was derived from the other, although differing as to the actual relation between them. If, as Mr. Wallace supposes, these races have had different places of origin, there can be no question of priority, and we will now shortly consider the data furnished in support of the conclusion that they belong to totally distinct branches of the human family.

When Mr. Wallace visited the Ké Islands and there saw the Papuans at home, he was at once confirmed in the opinion he had already formed that the Papuans and the Malays belong to "two of the most distinct and strongly marked races that the earth contains." "Had I been blind," he says, "I could have been certain that these islanders were not Malays. The loud, rapid, eager tones, the incessant motion, the intense vital activity manifested in speech and action, are the very antipodes of the quiet, unimpulsive unanimated Malay. These Ké men came up singing and shouting, dipping their paddles deep in the water and throwing up clouds of spray; as they approached nearer they stood up in their canoes and increased their noise and gesticulations; and on coming alongside, without asking leave and without a moment's hesitation, the greater part of them scrambled up on our deck just as if they were come to take possession of a captured vessel. Then commenced a scene of indescribable confusion. These forty black, naked, mop-headed savages seemed intoxicated with joy and excitement. Not one of them could remain still for a moment. Every individual of our crew was in turn surrounded and examined, asked for tobacco or arrack, grinned at and deserted for another, all talked at once,

and our captain was regularly mobbed by the chief men, who wanted to be employed to tow us in, and who begged vociferously to be paid in advance. A few presents of tobacco made their eyes glisten; they would express their satisfaction by grins and shouts, by rolling on deck, or by a headlong leap overboard. Schoolboys on an unexpected holiday, Irishmen at a fair, or midshipmen on shore, would give a faint idea of the exuberant animal enjoyment of these people. Under similar circumstances Malays *could* not behave as these Papuans did. If they came on board a vessel (after asking permission) not a word would be at first spoken, except a few compliments, and only after some time, and very cautiously, would any approach be made to business. One would speak at a time, with a low voice and great deliberation, and the mode of making a bargain would be by quietly refusing all your offers, or even going away without saying another word about the matter, unless you advanced your price to what they were willing to accept." Well might the Malayan crew be scandalised by the boisterous conduct of their Papuan visitors. Mr. Wallace relies more on the diversity of moral features to prove difference of race than on physical peculiarities, although he declares that these are strongly marked. He says; "The Malay face is of the Mongolian type, broad and somewhat flat. The brows are depressed, the mouth wide, but not projecting, and the nose small and well formed but for the great dilatation of the nostrils. The face is smooth, and rarely develops the trace of a beard; the hair black, coarse and perfectly straight. The Papuan, on the other hand, has a face which we may say is compressed and projecting. The brows are protuberant and overhanging, the mouth large and prominent, while the nose is very large, the apex elongated downwards, the ridge thick, and the nostrils large. It is an obtrusive and remarkable feature in the countenance, the very reverse of what obtains in the Malay face. The twisted beard and frizzly hair," to which should be added the "sooty blackness" of the skin, "complete this remarkable contrast."

The contrast drawn by Mr. Wallace between these races is certainly a remarkable one, and if it can be established that the peculiarities ascribed to each are characteristic of all the peoples belonging to the particular stock, we think our author's opinion, that there is as much moral and physical difference between the Malayan and Papuan races "as between the red Indians of South America and the negroes of Guinea on the opposite side of the Atlantic" (although, perhaps, the statement is somewhat exaggerated), is substantially justified. But are these peculiarities so constant and so strongly marked as our author supposes? Now, after comparing the portrait of the young dyak of Borneo given in the work before us, with the various Polyne-

sian faces depicted in the Rev. J. G. Wood's *Natural History of Man*, and also with that of the Javan chief, we certainly think not. The Javan chief and the dyak appear to us to differ in appearance much more than do the latter and some of the Polynesian islanders. The Javan has a Mongolic cast of countenance, which the Dyak clearly does *not possess*, although we do not deny that it is found among the Dyak peoples of Borneo. This difference in feature has its counterpart in that of mental phenomena. Thus Mr. Wallace says: "I am inclined to rank the Dyaks above the Malays in mental capacity, while in moral character they are undoubtedly superior to them. . . They are more lively, more talkative, less secretive, and less suspicious than the Malay, and are therefore pleasanter companions. The Malay boys have little inclination for active sports and games, which form quite a feature in the life of the Dyak youths, who, besides outdoor games of skill and strength, possess a variety of indoor amusements. . . . These amusements indicate a capacity of civilisation, an aptitude to enjoy other than mere sensual pleasures, which might be taken advantage of to elevate the whole intellectual social life." Mr. Wallace gives other interesting details of the amusements of the young Dyaks, especially of a concert without musical instruments, which show that they are far from being of the taciturn disposition ascribed to the Malays. Compare this description with that of the Aru Islanders whom Mr. Wallace met with at Dobbo. He says "The natives here, even those who seem to be of pure Papuan race, were much more reserved and taciturn than those of Ké. This is possibly because I only saw them as yet among strangers and in small parties. One must see the savage at home to know what he really is. Even here, however, the Papuan character sometimes breaks out. Little boys sing cheerfully as they walk along, or talk aloud to themselves (quite a negro characteristic); and, try all they can, the men cannot conceal their emotions in the true Malay fashion." It is true that the same Papuans, if they had not been in contact with another race, might have been equally loud and impulsive in their habits. This is, however, all the more important in relation to the question at issue. It shows the influence of constraint and it leads us to believe that the *reserve* which Mr. Wallace treats as so marked a peculiarity of the Malay character is almost wholly the result of a similar state of circumstances, much intensified. Mr. Wallace when explaining the fact that, notwithstanding their greater intelligence, the Papuans have not yet made any such advance towards civilisation as that exhibited by the Malays, says; "It must be remembered, however, that for centuries the Malays have been influenced by Hindoo, Chinese, and Arabic immigration, whereas the Papuan race has only been subjected to the very partial and local in-

fluence of Malay traders." The true Malays, indeed, present every evidence of having been for a very long period subject to a tyranny which while developing certain faculties has crushed out almost the entire energy of life, an observation which, in effect, Sir Stamford Raffles long since made of the Javans. We see a similar phenomenon to some extent among the Chinese, and much more so among the kindred peoples of Siam and Burmah, whose customs it cannot be doubted present a very close resemblance to those of the civilised Malays. Where this influence is weaker, as in the case of the Dyaks, we see a nearer approach in mental characteristics to the Papuans, whose exuberance of manner is caused by the possession of a vital energy not yet depressed by the tyranny of authority and by the influence of a civilisation he is little fitted to receive. It will be seen from this that we do not attach the importance our author does to the mental peculiarities of the Malays.

It will be said, however, that their physical peculiarities at least are sufficient to completely separate the Malayan and the Papuan races. We are not, however, by any means convinced of this. The influence of the mind over the body is not yet properly understood, and when this influence is added to that of food and occupation, it is by no means clear that the physical appearance may not undergo as great a change as the mental phenomena themselves. We have seen that the cultivated Javan much more nearly approaches the Chinese Mongol than does the almost uncivilized Dyak. In relation to this question we would notice certain peoples who appear to possess both Malayan and Papuan characteristics naturally, and not as the result of a mixture of these races. Such are the *Alfuros*, or indigenes of Gilolo, whom Mr. Wallace describes as "an industrious and enterprising" race, and of whom he says:—"These people are quite distinct from the Malays, and almost equally so from the Papuans." In another place he says:—"Their stature and their features, as well as their disposition and habits, are almost the same as those of the Papuans; their hair is semi-Papuan, neither straight, smooth, and glossy, like all true Malays, nor so frizzly and woolly as the perfect Papuan type, but always crisp, waved, and rough, such as often occurs among the true Papuans, but never among the Malays. Their colour alone is often exactly that of the Malays, or even lighter." The indigenes of both Ceram and Bouru are very similar to the *Alfuros* of Gilolo, where in fact our author thinks he has found the exact boundary line between the Malay and Papuan races. Not the point of transition, however, for this Mr. Wallace declares does not exist, although he includes among the Papuans the light and dark peoples of Polynesia. On this subject he says, "I believe that the numerous

intermediate forms that occur among the countless islands of the Pacific, are not merely the result of a mixture of these races, but are to some extent truly intermediate or transitional, and that the brown and the black, the Papuan, the natives of Gilolo and Ceram, the Fijian, the inhabitants of the Sandwich Islands and those of New Zealand, are all varying forms of one great Oceanic or Polynesian race." Mr. Wallace indeed suggests the possibility of a Malayan or Mangolic influence, at a date long since passed, in the production of the brown Polynesians. It can hardly have been the former, seeing that the Polynesians sometimes present that obliqueness of the eye so characteristic of the Mongol, and which our author tells us the Malays never possess. Nevertheless, however this may be decided, the Alfuros of Gilolo appear to be a pure race, making a certain approach towards the Malay type, and such seems to be the case with the people of Minahasa (part of Celebes), whom our author describes as differing much "from any other people in the Archipelago." Now, although we are inclined to agree with our author in his opinion that these tribes who make some approach to the Malay type are not transitional varieties, and that there is in fact a real difference between the Malayan and Papuan races, yet we much doubt whether this difference is of so "radical" a character as he asserts. It is not at all impossible, although one of these races has not originated from the other, yet that they may both have sprung from the same root. It is strange, considering the important position in relation to the great Austro-Malayan area held by Australia, that Mr. Wallace should say so little about its aboriginal inhabitants. This continent is closely connected with the Papuan region of the Malayan Archipelago, and according to our author's views, we ought to find as close an affinity between the indigenes of the several parts of this region as between their fauna and flora. This is hardly the case, however, since in the straight hair of the natives of Northern Australia (as depicted by Mr. Earle) and of many other parts of the continent, an approach is made to the Alfuros of Gilolo, if not still further to the Malays themselves. It is noteworthy, moreover, that an affinity has been found by several observers between the Australian aborigines and those of southern India, which of course must form part of the Asiatic area to which Mr. Wallace refers the origin of the Malayan race. We should have been glad if our author had told us whether these aboriginal tribes of southern India have any affinity with the "Negritos" of the Philippines or the "Semangs" of the Malay peninsula. He says the latter "agree very closely in physical characteristics with each other, and with the Andaman islanders, while they differ in a marked manner from every Papuan race," although they are a quite distinct race from the Malay.

Whether this continental negritic element will not be found to form a connecting link, through the aborigines of Australia, between the Malays and Papuans, is yet uncertain, but the peculiar position of the Andaman islanders would appear to point to this conclusion, there being undoubtedly an approach in these people to the aborigines of Tasmania, although by many writers they are classed with the Malays.

There is a very important phenomenon, to which little attention has as yet been drawn, and which may assist in settling this vexed question as to the relationship between the dark and light races of the Malayan Archipelago. We refer to the existence side by side, not merely in this locality but also at other points around the basin of the Indian Ocean, of peoples having a similar relationship to each other. Such are the Hottentots and the Kaffirs, the Hovas and the dark tribes of Madagascar, the light and the dark hill tribes of India. It is remarkable, moreover, that while all the dark tribes in these several localities have an evident affinity, the same may be said of the light tribes as well. Thus Mr. Wallace several times speaks of the "negro" characteristics of the Papuans, in which, if we substitute "African" for "negro," he agrees with many other observers. Again, reference has often been made to the Mongolic features of the Hovas and Hottentots, this character furnishing the chief ground of their supposed affinity with the Malays, which is confirmed by their habits and the inferiority of their intelligence in comparison with that of their dark neighbours. The Rev. William Ellis, however, was struck, not only with the *Polynesian* characteristics of the Hovas, but also with "the remarkably European cast of many of their countenances," a likeness which has been often noticed in the inhabitants of the South Sea Islands themselves. Thus, while on the one hand, the *Hovas* are said to resemble the Mongolic element of the Malayan race, on the other hand they are said to approach that of the Polynesian Papuans. We shall not be surprised if in Madagascar be found the key to the problem of the relationship of the races of the Malayan Archipelago. If the dark and light tribes of this great island are sprung from the same stock, and there is not at present the slightest evidence to the contrary, the same must be true of the dark and light races of the Archipelago. While, therefore, in the aborigines of Australia, we may perhaps have the most direct issue of the primitive stock from which these races have sprung, we see in the *Madacasses*, or in a cognate race which has long since disappeared, the secondary human centre from which both Malays and Papuans have branched off. It is possible that Mr. Wallace, although he asserts confidently that the Malays cannot have originated from the Papuans, or *vice versa*, may yet admit that

these distinct races may have sprung from a common stock at a very distant date. He, indeed, appears to believe in the former existence of a land connection of Celebes with Madagascar, and at an earlier period even with the African continent itself, and we see no reason why this now-submerged area should not be used to explain the present distribution of human races as well as to account for the peculiar affinities of the fauna and flora of various tropical regions.

According to this view we think it not at all difficult to understand how two races, apparently so distinct as the Malays and the Papuans, could have originated from a common stock, such as that of the darker tribes of Madagascar, who are directly connected with the one, and indirectly, through the Hovas, with the other. While Mr. Wallace allows that "the continued influence of physical conditions, and of natural selection," can have developed so great a difference as we often find between the dark Papuan tribes of the Austro-Malayan area and the fair tribes of Polynesia, he can hardly deny that similar influences, extending over a longer period, may have had the result we contend for. It is true that he says that nowhere so well as in the Malayan Archipelago "does the ancient doctrine—that differences or similarities in the various forms of life that inhabit different countries, are due to corresponding physical differences or similarities in the countries themselves—meet with so direct and palpable a contradiction." This, however, states merely half the question. The ultimate result depends on the state in which these forms were when first brought under varying physical conditions; and the length of time during which the new conditions have operated. Thus, if we imagine the southern hemisphere at the time when it presented vast continents, now submerged, to have been peopled by a homogeneous dark race; this race may, under later varying conditions of life, have given rise to several varieties, which, after the lapse of many ages, would show the differences we see now existing between the several branches of the Papuan stock and the dark peoples of the Asiatic and African continents. Again, there is nothing to prevent a still different series of geographical changes, giving rise to physical conditions which should originate an apparently quite distinct race, such as we see in the Hovas and the Malays, when compared with the darker tribes around them. We have an analogous case in the Semitic peoples, whose African affinities are gradually becoming recognised, and who present as great physical differences among themselves as do the dark and light tribes of Madagascar. In the hill-men, or *Arfaks*, of New Guinea we may perhaps see what the beginning of such a change would be. These people are described by Mr. Wallace as differing much in physical features:

"They are generally black, but some were brown like Malays. Their hair, though always more or less frizzly, was sometimes short and matted, instead of being long, loose, and woolly; and this seemed to be a constitutional difference, not the effect of care and cultivation." The tendency of our remarks is undoubtedly to derive all the races of man from a single primitive stock, but this accords, we believe, with Mr. Wallace's own expressed opinions. For this reason, also, we think he has spoken too strongly of the "radical" difference between the Malays and Papuans; and perhaps, after all, this is owing, in a measure, to a certain vagueness in his use of scientific words, which is to be deplored. For instance, our author speaks of the "races" of Polynesia belonging to the Papuan "race," and he adds that the Malays and Papuans cannot have sprung from the same "race." It would have been much better to use in these several cases the different terms, *peoples*, *race*, and *stock*. Again, our author speaks of the "negroes" of Africa, and he refers to Professor Huxley, as maintaining that "the Papuans are more closely allied to the negroes of Africa than to any other race." By "negro" is usually understood a native of Western Africa, to whom the Papuans do not bear nearly so much resemblance as they do to other African peoples. Probably, however, the real negro is not intended; and why not, if so, use a term from which the meaning would be clearly understood?

In his appendix Mr. Wallace gives us certain notes on the crania of the Malayan, Papuan, and African races. The conclusion he finds on the measurements derived from Dr. J. Barnard Davis, *Thesaurus Craniorum*, is that "the Australians have the smallest crania, the Polynesians the largest; the negroes, the Malays, and Papuans, not differing perceptibly in size." He adds, that "this accords very well with what we know of their mental activity and capacity for civilisation." The Australians, moreover, have not only the *longest* but also the *lowest* skulls; the negroes coming next to them in both these particulars, and the Malays having the shortest and the highest skulls; while the true Papuan skulls are longer than, and at the same time equal in height to, those of the Polynesian islanders. Although we think Professor Huxley is wrong in giving so little weight to characters derived from the skull in the classification of mankind; yet we can, on the whole, subscribe to Mr. Wallace's opinion, "that if we had a much more extensive series of crania the averages might furnish tolerably reliable race characters, although, owing to the large amount of individual variation, they would never be of any use in single examples, or even when moderate numbers only could be compared." So far as a reliable conclusion can be deduced from the data above referred to, we have the curious fact established that, while the race

which is the lowest in the scale of intelligence, the Australian, has the *longest* and *lowest* skull, the Malays, who have the shortest and highest skulls have not so great a cranial capacity; nor, according to Mr. Wallace's own account, have they so active an intellect as the Polynesians. How far this result is owing to an undue development of the anterior lobes of the brain we are not in a position to say, but such a condition would undoubtedly tend to lessen the quickness of mental operation. As to the bearing of these facts on the notion of the origin of the Malays and Papuans, and with them the other dark and light peoples of the tropics from a common stock, we think they may be used to support this conclusion. The nearest approach to the primitive stock we have already found in the Australians, whose cranial development is the lowest in the scale. Next to these come the dark tribes of the Papuans and negroes; then, in certain characters, the Polynesians; and, lastly, the Malays, the increase of whose skulls in height is quite sufficient to account for the correlative change in other physical characters presented by them, and for their mental peculiarities. This assertion may perhaps be disputed, but we are convinced of its truth, and that in the proper understanding of the correlation of the physical and mental characters, and in that of the brain, with the other organs of the physical structure, can the solution of the vexed question of the origination of races be found.

We have not space to refer to the vocabularies collected by Mr. Wallace, beyond saying that they present distinct verbal affinities with the Malagays, and with certain East African dialects. Nor can we dwell so fully as we could wish on several matters incidentally mentioned by our author, which show a primitive connexion between the Malays and the Polynesians on the one hand, and the Malays and the peoples of the African continent on the other, which has yet to be explained. Such are the amusements of the Dyak children. The "cat's cradle," which Mr. Wallace found the young Dyaks knew so much about, is equally well known to the Polynesian Islanders. Again, the bellows used by the people of Lambock are the same as those found not only throughout the Malayan Archipelago, but also in Madagascar, and, with little alteration, in most parts of the African continent. The custom of "somali," practised by the Timorese, is no doubt, as our author states, exactly equivalent to the Polynesian *tapu*, but it is not by any means unknown on the western side of the Indian Ocean. The disuse of the common fowl as an article of food, which probably has had a superstitious origin, is a wide-spread African custom, and it is curious to find that in various parts of the Malayan Archipelago, as in Africa, from the Congo to the Shire, and even to Senegambia, the village markets are held under the shade of the fig-tree. With these

remarks we must bring this notice to a close ; and, notwithstanding we have seen fit to criticise some of our author's conclusions, we welcome the work before us as a valuable contribution to anthropological scientific literature, and we recommend it to our readers, not only on this ground, but also as containing much other interesting matter relating to the Malay Archipelago and the productions of its numerous islands. The whole design of the work is much above that of an ordinary book of travels, and even in the absence of any very stirring incidents, it will amply repay the perusal, not merely of the scientific, but of the general reader.

BALDWIN ON HISTORIC ANTHROPOLOGY.*

MR. BALDWIN'S work is of considerable interest to the student of historic anthropology or of ethnology. The study of the traditions, mythologies, fragmentary records, and mouldering remains of the pre-historic ages proves that civilisation was more ancient than history. The Ethiopians or Cushites of Arabia have no history, but they had a civilisation of no mean order, and a commercial and maritime enterprise which induced and enabled them to colonize the ancient world. In the early traditions and literary records of the Greeks, Arabia is described as Ethiopia. The countries on the Upper Nile were called Ethiopia, because they were first colonies or dependent provinces of the more ancient kingdom of Ethiopia in what is now called Arabia. Mr. Forster, in his historical geography of the Old and New Testament, says, "it is matter of fact familiar to the learned reader that the names Ethiopia and Ethiopians are frequently substituted in our English version of the Old Testament, where the Hebrew preserves the proper name of Cush, and the name 'Cush,' when so applied in Scripture, belongs uniformly not to the African, but to the Asiatic Ethiopia or Arabia" (vol. i, p. 12).

Strabo, correcting a popular error of the same kind in his day, says: "If the moderns have confined the appellation Ethiopians to those only who dwell near Egypt, this must not be allowed to interfere with the meaning of the ancients." Professor Rawlinson informs us that the uniform voice of primitive antiquity spoke of the Ethiopians as a

* *Prehistoric Nations: or, Enquiries concerning some of the Great Peoples and Civilisations of Antiquity, and their probable relation to a still older civilisation of the Ethiopians or Cushites of Arabia.* By John D. Baldwin, M.A. London: Sampson Low, Son, and Marston, Fleet Street, 1869.

single race dwelling on the shores of the Southern Ocean, and from India to the Pillars of Hercules. It is of this ancient and interesting race that Mr. Baldwin has gathered up all the scattered records and notices, and has made out a case in their favour claiming for them the earliest prehistoric importance in the civilisation of mankind.

In the earliest Hebrew traditions, older probably than Abraham, Cush, translated Ethiopia, is mentioned as a country or geographical division of the earth. In the tenth chapter of Genesis we are told that Canaan, Cush, Miriam, and Phut, were the children of Ham; and Rawlinson, in his *Herodotus*, informs us that the Hamitic races seem to have been the first people of Western Asia. These Hamites were the founders of most of the cities of antiquity, which sometimes have retained their primitive names, and sometimes appear to have exchanged them for Semitic appellations, the descendants of Cush, the eldest son of Ham, are supposed to have resided for many ages in Chusistan, or Pusiana, a district to the south-east of Babylon and west of Persia. The great period of the Cushite race had closed many generations before the time of Homer, but great communities and offshoots remained not only in Egypt, but also in Southern Arabia, in Phœnicia, and Africa. This active and enterprising people of ancient Arabia, whose territory appears to be double that of France, were more advanced than the rest of the world in civilisation, as may be proved by their commercial and maritime enterprise. Their geographical position gave them considerable advantages, for lying between the Red Sea and the Persian Gulf, they had at the same time at their command the shores of the Indian Ocean and the Mediterranean Sea. Hoeven says:—

“From the remotest time to the present the Ethiopians have been one of the most celebrated, and yet the most mysterious of nations. In the earliest traditions of nearly all the more civilised nations of antiquity the name of this distant people is found. The annals of the Egyptian priests are full of them—the nations of inner Asia on the Euphrates and the Tigris have interwoven the fictions of the Ethiopians with their own traditions of the wars and conquests of their heroes; and at a period equally remote they glimmer in the Greek mythology. When the Greeks scarcely knew Italy and Sicily by name, the Ethiopians were celebrated in the verses of their poets; and when the faint gleam of tradition and fable gives way to the clear light of history the lustre of the Ethiopians is not diminished. They still continue to be the objects of curiosity and admiration, and the pen of clear-sighted and cautious historians often places them in the highest rank of knowledge and civilisation.”

Perhaps the earliest offshoot of the Cushite race was the Chaldean. The Assyrian empire was preceded by a much older kingdom of

Chaldea, which existed during a much longer period of time, and in matters of race and language had but little in common with the Assyrians.

The old Sanscrit writings of Hindostan describe the country of Cush as extending from the shores of the Mediterranean Sea to the borders of India, and they call it Cusha Dwipa. A regular history of Chaldea was written by Berosus in Greek three hundred years before the Christian era. Berosus was a Chaldean priest of Belus, and the materials of his history were supplied by archives then existing in the temple of Belus at Babylon ; but, though the work of Berosus is lost, fragments have come down to us in the writings of Josephus, Eusebius, Syncellus, and several Christian fathers. Berosus begins with a dynasty of eighty-six kings, of whose time he knew nothing. The astronomical records found at Babylon began with the date of 2234 B.C., but Rawlinson found a Cushite or Hamitic inscription in Susiana in which there is a date that goes back 3200 years before Christ.

The three great prehistoric historians, if we may be allowed to use such an anachronism (because their histories were, in the main, lost), we refer to Manetho, Berosus, and Sanchoniathon, have been too much overlooked and discredited by modern authors. Modern research has, however, done much to increase the confidence in which we can rely on their statements as to the antiquity of man. Bunsen has done much to corroborate what was too universally discredited in the records of Manetho—the discoveries of modern days have disposed us to place more reliance on the fragments of Berosus and Sanchoniathon, which have come down to posterity in the writing of others ; and if, as Sir Isaac Newton admits, letters were known in the Abrahamic line for some centuries before Moses—if they were the Chaldaic letters, which are nearly similar to the Samaritan and old Phœnician, we have a clue in the Cushite characters which may lead us by indisputable steps to the first inventors of alphabetic writing.

A good summary of what has been found in the ruins of the Chaldean cities is given in the first volume of George Rawlinson's *Five Great Monarchies of the Ancient World*. Our author considers it of considerable importance in his line of argument, and derived, as it is, from undoubted facts, we think the following brief conclusions may be considered incontrovertible :—

1st.—The ruins furnish, what appears to be, conclusive evidence that civilisation was brought to Chaldea from Ethiopia, that is to say, from Arabia. In the inscriptions the two countries are connected in such a way as to make no other conclusion possible. Their vernacular name for Ethiopia is Mirukh, and its maritime enterprise is distinctly recognised.

2nd.—The oldest city and first capital was Ur. It seems to be understood that the settlement of the country began with the building of Ur. At a later period Erech was for a time the royal city, but Nipher, or Niffer, was the name of the city of Belus, or the more ancient Babylon.

3rd.—The language of ancient Chaldea found abundantly in these ruins and the forms of the letters are similar to those found in the ruins of Southern Arabia.

Thus not only is the statement of Berosus confirmed that Chaldea was a cultivated and flourishing nation governed by kings long before the time of Babylon, but the identity of language argues similarity of origin.

Sanchoniathon, the most ancient, as also the most celebrated Phœnician historian (several fragments of whose history have been preserved by Eusebius) attributes the art of alphabetic writing to the Phœnicians or Cushite race; and both Greek and Roman authors agree in receiving the statement which Pliny and Lucan do not hesitate to acknowledge,

Ipsa gens Phœnicum in gloria magna literarum inventionis et siderum navaliumque ac bellicarum artium.—*Pliny, Nat. His.*, lib. v, cap. 12.

Phœnices primi, famæ si creditur ausi

Mansuram rudibus voceram signare figuris.—*Lucan, Lib. iii, v. 220*

But these inventors of alphabetic writing were also well versed in astronomy and navigation. They were the greatest commercial people of all antiquity and engrossed all the commerce of the western world. If the art of alphabetic writing originated with the Phœnicians, we must attribute it to a very early period. If Ur was the most ancient city, we find in the history of Abraham that at the age of seventy years he left it to settle in Haran in Canaan. Arithmetic and astronomy were probably carried by Abraham into Egypt with the art of alphabetic writing. Be that as it may, the antiquity of the city of Hur is indisputable. It was situated at the mouth of the Euphrates, with the open sea before it. But its ruins are now one hundred and fifty miles from the sea—the Persian Gulf having retired that distance, from the sediment brought down by the Euphrates and the Tigris. So great a geological change carries us back into the depths of antiquity; yet the epoch at which the city of Hur was thus founded might be made matter of calculation to one like Sir Charles Lyell, who has speculated on the age of the valley of the Mississippi. The question is a simple one, namely, how much per century does the Persian Gulf retire, and in how many years would the distance equal one hundred and fifty miles?

Dr. Forster, in the Appendix to his work on Arabian Geography, gloried over the Himyaritic inscriptions as “the oldest language in the

world," and "the first alphabet of mankind;" and this alphabet the Phenicians carried with them to southern and western Europe. The names of the letters and some of the forms seem to indicate some hieroglyphic origin. *Aleph* means an ox, *beth* a house or temple, *gimel* a camel, the great beast of burden of the desert. Sir William Drummond says, in his "Origines," there seems to be no way of accounting for the early use of letters among so many different nations, or for the resemblance which existed between some of the graphic symbols employed by those nations, than by supposing hieroglyphic writing among the psalmists; and Sir William Drummond says we can hardly hesitate to assign the original invention to a period before the Hamite race had broken up and divided. Thus Sanchoniathon may have affirmed, with some truth, that he had perused the writings of Thoth, who is said to have taught the descendants of Cush the art of writing.

In 1862-63 Mr. William Gifford Palgrave, who had long resided in the east, was well versed in the Arabic language, and well acquainted with Mohamedan lore, spent six months in Central Arabia travelling through it from west to east. He began his journey, labouring under a popular delusion, supposing, like most people, that Arabia was almost exclusively the territory of nomads—the wandering Bedouins. He accordingly made his preparations for traffic and intercourse with the natives in accordance with this supposition, which he soon found was a grievous mistake. He found, instead of wandering Bedouins, who were rather described as an inferior race, a rich and beautiful country, a settled and civilised people—cities, towns, and villages, agriculture, and a regular government. Central Arabia is an extensive and fertile land, diversified by hills and valleys, its great plateau comprising half of the whole peninsula, about five hundred thousand square miles, twice the extent of France. He found it occupied by two kingdoms, Shomer and Nejed, the former consisting of five, the latter of eleven provinces; the soil belonged to its cultivators and not to the government. In Sedyr, especially, he found an elegant and copious hospitality conducted with a dignified and even refined politeness. Hayel, the capital of Shomer, is surrounded with fortifications, with bastion towers, some round some square, and large folding-gates at intervals. It had upwards of twenty thousand inhabitants. Riad, the capital of Nejed, is large and square, with high towers and strong walls, a mass of roofs and terraces, and for full three miles over the surrounding plain waved a sea of palm trees above green fields and well-watered gardens; while southward the valley opened into the great and more fertile plains of Yemanah, filled with groves and villages. In the province of Sedyr, Mr. Palgrave reports "the dominant tone of society

is that of dignified and even refined politeness." The industry, culture, and general condition of the people seemed above what is found in neighbouring countries. Coming to the plain of Kafseem he says, "Before us, to the utmost horizon, stretched an immense plain, studded with towns and villages., towers and groves, all steeped in the dazzling noon, and announcing every where opulence and activity." It is very remarkable how ignorant we have been of the existing state and condition of the country, as well as the people of modern Arabia. There is no reason to doubt that a considerable portion of that which is now sand and desert, in old times was well cultivated and full of populous life, as the numerous ruins strewed over the surface still testify.

"This remarkable country," says Mr. Baldwin, "had no lack of fitness to be the home of a great people; and in the days when Balbec and Petra were flourishing cities, and Arabia was the busy commercial centre of the civilised world, it could have supported a hundred million people as easily as France sustains now forty millions. It had no lack of resources for the great part played by its people in human affairs. If England and Spain would colonise and fill the whole American continent in the space of two or three centuries, what might not have been done by the ancient Arabians in the course of twenty centuries?"

Mr. Baldwin has, we think, very successfully demonstrated the claims of the Arabian Peninsula to a much greater importance in the civilisation of the human race than historians had previously imagined. The relations of the ancient Cushites to the earliest developments of civilisation in Egypt, Chaldea, Hindustan, and Africa, are worked out with considerable research and acumen. There is much corroboration of Mr. Baldwin's views in the acknowledgment of Sir Henry Rawlinson, who sees a common origin of the Chaldæans and Egyptians, and finds it even in the character of their writing, which he thinks must have been in existence before the two people separated. Lepsius draws the same conclusions, from the resemblance of Egyptian and Cushite writing; thus corroborating what Diodorus Siculus says in his third book, "The Ethiopians say that the Egyptians are a colony drawn out of them by Osiris." And thus we may see the reason why the annals of the Egyptian priests are so full of the Ethiopians, if they played a foremost and wonderful part in the affairs of the world before Egypt became the abode of a civilised community. This is a wide subject and well worthy the attention of linguists and archæologists, and likely to form a new and interesting chapter in the development of pre-historic man. Renan, in his *Histoire Générale des Langues Sémitiques*, in his preface to the second edition, has promised his readers an essay in order to establish that it is necessary to admit into the history of the civilization of the ancient world, a third element

which is neither Semitic nor Aryan, which may be called Ethiopian or Cushite; and he adds, in allusion to the investigations of Oppert, "that if these hypotheses shall be confirmed by a more complete investigation, it will become necessary to establish a group of semitic-Cushite languages, including the Himyaric, the Gheez, the Mahic, and the language of the Babylonian inscriptions.

We confess ourselves somewhat surprised to find that a writer so liberal in his general views as our author should have gone out of his way rather to make some weak and irrational remarks on the development hypothesis of Mr. Darwin. He says very erroneously that "Advocates of what is called the 'development theory,' as well as champions of the narrow chronologies, find it convenient to assign the first appearance of civilisation to a very modern date in the great pre-history past." We are not aware of any passage in Mr. Darwin's works which at all assigns the first appearance of civilisation to a very modern date. Our author, so generally fair and well informed, must have taken a very erroneous view of Mr. Darwin's statements. Sir Charles Lyell, fully adopting, as he does, in the tenth edition of his unrivalled work on geology, the development theory as it has been propounded by Mr. Darwin, is one of the ablest advocates of the antiquity of man, which he carries back indeed far beyond the "narrow chronologies." The origin of man is a very different theme from the antiquity of pre-historic civilisation—and it was scarcely worth while for Mr. Baldwin to allude disparagingly to those painstaking labours of Mr. Darwin, which have led him step by step to his avowed hypothesis, which like the "Nebular Hypothesis" in astronomy, serves at any rate to enlarge our views as to the processes by which our present might have been evolved. It is no degradation of man to say he was created out of the dust of the earth; much less to have been developed through the inferior grades of the animal world.

Although the duties of daily life, and the all absorbing interests of the present must ever occupy the main attention and interest of mankind, we are impelled by an irresistible curiosity to extend our interest and inquiries into the past and the future. The great business of life must ever occupy man's chief attention; but man is a studious being, and never rests without extending his views in every direction, and drawing his inferences as to the antiquity of the world in which he is placed, as well as the race of which he is the present representative of a long line of ancestry. We trace back the thread of history with an ever recurring interest, till we arrive at its extreme limit, which terminates in fable and allegory. Man must have struggled onward and onward for ages before he became a recorder of his own history. It is vain and useless to look for any chronology before man learned

to record—no history can give us satisfactory views of man's antiquity. The short period of a few thousand years which has been adopted by a short-sighted class of theologians, does not afford extent of time necessary for the development of the different phases of civilisation, which come under the cognisance of history, much less of those ages of slow progress, which must have preceded the historic era. The cyclical schemes which computed by tens of thousands and hundreds of thousands the years of man's existence, are more in accordance with probability than the limited period of six thousand years of Archbishop Ussher, and other commentators on the Jewish chronology. Sir Charles Lyell's lowest estimate of the time required to form the present Delta and alluvial plain of the Mississippi is more than one hundred thousand years. Agassiz having ascertained the average rate of coral growth, estimates that the gradual formation of the southern half of Florida must have filled a period of one hundred and fifty thousand years, and yet the whole is of post-tertiary origin; the fossil zoophytes and shells being all of the same species as those now inhabiting the neighbouring sea. These are only two of the many approximating estimates which geologists have been obliged to form to get some relative glimpses of the antiquity of the earth.

Anthropological News.

MEMOIRS OF THE ANTHROPOLOGICAL SOCIETY.—We are glad to hear that the third volume of the *Memoirs* of the Society will be issued to the Fellows and the public subscribers in a few days. The volume will be published by Messrs. Longman and Co., price One Guinea. We understand that this volume will contain a long-expected paper from Dr. John Beddoe, the accomplished President of the Anthropological Society of London, "On the stature and bulk of the inhabitants of the British Islands." We shall hope to be able to give our readers some critical remarks on this volume in our next issue. In the meantime, we congratulate the Fellows of the Society that their third volume of *Memoirs* should contain communications from three of the most distinguished and erudite Anthropologists of this country, viz., Dr. Barnard Davis, Dr. John Beddoe, and Dr. John Thurnam.

M. DE MORTILLET has recently proposed to the French Academy of Sciences a chronological arrangement of caverns and rock-shelters, based upon the distinctive characters of the implements and weapons found in those resorts of our earliest ancestors in western Europe. He defines four epochs, which he names after the stations where they are most typically represented; thus following the example of geologists and of Messrs. His and Eütimeyer in the *Crania Helvetica*. The *Moustier Period*, so called from the Grotto of Moustiers, situated in the commune of Peyzac (Dordogne), is characterised by stone axes of the almond or "langue du chat" type, and by flint flakes

smooth on one side, and more or less finely chipped on the other. Instruments of bone are almost entirely wanting. *The Solutré Period*, named from a station at the foot of a magnificent escarpment in the Saône et Loire, is distinguished by the further development of the flint flake, and by the disappearance of the almond-shaped axe. The flakes are finely clipped on both faces and at both ends, and would seem to have furnished the chief domestic tool of the period. Simple flakes are rare, as also are bone implements. The weapon of this period is an angular club, which is again found in the following epoch. In the *Aurignac Period*, named after the classic locality in the Haute Garonne, the number of bone implements increases considerably. The angular club still remains, but the points of spears and arrows are of bone instead of flint; their essential character being that the base contains a cavity for the insertion of the head of the shaft. The quaternary fauna is still largely represented. *The Madeleine Period* (commune de Turzac in the Dordogne) is characterised by arrow and spear-heads of bone and reindeer-horn, so shaped at the lower end that they enter into the shaft, and not the shaft into the head, as during the previous period. There are a number of artistic products. Animals of extinct species disappear, and the fauna is represented by animals now inhabiting colder regions of the reindeer. The famous deposits of Eyzies and Bruniquel in France, Furfooz in Belgium, and Schumened in Wurtemberg, belong to this last period. Following the four epochs enumerated, which may be characterised, as a whole, as the rough stone age, M. de Mortillet places the period of polished stone.

"We have heard lately almost too much about the prehistoric man, and the supply of flint implements, perforated shells, and split marrow-bones, begins to exceed the demand; but a recent discovery in the département de la Dordogne of human skeletons coeval with the mammoths, and undeniably appertaining to the earliest quaternary period, present features of such unusual interest that the French government have sent M. Lartet, the distinguished palæontologist, to make a report on the subject. He reports that the bones of five skeletons have been discovered, and that they belong to some gigantic race whose limbs, both in size and form, must have resembled those of the gorilla. But the simian origin of man must not be inferred from these analogies, as the skulls, of which only three are perfect, afford testimony fatal to this theory, having evidently contained very voluminous brains. The skulls are now in the hands of a committee of *savants*, who are preparing an exhaustive craniological report."—*Pall Mall Gazette*, June 16th, 1869.

BIBLIOGRAPHY OF ANTHROPOLOGICAL LITERATURE.—In our next issue we purpose to give our first issue of a bibliography. Titles of works or papers should be forwarded to us immediately on publication.

We regret to have to record the death of Hugh J. C. Beavan, F.S.A., Barrister-at-Law, and formerly one of the officers of the Anthropological Society of London, at the early age of twenty-eight. Mr. Beavan's chief labour in connexion with the Society was that of editing Georges Pouchet's work on *The Plurality of Races*; a paper of his on "The People of Spain" is also published in the *Memoirs of the Anthropological Society*.

ANTHROPOLOGY AT THE BRITISH ASSOCIATION.—The Anthropological Society of London have appointed a committee to attend, as delegates, the forthcoming meeting of the British Association at Exeter. We hear that a large number of papers are likely to be presented for reading at the Anthro-

poloical department; and amongst others, one of considerable local interest, by the President of the Anthropological Society of London (Dr. John Beddoe), on "The Anthropology of Devon and Cornwall." The Honorary Secretaries of the Committee appointed by the Society have announced that they will be happy to take charge of communications on Anthropology, if the same are sent to the rooms of the Society, 4, St. Martin's Place, Charing Cross.

THE ANTHROPOLOGICAL SOCIETY OF MADRID, whose meetings have been delayed for two years, owing to the political changes which Spain has undergone, had their second inaugural meeting on the 21st of February last. Previously they had only had the one meeting, reports of which have already appeared in the *Anthropological Review*. The President is Don Francisco Fernandez Gonzalez; the Secretary, Don Francisco de Asis Delgado Jugo.

THE PRESERVATION OF ANCIENT MONUMENTS.—Recently in the House of Commons Sir H. Verney asked the First Commissioner of Works to consider whether measures could be adopted to place the ancient monuments, now existing in the country, under the protection of some authority which might prevent their destruction. Mr. Layard said that the question was one of very great importance. There were a great many royal and other interesting sepulchral monuments in our cathedrals and churches that had been allowed to fall into decay, and also a great many monuments of national and archaeological interest that were being entirely destroyed. Such a state of things was not creditable to the country; and in France and other countries measures were being taken to preserve such monuments as public property. When he came into office, his attention was directed to this subject, and the first step he took was to endeavour to obtain a list of such monuments as it was thought advisable to place under some kind of protection, and he addressed a letter to the Society of Antiquaries, and requested them to prepare him such a list, if possible. His application was met in the most cordial spirit by Lord Stanhope, the President, and the Fellows of the Society, and they had taken steps which he trusted would enable them to obtain such a list, and enable him to submit some proposal to the House for the preservation, not only of these monuments, but others of a national and archaeological character. Some objection might be taken to such a course as interfering with the rights of private property, but he thought they might be easily got over. He was sorry to say a case had recently occurred where a work of great national and archaeological value had been destroyed in a manner, if the accounts were true, which showed an act of Vandalism one could hardly think it possible to be committed in these days.

We think that the best thanks of the Archaic Anthropologists of this country are due to both Mr. Layard and to the Society of Antiquaries; and we feel sure that they will do all they can to assist their scientific brethren, so admirably presided over by Lord Stanhope, in protecting the archaic remains of the British Isles.

We regret that we are unable, this quarter, to give a continuation of the articles on "The Localisation of the Functions of the Brain, with special reference to the faculty of Language," or "The Report of the Proceedings of the Anthropological Society of Paris." Want of space, also, prevents us from giving a continuation of our summary of Carl Vogt's works on Microcephaly.

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THE ARYAN AND THE SEMITE.

By J. W. JACKSON, Esq, F.A.S.L.

IN a previous paper we have endeavoured to define the relation of the great Turanian family to the Aryan branch of the Caucasian race. We now purpose attempting something of the same kind in reference to the Semites, whose historic antecedents and racial specialities were till recently, but imperfectly understood either by scholars or anthropologists. The truth is, the Semite has been underestimated by his Aryan rivals. Intimately known to us, only through the Hebrews, we have largely ignored the learning of Egypt and the imperial splendour of Assyria; while Phœnician commerce, Carthaginian power, and Saracenic conquest have been unduly relegated into the background of history, to make way for the well-deserved prominence universally accorded to the annals of Grecian culture and Roman greatness. Till quite recently, this was unavoidable. The scholarship of Europe was, and to a large extent still is, purely classic. This, of course, implies that we have been accustomed to regard the ancient peoples of the East through Hellenic spectacles,—a very doubtful procedure, if our object be, not the confirmation of our prejudices, but their supersession by the truth. The days of this one-sided pedantry are now, however, numbered. Archæology, and the study of Oriental languages, have somewhat enlarged our ideas. We now know not only that there were colossal empires before that of Rome, but also a civilisation anterior to that of Hellas. Babylon and Nineveh, Thebes and Memphis, have become somewhat more than faint echoes and vague traditions. We now know that there was a great cycle of what is perhaps not inaptly termed monumental civilisation, whereof the written records have utterly perished, and which is, nevertheless, being slowly rehabilitated by the investigation of its ruins and the interpretation of its inscriptions. The importance of such archæological studies cannot well be overestimated. We have thus revealed

to us the history of a great family of man, whose annals seemed to have irretrievably perished, or at best been preserved for us only in the fragmentary form of incidental notices in the prejudiced chronicles of their enemies or successors.

In truth, the greatest wars which history narrates as having occurred within the Caucasian area, were those between the Semites and Aryans. To say nothing of the obviously Persian physiognomies still preserved on the walls of the royal tombs in the Thebaid, indicative of prehistoric relations, pacific and militant, between the eastern Aryans and the early dwellers in the land of Misraim, we find at the dawn of written history, the great fact of Babylonian subsidence beneath Persian supremacy, when the sceptre of western Asia passed from Semitic to Aryan hands. Then we have the conquest of Egypt by Cambyses, whereby the entire area of Semitic civilisation was rendered subject to Persian supremacy. And while these events were being transacted, we read of the gradual rise of Carthaginian power, obviously produced by the transference of Semitic wealth and population westwards, probably to escape the more immediate pressure of Aryan conquest in the hither east. And thus, once more, the Semite struggled with the Aryan for the supremacy of civilisation, and, under Hannibal, almost achieved it. Do we yet understand the full significance of Egyptian and Carthaginian power, those mighty colonial extensions of Asian civilisation over an African area? Have we duly pondered their racial import, and the evidence they afford that Africa is the ap-panage of Asia, as America is of Europe?

But it must not be supposed that this great racial conflict terminated with the fall of Carthage. It was renewed on a still grander scale at the Crusades, when the Aryan Christians of the West threw themselves on the Saracenic Mohammedans of the East. It also re-appeared at the Moorish invasion of Spain and the Arabian conquest of India. Using the Seljucks and Osmanlies—that is, the western Turanians—as its instruments, the Semitic faith of the crescent carried these barbarian converts to the supremacy of western Asia, and ultimately to the conquest of Constantinople. With such antecedents, extending over fully three thousand years, and in a sense antedating history, we may be quite sure that this great racial conflict has not yet terminated,—in truth it has scarcely paused. The conquest of India by the English, and that terrible mutiny,—which was intended to restore the *effete* descendant of the Great Mogul to the imperial throne of his illustrious ancestors,—were but the later incidents of its continuation; while the inevitable decline of Turkey, and the insatiable ambition of Russia, may suffice to show that the materials for its renewal are by no means wanting.

In truth, if the Semite represent the man of the South, with his moral exaltation and his theological mission, and the Aryan, in contradistinction, represent the man of the North, with his intellectual expansion and his consequent aptitude for literature, science, and art ; then, as the racial embodiments respectively of faith and reason, they present the bipolar aspect of man's superior nature, whose harmony is the effect and expression of well-balanced antagonism. In a sense, their rivalry is eternal, because it is elemental. Their opposition can never cease ; for it is rooted in nature, and is simply a manifestation of that unresting interaction which characterises all her forms.

If the foregoing view be correct, then we shall find Aryan and Semite on the moral as well as the physical battlefield, the one being the complement as well as the antagonist of the other. This may be succinctly summed up by saying that philosophy is the vocation of the Aryan, and religion the mission of the Semite. Such a statement, however, requires some detailed illustration for its confirmation. Let us, then, interrogate history, and listen to its response.

The three great religions of existing Caucasian man are Judaism, Christianity, and the faith of Islam, all of Semitic origin ; while, on the other hand, our science, literature, and art are mostly of Aryan lineage. So strongly pronounced, indeed, are these racial proclivities that the religion of the Aryan ever tends to assume the form of a philosophic Pantheism, eventuating in a deification and worship of nature, as among the ancient Hindoos and modern Europeans ; while, conversely, the science of the Semite is ever prone to sink into a superstition, as in the astrology of the Chaldeans and the alchemy of the Saracens. This is only saying in other words that, influenced by his predominant moral principles, the Semite believes and worships, where the Aryan, guided by his preponderating intellectual faculties, investigates facts and deduces conclusions. Hence to define them, we may say that the one is a priest and the other a philosopher ; that the former spiritualises and elevates humanity, while the latter enlightens and expands it. Both are necessary ; the one to correct the excesses and extravagancies of the other ; for left to their own unlimited tendencies, the Semite degenerates into an exclusive bigot, and the Aryan sinks into a utilitarian materialist.

These general statements, however, are by no means sufficient, and have, indeed, been put forward simply as a convenient summary of the question, into whose minuter details we now propose to enter. And, firstly, let us ask, what is the Caucasian, whereof Aryan and Semite are but the two great subdivisions ? And we reply, that he is preeminently the man of civilisation. All pure savages incline either to the Negroid or the Turanian type ; they do so from the absence of

adequate nervous force for their effective development into the truly human form. This is not the utterance of prejudice, but the simple statement of a fact. The coarser types are differentiated from the finer by their inferiority, that is, by the comparative weakness of the moral and intellectual elements, and the preponderating power of the passionate and impulsive. This is clearly indicated, to a properly qualified observer, in their physical organisation. In the Negroid type, the brain lacks volume; the nervous system is not adequately centralised: and this brain, thus deficient in quantity, is equally wanting in quality. The rude mould of the features, where all the indications of intelligence are weak, while those which imply sensuality are large,—the rudimentary character of the hands,—the semi-quadrumanous structure of the feet, and the generally unfinished build of the whole body, to say nothing of the porous skin and its woolly envelope,—are ample and undeniable evidence of the exceedingly coarse quality of the Negroid family. And this brain, thus deficient both in quantity and quality, is also equally wanting in form. The cranium is compressed laterally and retreats anteriorly, indicating an utter incapacity either for breadth of view or depth of thought. But it is elevated coronally and developed posteriorly, showing that here, in this rootman of the South, we have the invaluable germs of moral sentiment and domestic affection.

Diametrically opposed to this, as if formed under transverse influences, we have the broad-built Turanian, in whom, however, with somewhat more of the human, there is still much of the animal element. He has, in excess, that which is wanting in his Negroid brother—breadth. His volume of brain is enormous, though its quality is coarse and its form rude. He has attained to a higher grade of centralisation, and we have reason to believe, therefore, of specialisation, than the primitive man of the South. His deficiency is in altitude. He lacks the higher moral sentiments, and the creative portion of the intellectual faculties. But he has practical power and executant ability of a high order. In other words, he has force, but is wanting in susceptibility to the higher motives for its noblest exercise. As an instrument in the hands of a superior race, he may prove invaluable; but as a leader and pioneer of humanity, he is fatally deficient.

What then is the savage? and we reply, that he is man on the plane of nature, adapted—by the limitation of his faculties and the bluntness of his susceptibilities—to the only social and physical life possible in the wilderness and the forest, at the dawn of human existence on earth. Any higher type would have been out of harmony with the circumstances; for it would have implied wants that could

not be satisfied, and capabilities that could not be used, to say nothing of aspirations existing only to be blighted, and sensibilities developed only to be wounded. Beings so limited in opportunity needed to be proportionately circumscribed in endowment, otherwise "the eternal fitness of things" would have been cruelly violated. But such mental deficiencies, when characteristic of a race, are of necessity reflected in their organisation; that is, in the volume and contour of the brain,—in the form of the features,—in the expression of the face,—in the build of the body, and in the fashion of its extremities. And thus, then, it is that we have the savage, precisely as we have the lion and the eagle, the jackall and the vulture, we have him as an organic adaptation to a certain environment with which he is in harmony, because, as the advocates of development would say, he was its product. Now, that this primitive savage always inclines either to the Negroid or the Turanian type, is a fact of no slight significance in the science of man, and one to which, therefore, we may again have occasion to refer.

And now, perhaps, the reader will begin to understand the truth and force of our assertion,—that the Caucasian is emphatically the man of civilisation, as contradistinguished from the savage. What, then, is this Caucasian? And we reply, the highest type to which man has yet attained. He presents us with that form of humanity in which cerebration and respiration are most powerful in proportion to alimentation and reproduction. He is the most effectually developed type of man, the one in whom the functions, that are specially human, are the most powerful in proportion to those which are also bestial. This, of course, implies an organic structure, adapted as an instrument for the efficient discharge of these higher duties. And accordingly we find that his brain is equal in volume to that of the Turanian, while it is superior in form and finer in quality; thus conducting, through intensity and activity, not only to greater mental power, but also to power of a higher order. His thoughts are more logically concatenated, and his conceptions are more beautiful and artistic. His special superiority to the Turanian is, however, in the moral sentiments. He is better developed coronally; and hence, is more amenable to the influence of "faith, hope, and charity," and, we may add, justice. Thus, in a sense, it may be said that he unites the excellencies of the two inferior races without the defects of either. He has the breadth of the Turanian without his coarseness, and the altitude of the Negro without his narrowness, while in temperament he immeasurably transcends them both. Of course, with such a brain, so powerful in structure, so fine in quality, so complex in its convolutions, and so intense in its functions, there must be a face to

correspond ; that is, with features distinctly marked and delicately chiselled, and susceptible, in duly cultured individualities, of all the varying shades of intellectual expression and spiritual emotion. For the same reason, that is, by the law of correspondence,—or, in other words, the harmonic relation of the several parts of every normally constituted organism to each other,—the extremities are perfectly finished and thoroughly specialised, the hand being solely prehensile, the foot simply locomotive in ordinary function, while the thoracic thoroughly dominate the abdominal viscera. It need scarcely be said to any competent observer, that this is rather the ideal to which the average existing Caucasian tends, than the real, to which, in the majority of instances, he has actually attained.

And now, then, we are perhaps somewhat better prepared to estimate, at its proper value, the absurd talk which we sometimes hear about “our savage ancestors”! meaning, of course, thereby, “the ancient Britons”, or in anthropological terms, the Celts of western Europe. We have swept the world from the equator almost to the pole, and we have circumnavigated it, and yet we have never discovered a race of savages of even approximately Caucasian type. In truth, the thing is impossible. A Caucasian is a being with aptitudes and susceptibilities adapted to the requirements, and needing the conveniences of civilisation, and so, save in a few exceptional instances, ill at ease amidst the rudeness and privations of savagism. This is only saying, in other words, that as the savage is suited to his environment, so the civilised man is suited to his environment,—“the fitness of things” demanding the one as well as the other.

But this high-caste Caucasian, this man of civilisation, is organically, lingually, and theologically, divisible into two well-marked families, Aryans and Semites, or Indo-Europeans and Arabians ; the former especially located in Europe, and the latter in Asia, although the first are the predominant population of Persia and India, and the last extend throughout all northern Africa. It may thus be said that the Caucasian occupies the temperate zone of the world from India to Britain, with the Negroid races to the south, and the Turanian to the north, the Semites, resting on and through Moors, Tuaricks, Nubians, and Abyssinians, gradually shading off into the former ; while the Aryans rest on and through Slavons, Muscovites, and Cosacks, gradually shade off into the latter. Thus, whether we regard their geographical position, their mental constitution, or their organic specialities, we shall find that the Semites are allied, as flower and root, to the Negroid type of the south, and the Aryans to the Turanian type of the north. These leading facts, even thus succinctly stated, without their corroborative details and accessories, are, to say

the least of it, eminently suggestive. They suffice to show us how little we yet know, how far we are from a satisfactory solution of the great race problems, and consequently, how much yet remains to be done, whether in the accumulation of facts, or the deduction of conclusions.

Foremost among the theories which have been propounded to account for the present location and distribution of these races, is that which attributes an eastern origin to the Aryans, and accounts for their presence in Europe, by the successive waves of an overwhelming and all-absorbing emigration from their Asian seats, in ages which, though decidedly prehistoric, are still within the range of reliable tradition. It need scarcely be said that this is only part of a larger whole,—the somewhat mythical hypothesis which regards Asia as the primal seat of man and the cradle of civilisation, and which consequently predicates the unity, if it does not imply the aboriginally high-caste organisation of humanity. Now, in previous papers, we have shown that this Orientalism of tradition is probably due to the undoubted fact, that civilisation and empire have been moving north-westwards during the historic period, and, of course, carrying with them traditions calculated to aggrandise Asia at the expense of Europe. While there are not wanting very important data, derived from archæology, mythology, comparative anthropology, and philology, which seem to indicate the probability of a previous movement in an exactly opposite direction; namely, south-eastwards, and of which the existing colonial effects are seen in the presence of European-speaking peoples in Persia and India, whereof the latter are avowedly immigrant conquerors from the north-west.

Let us examine this eastern Aryan hypothesis somewhat more in detail. And, firstly, what are the facts in relation to it? We find an Aryan-speaking population of predominantly Caucasian, though partially Turanian type, inhabiting the whole of Europe, with the exception of the apparently aboriginal Finns and Lapps in the north, and the Biscayans in the south, together with the comparatively recent and historically immigrant Huns and Turks in the east. Europe is then, undoubtedly, at present an important province of the great Aryan area; in truth, numerically, politically, and intellectually the most important: and not only so, but we find that its several languages are radically and grammatically, in terminology and structure, of Aryan type, their oldest extinct forms and their existing peasant dialects being those in which their congruity with the Sanscrit and Zend are most apparent. With the exception of the Biscayan geographical names in Spain, the south of France and Italy, there is nothing to indicate that the Aryans of Europe are intrusive

immigrants, as they undoubtedly are in India, but rather aborigines, as far as such a phrase is applicable to any type not absolutely savage. But it is quite otherwise with the Hindoos and Persians. They are on every side surrounded and closely pressed upon by alien populations of Semitic or Turanian lineage. Their true area is very limited, for India is undoubtedly Turanian; while much of (political) Persia is now in possession of the Tartars, as large portions of it were once in the possession of the Semitic Assyrians. In truth, when we reflect on the wide diffusion of the Arabs (proper), and on the early rise and extended sway of the Semitic empires that arose on the Tigris and Euphrates, we cannot but pause ere accepting the utterly improbable hypothesis of Aryan origination in the neighbourhood of Balk, and the diffusion thence of this geographically and lingually isolated type over the entire area of Europe. So far, indeed, from the racial relationships and more immediate surroundings of the eastern Aryans being indicative of their aboriginality, they are strongly suggestive of the hypothesis that they were intrusive immigrants of, probably, European lineage, and whose primal home was rather on the Elbe and the Vistula than the Jaxartes. The truth, indeed, is, that the Aryan patriarchs who celebrated their simple sacrifices to the sacred chant of the Vedic hymns, were isolated strangers, maintaining themselves only by the utmost efforts against the incessant attacks of alien races. Whenever, indeed, we come in direct contact with primitive Aryan life in the East, we find it to be one of deadly conflict, not with lingually and racially allied peoples, but with religiously hostile and barbarian strangers, whose destruction was a duty due alike to God and man.

But it was quite otherwise with the Semites. The Syrian and Assyrian were simply the civilised extensions and outposts of the Arab, that magnificent aborigine of the southern wilderness, never savage, though always simple, and who, in his innate grandeur and external barbarism may, beyond all others, be regarded as the Caucasian patriarch; so that if compelled to admit the unity of the type, we should, without hesitation, say here is the root. Without a break, the Semite stretches away into the deserts of Arabia, and, we may say, the wilds of Africa. If not absolutely at home on the Euphrates and the Tigris, he was, at least, on the border-land; and his aboriginal rivals here, we suspect, were not Aryans, whether from the East or West, but Turanians from the North. These, we know, are very heretical opinions, and we should not venture to entertain them save on the apparent authority of facts, that seem to compel a dissent from established anthropological, or rather, philological opinion on this subject.

This comparatively isolated and alien position of the eastern Aryans,

not surrounded by nations gradually shading off in language and structure towards other and ruder types, but sharply divided by lingual and typal demarcations, amounting to decided contrast from all their neighbours, is a fact that has never been duly pondered by the advocates of their Oriental origin. And not only is the area which they occupy thus isolated, it is also limited in extent; thus affording additional evidence that the presence of the Aryan in Asia is exceptional. While, in combination with this, is the very important and highly suggestive fact, that the languages of the eastern Aryans are all *essentially* of one, and even *nominally*, but of two families; namely, the Indic and Iranic, whose subdivision is almost a matter of history. Now, in contrast with this, we have the western Aryans occupying almost the entire expanse of Europe, as if it were their own proper territory, their true ethnic area,—a conclusion confirmed by their manifold lingual divisions and subdivisions, indicative of the fact that they had here both time and opportunity, not only for geographical expansion, but also diversity of development. From the Celtic to the Teutonic, from the Italic and Hellenic to the Wendic, we have a lingual range to which the Aryan peoples of Asia can furnish nothing parallel,—Sanskrit and Zend, with their derivatives, being little other than the counterparts of the Hellenic and Italic, with theirs.

And if we do not gravely err, physical anthropology confirms this view of Europe, rather than Asia, being the native habitat,—the aboriginal seat of the Aryan. It may now be regarded as an established principle in anthropological investigations, that every race thrives best, and attains to its highest and most vigorous type, mental and physical, on its own proper area, there being always something of the weakness of a forcing and exotic in an immigrant population. Now, we suppose it is almost unnecessary to say that, physically, the Aryan of Europe is, and—to the remotest verge of history—always has been, the perfection of his type, whether we regard strength, stature, beauty, or longevity. While contemplated morally and intellectually, it is on this area that he has built up his greatest and most enduring empires,—it is here that he has attained to his highest and most diversified phases of civilisation; and it is here alone that, after the lapse of so many centuries of supposed colonial residence, he manifests that unexhausted vigour both of body and mind, which renders him, whether as conqueror and colonist, or as guide and example, the hope of the world. Now, what has the eastern Aryan to show in the way of parallel or rivalry to this? As the conqueror of India, he is hopelessly *effete*; as a Persian, he is comparatively weak and demoralised, existing upon the sufferance of Russia, and not yet

quite free from the shadow of old Tartarean subjugation. In truth, it is only as a Kurd and an Affghan—where his mountain altitudes enable him to enjoy a European temperature, and breathe an atmosphere almost as invigorating as that of the peninsular West—that he has preserved either the physical or mental vigour, the courage or the enterprise, of his European ancestors and congeners, and even of these two divisions we have yet to learn how far the former is free from Turanian, and the latter from Semitic, admixture.

But perhaps it will be said that this argument proves too much ; for if it be worth anything, it will equally tend to show that the Semites are also aliens in Asia, and thus leave this vast continent as the appanage proper of the Turanians only. And if by Asia be meant only that part of the Old World which lies east of the Uralian mountains, the Caspian sea, the great valley of Mesopotamia, and the Persian Gulf, there is, perhaps, a certain measure of truth in this assertion. But if we include western Asia and Arabia, the supposed parallel between the eastern Aryans and the Semites no longer holds good ; for some of the greatest empires of the latter, from the Assyrian to the Saracenic, were on this area, which, moreover, as the source of the faith of Islam, is still the seat of a *quasi* theological supremacy. It was also on this area that Judaism flourished and Christianity originated ; and here, also, that the world-renowned commerce of Tyre and Sidon was developed. No doubt, Egypt and Carthage may be readily quoted as illustrious instances of extra-Asian Semitic power and culture. But not to mention the obviously Asian character of the former, and the known fact that the latter was but a colonial settlement of Phœnician enterprise, it can never be said of these two states that they and their people were to Africa what the Aryans are to Europe ; for the especially African man is not the Caucasian Moor to the north, but the Negro to the south of the Sahara. While admitting, then, that the Semite occupies but a comparatively insignificant section of the geographical area of Asia, and that numerically he was, even at his maximum, vastly inferior to the Turanian ; we must yet assert that, as an Asian man, he occupies a very superior position to the Aryan, and one, we may add, far more clearly indicative of an aboriginal connexion with the eastern continent.

Not that we are at all disposed to despise or underestimate the African Semite, who, as an Egyptian, seems to have led the way to monumental civilisation ; and as a Carthaginian, proved a not unworthy rival of the most imperial type of the European Aryan yet developed. But in both instances, this development of civilisation and power on an African area was so exceptional, whether as regards historic antecedents or geographical surroundings, that in neither case

can it be regarded as an analogue of the great eastern empires, or of the intellectual culture and political power of either classic or modern Europe. Northern Africa, indeed, although beyond all question an integral portion of the Semitic area, and, in a certain sense, the remote root-ground of the race, where its rudest, most muscular, and most osseous types are still found, is yet apparently by no means favourable to a high development of civilisation, independently of extraneous aid. The Moor, the Berber, and the Tuarick, are still at the barbarian stage, despite Egyptian learning and Carthaginian trade, and notwithstanding the proximity of Asiatic, and the example of European civilisation, and the consequent influence and training, to which immediately or remotely, they have been so long subjected. This is assuredly adequate proof that they have no native aptitude for refined culture, and do not occupy the highest portion of their own ethnic area, which must consequently be placed in Asia, and even on the most liberal interpretation, may be said to extend from the Nile to the Euphrates, rather than from the former to the Pillars of Hercules. We have entered into this somewhat wearisome statement of facts, and rather lengthened exposition of the argument, because it is of some importance to anthropological science that the great question should be settled, whether the Semite is to be regarded as preeminently the Asian type of the Caucasian man, or whether he is to share this in common with his Aryan rival?

But there is another and perhaps a broader view of the relation of the Semite to the Aryan, to which allusion has been already made; that which contemplates the former as the Caucasian man of the south, the flower of a Negroid root; and the latter as the Caucasian man of the north, equally the flower of a Turanian root. But even thus contemplated, it must be admitted that the especial seat of the Aryan is in the north-west, and not in the south-east. While in connexion with, and corroborative of this, it is observable that the more salient features of his character, his ethnic specialities, attain to their maximum of development and manifestation only on an European area.

As a conclusion to this branch of the subject, it may not, perhaps, be altogether amiss to observe, that as history repeats itself, on the principle of the cycle and epicycle, so at the present moment we see Russia advancing through the Caucasus, on the west, and through Bockhara, on the east of the Caspian, towards the area of the Iranian and Indic immigrations of former ages; thus renewing that movement which formerly carried the Lettic dialect of the primitive Aryan tongue to the neighbourhood of Balk, where, as well as on the plains of Iran, a Slavonic conqueror will again plant his victorious standards, unless repulsed by the courage and policy of the British Celt, already

in possession of the partially Aryanised area of aboriginally Turanian India.

Leaving now the great questions of Aryan origin and area, let us return to the Semites. This great family has been subdivided into three branches,—the Amharic, or southern; the Aramaic, or northern; and the Hebraic, or central. The first embraces the Arabs proper, the Moors, Berbers, Tuaricks, Ancient Egyptians, Nubians, and Abyssinians. This is apparently the purest and, perhaps we may add, the most nearly primitive type of the race. The principal admixture here is from Negroid sources south of the Sahara. The second embraces the Syrians, Assyrians, and Chaldeans, and may be defined as the especially imperial type of the race. The principal interaction here has been with the Iranic branch of the eastern Aryans; although, judging by the physical type of the two last, we should also suspect the presence of a Turanian element, probably as the underlying basis of the population, derived from the Tatar aborigines of this border-land of the true Semitic area. The contest for political supremacy between the Aramaic Semites and their Iranian rivals, constitutes the history of western Asia for a thousand years. The third branch embraces the Jews, Phœnicians, and Carthaginians, together with the colonial extensions of the two latter. The principal interaction here has been with the Hellenic and Italic branches of the classic stock. As the Amharic branch is the most nearly related to the Negroid type; so this central and Hebraic branch is the most closely allied to the Aryan family. Indeed, both the Jew and Phœnician have so many European characteristics, and have maintained so many and such diversified European relations, that we are quite justified in suspecting a large admixture of European elements in their constitution. Was not Palestine, indeed, as a part of the Mediterranean coast of western Asia, simply an extension of Ionia? and were not the Phœnicians, though thoroughly Hebraic in language, yet largely imbued with the ideas, and prone to the maritime and commercial habits, of their Greek neighbours. It is doubtful if we have yet realised our full indebtedness to this vigorous section of the Semitic peoples. In a sense, it may be said that Europe owes her trade to the Phœnicians, and her religion to the Jews; so that their influence is second, if second, only to that of the Greeks and Romans.

From this bare enumeration of Semitic nations it must be at once obvious that we have here to do with a great race, who have played a very important part in history, and in various ways stamped their impress indelibly on humanity. Such a type must then be worthy of the profoundest study, although the especial cycle of their greatness is passed, having waned, at least for the present, before the increasing

splendour of Aryan power and civilisation. Such a race cannot be despised or ignored. Anthropology must endeavour to understand and define them. What is their relative age as compared with that of the Aryans? When did their interaction with the latter commence, and what are the indications of its continuance or renewal? What is a Semite? What place does he hold in the scale of being? What has he done for the religion, literature, art, and science of the world? What was his essential character and vocation in the past, and what intellectual, political, and commercial position will he probably hold; in other words, what services will he render to civilisation in the future? These are rather searching questions, and yet Anthropology can scarcely be regarded as a science unless we are prepared with something like a definitive reply to most of them. It must be at once obvious that in any such investigation as that here proposed, we must advance cautiously, yet daringly, from the boundaries of recognised knowledge into the region of speculation, where certainty will have to be exchanged for uncertainty, and where the utmost we can yet hope to accomplish is but to throw out a few suggestions, not so much for the guidance as the consideration of others.

As to the relative age of the Semite, if there be any truth in the idea that he is the flower of the Negroid type, the ethnic culmination of the man of the south, the cultured representative of the oldest and most nearly rudimentary phase of humanity, then we have from this circumstance alone some ground for regarding him as the elder branch of the Caucasian family. The fact that he was the founder of the earliest historic empires, and that his great cycle of now monumental civilisation on the Egypto-Assyrian area, preceded the historic Aryan cycle of Iranic and classic development, is also partially corroborative of his ethnic seniority. Do his organic specialities throw any light on this subject? Is there anything in his structure to indicate the relative maturity or immaturity of his type? What says anatomy to the proportions of the skeleton, the disposition of the muscles, the arrangement of the viscera, and the convolutions of the brain? What says physiology to the functional vigour of cerebration, respiration, alimentation, and reproduction in the Semite as compared with the Aryan, and yet more remotely, with the Negro and the Turanian? Alas, it is only necessary to ask such questions to discover how limited is our knowledge, how inadequate are our data for the solution of any of the great race problems still under discussion!

When did the interaction between the Aryan and Semitic peoples, which constitutes the staple of all history, commence? Is there anything in monumental remains or racial type calculated to throw any light on this subject? What, for example, was Egypt? Was the

civilisation of this great country the pure product of Semitic vigour and intelligence? Has not historic Egypt been constantly subjected to reaction from without? Persian, Greek, Roman, Mameluke, and Turk present us with a rather extensive cycle of alien invasion, both from Aryan and Turanian sources. Was there nothing akin to this in prehistoric times? Will the principle of the cycle and the epicycle warrant such a conclusion? Do the monuments of Egypt themselves sustain it? Is there not much here to indicate that Egypt was a colonial extension from some previously civilised centre? The builders of the pyramids, more especially the great pyramid, must have been architects of no mean experience. Is not the architecture of Egypt a development of the Cyclopean, whose centre was Greece and Italy, as the latter was, perhaps, an advance upon the Dolmen or so-called Druidic style of Western Europe? Have we yet the data requisite for even an approximative solution of the problem involved in the relation of Cyclopean to prehistoric Mediterranean civilisation generally, and until this has been settled, what are all our speculations about the beginnings of Egyptian civilisation but vague surmises, utterly devoid of all claim to be regarded as of a genuinely scientific character.

Perhaps, however, the best evidence that the elements of Egyptian civilisation were imported, and this too from a higher, if not alien race, is to be found in the rigid formality and traditional immutability of religion, law, art, and manners in the land of Misraim. Nowhere else has spontaneity been so completely eliminated from the life of a people. Precedent and example were supreme, and authority so crushed individuality, that from the palace to the cottage the system was everything and the man was nothing; adequate proof that here was a nation of pupils whose teachers had departed, and who felt that their only safety consisted in strict and unquestioning obedience to the behests of a past too exalted for the rivalry of the present.

It is doubtful if we yet understand the profounder spirit of monumental civilisation. What grandeur, yet what simplicity of thought, is reflected in the walls of Tiryns, the pyramids of Memphis, and the temples of Thebes. Have we fully realised the cast of mind that produced the Ramesseion,—or, for that matter, the Parthenon or York Minster? Is not the architecture of a time the reflection of its thought, and, if so, have we yet interpreted Nilotic culture by this record? In it the sublimity of mass, the element of strength as contradistinguished from beauty, culminated. Its ruins seem like the remains of another world, and in a sense, perhaps, they are so, the African, as an area distinct from that of Europe or Asia. There is nothing composite in the Egyptian style. We see at a glance that the elements of thought had not been broken up and recomposed in the

soul of its builders, whose ideas were few and simple, but of stupendous vastitude. Such men do not exist now. They belonged to the primeval generations, to the primary strata of civilisation, and have left no successors.

But is not the term "monumental," as applied to the cycle of Semitic civilisation, relative rather than absolute? With the exception of the Hebrew records, it is no doubt monumental to us, but was it so to cotemporaries? Was there not an Egyptian, Phœnician, Assyrian, and Chaldean literature of great antiquity and of considerable historic interest? Manetho, Sanchoniathon, and Berosus are, no doubt, somewhat mythical when compared with Herodotus; but do not even such confused and fragmentary echoes indicate that there once were real voices to set them in motion? We hear many *Io* pœans over the discovery of Sanscrit literature, and perhaps to us as Aryans, and for philological purposes generally, this recovery of the oldest existing form of our early mother tongue, is the most important of all possible events in the science of language. But historically, and perhaps we may add, morally, who shall estimate what we have lost by the destruction of that preclassic literature, and with it of those forms of thought which reflected the inner life of the stately dwellers on the Nile and Euphrates? Wanting this, must not our psychological record of humanity, ever remain imperfect? If we so value what was said at Athens and Rome, may we not be permitted to regret the eclipse which has shrouded in everlasting night the intellectual light of Thebes and Memphis, of Babylon and Nineveh, more especially when we consider the significance and power of the fragments that remain to us of the racially allied and cotemporary people of Jerusalem? But merely classical scholars cannot understand this, and orthodox Hebrew scholars will not, so the summation of our loss in this respect must remain as a labour for the future.

We would then (of course quite hypothetically) define Egyptian civilisation as the result of Asian and European immigration on an African area, whence, by the specialities of soil and climate, the alien blood was ultimately eliminated, leaving traditional Semitic and Aryan influences to operate on an aboriginal population, fundamentally identical with that of the modern Fellahs, but with this difference, that whereas the latter now simply represent the rustic and artisan classes, the ancient Egyptians were an effectually developed national type, with its full hierarchy of sacerdotal, aristocratic, and professional classes in normal relation to each other, and to the state as a collective organism. And, if asked to account for the speciality of the Egyptian type of mind, for judging by their works, they must have been a people almost unique, even from the remotest antiquity, we would

point to their geographical isolation, shut in by the sea and the desert, in virtue of which they were enabled to develop and emphasise their formalistic proclivities to the uttermost, comparatively undisturbed by foreign invasion. This was apparently a characteristic of primeval nations generally, among whom events moved slowly; but it was especially so with the Egyptians, and hence their rigidly exclusive nationality of thought and feeling, and the striking peculiarities of architecture in which the weird spirit of their inner life became at last tangibly embodied.

It is, perhaps, rather more difficult to estimate the reaction of Egypt upon other countries. Her wisdom was proverbial among all the great nations of antiquity. But, whatever else she may have taught them, she did not give them her architecture, and therefore we may presume, scarcely the ideas of which it was the symbol. Her nationality was too intense, too strikingly characterised, for ready transference. It implied a certain speciality of organic structure, that of the lower Nilotic area, reinforced by millenniums of training, for its effectual development. India and China approximate to, but do not equal her in speciality; they do so from their similar geographical isolation. Notwithstanding all this, however, ancient, like classic Egypt, was a great school. Judaism bears her stamp in every lineament. It was scarcely necessary to inform us that the great law-giver of the Jews "was learned in all the wisdom of the Egyptians." The Mosaic code is simply the Egyptian system of law and ceremonial adapted to the requirements of Hebraic Semites, and engrafted on the doctrinal peculiarities of patriarchal theology.

It is somewhat more difficult to define the character and extent of the influence exercised by Egypt on the moral and intellectual development of the Greeks. Tradition implies prehistoric interaction, probably during the Cyclopean era, and this seems to have continued down to the Homeric age; while Pythagoras and Plato both confessed their indebtedness to Nilotic teachers. As the more immediate channel through which Asian theosophy and Oriental mysticism impinged on the classic world of Greece and Rome, the influence of Egypt was also manifested at a later day in the production of such men as Plotinus, Proclus, and Jamblichus, the Neoplatonic and Thaumaturgic schools of declining heathenism being, indeed, very largely of her fostering. Even thus contemplated, Egypt must be regarded as a nationality of no mean significance in the ancient world. The parent of Jewish law and ceremonial, and the nurse of Greek philosophy, under her native sovereigns, she became under the Ptolemies, the seat of a school of mathematics and physics, whose influence on the progress of science is still appreciable. While at Alexandria, more especially, were elabor-

ated those specialities of doctrine, consisting in a union of Greek philosophy with Judaic theology, that under the zealous apostleship of the Nazarenes, eventuated in the establishment of Christianity. Thus from the dawn of monumental civilisation to the fall of the Roman empire, Egypt was a power in the world of thought. Such then was the position of this elder branch of the Amharic portion of the great Semitic family. Such was the place of Egypt in the scale of nations—not to be forgotten while history continues to be written.

And what were the Mesopotamian empires of Nineveh and Babylon? And we reply the result of Semitic expansion on a Turanian border, where the immigrant population were, moreover, subjected from an early period to Iranian influences, beneath which, in a political sense at least, they ultimately succumbed. What manner of men, then, were these Assyrians, that "nation of a fierce countenance," the imperial masters of Western Asia? And we reply Semitic conquerors with an element of muscularity from their Turanian subjects, and of intellectuality from their Aryan neighbours. Physically, and perhaps mentally, they were the strongest and most massive of all the Semitic types, the Romans of the East; pre-eminently the warriors and rulers of their race. In them Semitism, at its first or monumental cycle, culminated politically. They held Asia with the strong hand, almost from the Mediterranean to the Indus, and hence loom out at the remote dawn of the historic period, with mysterious grandeur as the great founders of that imperial system, which, in its successive phases, constituted such an important feature in ancient civilisation.

Morally, however, Assyria is more remote than Egypt. We know more of the dwellers on the Nile than the Tigris or the Euphrates. The citizens of Thebes and Memphis probably differed more than those of Nineveh and Babylon from the present inhabitants of London and Paris, but we know better in what that difference consisted. We can realise Egyptian more distinctly than Assyrian life, perhaps in virtue of the greater number and variety of archæological data which it has bequeathed to us, and in part also from the influence which, through Hebraic and Hellenic media, it still exercises over the life of to-day.

What were those early empires that constitute the beginnings of history? Were they in reality the first great political agglomerations of humanity? Because, if so, we must accord to the Semites the palm of precedence, at least over the Aryans, if not the Turanians. China may, perhaps, lay claim to an antiquity equal to that of Assyria, if not Egypt, but Persia, Greece, and Rome were, as we know, her juniors and successors. Here, again, we are brought back to a reconsideration of the great problem of the true Aryan area, and with it, of the possibility of a prehistoric movement of civilisation from the north-

west to the south-east. Was there not a cycle of Celtic power and civilisation in Western Europe, and a yet more advanced Cyclopean cycle in Southern Europe, of which history makes no mention, and whereof even the tradition has waxed faint, and which, from the character of their architectural and other remains, must have preceded the era of monumental civilisation? Alas, how short is the plumbline of our historic knowledge, how lamentably inadequate for fathoming such depths as those over which we are now sailing! Would it be too much to say in this connection, that there have been three great cycles of imperial power; the Aryan, extending from the Iranian to the Roman empire, which may be termed historic; the Semitic, extending from the Egyptian to the Babylonian, and known as monumental; and lastly, the premonumental or archæological cycle, embracing the Celtic and Cyclopean remains of Europe, and, perhaps, the earth-mounds of American and Turanian Asia?

It will, of course, be understood that in these remarks we use the term "empire" in its widest signification. Strictly speaking, the Roman is the only empire upon record. The great Persian monarchy was but an aggregation of Satrapies, while the Assyrian was merely an array of dependent kingdoms. The primitive Oriental idea of empire was simply a great system of military supremacy on the part of one people, and of tributary subordination on that of others, and of this Assyria was apparently a perfect realisation. Of a central executive, exercising, directly or by delegation, administrative functions in every province, of even approximative uniformity in language, laws, and institutions, the men of the monumental era had not the slightest conception. This, like the idea of a universal faith, was the product of a later time, when humanity collectively, had attained to a larger growth of thought and a riper maturity of intellect.

Of these Aramaic Semites, the Chaldeans were apparently the more intellectual branch. The Magi of Babylon were second, if second, only to those of Egypt, in reputation for wisdom and knowledge. And it is observable that this knowledge, as in the case of the Egyptians, ever tended to assume a mystic and *quasi* thaumaturgic character. In such minds astronomy is simply the basis for astrology, while chemistry assumes the guise of alchemy, and science generally tends to the study of occult processes and the production of magical results. Were these specially Semitic, or merely primæval characteristics? Their reappearance in almost more than pristine force among the Saracens, notwithstanding the intervening period of Greek culture, is certainly an indication of some deeply seated tendency to the mystic and occult in the Semitic mind, although the nearly parallel condition of the European Aryans, during the middle ages,

should render us charitable in the interpretation of such proclivities, as being perhaps the result of ignorance rather than racial tendency. If, however, we institute a comparison between the culminating periods of Semitic and Aryan culture, and endeavour to analyse their respective characteristics, it will become at once obvious that, under the former, there was a manifest tendency to theosophy and magic, and under the latter, to philosophy and science. Thus, for example, compare the ancient Egyptians with the Hindoos, the Babylonians with the Greeks, or the Saracens with the people of modern Europe, and it will be at once seen that the former have an element of mysticism in their nature largely wanting in the latter. And this contrast becomes yet more striking when the two older peoples are excluded, and the comparison is confined, so far as Aryans are concerned, to those on their proper, that is European, area.

This diversity is what might be expected from the fact that the Semites are the moral and the Aryans the intellectual division of the Caucasian type. This Semitic speciality, however, did not culminate in either the Amharic or Aramaic branch of the race, but in the middle or Hebraic, where the especially commingling element was neither Negroid, as among the Egyptians, nor Turanian, as among the Assyrians, but either Iranic from the east or Hellenic from the west, and in either case of purely high-caste Aryan lineage. Does this help to explain the exalted moral position and vocation of the Jews, in virtue of which they are theologically the representative men of their family, not only in possession of an exalted monotheism themselves, but also the acknowledged source whence it was borrowed by Christians on the one hand, and Mohammedans on the other? And are they not in this respect somewhat analogous to the Celts of Western Europe, who in a similar manner, and from circumstances also arising out of geographical position, have been largely protected from invasion by non-Caucasian immigrants, and so have been enabled to retain a finer temperament and higher type than those less fortunately situated? Does not this specially Aryan admixture, which had probably a prehistoric as well as a historic cycle, also help to explain the partially European character of the Jews and Phœnicians, who as being, in a maritime sense at least, on the border land of the true Aryan area, inevitably partook more or less of its expansive influences both morally and ethnically?

To return, however, to the Aramaic Semites. In them the first or monumental cycle of Semitic imperialism, culminated and closed; giving place to the Iranic, itself to be succeeded by the Hellenic, and this, in turn, to be superseded by the Roman, constituting collectively the historic or Aryan cycle of imperial development. Do historians understand these great racial revolutions? Have they, for the most

part, even the remotest conception of their existence? Occupied with the details and minutiae attending the rise or fall of the waters in their own small inlet, they altogether neglect or ignore the great tidal movement of the ocean beyond, whereof their ebb and flow is but an insignificant and fractional portion—not to be understood moreover in its remoter causes and effects, unless thoroughly comprehended as but part of a larger whole. Has it not been said that history must be re-written, and must we not here re-echo the assertion from the anthropological standpoint?

We have already alluded to the probability of prehistoric cycles of Aryan power in the west; are we to consider the Persian as the first in the east? What say the conquest of Northern India and the settlement of the Aryans on the plains of Iran, to any such hypothesis? Were not these the effects of conquest and colonisation, implying military power and resources, together with a general political supremacy, virtually imperial? Perhaps, however, this fact of the Aryan settlement of Iran may be disputed. But what say the Zendic litanies in the Avesta? Are they not, as we have already remarked, exactly akin to those of the early Aryans in India, namely, the almost agonised supplications of high caste immigrants, surrounded on every hand by rude Turanian aborigines, from whose secret machinations and open hostility they pray to be delivered? The Zendic remains of Iran, like the Vedic literature of India, is clearly demonstrative of the fact that, in both regions, the Aryans were invaders, not surrounded simply by a hostile population, but by a people radically diverse in language, institutions, and personal appearance, and with whom, in a sense, there could be no peace—save that of the grave.

And why, it may here be asked, did the Iranic rather than the Indic division of the Eastern Aryans emerge into imperial power? and we reply, because of their comparative proximity to their proper ethnic area, and, perhaps, in part, from the fact that the Turanian aborigines of Iran were apparently nomads, while those of India were cultivators, in virtue of which the Iranic immigrants did not remain as simply a sacerdotal and military caste, but became, to a large extent, the virtual inhabitants of the land. And this brings us to that important problem, the geographical limits of the Aryan area proper, involving the limits of ethnic areas generally. Are these unalterably fixed, or susceptible of gradual expansion on the part of higher types, of course at the expense of lower, during what may be called geologic time, and in accordance with the slow change of telluric and other determining influences of racial type? As a fact, for example, have we not seen an extension of the Aryan area in Scandinavia, at the expense of the Turanian, during the historic period. And are there not indi-

cations that a similar but prehistoric extension took place in Spain, where the Iberic gradually yielded to the Celtic element—unless, indeed, we reverse the conditions of the problem, and regard the former as a colonial invasion from Africa on the true area of the latter? But what are the facts, historical, traditional, and archæological, respecting the eastern border of the Aryan area? And we may say that the first are *nil*, the second vague, and the third unknown. In this insufficiency of reliable data we are thrown back on speculation, and may say as a probability, that the mountains of Kurdistan were the prehistoric Eastern border of the Aryan type, prior to that great colonial extension, which eventuated in the formation of the Iranic and Indic areas of historic time.

And what are the eastern Aryans? In what do they differ from those of Europe, and how are they related to them? Although beyond question Aryans in lineage and language, and endowed moreover with all the predominant intellectuality of their type, they have nevertheless a certain Orientalism of thought and feeling not found in their kinsmen of the West. Do they owe this to an infusion of blood, perhaps from their Semitic neighbours; or is it due solely to the moral influence of Asian residence, accumulated through successive generations? Lingually, they are, perhaps, most nearly allied to the Lettic branch of the European family, while in type they approach the classic or even the Teutonic peoples, so that any decision on this point would be rather premature. Philology demonstrates that their separation from us—or our separation from them, as the case may be,—must have occurred at a comparatively early period of our common lingual development, and with this we must for the present be satisfied.

Was the rise of Persian on the ruins of Babylonian power a merely local incident, a national event, or the turn of a racial tide, that gave the Aryan supremacy over the Semite for fully a thousand years, and with the exception of the Caliphate and the earlier years of Turcoman and Osmanli conquest, we may say, to the present hour? The course of events indicates that it was the beginning of an ethnic tide, still on the flood, despite Carthaginian and Saracenic eddies of very respectable magnitude and considerable duration. This movement of civilisation and power westwards was, no doubt, aided by the tendency of an Aryan cycle of supremacy to seek effective development on its own appropriate area. Thus contemplated, the eventual rise of Greek on the ruins of Persian power was an inevitability, which in the process of effectuation assumed the form of Philip's preparations and Alexander's conquests.

The march of a Greek army from the Bosphorus to the Indus was an event whose effects are still apparent. The faith of the cross

occupies the western, and that of the crescent the eastern portion of the great area of classic power. Regarded from the mundane standpoint, Hellenic and Italic civilisation constituted but the bipolar aspect of one system, the epicycle of the Cyclopean, occupying the same site, and employing perhaps, ethnically speaking, the same people. The speciality of the Greeks was their purely Aryan type of character. They show us the European prior to his moral baptism by Semitic theology. The masterminds of time in literature and art, their religion was a speculative philosophy to the few and a profligate polytheism to the many; a people whom, from the theoretical Christian standpoint, we may, perhaps, regard, much as the Semitised Orientals affect to regard us, namely, as a people no less admirable for their talents than pitiable for their morals. Not that in this latter respect London or Paris need throw any stones at Athens, or even Corinth—which every man could not afford to visit!

The Greek, as we have said, is the representative Aryan, regarded intellectually, as the Jew is equally the representative Semite, contemplated theologically, it was, therefore, quite proper that in the further interaction of these races, they should especially combine for the evolution of a new and more expansive phase of religious development. And here we are brought in view of one of the gravest problems in historic anthropology, namely, the monotheism of the Semite, whereof the Hebrews are regarded as the original exponents, and the Arabs, in their capacity as Mohammedan conquerors, the principal Apostles. If this be a generically Semitic speciality, why were the Egyptians, Assyrians, and Babylonians such determined polytheists? Perhaps, because of a Negroid intermixture in the one case, and an underlying Turanian element in the other. Granting that originally, it was simply a Hebrew characteristic, how is it that the Phœnicians and their descendants, the Carthaginians, were such persistent idolators? Nay, were not the Jews themselves constantly prone to the sin of idolatry, till after their return from the captivity, that is, in reality, till after their contact with the Zoroastrian fireworshippers of Iran, the earliest iconoclasts upon record, and who, under Cambyses, gave the Egyptians a foretaste of what other idolatrous nations afterwards experienced at the hands of Mussulman invaders, in a later age? Where, then, are we to look for the root of monotheism? How did it become a Hebrew speciality? and why is it now regarded as a Semitic characteristic? Here, too, as in so many other departments of anthropology, we want "more light."

It is in the Romans, however, that we see the truly imperial division of the classic peoples, and accordingly on them devolved the final conflict with Semitic imperialism at its first cycle. The rise of

Carthage, and its place in the world's history, have been but imperfectly understood. Sharing in the unfortunate destiny of all its congeners, except the Jews, its written records have utterly perished; and though contemporary with the most brilliant historic nations of antiquity, it belongs, by race and fate, to the previous cycle of monumental civilisation, of which it was, in truth, the continuation and termination. Of Hebrew lineage, and more immediately of Phœnician descent, the Carthaginians were not altogether aliens, even in northern Africa. The muscular Moor and the wiry Tuarick were their remote kinsmen; while even Egyptians and Abyssinians were only another branch of the same great Semitic family with themselves.

What was the ethnic relation of the Phœnicians to the Ionian Greeks? Judging by cameos, coins, etc., were not Hannibal and other Carthaginian commanders as purely Hellenic in type as the best bred gentlemen of Attica? Was it from a Greek or an Arabian source that the Tyrians and Sidonians obtained their manufacturing industry and their maritime enterprise? We have already in part replied to this, by saying that the Hebrews owe their distinctive specialities to the fact that they are the Aryanised branch of the Semitic family, and so favourably contradistinguished from either their Amharic or Aramaic kinsmen, in whose blood a Negroid or Turanian taint is clearly perceptible. But let it be distinctly understood that this is speculation, not fact,—a suggestion based on probabilities, not a conclusion derived from reliable data.

Was the rise of Carthaginian power a part of the general march of civilisation westwards, the response of the Semitic man of the south to the vigorous development of the Aryan man of the north, the one on an African, and the other on a European area, with the Mediterranean, its islands and coasts, as the debateable border between them? And what are the indications afforded by Egypt and Carthage as to the capabilities of northern Africa as an ethnic area? Obviously that it is the colonial appanage of Asia rather than Europe; and that its next cycle of civilisation and power can, at the earliest, only be coincident with, or consequent upon, the resurrection of the former. Be this, however, as it may, the past of Egypt and Mauritania is adequate indication of an illustrious future, whether under European or Asian leadership, when the inherent and indestructible physical manhood of the Moor, like that of the Teuton, will tell with considerable force upon at least the political destinies of the world.

Whether the Aryan or the Semite be inherently and essentially the nobler and the stronger man, the contest between the Roman and Carthaginian could have but one termination. The former was on his own area, and represented the Aryan cycle approaching its meri-

dian of power and splendour. The latter was a colonist, the last surviving remnant of that mighty but departed family of Semitic nations, who, as Egyptians, Assyrians, Babylonians, and Phœnicians, had once loomed out so grandly upon the ancient world, but whose power had waned, and whose glory was dimmed, when their far-off daughter entered upon her internecine conflict with the sternest and most imperial type of the Aryan yet developed. Rome was young, at the maximum of her republican vigour, with all the splendour of her imperial destiny yet before her; while Carthage was old, not merely by individual senility, but as the heiress of that monumental civilisation, whose cruel and degrading superstitions were an anachronism in the presence of Greek culture and Roman law.

Semitic civilisation is not yet understood. Historians have not grasped the idea of a great system of life and thought, stamped throughout with a definitive racial impress, extending geographically from the Euphrates to the Pillars of Hercules, and chronologically, from the earliest of the Egyptian dynasties till the Roman plough passed over the last remnants of Carthaginian greatness. What is the sum of the influence exercised by this vast cycle? To what extent has it aided the progress of civilisation, and how far are we still its debtors? It reared several great empires, and built many mighty cities; but the power of the first and the splendour of the last have alike crumbled into ruin. Memphis and Thebes, Nineveh and Babylon, Tyre and Sidon, and Carthage, where are they? Even the Jew is in exile; and Jerusalem, the sacred city of Melchisedec, and the capital of David and Solomon, sits desolate, as a widow, among the nations, "trodden under foot of the Gentiles." No such ruin has overtaken the Aryan peoples. The language of the Vedas is studied; and the institutes of Menu are maintained from the Indus to the Ganges. The Persians are still a nation. The Greeks are undergoing a resurrection; and although, strictly speaking, there are no Romans, we have Italians, with a past of intellectual glory, and a future of political promise. Is this difference of destiny due to any racial speciality? Is the Semite an anachronism, or has he merely succumbed to the temporary predominance of the Aryan? As the developed type of a Negroid root, is his day of power and predominance permanently gone, or will he, phoenix-like, arise in youth, and strength, and beauty, from the ashes of the past?

To this, the spread of Mohammedanism and the rise of the Saracenic power of the Caliphs is, in some measure, a response. Here, for the first time in history, the Semite, pure and simple, or as nearly so as he anywhere exists, came to the front, and, as prophet and warrior, gave laws for some centuries to a considerable portion of the

civilised world,—unhappily, with the result of his monumental predecessors, of more mingled lineage,—desolation. The special character of Mohammedanism, and the causes of its rise and diffusion, are easily understood, and may be succinctly stated. Classic civilisation had raised southern Europe and western Asia above the level of ancient heathenism. The practical result of this was the development and diffusion of Christianity. But this faith, especially under the Greek and Roman churches, became so thoroughly Aryanised in doctrine and ritual, as to be no longer adapted to a Semitic population, more especially when that population had been subjected for some centuries to Judaic influences. Hence reaction became inevitable, and this assumed the form of the faith of Islam, which is simply monotheistic Judaism stripped of its sacrificial ceremonial. Fundamentally and essentially it is the same movement as Christianity, only it is that movement adapted to a Semitic in place of an Aryan people.

What, then, are the Arabs, who were the prime movers and chief actors in the great drama of Mohammedanism? and we reply, Semites of the purest blood, and on their highest ethnic area. Less persistent and industrious than the Egyptians,—less massive and imperial than the Assyrians, and less refined and intellectual than the Hebrews, they suffice to show us how much the great Semitic peoples of antiquity were indebted to alien elements for the place which they occupy in the pages of history. Intense, fervid, devout, and bigoted, a man of one idea, but holding that idea with the tenacity, and propagating it with the fervour, of a prophet, the Mussulman Arab was a true Abdallah, a sword of God, going forth to the conversion or the slaughter of the infidel. Dolichocephalic, with a preponderating coronal development, and of eminently nervo-fibrous temperament, with all the vigour and elasticity, mental and physical, which usually characterise this type, he was and is exactly fitted for a mundane raid on more civilised peoples in the hour of their political collapse and racial effeteness.

Regarded politically, and we may add ethnically, Mohammedan conquest was the reply of the man of the south to Turanian invasion from the north. Neither would have been possible during the vigour of either Iranic or classic civilisation. Both were barbarian inroads, whereof, however, the Turanian was the rudest; and so when, as was inevitable, they coalesced, it assumed the stamp of the faith of Islam, and once more raised the standard of the Crescent as it was falling from the nerveless grasp of the exhausted Saracen. This reveals to us the essential character of Mohammedan faith and of Saracenic power. Both were the product of reaction during that period of

collapse which divides the decline of classic from the rise of modern civilisation. They were never in the true van of humanity,—never in the right line of progress ; hence, they have ended in failure and desolation, leaving no bequest of any moment to posterity.

Contemplated theologically, however, Mohammedanism holds a distinguished place in the great scheme of human progress, as the most distinctly emphasised proclamation of monotheism of which history bears record. This was its true mission, whereto conquest and imperial supremacy were subordinate instrumentalities. This also decides its relation to Christianity, and shows that it is the positive and masculine phase of that Judaised faith which, in a duplex or bipolar form, has superseded ancient heathenism over the entire area of classic power.

The empire of the Caliphs arose like an exhalation, absorbing not only the Semitic peoples of Asia and Africa, but also the Iranic Aryans, while, at one time, it also seriously threatened those of Europe with ultimate subjugation. The Crusades were the result, renewing the old internecine strife between Aryan and Semite on the grandest scale, and reminding us of those conflicts between the solar and lunar Rajpoots, which apparently constituted so salient a feature in the ancient history of India. The march of Saracenic power was arrested ; and under Togrul Bey and Alp Arslan the Turcoman superseded the Arab as the political leader of the faith of Islam, and, under the dynasty of Othman, so continues to the present hour.

As an index of what the Semite, when fully aroused and under favourable circumstances, can yet accomplish, the rise and diffusion of Mohammedanism is gravely significant. With Egypt and Assyria in ruins, with the Phœnicians and Carthaginians absolutely extinct, and the Jews in exile, the Arab alone sufficed, in a single generation, to restore the Semitic race to the supremacy of western Asia, and the command of northern Africa. Nor did the tidal movement cease till India, on the east, and Spain, on the west, were added to the dominions of the Crescent. A race that could accomplish this, will doubtless yet claim recognition in those far-off ages of the future, when the epicycle of Egyptian and Assyrian greatness, of Phœnician commerce and Jewish influence, shall have arrived, and the world will again behold, not a spasmodic display of convulsive strength, as under the Saracens ; but the steady growth of well-ordered and abiding power, and the effective development of a complex system of civilisation, stamped throughout with the racial impress of a Semitic population, and so manifesting in its religion, literature, and art, the special characteristics of this peculiar type of man. Of this cycle, and its probable place in universal history, it is impossible to judge by the

achievements and position of the caliphate ; it can only be remotely estimated by the place and power of the older Semitic empires during the true era of their racial supremacy.

But much both of time and circumstance must intervene ere the advent of such a period of Semitic resurrection. In "Iran and Turan" we have shown that the Aryan of the West is steadily but irresistibly advancing towards universal empire, of which, morally, he is already in virtual possession. Now, if we have interpreted history aright, this biceltic and oceanic empire must culminate and decline, and its more immediate successor, the epicycle of prehistoric Cyclopean civilisation be also effectually developed, and probably have passed its meridian, ere the future phase of Semitic supremacy can really commence. And here it will, perhaps, be asked, whether we expect its agents to be pure Semites, like the founders of the caliphate and the modern Wabhabees, or a mingled people, like the ancient Egyptians and Assyrians ; and we reply, in all probability a mingled people like the two latter, but with this difference, that the commingling element will consist of a large proportion of Aryan immigrants, and consequently, that the resultant type, thus baptised, will resemble the Hebraic rather than the Amharic or Aramaic branch of the ancient and monumental Semites. We come to this conclusion, on the ground that the Semitic cycle of the future will follow, and be in a sense consequent upon a precycle of Aryan power, during which Asia and northern Africa cannot fail to be extensively colonised from Europe. Thus, not only will the olden sites of Semitic power be largely occupied by Aryan settlers, but there are not wanting several indications that even the Arabian peninsula itself will be subjected—at least along its coasts, if not to some extent through the interior—to this, perhaps, friendly and commercial invasion of western civilisers. In addition to this, the inferior Negroid and Turanian elements have, apparently, in the general progress of humanity, been somewhat curtailed of their former power and dimensions, and thus do not loom out so largely in the probabilities of the future as in the actualities of the past. Let it be distinctly understood, however, that all this is pure speculation, and so, perhaps, strictly speaking, scarcely admissible in a scientific paper ; but where would science have been at the present hour without suggestions and speculations, at the time no better supported and far bolder than the foregoing ?

But it is time that we should hasten to a conclusion. If correct in regarding the Aryan as a cultured phase of the Turanian type, and the Semite, correspondingly, as a cultured phase of the Negroid type, this would be sufficient to decide the superiority, and perhaps ultimate supremacy of the former. We must not, however, ignore the

fact that the Semite is the "representative man" of the moral sentiments, and that these are, after all, the ruling element in human affairs. We should also remember that we are ourselves Aryans, and live, moreover, during the marked predominance of an Aryan cycle, and from both causes are liable to over-estimate the inherent capabilities, and so misapprehend the place of the Aryan in the ethnic scale. It would then, perhaps, be better to regard these two great divisions of humanity as bipolar, and so indestructible, doomed to ever-recurrent though intermittent interaction, moral and physical. This is the indication afforded by their history in the past, and we have no reason to believe that their fortunes in the future will belie it. The forms which this interaction may assume must, of course, depend on the culture of humanity in general, and on that of the rival candidates for power and precedence in particular. The indications are that in the moral sphere,—the Semite will exalt, and the Aryan expand, the collective mind of civilised man. Hitherto this has been accomplished by the former assuming the theological mission; while the latter has undertaken the development of literature, art, and science. Not that this "division of labour" has been rigidly observed; for the Egyptians and Babylonians were apparently by no means devoid of the intellectual element; while in Buddhism we have an instance, and that, too, on the largest scale, of an Aryan faith extensively diffused among inferior races. If we mistake not, the culture of modern Europe is steadily advancing to a somewhat similar manifestation during the approaching period of Celtic predominance; when, as Christianity assumed an artistic phase under classic influences, it will equally assume an intellectual phase in the hands of the most refined, sensitive, and spiritual of all the Aryan types of the West.

We have, in previous papers, referred to the fact of racial baptisms as a recurrent phenomenon in the physical history of man, of which those between Celts and Teutons are an instance in point. Now, have we not reason to believe that those wars, conquests, and revolutions, that world-old and oft-renewed contest for supremacy between Aryan and Semite, at whose more salient features we have glanced in the previous pages, was simply this fact on the grandest scale, and in its most distinctly pronounced aspect, and if so, then in its ultimately most beneficent form. Have not, as already remarked, some of the grandest results yet achieved by man been apparently due, in part, to this interaction? And is it supposable that these are its last or its greatest results? Was classic civilisation the highest possible form of Aryan development? Has not modern Europe, for instance, many moral and intellectual elements of which Greek and Roman life was

either partially or wholly devoid? Granting, then, that the western Aryan is destined, at no very remote period, to conquer and colonise the larger portion of Asia, will he not bring with him social institutions, scientific attainments, and industrial resources, immeasurably superior to anything of the kind in possession of the historic Greeks of the age of Alexander, or those prehistoric Aryans who laid the foundation of the Indic and Iranic civilisation of an earlier time? And conversely, is not Mohammedan Asia in a much higher religious condition than idolatrous Egypt, Assyria, and Arabia, at any period, near or remote, prior to the diffusion of the faith of Islam. Practically, as a result of these higher elements on either side, may we not expect that at the next great racial interaction between these two grand divisions of humanity, the Asian Semites will prevail to lift Europe wholly out of Aryan polytheism; while in return the European Aryans will redeem Asia from her material desolation and her intellectual darkness, making this desert, morally and physically, bloom like a garden.

In speculating on any prospective interaction of the grander divisions of mankind, we should remember that the instrumentalities for its furtherance are now immeasurably greater than at any former period. Locomotion, whether by sea or land, can now be effected with a rapidity and facility previously unknown; and that, as a result of this, races are now interacting who were never previously in contact. In truth, the entire system of modern European colonisation, as a process whereby the highly civilised Caucasian is carried directly to countries previously inhabited only by savages, at their stone age, is almost a new fact, and, in its present magnitude and importance, certainly inaugurates a new era in the physical history of man. The extinction, rather than the amelioration, of the poor savage is an inevitable result of the stupendous disparity in the social and intellectual elements, thus brought suddenly into such immediate juxtaposition; so that strictly speaking, this phenomenon does not pertain so much to the province of racial interaction as supercession, and indicates, if we mistake not, an epochal revolution in the numerical proportion and geographical distribution of races, itself, perhaps, the effect of climatic and other changes, not the less sure and efficient because almost inconceivably slow in their operation.

Now, the especial instrumentality which has conduced to this phenomenon of displacement, is navigation, and what that has accomplished in three centuries, will be subject matter for all future history. But we have now another and corresponding instrumentality in our present improved means for locomotion by land, the full effects of which have yet to be witnessed. In "Iran and Turan" we have

shown the important bearing of railway communication on the ethnic future of Tartary, where a large extension of the Aryan area cannot fail to result from its operation, and where the resultant racial effect will also be largely one of displacement. But it will be quite otherwise with the present Caucasian area of Asia, whether Semitic or Aryan, where improved means of intercommunication can only eventuate in racial interaction, taking the form, in this case, of European conquest and immigration,—the epicycle, as we have remarked, not of Greek invasion under Alexander, but of that prehistoric movement which carried the Aryan patriarchs to Iran and India, ere Zend and Sanscrit became distinct dialects of their common mother tongue. Now, as Anthropologists, we cannot fail to be interested in the racial effects of an ethnic baptism so extensive, and it will not, perhaps, be altogether foreign to the purpose of the present paper, if we venture a few farther remarks on this subject.

The fact that the Aryans and Semites have their material roots, respectively, in the Turanian and Negroid types of uncultured man, would imply that it is to these divisions they would have recourse in their periods of physical exhaustion for a fresh baptism of bone and muscle, sometimes immediately, as in the case of direct Turanian conquest; and at others more remotely, and in a modified form, as in the Slavonic invasions of Greece, and the Teutonic colonisation of the Celtic area of western Europe. But for mental invigoration and refinement, implying of course a proportionate development of the nervous system, probably the most efficient process is interaction between the two great and contradistinguished types of Caucasian man, that constitute the especial subject matter of our present remarks, under which the Semitic element conduces to moral elevation, and the Aryan provides for intellectual expansion. We see the effects of this, though on a comparatively small scale, regarded numerically and geographically, in the Hebraic and Hellenic divisions of these races as they stand revealed to us on the pages of history. Now, one of the organic specialities of these peoples was their effective Caucasianisation, arising, doubtless, from the circumstance that they were less exposed, than most other divisions of the Semitic and Aryan peoples, to a direct admixture of Negroid and Turanian elements; in place of which they obtained the refining yet invigorating influence of an equally developed yet contrasted type of cultured man. This, then, reveals to us the great ethnic problem of the future, and, we may add, the manner of its solution.

We have already shown that the speciality of these latter, or post-classic ages, as we may term them, is the predominance, from India to Britain, of the muscular over their correlated nervous types,—

this predominance being the effect of military conquest, consequent on the physical exhaustion and political decay of the Indic and Iranic, the Greek, Roman, and Celtic divisions of the great Aryan race, and the corresponding decay of the Amharic, Aramaic, and Hebraic divisions of the Semitic peoples, but temporarily redeemed by the spasmodic outburst of wild Arabian energy at the founding of Moham-medanism. Of necessity, such a subjugation of the superior by the inferior types could not be permanent. In truth, none of these subjugations are other than the normal phenomena of racial interaction, and so, like the tides and seasons, are subject to the law of periodicity. Muscular predominance represents the ebb, nervous predominance, the flood; and what we now see is the setting in of the latter, from the Aryan area of the West. But while the colonial extensions of Europe in America and Africa, and her conquests in Asia, constitute a very important chapter in Aryan history, they are obviously but the incipient stage of the present movement of resurgence and predominance. Except in India, they have left the old civilised area of the East untouched, and thus far have conduced to no direct and effective interaction between the Aryan and Semitic divisions of humanity. This, then, we hold to be the next, and in a sense, the immediately impending phase of the movement. It is obviously a mere question of time, when Asia, from the Bosphorus to the Ganges, shall be subjected to European conquest and occupation; and here the high-caste and civilised Aryan of the West will come in contact, not with hunting savages and nomadic barbarians of Turanian type, but with civilised Semites and eastern Aryans, of as pure blood and proud descent as his own, and who cannot fail to react with great power, both morally and physically, upon their conqueror.

This eastern movement of humanity, and the consequent ethnic baptism of at least western Asia by the Aryans of Europe, promises to open a new chapter in the physical, intellectual, religious, and political history of mankind. Is it not here that we discover the possibility of a new and improved type, uniting the moral elevation of the Semite with the intellectual expansion of the Aryan, and of which we occasionally see, even in Aryan Europe, some magnificent instances, more especially since her long subjection to the partially Semitic influences of Christianity? And it is observable that when men of this type emerge into manifestation on the intellectual plane, they constitute a hierarchy of master-minds of the very highest order. It is only necessary to name Dante and Tasso, Calderon and Camoens, Shakspeare and Bacon, and, perhaps, we may add, as approximative instances, Melanchthon and Sully, Goethe and Cuvier, to recall the lordly altitude of brow, and the exalted coronal region, which gave

even vulgar beholders the impression that here were gods rather than men.

While, then, we are decidedly of opinion, that the next and nearly impending eastern movement of civilisation, will eventuate in a European colonisation of a large portion of Tartaria, and in an ethnic baptism, more or less extensive, of the greater part of Mongolia, we cannot ignore another equally important result, to which it must also of necessity conduce,—we mean the rebaptism of those races of Asia that are already Caucasian in type, and have in previous ages played an important part in promoting the development of civilisation. With the exception of the Arabs, these have all been subjected, for many centuries, to the predominance of Turanian conquerors, whose hopelessly barbarous rule, however, is now obviously drawing to a close, and will be succeeded by the expansive and invigorating leadership of the western Aryans, already in possession of British India. Thus, then, it is obvious that three distinct though allied racial movements are impending over the eastern world, as a result of its temporary subjection to European supremacy; namely, the extension of the Caucasian area at the expense of the Turanian,—the rehabilitation of the oriental Aryans,—and lastly, though not leastly, the baptism of the high-caste and morally developed Semites by the equally high-caste and intellectually developed Aryans of the West.

It is with the last that we are principally concerned at present. What will be the effect of the moral and physical interaction of these contrasted types of Caucasian man? Judging by the Jews and Greeks, who present us with the process and its results in the purest form achievable by antiquity, we should be justified in predicting great things from this commingling of the moral and intellectual elements of humanity. Perhaps we should not be going too far in suggesting the possibility of a virtually new—that is, organically and mentally—improved type of man being the result of such a union; while it can scarcely fail to eventuate in a development of religion, and perhaps literature, into a sublimer phase of manifestation and expression than they have ever hitherto attained. We must remember that, with the exception of the two great nations already named, nearly every distinguished Semitic or Aryan people have been more or less mingled with inferior Negroid or Turanian elements, and have obviously been indebted for many of their ruder attributes and characteristics to the coarser stock, of whose barbarous proclivities they thus partook. Now, the indications as to the future are, that the especially constituent elements of the next great Semitico-Aryan baptism will be between the two purest of the remaining divisions of either race; namely, the Arabs and the Celts (of Gaul and Britain),

with just such a proportion of Hebraic and Hellenic, and perhaps we may add Italic and Syrian, influences as will suffice for cement between the two extremes.

These things lead us to rather profound depths of investigation, and far-stretching vistas of speculation. Has there ever been, with the Hebraic and Hellenic, or, shall we say, classic, exceptions already named, more than an approximately Caucasianised type that has attained to national distinction, far less imperial supremacy, during the historic period? and let it be remembered that it is to these two exceptional peoples that we owe our religion, literature, and art. Are there not degrees of Caucasianisation both in the Semitic and Aryan types? Are the coarse-featured Moor and flat-footed Slavon perfect forms, mentally or physically, of the Caucasian man? Have they the requisite proportion of nerve to bone and muscle, the contour of head, the chiselling of features, or that finish of the extremities, to say nothing of delicacy of perception, elevation of thought, or grandeur of conception, which we regard as, in some of their higher individualities at least, the natural endowments of a Caucasian people? Indeed, thus contemplated, is there at present, or has there ever been, a perfectly Caucasianised nation? In the lower social strata of Aryan and Semitic communities, when existing as actual nations, with all their several orders and classes in efficient activity, do we not find the former tend to a semi-Turanian, and the latter to a semi-Negroid type? And are we not thus brought back to the idea, perhaps somewhat faintly adumbrated in Iran and Turan, that the Caucasian must be regarded as in some measure a cultured type, alternately product and agent, or shall we say, appropriate organic instrumentality of our higher civilisation? But it is time we should conclude. Our paper, though long, is so far from being exhaustive, that on many very interesting subjects we have scarcely broken ground. The iconography of Egypt and Assyria as deducible from existing monuments, the comparative anatomy and physiology of the Aryan and the Semite, and we may add, their comparative psychology, demand, and would repay, the most profound investigation. On these, however, as well as many other kindred departments, additional information is being so rapidly accumulated, that the time for enunciating definitive opinions has obviously not yet arrived. They belong to the debatable land of Anthropology, where farther investigation should precede settled conviction, and where anything approaching to dogmatism would be altogether misplaced; and we have accordingly endeavoured to avoid this, preferring the modest suggestion that courts farther inquiry, to the unwarrantable assumption of authority on grounds admittedly inadequate to its support.

ON THE DEVELOPMENT OF THE HUMAN SPECIES, AND THE PERFECTIBILITY OF ITS RACES.*

By Prof. SCHAAFHAUSEN, Honorary Fellow of the Anthropological Society of London.

NATURE is the universe. Hence, there is no subject which does not belong to the investigation of nature: Proud of so many victories by which natural science has overthrown error and prejudice, she strides triumphantly along foreign provinces, and should she be obstructed in her path, she claims her right; for all science of antiquity has proceeded from her. Thus, there exists by the side of history, which relates the course of times, the names of great kings, wars, and battles, or the rise and decline of arts and sciences, a natural history of the human species investigating the struggles and doings of peoples; the various degrees of culture as a natural development, to which the picture of individual human life forms a counterpart. Peoples, also, have their ages. As organic life in general is determined by natural influences, so is the crude man intimately connected with nature; but even the cultured man is not independent of it, he merely learns to apply her laws to his objects. The knowledge of the surface of the globe has thrown light upon the course of universal history; and since a new science, that of statistics, has commenced a strict investigation into the most complex cultural conditions of modern nations, we have learned that human society everywhere is subject to natural laws,—that events, hitherto deemed accidental, such as deaths, births, the number of marriages, crimes, may be calculated beforehand. Here we meet with the unsolved problem, that liberty of human action and natural necessity stand side by side.

The various cultural conditions of the human species, as they followed each other in time, have a special charm for the naturalist, inasmuch as he sees them side by side in the various human races. Many features in the manners of savage peoples are not sufficiently made use of, to afford a living picture of the beginnings of our own civilisation.

Just as the brightness of light is measured by the depth of the shade; so do we estimate the height of our own civilisation by looking into the depths from which savage peoples often vainly try to emerge.

The judgment concerning the condition of savage races varies ac-

* Translated from the official Report of the Thirty-third Assembly of German Naturalists and Physicians, held at Bonn.

ording to the assumption of an original equality of disposition in all, or of an original diversity in the respective races. According to the latter view, there are some races utterly incapable of civilisation, and they will and must disappear, like the bears and wolves of the wilderness. "It is not worth while," says a naturalist of the day,* "to look into the soul of the Negro. It is a judgment of God which is being executed, that, at the approach of civilisation, the savage man must perish." Similar reasons are at present, more than ever, brought forward to palliate slavery. A contrary opinion is derided as philanthropic enthusiasm; and the testimony of numerous travellers and eminent men of science is appealed to, that the Negro never can and never will reach the civilisation of the European; that his destination and his lot is to be dependent on the latter. I must here protest against the justice of such an assertion, and proclaim, in the name of science, equal rights for all human races, in the noblest sense of the word. Although a President of the United States has once said, "The red stripes on our flag are the bloody weals left by the whip upon the backs of our slaves": such an expression is now rarely heard, or when heard, hushed up. Alexander von Humboldt who, in his *Cosmos*, expresses himself decidedly against the assumption of higher and lower races of man, deeming them all destined for liberty, to whom we also owe that the last remnant of the recognition of slavery has disappeared from the Prussian codex; this Humboldt also said, in 1826, that the old Spanish laws on slavery were less cruel than those of the Slave States in North America. He had in July to protest publicly against a translation of his work in New York, in which this passage was omitted. Since then, a great improvement has taken place in the minds of the people. "The immense success," says the *Quarterly Review*, "which Mrs. Beecher-Stowe has achieved by her novel, has given the death-blow to the fugitive slave-law. When, two years ago, a fugitive slave was given up, the tenth part of the whole Union army was required to quell an insurrection. Though it may be admitted that many Negroes are better off in slavery than in their own homes, still, all modern travellers testify that the slave-trade has become for Africa a destructive pestilence; for slave-hunting is almost the sole cause of bloody wars between otherwise pastoral tribes. The dreadful decrease of the population of the South Sea, where the European has imported his vices and his poisons, is quoted as an irrefutable proof that the extinction of savage peoples is inevitable. Certainly, if the Bible is offered to the savage with one hand, and a brandy-bottle with the other, he naturally prefers the latter. And are the North American savages in the wrong in

* H. Burmeister, *Der Schwarze Mensch in. Geolog. Bildgs.*, v. II, Leipzig, 1853.

believing that the Great Spirit has given them the land which the white man has robbed them of? We admire patriotism in a civilised people, not in a savage people. According to recent investigations, these tribes are far from being yet exterminated; if united, they still would be able to produce 200,000 warriors, which would have the advantage in their forests and mountains. An American, who had become convinced of the uselessness of a fight, proposes, as the surest means of destroying them, brandy and starvation. With the destruction of the woods, the buffaloes, which form their sustenance, also disappear. It is only shamming justice when the North American government has, for some years past, been in the habit of paying to the Indians an insignificant sum for the cession of lands, by the sale of which in Washington an excellent business is carried on.

In this conflict of races, we are inclined to side with the civilised peoples, on the ground that they oppose culture and humanity to barbarism and cruelty. But justice demands the exposure of the disgraceful arts by which the gold-thirsty European has taken possession of such lands, and has become the destroyer or tormentor of his brethren. Bloodhounds have been trained in Cuba to catch runaway Negroes; and the first English settlers in Australia hunted the savages to obtain meat for their hounds. "The Indian," writes a German traveller in California, "is not only here, but in America generally, looked upon, not as a man, but as a wild beast, whose life anyone is not only justified, but bound to take. The scalps of Pawnee and Apaches Indians are paid by the Mexican government fifty dollars each;* hence, hunting the Indians is one of the chief pleasures of the Rancheros." But let not that which the wickedness of man perpetrates be called an inexorable law of nature. "Destruction is easier and more compatible with human indolence and savagery, than the troublesome process of education," are the concluding words of a writer on the fate of the indigenous population of America. Among the most celebrated travellers, naming only Forster and Le Vaillant, Livingstone and Barth, there have never been wanting such who never doubted the good disposition of savages, and expressed their conviction that, in most cases, the cruelty of the savages has been called forth by the disgraceful treatment they experienced from the whites. In most of them, the feeling of revenge, and the fear of treachery, still survive. Just as the question, whether man was originally bad or good, is differently interpreted, so are there some who look upon the savage as a devil, whilst others think to see him in a state of innocence. In point of fact, the savage at one time resembles a child, at another time, a wild beast. On reading the conflicting reports of

* Compare J. Gregg, *Commerce of the Prairies*, vol. i, p. 299, New York, 1844.

travellers, we must take into consideration that much depends on the mental disposition of the observer ; that in which man is himself deficient, he is unable to recognise in another. A goodnatured enthusiast sees virtues where none exist, and he becomes the victim of craft and cunning ; whilst the merely selfish man pre-supposes the same motives in others. We ought not to feel surprise at finding in the uncultured mind of the savage features of noble sentiments ; for the feeling of right and wrong requires no great mental exertion, and is found vivid in the simple-minded man.

As regards the question of the perfectibility of the savage races, it must not be forgotten that nature takes no leaps, neither from savagery to culture. It is for this reason that the self-sacrificing activity of missionaries has not always had the desired success. Christianity, no doubt, spreads the seeds of civilisation ; but a full crop cannot be expected, unless it falls upon cultivated soil. The inhabitants of Central America have, for three hundred years, been converted to Christianity : but still, in the villages of the mountains, it occurs that behind the Christian altars they secrete their idols and their heathen priests, who add a heathen name to the Christian name by which the child has been baptised. It is said that on the table-land of Guatemala, a few years since, there were still, according to the old custom, new-born children sacrificed to appease Vulkan Attihang. And yet, even Prichard admits that the successes of the Catholic missionaries in South America, where, of one million Christians, but ninety-four thousand are heathens, are much greater than those of the English in the north, who, with puritanical strictness, wish to introduce among the savages divine service ; whilst the former, if need be, lead their followers dancing into the church.

As Christianity teaches the equality of all men ; so science must acknowledge that, notwithstanding all the differences in the stages of culture, the same nature and disposition is innate in all races of man,—that each race has a right to live, and possesses the faculty of development. Even the lowest race has not been so much neglected by nature as not, in certain physical capacities, to excel even the European, or unexpectedly to manifest a deep human feeling. The Australian throws his boomerang with a wonderful skill, so that it strikes the bird and returns to him. Without his moving from the spot, this savage avoids, by the mere flexion of his body, six spears thrown at him in rapid succession.* Although his language, as Gerstäcker informs us,† contains no word for *love*, he still mourns for the dead. Children dying, under four years of age, are only buried after the lapse of several months. They are carefully packed, carried during

* Compare *Das Ausland*, 1856, n. 18. † F. Gerstäcker, *Reisen*, 4 Band, 1854.

the day by the mother on her back, and used as pillows at night. When they have become dry and mummified they are buried, or put into a hollow tree. For months after the burial, the women sit near the graves lamenting, and make incisions on their thighs and the chest with flints. Are not these germs of civilisation worthy of careful nurture? They are not developed, because the latter is wanting. Those happy nations which, by the concurrence of the most favourable conditions or life, have for thousands of years become the carriers and promoters of human civilisation, not by their own efforts alone, but by those from generation to generation, from people to people, from the inheritance of mental treasures, are not entitled alone to take possession of the highest goods of humanity, since experience has shown that human civilisation rises higher in proportion as it becomes the common property of all peoples of the earth.

On considering races as essentially different human stocks, their whole history becomes divided into a series of unconnected, successively played dramas. Every race accomplishes what it can, and then leaves the stage. Gobineau* says, that our present civilisation cannot be compared to that of ancient times; according to which the human species is not progressing but retrograding. Thus it is predicted that the German people are now sufficiently ripe to become the booty of the Slavonians. This is a sorry view of the world, in which it is forgotten that the vital capacity rises with vital development; and that no Christian people has perished, or become so decayed as to render a regeneration impossible.

And how about the proof in favour of the immutability of races? It is said, never has a Negro become white. But his black skin does become paler in cold climates, and who can determine the degree of the change which may supervene, when natural influences have acted upon the race for thousands of years? Is it true that the Jews, as is so frequently asserted, have preserved pure their Asiatic type? That it is not true, despite the seclusion of the race favourable to it, is rendered evident by the comparison of the Israelites of the east with those living in the civilised countries of Europe. The head and the physiognomy of the slaves in the West Indies improve even in the first generation; and the Negro born in America fetches a higher price than the African, because, under the influence of civilisation, he has become physically and mentally improved. When Tschudi† says, "The Negroes will, as a people, even with the most careful education, never reach a high degree of civilisation, because the structure of the

* *Essai sur l'inegalité des races humaines.* Paris, 1853.

† J. v. Tschudi, *Peru*, v. i. St. Gallen.

skull, and the development of the brain by it too much approaches the animal form," it must first be proved whether that unfavourable shape of skull and brain is immutable for all ages; whilst, as experience has unquestionably shown, mental culture does influence it. The immutability of race-type is not demonstrated; it can, therefore, not be used as a proof against the unity of the human species, the possibility of which cannot be denied by natural science.

But apart from physical conformation, where is that rigidity of mental disposition which is said to be imprinted as an immutable mark upon every race? Blumenbach already has cited a number of Negroes who have distinguished themselves by their mental endowments. Neither are Negroes deficient in courage and bravery. How heroically have they not shown themselves at the storming of Palmares by the Portuguese, when their leaders preferred death to slavery, and cast themselves over the rocks. During the liberation war of Fernambuco against the Dutch, Henriquez acquired such renown that even now Brazilian regiments bear his name.* The Dutch equally praise the bravery of the Negro regiments in their Indian colonies. During the insurrection of St. Domingo slaves have, with devoted fidelity, saved their masters,—the Spanish families especially were spared, as they treated their slaves with greater lenity. We now know African tales and songs breathing a deep poetical feeling; and of the pastoral peoples south of Benguela it is known that, when they are carried away as slaves, they die of home-sickness. A suicidal mania frequently becomes epidemic amongst Negro slaves, as they believe to return to Africa after death. In order to destroy this belief, the slave-owners cut off the hands of the corpses, and plant them upon the graves.

Carus,† who ascribes an unequal capacity for higher mental development to the various races of mankind, asserts that never has a Negro, confined to his own stock, risen to importance; and as regards the fate of whole peoples, he adopts the motto of the poet, "the history of the world is the judgment of the world." Gobineau also says, "Because the Negroes, during so many centuries, as they are known, have never become anything by themselves, and scarcely by the impulse from without, it is not likely that they can become much in the future."

Pott‡ replies to this, "Where does the man live who can boast, without an intimate knowledge of languages but little or not at all

* Rugendas, *Reise in Brasilien*. Paris, 1835.

† C. G. Carus, *Ueber ungleiche Befähigung der Verschiedenen Menschheitsstämme*. Leipzig, 1859.

‡ A. F. Pott, *Die Ungleichheit menschlicher Rassen, Lemgo und Delmold*, 1856.

known, to descend into the mental depth of peoples, and take its measure?" "It is in language," he adds, "despite its curious variegation and manifoldness, that the one and universal human spirit reigns. Unquestionably, humanity occupies different degrees of culture. But that the peoples of the Caucasian race can show the highest performances in art and science, is not owing to the race; for Peruvians and Mexicans, Chinese and Japanese, had, centuries before many peoples of the Caucasian race, reached a higher degree of civilisation than can, even at the present day, be shown by many peoples of the Caucasian stock, such as Tsherkesses, Croats, Berbers, and others. Moreover, none of the European nations can boast of owing its civilisation to its own tribe. A great portion of our civilisation we have received from the Greeks and Romans; these again received it from Asia and Egypt. We know not to what race the beginning of civilisation is to be ascribed.

It is by civilisation that the peoples of the Indo-Germanic stock have become the noblest and finest branches of the tree of humanity, not because they possessed a higher innate disposition from the beginning. What is called the character of a people, which for centuries preserves its peculiar stamp, is not an innate peculiarity, but an acquired direction of psychical life, derived from early and deeply imbibed influences, which may be preserved, as are physical marks. Thus, dark hair and eyes, in temperate climates, may even, after a thousand years, indicate a southern origin, and, in our Rhenish towns, Roman blood.

Place the peoples into different conditions of life, and they will imperceptibly undergo a change. When the inhabitants of the New World first saw Spanish cavalry, they were surprised; but when the soldiers dismounted, they became terrified; for they took horse and man to be one body, the horse being unknown to them. At present, the Patagonians are mounted nomads, who cross the Pampas as the nomads of High Asia cross their steppes, and as the Indians of the north hunt the bison on horseback up to the rocky mountains. The cannibal Caribees are at present Christian agriculturists; whilst the Hottentots, driven away from their fertile hills by the Cape colonists, have, from peaceable shepherds, become miserable savages. A Botokudo became the apostle of his people, who, by the abolition of the punishment of death, are in this respect in advance of us. A Cherokee has invented an alphabet for his people, who, according to Catlin possess nice farms, written laws, good schools, and charitable institutions.* Who, looking at the Hungarians, would say that they

* J. C. Prichard, *Naturgeschichte des Menschengeschlechts herausgegeben von R. Wagner und F. Will.* 4 Band, Leipzig, 1848.

are Fins, were it not that their language betrays the fact? The poor Irish, one-fourth of whom have, during the last ten years, left their homes, have, in the New World, become an industrious, temperate, and cleanly people, the opposite of what they were at home.

We should never forget that the history of the most civilised people points back to periods of savagery; that the vestiges of human sacrifices are found both in Homer and the Old Testament; and that the primitive inhabitants of Europe were savages. Although the German occupied a higher stage, still the Romans, who sold Celts and Germans in their slave-markets, had a better right than we have to say, "These barbarians are incapable of civilisation." At the time of Julian, German tribes were dressed in skins, or went about naked. The Heruli went, down to the sixth century, naked into battle; and our ancestors immolated their prisoners in the eighth century. Strabo says: "The Belgians have the custom, on returning from their wars, to hang up the heads of the slain around the necks of their horses, and to nail them above their house-doors. Posidonius observes that he has frequently seen this." "The heads of men of rank are anointed with cedar-oil, in order to preserve them better. These and other customs have been abolished by the Romans. The inhabitants of Ireland are cannibals; they consider it praiseworthy to consume their dead parents." Is this not like reading a description of Indians, or of South Sea savages? May we not expect similar results as those obtained by Roman civilisation?

One of the great means which nature employs for the improvement of the species is the intermixture of races. Thus, after the conquest of Roman provinces by the Germans, a rejuvenescence of most European peoples took place. As regards England, Dahlmann observes, "Our belief in the intellectual privilege of a pure, unmixed breed is a worthless superstition; Attica and Rome refute it." And in our own fatherland, do we find that the most mixed tribes of south-western Germany are the worst endowed physically and psychically? That which wars and conquests once effected by imparting to unnerved, sickening nations, the rude force of an uncorrupted primitive people is now being produced by the peaceable intercourse of peoples in all seas, and all parts of the globe.

And what is to be the future of species? If Gobineau be in the right, who sees in the intermixture of peoples the cause of their degeneration, the species must sink deeper and deeper, and finally decay. We, on the other hand, believe that the result will be, that a more homogeneous, a purer, and more perfect species will issue. The human races will not, on that account, entirely disappear; for although culture has the tendency to equalise what nature has separated, and

just as, even now, for example, the cultivated classes in all European capitals more resemble each other physically, than the rural populations of the respective countries, still culture cannot change the cosmic laws, and the climatic vital conditions depending on them will continue to exist, and preserve a variation in the human form.

We look upon culture and civilisation as the natural development of our species; others place civilisation and nature in hostile opposition. Many qualities and capacities are considered as natural to, and innate in man, which have only been acquired by education. There exists no man without any culture, for then he would not be a man. In the lowest state of savageness, man has already implements of stone or bones, skins, and mats. Rousseau, in his zeal against the excrescences of an effeminate culture, when mothers no longer suckled their own children, and confined the new-born infant so as to impede its movement, committed an extravagance by wishing to return to rude nature. He would have changed him into a savage. He went so far as to call it ill-treating nature when the gardener pruned his fruit-trees; he ignored that every noble fruit has only become so by the labour of man. Even the peach, as it grows wild in Persia, is bitter and juiceless, and so are by nature all roots and herbs we use for our daily food. Not nature but man has developed the rose; a Georgina, which now ornaments our gardens, did not exist fifty years ago. The Arab horse, as it now exists, is the work of human care; and, as it appears, it is by human cultivation that the grasses yield grains which again become seeds of culture. There is, no doubt, man has also, according to his humour, deformed nature, but in thousands of cases he has beautified it. Even the physical beauty of man cannot be separated from his culture. The peoples mentally distinguished have, at all times, been the most beautiful. Bodenstedt* has lately, like many before him, rectified the exaggerated description of the beauty of the inhabitants of the Caucasus, giving, especially as regards the female sex, the preference to European beauty, which combines physical charms with those of mental grace, and is alone capable of high psychical expression: the whiteness and delicacy of the skin is owing to the protection afforded by dress, and the small well-formed foot and graceful carriage, to the smooth foot-pavement of their cities. Nor must we omit the influence of cleanliness, which is so great that, according to Liebig, the civilisation of a nation might be determined by the quantity of soap it consumes. Thus, culture shows itself by an improved beauty of man.

But by what is the cultivation of whole peoples, which we call civilisation, most manifested? By the dominion of man over nature,

* Bodenstedt, *Die Völker des Kaukasus*. 1855.

by the general spread of knowledge,—the flourishing condition of industry, art, and science,—the refinement of manners,—the mildness of laws,—personal security and liberty,—the position of woman,—and, finally, by the acknowledgment of human dignity. The higher the civilisation, the more valuable is human life. The great means towards attaining these objects, consist in the acquisition of our mental inheritances, liberty of investigation, the division of labour, the unimpeded development of social conditions, the widest intercourse between men and peoples and their thoughts, called forth by a community of human interests, which will more surely promote the aims of humanity, and secure to civilised countries the peaceful possession and the growth of their prosperity.

And if, despite all this, anyone doubts the progress of the human species, natural sciences alone, which have transformed old myths into truths, will refute him. Is it not natural science that, with her divining-rod, discovers the treasures hid in the crust of the earth? Is it not her that knocks at the rock until the spring gushes forth? Has she not banished pain, and lengthened the life of man? Instead of the mythical numbers of Pythagoras, she has laid bare that mysterious law of numbers which combines the elements of all bodies. And although Socrates called it an idle undertaking to search the heavens, we have succeeded in measuring the distance the light traverses from remote stars; we weigh the sun, and calculate the orbits of comets. On the very spot where calculation indicates the position of a new planet, there is it found by the telescope, which makes us almost better acquainted with the mountains of the moon, than with many mountains of the earth; which resolves the nebulae into clusters of stars, and indicates the course of the sun and the earth through space.

Those fools only, who would know everything, for whom the mere enlargement of the boundaries of our knowledge possesses no value, they alone remain dissatisfied.

But the best that we can know, is the conviction that there is implanted in human nature the germ of perfectibility, and that we are all called upon to contribute to it. Nature is not rigid, but pliable; it rests not, its essence is motion; but gravity is not alone the ruling law, the noble organised forms seek the light! The human species also seeks it.

ARGYLL ON ARCHAIC ANTHROPOLOGICAL SPECULATIONS.*

AN essay on Archaic Anthropology, by the author of the *The Reign of Law*, was, as is well known, called forth by a statement made at the meeting of the British Association in 1867, to the effect, that the primitive condition of man was one of "utter barbarism." This is the doctrine which a titled Scotchman controverts, and undertakes to refute.

Without giving any opinion of our own on the cogency of his argument, preferring rather to leave that to the judgment of our readers, we will endeavour to give some account of the reasoning upon which the author's conclusions are founded, premising that it embraces many points of the highest interest, very ably handled, and forming, on the whole, a valuable contribution to Archaic Anthropological science. It is very desirable that all matters of scientific research should be viewed under various aspects, and from different points of sight, if we really wish to obtain correct impressions of their true nature and significance; for perhaps we are all, as lovers and followers of science, too much inclined to take things in general on authority, —to receive the dicta of professors too much upon trust, forgetting the Horatian maxim, "nullius in verba magistri,"—to adopt scholastic phrases without a sufficient examination of their import; whereas, an independent exercise of thought, and a fearless expression of opinion, although in regard to some particular scientific creed it might brand us as heretics, is much more creditable, and assuredly much more grateful to an ingenuous mind, whose object is simply the discovery of truth.

In this essay, the author professes to meet his antagonist on scientific grounds only, and to fight him with his own weapons: yet, we observe, that he does not ignore altogether the aid to be obtained from a due respect to the Mosaic narrative. We hold that he is right, and that he has done well to try and restrain and expose those wild flights of imagination which characterise some of the pseudo-scientific theories of the day.

The subject of "Primeval Man" resolves itself into three separate questions, each of which is independent of the other, and here receives its separate consideration:—

* *Primeval Man: an Examination of some Recent Speculations.* By the Duke of Argyll. Strahan & Co., 2nd edit., 1869, pp. 200.

“1st. The origin of man considered simply as a species ; that is to say, the method of his creation, or introduction into the world.

“2nd. The antiquity of man ; or the time in the geological history and preparation of the globe at which this creation or introduction took place.

“3rd. His mental, moral, and intellectual condition when first created.”

1st. *His Origin.* To himself, his origin is totally incomprehensible ; his consciousness and experience teach him nothing. Of the vast number of animals and plants that exist on the globe, he has never witnessed the origin of one of them. By artificial processes and modes of culture, varieties may be produced, departing more or less from the type of the parent stock, but they are not permanent, and either die out or revert to their original types. Man has never seen the origin of a new species ; and yet, through illimitable periods of past time, represented by geological formations, a constant introduction of new types and species has taken place. We are not cognisant of any other law by which species and genera are continued than the law of generation ; therefore, it is assumed that through the agency of this law has been the production of different species, as well as individuals. Even under this idea, our researches will carry us back to a time when life was not ; therefore, some other law is needed to account for its beginning. In fact, the hypothesis of development and transmutation is only that of another method of creation, and is involved in as many difficulties as any other method of creation can be, and equally beyond the reach of our comprehension. Still, those difficulties are not theological ; they are scientific. These difficulties are specially applicable to the hypothesis of man's origin. The analogies that exist between the anatomical structure of man and the gorilla, or chimpanzee, are not of such a character as to justify the belief of his generic relationship to those animals. And the phenomena of mind constitute a gulf between them, which no analogies of structure may bridge over. And it will be found that his corporal structure is in strict harmony with his mind. “Whatever may be the anatomical difference between man and the gorilla, that difference is the equivalent, in physical organisation, of the whole mental difference between a gorilla and a man.” The cranial capacity of the lowest races of man greatly exceeds that of any known ape. Professor Vogt has, perhaps, laid too much stress on microcephalism in viewing this idiotic skull-form as an approximation to the simian type ; if, indeed, it were accompanied with other anatomical peculiarities expressive of that type,—as, for instance, the prehensile character of the foot,—then, indeed, we might truly view it as a reversion to the animal

origin ; but without this, we see no more in the idiot skull than a specimen of undeveloped structure, arising from some abnormal deviation of the structural law. If the structure and mental endowment of primeval man approximated him nearer to the beasts, than do the physical and mental endowment of the lowest Australian savage, then his struggle for existence must have been, indeed, hopeless ; and we do not see how he could have emerged from his bestial type to become the progenitor of a race of heroes and philosophers. The most ancient skeletons yet discovered, differ but in a small degree from those of existing races. All the evidence as yet is in favour of man as a distinct species, "separated by a gulf practically immeasurable from all the creatures that are, or that are known even to have been his contemporaries in the world."

2. *The Antiquity of Man.* This is a matter of evidence, which evidence is derived from history, archæology, geology, philology, and the distribution of the various races of mankind,—chronologically, we are unable to fix the date of his creation. The Hebrew history alone professes to give his genealogy ; and "the sole object of that history appears to be to give, in outline, the order of such transactions as had a special bearing on religious truth, and on the course of spiritual belief." History may be said to begin with Abraham, about 2,000 B.C. ; but between this date and the Flood there is a wide interval, in which monarchies and nations rose and flourished, now only inferentially known ; nor are we yet able to form a correct estimate of the time that interval embraces. Wide it must be. German scholars compute the foundation of the Egyptian monarchy at 700 years at least before the historical period. There is a difference of 800 years in the Hebrew, Samaritan, and Septuagint chronologies ; and when such a discrepancy exists, no absolute dependence can be placed on the common method of computation. The Flood must have happened much earlier than is generally reckoned ; for the dispersion of mankind requires a more extended period than is usually allotted to it. The distinctive types of different races are as strongly marked in Egyptian monuments, some of which extend back to 1,900 B.C., as now. The Negro type is unmistakably so. This naturally leads to the consideration of the origin of racial types ; can such varieties have proceeded from a single stock ? The author is evidently no advocate of plurality of origin and permanency of type. "All the evidence of science tends to the conclusion, that each well-marked species (variety) has spread from some one centre of creation, and presumably from a single pair." The evidence derived from language points to the same conclusion of the high antiquity of man. From geology we learn that whole groups of quadrupeds have become extinct since man appeared upon the earth, not by his hand, but by

changes in its geography and climate. The evidence afforded by cave-researches is very demonstrative of this question. It throws back man's antiquity to a period when the relative configuration of land and water was very different from what it is now, and when the same climatic conditions did not exist. The author concludes this division of his subject in a passage as notable for its eloquence as for its religious and liberal spirit: "I know of no one moral or religious truth which depends on a short estimate of man's antiquity. On the contrary, a high estimate of that antiquity is of great value, in its bearing upon another question much more important than the question of time can ever be, viz., the question of the Unity of the Human Race. We must, indeed, be very cautious in identifying the interests of religion with any interpretation (however certain we may have hitherto assumed it to be) of the language of Scripture upon subjects which are accessible to scientific research. . . . The older the human family can be proved to be, the more possible and probable it is that it has descended from a single pair. My own firm belief is that all scientific evidence is in favour of this conclusion; and I regard all new proofs of the antiquity of man as tending to establish it on a firmer basis."

3. *Primitive Condition.* At the outset of this question it is necessary to define what is meant by "civilisation", before we can affirm that the primeval state of man was one of "utter barbarism", and this is just what has not been done. It includes considerations of the moral as well as the intellectual faculties; his capacity for acquiring knowledge, as well as the actual acquirement of it. It is evident that a strong moral sense may coexist with a very limited amount of knowledge, and *vice versa*. Ignorance of the industrial arts might coexist with the consciousness of moral obligation, and a being so constituted could not be said to be "utterly barbarous." Such an epithet implies both moral and intellectual degradation, which states are not necessarily coincident. Again, whatever savage and barbarous customs may be traced in the history of civilised races, do not prove those races to have been originally barbarous: they do prove the dual nature of man, and that the natural tendency of it is to the evil side. The truth is, that man seems to have been originally endowed with certain instinctive faculties, which placed him far above the level of all other animals, although his knowledge of the industrial and mechanical arts may have been of the most infantile grade. If the savage races be taken as the type of man's primeval condition, it will be found that they exhibit great skill and ingenuity in the manufacture of their simple stone, flint, or bone weapons and implements. The men who first discovered the use of fire must have been original geniuses, and it indicates either the identity of human intelligence or descent from one common centre. It certainly is no

proof of "utter barbarism." But if man is susceptible of improvement, he is also susceptible of degradation, morally, physically, and intellectually. This is an indisputable fact. In the earliest condition of man in a social community, the law of increase would necessitate migration, which would act primarily on the weaker tribes, who, as they wandered farther and farther from the centre, would become ruder and ruder, and eventually assume, in new lands and under new conditions, more barbarous phases of existence. Their original knowledge would be in a measure forgotten; but still these outcasts are capable of developing the higher attributes of humanity when placed in more favourable circumstances. The author accepts the evidence afforded by the drift implements found in caves and undisturbed gravel-beds, that they are of very ancient date, and may imply the existence of man at the close of the glacial age,—“but what follows? The inevitable conclusion is, that it must be about as safe to argue from those implements as to the condition of man at that time, in the countries of his primeval home, as it would be in our day to argue from the habits and arts of the Esquimo, as to the state of civilisation in London or in Paris.”

There has been no universal stone age preceding the use of metals. The use of stone implements has been co-ordinate with high degrees of civilisation; whilst the South Sea islanders are in the stone age now, and the natives of the interior of Africa appear to have been always workers of iron. The absence of notions of religion in some savage races is no proof of primeval barbarism, for it is an unquestionable fact that religion may be very easily lost; and the further we can carry back our researches into the history of nations, we invariably find that their earliest forms of religious belief were the simplest and purest, for the nature of man enfolds within itself the principle of moral degradation and corruption.

With these remarks our author closes his argument, and we also our exposition of it. It is more than probable that many of our readers may remain unconvinced, and that they will demur to some of the doctrines and principles enunciated in this essay; but at all events, they will agree as to the importance belonging to them in an anthropological point of view, and will be gratified with the lucid manner in which they are treated, as well as by the liberal spirit in which the controversy is conducted. Our object is to present to our readers a fair and unbiassed account of the contents of works brought under our notice, whatever the opinions advanced may be, and having done this in the present case, we cordially recommend a perusal of the essay itself, and hope that the author may soon enjoy more leisure to pursue his anthropological studies.

RESUMÉ OF THE "BULLETINS" OF THE PARIS
ANTHROPOLOGICAL SOCIETY.

(Year 1868.)

By E. VILLIN, F.A.S.L., F.R.S.L.

Civilisation.—Basques of St. Jean-de-Luz.—The Olmo Skull.—The Influence of Geological Media.—The Eyzies Caves.

THE last time we reviewed the above *Bulletins* we promised to give our readers an outline of the papers (contained in the two numbers ending the year 1867), bearing upon Civilisation and Religion, contributed by MM. Coudereau, Pellarin, and Bataillard. But now that Mr. L. O. Pike has very ably treated both these subjects before the Anthropological Society of London, we shall confine ourselves to indicating the conclusions (if they be conclusions) of the Paris Anthropologists.

M. Coudereau's paper upon "*Civilisation*" is a scientific attempt to accurately fix the meaning of the word civilisation—a term vague enough etymologically, but still more vague practically, since we see it applied to at least twenty different kinds of communities. After reminding his audience that every important human institution has its germ in animal societies, the author inquires: "Shall we place the starting point of civilisation in animality—

"a. At the time when temporary association appears?

"b. At the time when the association becomes permanent, but when it is still unconscious of the realised and realisable progress?

"c. Or, shall we only place it at the time when reflection takes place, and when the animal can reckon the progress effected, and to be effected?"

The author prefers selecting the last point, without, however, pronouncing definitively, and he gives his reason for his preference: "Our mind attaches to the word civilisation an idea of action on the part of the civilised; for, before experience and reflection have intervened into progress, the species had not chosen the ameliorations; they had been subjected to them under the influence of the brutal process of nature. With reflection, there appears the desired, longed-for, progress. The creature then begins to voluntarily struggle with nature—the latter itself giving a direction to the struggle. From passive, which it had been hitherto, it becomes active."

M. Pellarin, in a very able paper on the same subject, brings the question nearer to us. He is less rigorous than M. Coudereau, and simply looks for a *sociomètre* amongst the different stages of humanity.

Dividing humanity into four great social types: the Savage, the Patriarchal, the Barbarous, and the Civilised states, and discarding religious doctrines as an infallible *sociomètre*, he says in conclusion:

"1. There is a succession of periods or social forms through which humanity passes in its unconscious march towards the end of its destiny, which is the realisation of justice, liberty, and happiness.

"2. Civilisation is but one of these periods or forms, which has for its especial mission to prepare the instruments of liberty, of happiness, but which is incapable of extending equitably to all, the enjoyment of these; that, only social forms superior to civilisation will be able to accomplish."

MM. Coudereau and Pellarin, we need hardly say, developed their subject through a revision of scientific and historical facts, most learned and instructive, and both their treatises are very interesting to English readers, as exemplifying once more the admirable lucidity of our Parisian brethren. We must, nevertheless, own that, in spite of subsequent papers by MM. Coudereau and Bataillard, and a brilliant discussion in which several members joined (MM. Pruner-Bey, Dally, Barrier, Gaussin, Bertrand, and de Blignières), the question was left what it was before, except that a new and convenient word was coined, viz., *sociomètre*.

The year 1868 was brilliantly ushered in by M. Broca, who, at the meeting of the 9th of January, read a paper upon "The Basques of St. Jean-de-Luz,"—the first of a series on the Basques by himself and other members.

In this paper M. Broca gives a table of observations as regards hair, eyes, and cephalic indices, on forty-seven living subjects, confirming the fact that the inhabitants of Guipuscoa and Biscay are in a great majority dolichocephalic—a fact which the previous examination of seventy-eight skulls from Zaraus had foreshadowed already.

At the meeting of January the 23rd, M. Broca presented the Paris Society a collection of fifty-eight skulls from St. Jean-de-Luz, the examination of which strengthened the above conclusion. The consequence of this discovery cannot be exaggerated, since it tends more than anything to disprove Retzius's theory. Roughly speaking, every Anthropologist knows that Retzius' theory, stripped of all phraseology, is—1. That the *Autochthones*, i.e., the primitive population of Europe—the age of stone-man—were brachycephalic. 2. That the foreign population which settled in Europe immediately afterwards, i.e., the age of bronze man, were dolichocephalic. Hence, as the Basques, the Fins, and the Laplanders are the only Europeans who speak a language foreign to the Indo-European family, it was premised that they all must necessarily be brachycephalic. But now it is no longer per-

mitted to doubt that Retzius was hasty. The proofs brought forward by M. Broca, who does not theorise, but demonstrates facts, seem absolutely to fix anthropology on its right bases in Europe, namely, that brachycephalic and dolichocephalic men were contemporaneous, instead of the latter succeeding the annihilation of the former.

The Vascons (or Spanish Basques) who live on the southern declivity of the Pyrenees, are decidedly a partially mixed semi-dolichocephalic population, whereas the French Basques (St. Jean-de-Luz) present a mixed population, wherein the brachycephali predominate. And what gives the difference a still more typical character is that the dolichocephaly of the Vascons is occipital.

M. Broca enumerated all the details of his researches at great length, and, to our mind, completely and conclusively. We cannot pretend in these few lines to do justice to this magnificent contribution. To go into the question of measurement of the skulls, of sex, age, origin and history in an incomplete manner, would deprive the paper of all its merits, and rob the student of the pleasure he will have in reading it. This, however, we must say, that M. Pruner-Bey, who is one of Retzius' disciples, did not admit M. Broca's facts as conclusive. Without going into a question for which he was unprepared, he only allowed that the Basques "are a very mixed people,"—which is saying very little, in our humble estimation, against an array of formidable facts, facts which, M. Broca said—and there he emphatically expressed his belief—"must do away with the erroneous view hitherto entertained."

At the same meeting, M. Pruner-Bey, who had also presented the Society with ten Toulouse skulls (Aquitaine), recognised a similarity between them and the Basque skulls. This caused M. Broca to remind the meeting that Toulouse had probably been founded by people affiliated to the actual Basques, Tolosa being a Basque name, and there still being in the Guipuscoa province a town of that name. M. Quatrefages, who had inhabited Toulouse, said that the sprightly alluring (*provocatrice*) physiognomy of the Toulouse women is very striking in comparison to that of the Agde and the Arles women.

The Olmo human skull, whose cast had been sent from Italy by Professor Cocchi, of Florence, was declared to belong to the quaternary period by M. Pruner-Bey.

We are not aware that a cast of this celebrated skull was ever received by the London Society.

The paper, "A Comparison of Cephalic Indices upon the Living Subject and upon the Skeleton," by M. Broca, shows that the skull is 6 millimètres less than the head, in its antero-posterior diameter, and

8 millimètres in its transverse diameter ; giving a difference of 1.68 as the average cephalic index between the head and the skull.

“ Upon the Action of Geological Media in the Aveyron District ” is the title of a paper, by M. Durand (de Gros), which gave rise to a controversy extending over two months, in which MM. Broca, Lagneau, Quatrefages and others took part, all of whom greatly differed in their views on the subject. The question involved is,—To what extent can the geological composition of the soil modify any given race ?

There was a good deal of eagerness, and perhaps at first a little confusion, displayed by the Paris Anthropologists when the question was started by M. Durand, and, if the confusion disappeared in the end entirely, the continued eagerness of each party to preserve his ground has done much for the elucidation of the subject, which has as yet been left untouched by English Anthropologists.

The Aveyron department is geologically divided into two mountainous groups, one chalky, the other belonging to other crystallised rocks ; both these masses wind about, overlap each other, and penetrate into one another in deep prolongings. To each of these territorial divisions there corresponds a distinct population, which differ almost as much as the two soils themselves. The Aveyronese of Causse, the chalky country, drinking clear water and eating oat or barley bread, acquires a size above the average, with a strongly developed bone system, and magnificent teeth ; he is physically as well as mentally heavy.

The Aveyronese of Segala—the district of poor (*aigre*) lands—is a man feeding on chestnuts and rye bread, and drinking cider ; he has bad teeth, is quick witted, is slightly built, and attains a size decidedly small in some cantons. The difference goes further still : it affects the pronunciation of the *patois*. As a rule, in the Causse country—Jurassic or crystallised rock—and this holds good for the surrounding departments where the soil is similar—the Spanish *ch*, and the *dj* or *j*, are pronounced *dj* and *j*, and this pronunciation stops short or begins abruptly anew with the Jurassic veins. On the other soil, either the gneiss or the mica schist, these sounds are converted into *tz* and *z* as often as the mica schist or the gneiss is reached. M. Durand admitted that this suffered, perhaps, considerable exceptions, but generally speaking it amounted to a rule.

All these facts were detailed at some length, and the *exposé* was made still more complete by a valuable letter from M. Jules Bonhomme, a judicious and learned naturalist and agronomer inhabiting Aveyron, who went into particulars as regards size, dentition, head, hair, and morals.

M. Durand (de Gros) also mentioned a curious fact, namely, that

the rural population are almost universally brachycephalic, whereas dolichocephaly is one of the characters of the urbane population.

His conclusion was: "That the Anthropological types which offer themselves to us in the displaced, mixed, and disturbed populations of our West, are veritable palimpsests bearing, not upon two, but upon three strata of characters; that of the primitive and pure blood, that of the crossings, and, lastly, that of the media. The task of Ethnical Anthropology consists in unravelling these three characters, and in afterwards deciphering each separately; our danger lies in confounding them, and hence missing the end of our efforts."

This interesting communication was received rather unfavourably by several members, who, perhaps hastily, imputed to the learned contributor a wish to entirely disregard the *race* elements, and to attribute the differences he had enumerated solely to geological influences. And M. Durand had been strongly assailed, indeed, before he could completely clear himself of dark heterodoxy on race influence, and explain that, on the subject under discussion, if, as he fully admitted, race could not be ignored, the medial influences were at least immense and incontestable. Anthropologists, therefore, ought not to ignore a fact which zootechny had reproduced as well in the same district. M. Jules Bonhomme is precise on this point: "If you take twelve two-and-a-half-year bulls, one as nearly alike another as possible, from one breeding herd of the mountain of Aubrac or La Guiole (basaltic soil), and make three lots of them, one of which is to remain on the mountain, the other to go into Causse (chalky soil), and the third to go to Levezou (gneissic soil), these three lots within three years' time will seem to belong to three distinct varieties. Those which remained at Aubrac will be compactly set, their limbs and heads of middle size, and present much harmony in their whole shape. The Causse lot will be larger, the bones stronger, but the beauty of form will be inferior. The Levezou lot will be long and high in shape, the limbs and heads will be slender, and the hoofs will be remarkably small—all of which alterations are satisfactorily explained chemically."

It was then that M. Lagneau read his short paper on the Aveyron Saracens, which has been wholly inserted in the *Memoirs* of the London Society, and which, although it bore on race alone, did not weaken M. Durand's arguments.

In the discussion, M. Broca did not deny the influence of media within certain limits, but he stated his opinion that M. Durand's conclusions were hardly founded, and that what he took for geological influence was in reality a gross result of race; that, as regards the difference in the pronunciation, it amounted to nothing more than habit, fashion, or early training. This last opinion, in which we for

our part entirely concur, was, however, ably controverted by M. Durand in a very interesting digression on etymology, phonation, growth of languages, &c., which went far to strengthen his position. But M. d'Abbadie denied the influence of habitat on the phonological peculiarities in question, adducing the case of the Basques, the Ethiopians, and the Aymarà people, respecting the letter *r*, in proof of his argument. M. Girard de Rialle sided with MM. Broca, Bertrand, and d'Abbadie, but we think he was unfortunate in selecting his example and in saying that the Chinese could *not* pronounce the letter *r*. We can affirm that the Chinese have that sound in four of their radicals and in five hundred and fifty-four words. (See *Morrison's Dictionary*.)

But whilst those gentlemen were assailing M. Durand, he received a partial support from MM. Lunier, Bataillard, and Quatrefages, a support, however, weaker on the head of language than on the score of physical conformation.

On the 2nd of April, 1868, the subject furnished another paper to the indefatigable M. Durand de Gros, who derived material support from extracts from M. Magne's work *On Agriculture*, and from the *Origine et Transformation de l'Homme*, by M. P. Trémaux. Other authorities were quoted besides those, and the discussion re-opened with unslackening vigour, each side, however, somewhat abandoning exclusive views, until at last it was ended by M. Durand, who said that "his unique pretension was to call the attention of his colleagues to the study of the question of media considered as modifying agents in the forms of life. Pathology, hygiene, sociology, and zootechny had already entered into this fruitful path wherein Anthropology should now precede them and be their guide." And we believe that the serious attention which his papers produced will have the desired effect.

At the same meeting M. Jouvenel communicated a paper from Signor Nicolucci upon "The Age of Stone in Italy," in which the learned professor expresses his belief, founded on observations the table of which is furnished, that the people who inhabited Italy at the stone-period had a cranial form differing from that of the people who introduced the use of bronze. The bronze-type has, in his opinion, maintained itself in Italy ever since, and the stone-type still exists in small families in Italy and other parts of Europe. These two propositions Signor Nicolucci promised to trace up in an ulterior and more extensive contribution to anthropology.

Upon the Skulls and Bones of Les Eyzies.—We now come to the great anthropological discovery of the year 1868—assuredly one of the most precious discoveries ever made—the one which last year thrilled

every fibre of scientific men with pleasure. We allude to the famous treasure dug up by the distinguished geologist M. Lartet fils, at Les Eyzies, in the Périgord province.

M. Lartet fils, before depositing the excavated objects in the Paris Museum, was invited by the Ministre de l'Instruction Publique, who had generously covered all the expenses (an example which we commend to the consideration of Her Majesty's Government), to submit the human bones to the Anthropological Society of Paris for definite examination. It was, then, at the meeting of the 21st of May that M. Lartet fils read the history of his discovery to the anthropologists, a paper of the highest interest, describing splendid stone implements (some being beautifully ornamented with carvings), but to which we must refer the reader for want of space here.

The bones and skulls had been under M. Broca's examination for some time, so that on the same day the learned anthropologist could give the audience the benefit of his labours in one of those papers which he alone knows how to write, wherein the reader knows not what to admire most, either the exposition of the subject, the general bearing, the analysed details, the terse logic, the conclusions, or the lucid, simple, fluent, and, at the same time, nervous style of the author. As palæontologists by the mere examination of a bone fragment can at once re-build in imagination the being to which it belonged, so can we, by the reading of any part of M. Broca's paper, form an idea of the magnitude of the subject treated.

This paper has been abstracted in our October review for 1868, and we therefore refer the reader to our vol. vi, p. 408; but as the subject is interesting to us beyond any which has been brought under the notice of anthropologists for years, we propose, as succinctly as possible, giving the pith of the discussion it caused.

"One thing can be boldly stated, M. Broca had said in summing up, namely, that the Eyzies race is entirely different from all the other races, ancient or modern, as yet known to us."

On May the 4th, M. Pruner-Bey read a paper controverting very nearly every point enumerated by M. Broca, to which the latter, in a long and skilful speech, seems, to us at least, to have successfully disposed of the arguments brought forward. Furthermore, M. Broca at the next meeting read a new paper on the same subject, called "Les Eyzies Skulls and the Esthonian Theory," which, if it had any effect at all, established his facts still more inexpugnably. Nothing daunted, M. Pruner-Bey, with his usual ardour and skill, and that, too, on the ominous 18th of June, gallantly again attacked his accomplished opponent. But the position was not to be carried by a *coup-de-main*, and the heavy artillery of M. Pruner-Bey, if it effected a breach, was

insufficient for a successful assault ; so that M. Broca remained thus far absolute master of his stronghold.

M. Pruner-Bey, objecting no doubt as a scientific man to have to deal with caricature, thus criticised the new subject :—"This Périgord troglodyte had the legs of a gorilla, the prognathism of a negro, the eyes of a Chinese, all of which were crowned by a skull advantageously shaped enough, cerebrally, to account for the artistic aptitude of those ancient populations. Let us confess, gentlemen, that if the diagnosis of these feature were exact, which is not the case, the pseudo-human beings of Ctesias would cease belonging to mythology." We see the tone. M. Pruner-Bey was able, it is true, to produce a mandible belonging to a Celt skull of the iron-age, the ascending branch of which is as long as 57 millimètres, whereas that of Les Eyzies is 49 only. He owned that such dimensions were quite exceptional, "Yet," said he, "they can be met with sometimes, and do not exclusively belong to the race of Les Eyzies." If M. Pruner-Bey had followed, proof in hand, M. Broca step by step, and, instead of theories, opposed stern facts or only one skull to M. Broca's skulls, tibias, femora, humeri, and ribs, and upon such a datum based his arguments, the conclusion arrived at would indeed have been left undecided. But nothing of the sort took place. M. Pruner-Bey either retrenched himself behind the Esthonian theory, or he called the flattening of the tibias the effects of rachitism, just as he had called, a year before, the Naulette jaw that of an idiot, because it disturbed his theory ; or again he appealed to precedents, exactly as if railways could not be, because they were not, before the discovery of steam-power ; and, moreover, the Lahr skull, found by M. Ami Boué in the loess of the Rhine valley ; the Engis skull, excavated by Schmerling from a cavern of the mammoth-age ; the Engisheim skull, found in the clay of the Rhine valley, and described by M. Faudel ; the celebrated Neanderthal skull ; the Olmo skull, the Clichy-Montmartre skull, as M. Broca remarked, are, if not precedents, at least all data and facts tending to the same demonstration—that the autochthones were not solely brachycephali. If M. Pruner-Bey had argued upon solid ground, if, instead of systematically denying the consequences of the above-mentioned cases, taken separately or collectively, he had multiplied counterproofs, or only produced a single *one*, then the bones of Les Eyzies would not have proved so decisive against the theory of Retzius.

All the objections raised by M. Pruner-Bey were, one by one, met by M. Broca, who, besides reducing to nought his opponent's arguments, and especially that founded on alleged rachitism, confirmed his views by going into more particulars than before, and altogether satisfied the Paris Society, who were unanimous—M. Pruner-Bey accepted—in acknowledging the soundness of his facts.

On the 16th of July, the discussion was continued by M. Bertillon, who summed up a very sound speech thus:—"On the question of shape, in anthropology, it is the measurements and numbers which are the indispensable characteristics of scientific truth, and not phrases and impressions. And upon that ground we have seen that the precise measurements taken by M. Broca do not permit us to class within the same group, as M. Pruner-Bey does, the skulls of Les Eyzies with those of the Esthonians." Here M. Pruner-Bey, never at a loss for new arguments, tried to maintain his assertions; but he was met by M. Lagneau, who, taking facts into consideration, said, "that the ethnography of western Europe cannot exclusively rest upon the Mongoloid family and the ancient dolichocephali, called Celts by M. Pruner-Bey. Three chief different races, at least, seem to have taken part in the formation of our prehistorical population. Not only is the ancient geographical division of Gaul into three people ethnographically distinct, attested by Strabo, Cæsar, and other authors, but the triple ethnical origin appears equally likely, when the documents furnished every year by the army recruiting *bureaux* are compared, as regards the very unequal territorial distribution of the exemptions for want of stature and for other infirmities."

Again, M. Pruner-Bey replied, this time briefly, without swerving from his line of defence, and M. Broca got up to close the long debate, once more convicting, we think, his learned opponent of inaccuracy on the score of rachimism, and of inconsistency on the score of Esthonian skulls; thus having the last word for science' sake. And we are glad of it, indeed; for a great fact has been established which brings anthropology one stage further towards the origin of man.

We sincerely congratulate M. Broca, and heartily rejoice that his immense labours, consummate skill, and indefatigable energy, found a field worthy of himself, wherein his qualities could be displayed all at the same time, for the benefit of science, and the delight of scientific men.

As to M. Pruner-Bey, who has been hundreds of times right against the whole world, he can, indeed, afford once to be wrong, or only mistaken, on evidence though it be; he can, above all, we feel certain, stand good-natured criticism from his English admirers.

At the meeting of the 2nd of July, 1868, M. Durand (de Gros) read a paper called "The Torsion of the Humerus, and the Animal Origins of Man," which gives anatomical proofs of Lamarck's system of transformation of species, and is a very interesting contribution to science.

The meeting of July 30 was mainly taken up by a brilliant discussion on Esthonian skulls, upon receipt of a letter from Herr Hermann Welcker on that subject. MM. Hamy, de Mortillet, Gaussin,

Bertrand, Lagneau, and Halleguen, maintaining, against M. Pruner-Bey, opinions already implied or expressed in the discussion upon the skulls of Les Eyzies.

The paper upon "The Russian Element in Europe," by M. H. Martin, opens the first meeting after the vacation, Oct. 15, with another paper by M. Rochat, upon "The Degeneracy of certain Irish Races," a fact which M. Broca does not admit. He says: "The only effects observable in Ireland are but the ordinary effects of misery; namely, scrofula, diminution of stature, etc. These effects are rapid, but they are momentary; and they disappear as soon as the evil conditions which caused them disappear, the race promptly resuming all its attributes."

M. Broca, on presenting the Paris Society with bone fragments from a dolmen at Sainte-Suzanne (Sarthe), Nov. 5, declared he had recognised in them the same characteristics as those observed in the femurs of Les Eyzies.

In the number of the *Bulletins* ending the year 1868, M. Defert, at the end of his excellent digest of the London Society's labours, reminds the reader of Dr. Hunt's appeal to common sense in his paper on "Physio-Anthropology: "What Dr. Hunt wants is the study of Anthropology after the experimental method,—the method of facts, without preconceived ideas or theories of any kind."

This precept was acted upon by M. Dally in his beautiful paper, read at the meeting of the 19th of November, called "The Order of Primates and Transformism." In this treatise the author tries to prove that the anatomo-physiological distance which separates mankind from apes, taken in a mass, is smaller than that which separates some apes from others.

He first treats his subject physiologically, and afterwards anatomically. "The ancients and the moderns up to the last century," said he, in concluding, "could not form a right idea of organic gradation; they knew neither the anthropoids, nor the *Cebidæ*, nor the inferior human races, nor the fossils, and left a vast gap between man and the *Pithecidæ*, which they scarcely knew, or the cheiroptera, to which they assigned a rank unconformable to their organisation. The theological period of humanity attributed to man a supernatural or miraculous character; the metaphysical period separated him from the rest of nature; but the period of positivism at last shows his real place,—that of a family of the *Order Primates*. Physical science has taught us that nothing can come from nothing, and that forces incessantly transform themselves without loss in the measure of their effects; chemistry has shown us that the formation of a body resulted from new combinations of the same elements; biology reveals the

formation, with the same material, of tissue, the properties of which are distinct: comparative embryology reveals metamorphoses being pursued, during a long period, for several generations; botany proves that the adaptation to any medium produces considerable changes in the constituting parts of plants; Darwin, lastly, has demonstrated the spontaneous initial variation of organic beings,—a variation favoured, confirmed, and increased by the struggle for life and the selective reproduction.”

But the Darwinism of M. Dally found a strong opposition on the part of MM. Giraldès and Alix. M. Giraldès showed that the author had omitted to compare the architecture of parts, and the conformation and functions of these parts; that he had hardly done more than give a sketchy comparison, and that between subjects entirely dissimilar,—taking adults here, young there; from here a primate, from there a lemurian, etc.

M. Alix said: “There are two ways of putting the question, according as the word difference is put in the singular or the plural. If the question is whether there are more differences between some men than between some anthropoids, the question is insoluble, because the number of differences can never be counted with a sufficiently rigorous accuracy. The other proposition, Whether there is more difference, is easier; for then by taking into account the subordination of characters, it may be judged whether the orang-outang, the gorilla, and the chimpanzee may be classified with men or with apes. This small orthographical detail is of great importance.” And he went on showing that M. Dally had not been so scrupulous or so impartial in his anatomical inquiry as he might have been.

We have given an *aperçu* of these views, merely to show that the Paris scientific world is quite as divided as ours on the question of Darwinism; and that moreover the data upon which the application of the theory (whether it be right or wrong) to the genus *Homo*, are far from being collected as yet.

The *Bulletins* for the year 1868 are closed by a splendid paper, read, on December 17, by M. Sanson, upon Hybridity, the conclusion of which tends to prove that the criterion of species is to be found nowhere else than in fecundity. But in spite of the excellence of this paper, we must refer the reader to it; first, because it is hardly anthropological; and secondly, because want of space compels us to conclude this imperfect sketch.

Had we not already exceeded the space allowed us here, we should have noticed other papers by MM. Prunières, de Mortillet, Letourneau, Pommerol, Lartet, Bertillon, Duhoussat, and some other members; as it is, however, we can only refer the reader to them.

Such, then, were the labours of our Paris brethren during the year 1868, a year, indeed, most fruitful both in great discoveries and numerous scientific treatises. In parting with them, therefore, we offer them our hearty congratulations for the past, and our sincere good wishes for the future.

PHYSICS AND METAPHYSICS.

By CHARLES BRAY.

“All our conceptions are based on the implied postulate, that the world is as it appears. . . . The advance of knowledge consists in the substitution of accurate conceptions for natural ones.”—*Man and his Dwelling-place*, by James Hinton.

“WHEN the person wha is spoken to dinna ken what the person wha speaks means, and when the person wha speaks dinna ken what he means himsel, that's metaphysics.” This well-known definition is probably as true now as when it was first given. The main cause of its truth, as it seems to me, first lies in the want of common terms, and consequent disputes are thus not only unintelligible, but do not in all cases resemble “the communion of saints.” The words soul and body, mind and spirit, knowing and being, matter and force, substance and properties, cause and effect, noumenon and phenomenon, conditioned and unconditioned, are all used in a different sense. And this is not surprising, as the object of the inquiry is to determine what these terms really *do* mean, and what *is* the sense that ought to be put upon them. In metaphysics each disputant has his own language, and all controversy ought to begin by mastering each other's dictionary. I propose to begin at the very beginning, and then to see if modern science has thrown any light on this subject.

Hume says, “We may observe that it is universally allowed by philosophers, and is, besides, pretty obvious of itself, that nothing is ever really present with the mind but its perceptions, or impressions, and ideas, and that external objects become known to us only by those perceptions they occasion. Now, since nothing is ever present to the mind but perception, and since all ideas are derived from something antecedent to the mind, it follows that it is impossible for us so much as to conceive or form an idea of anything specifically different from ideas and impressions. Let us fix our ideas out of ourselves as much as possible; let us chase our imaginations to the heavens, or to the utmost limit of the universe, we never really advance a step beyond

ourselves, nor can perceive any kind of existence but those perceptions which have appeared in that narrow compass."

This, however true, and, as Hume says, now "universally allowed by philosophers," is not, however, true to common apprehension, which still believes in an external world, exactly as it appears, and knows nothing of consciousness, and that the objects of knowledge are in reality not things, but ideas. But if, as Hume says, "external objects become known to us only by those perceptions they occasion", then we ought to be consistent in our inductions and deductions from this fact, and not attempt to raise whole systems on supposed knowledge beyond. Our own consciousness is all that is *known* to us, and all else is only more or less probable inference. Every external fact requires to be translated into the language of our thoughts. The longest chain of physical causation necessarily has its last link in the mind. The bridge to be built, or the road to be travelled, is not from physics to metaphysics, but from metaphysics to physics. The *ego* produces the *non-ego*. This, as I have said, is not the common apprehension: no doubt the first question is, What is the world without? The next, What am I? and thus on reflection we come to consider the medium or instrument by which the world becomes known to us, and which we call the mind, but which in reality is merely our consciousness. We ask, then, what is this consciousness? Whence comes it, or what is the cause of it? and lastly, What is the good of it—what is the use of it—what is the object of it? Here we have the questions of being or existence, of efficient cause or final cause, all questions of pure metaphysics, all requiring to be answered before physics can be properly pursued; for as we know of an external world only through the medium of our consciousness, how do we know that it tells us truly, or to what extent its indications may be trusted?

What, then, is consciousness? It is a succession of varied feelings and ideas, and this only; differing greatly in intensity. We call this variety of sentience by the names of propensity, sentiment, sensation, ideas, perception, conception, memory, imagination, and judgment. We speak of ideas and feelings passing through the mind, but there is no evidence of their passing through anything. The aggregate of these ideas and feelings are *the mind*, and there is nothing else. Consciousness is supposed to be a general term denoting states of mind, but mind has no existence in itself, but consists of these "states", or stream, or succession of thoughts and feelings. Consciousness, and sentience or feeling, in one sense are the same, but what is generally meant by the term is the action of one faculty upon another, that is, reflection on consciousness. With Dr. T. Brown and James Mill, to have a feeling, and to be conscious of that feeling, is

the same thing, and this may be said to be the case with animals generally, who have feelings, but do not attend to them; but with J. S. Mill, it is one thing to have a feeling, and another to recognise and reflect upon it, and refer it to one's-self, and to the series that make up our sentient existence. Self-consciousness, however, is when another intuitional feeling besides reflection is associated with the train of thought. This induces us to refer all our states to the "I," or self, and is an element in our belief in personality.

But what do we *know* of consciousness? Being conscious and knowing are the same things. Consciousness in its several states of thought and feeling, of pleasure and pain, is the only real and absolute knowledge we have; all else is relative. Metaphysics we *know*, physics we know only in the relation to metaphysics, and as the facts and laws of physics are translated into ideas, the language of our consciousness. Phenomena and their laws are known to us but as parts of our consciousness. Much is said about observation and facts as opposed to mere thought in apparent forgetfulness of this truth, that every fact must become a thought before we can know it.

But whence comes this consciousness? What is the cause of it? The common answer is, that it is the action of the soul or of the mind; but we do not find either soul or mind in our consciousness, and that is all of which we have any knowledge; that is, if there is anything more than the succession of our consciousness, soul, or mind or spirit, consciousness does not belong to it. We find, however, a body, and that body has a brain, and pressure on that brain puts a stop to consciousness at once, and on further inquiry we find that whatever affects the brain affects our consciousness, and consequently we are obliged to come to the conclusion that there is a direct and immediate connection between them. Upon this philosophers are pretty well agreed, but as regards the nature of the connection there is at present very little agreement, if, indeed, there is any definite opinion at all. "If there is one thing clear about the progress of modern science," says Professor Huxley, "it is the tendency to reduce all scientific problems, except those that are purely mathematical, to problems of molecular physics—that is to say, to the attractions, repulsions, motions, and co-ordination of the ultimate particles of matter. Social phenomena are the results of the interaction of the components of society, or men, with one another and the surrounding universe. But, in the language of physical science, which, by the nature of the case is materialistic, the actions of men, so far as they are recognisable by science, are the results of molecular changes in the matter of which they are composed; and, in the long run, these must come into the hands of the physicist."* Professor Tyndall

* "The Scientific Aspects of Positivism."—*Fortnightly Review*, June, 1869.

says: "I hardly imagine that any profound scientific thinker, who has reflected upon the subject, exists who would not admit the extreme probability of the hypothesis, that for every act of consciousness, whether in the domain of sense, of thought, or of emotion, a certain definite molecular condition is set up in the brain; that this relation of physics to consciousness is invariable, so that, given the state of the brain, the corresponding thought or feeling might be inferred; or given the thought or feeling, the corresponding state of the brain might be inferred."* From this acknowledged fact the erroneous conclusion is often drawn that thought is a phenomenon, or mode of action, of the brain, but although consciousness is connected with molecular motion in the brain, yet that motion does not constitute it, but is something separate and distinct, and which may be exhibited apart from that motion. As Professor Tyndall says, "molecular forces determine the *form* only which the solar energy will assume." When we say that thought is a function of the brain, we do not mean that it is the motion of the brain, but the power of the brain; that is, it is with the cause of the motion, and not the motion itself that we have to deal. Motion is nothing in itself, that is, no entity; it is merely the transference of substance or entity from one point in space to another; it is the cause of this, or agent, with concerns us, and this we call Force.

To say that motion is a condition of matter, and that one body conditions another, is no explanation, for it still leaves unexplained *how* does it condition it? Let us take a simple illustration. A grindstone is set in motion, and we are told that the movement is something distinct from the grindstone, and that there is nothing more real than "movement." Real,—but no-thing, *i. e.*, no entity; but how can a thing be real which is no-thing, *i. e.*, nothing? A moving grindstone is simply a grindstone moving, as distinguished from a grindstone at rest; it is simply the same grindstone in another or altered condition. Motion is mere change of place, and adds nothing, and takes nothing away from a body; but the cause of the motion does. When the grindstone was set in motion, something was added to it which is indestructible, and the motion is simply the indication of its presence. It is no part of the grindstone, and may be passed on, the grindstone simply determining the mode in which it is passed on. This something we call *force*. But whence was it derived? If the stone was set in motion by the hand, the force came from the food, which came from the sun; if by steam, from the coal, which again came from the sun; if from falling water, again from the sun which lifted the water. This force is a measureable quantity; it is measured by its ability, or by what it can do. It is the same with

* "Opening Address at Norwich," 1868.

the function, or power, or force of the brain. It is derived from the food, and after passing through various manipulations which intensify it, it enters the brain, producing what is called its molecular motion, and passing on as consciousness, as special thought and feeling, and each thought and feeling consuming an amount of force in proportion to its intensity. This thought or feeling is not a power of the brain, the force only passes through, the brain conditions it, or turns it into thought or feeling. Thus Herbert Spencer says truly, "That no idea or feeling arises, save as a result of some physical force expended in producing it, is fast becoming a common-place of science; and whoever truly weighs the evidence will see that nothing but an overwhelming bias in favour of a preconceived theory can explain its non-acceptance"; and Dr. Henry Maudsley says, "Mind is the highest development of force, and to its existence all the lower natural forces are indispensably prerequisite."* Dr. Tyndall, however, says, "The passage from the physics of the brain to the corresponding facts of consciousness, is unthinkable." Of course that which we believe to be the unconscious force of the brain, can never think how it is it begins to think, is true enough; but in reality we have no such passage to make. Consciousness is all we know, or can know, and we cannot know, therefore, of anything differing from it; and we may reasonably object, therefore, to any argument based upon any supposed difference between mental and physical force, and to such terms as "physical" forces, and lower "natural forces", when they are made to imply a difference in *essence*, of which we can know nothing.†

It is probable that there is no unconscious force, as I shall endeavour to show, and we are certainly not justified in affirming positively that there is, as conscious force in all we know. Dr. Büchner says, "It is by the brain that we ascend from matter to mind." Now, the force that becomes conscious in the brain is not matter, but what is usually called spirit. There is no instance in which we can be said to ascend from matter to mind. There is the transmitted vital spark, and the forces that bring it into activity. Dr. Tyndall truly says, "Given the state of the brain, the corresponding thought or feeling

* *The Physiology and Pathology of the Mind*, p. 60.

† Hume says, "We have no perfect idea of anything, but a perception. A substance is entirely different from a perception. We have, therefore, no idea of a substance. Inhesion in something is supposed to be requisite to support the existence of our perceptions. Nothing appears requisite to support the existence of our perceptions. We have, therefore, no idea of inhesion. What possibility, then, of answering the question, *Whether perceptions inhere in a material or immaterial substance*, when we do not so much as understand the meaning of the question?"—*A Treatise of Human Nature*, vol. i, p. 311.

may be inferred," and *vice versa*. It is found that our varied consciousness of thought and feeling is connected with different parts of the brain, with intensity proportioned to the size and structure of the part, and to the extra force thereby employed. Let us take a less simple illustration of our meaning than the one I have given of the grindstone. Let us take a kaleidoscope. With each turn we get a new form. Now, what is the result. Let us never forget that force is indestructible; now, what force is there, and what has become of it? The force required for the turning of the instrument has probably passed into surrounding objects, "the form"—the phenomenon, the appearance—the result of the action, passes away never to return, but the force that gave rise to it, or that underlies it, is still in existence. Where? Certain waves of ether, or force, strike upon the glass, and producing a reaction of 477 millions of millions of waves upon the retina in a second, set the brain in motion, and produce the sensation which we call red; other parts of the glass produce 577 millions of millions in a second, producing the sensation of green, and 699 millions of millions produce violet, &c. Colour, then, is a sensation or idea, in the object it is a reactionary force, which passing through millions of millions of waves, becomes a sensation of red, green, or violet. But what then becomes of it? It is still a force, and a force that can produce 699 millions of millions of wave motions in a second must be a very strong one. This force, then, first sets other portions of the brain in motion, which gives us ideas of form, size, position, &c., for we cannot think of colour apart from extension and figure, or of more than one figure without the idea of relative position, and it is from this mental state we derive our idea of space; and in this way a few simple forces received through our five senses from without, by the aid of the cunning machinery of the brain, are created into a whole world which we rather foolishly believe to have a real existence independently of the sensations, ideas, and feelings of which it is composed. This sensation of colour, as we perceive, is within us, and not attached to the object, as most people believe; it is correlated or transformed force, reflected from, and modified by the object; some objects in which we can perceive no more difference than in bits of glass producing some millions of millions of vibrations more than others. As we started by affirming, the sensation, as a part of our consciousness, is all we know, and, as Hume says, "we can never really advance a step beyond", for what possible resemblance can a sensation of colour have to the motion of the brain, or to the waves of ether, or to the reflected force from the object that caused those waves, and which is the only relation between the object and the sensation? It is impossible, then, that in any sense we can know things them-

selves, for we never come near them ; there is always a long chain of antecedent and consequent between ; the action of the brain, the action of the sense, the action of the atmosphere or the ether upon that, and the action of the object upon them ; and how, therefore, the object affects the atmosphere or ether, and through them us, is all we know, or can know : *i.e.*, all the knowledge we can attain of things without our consciousness of the *non-ego*, is simply how they affect, not us even, but other things a long way off. The world is created by a correlation of forces in the brain, which forces are received in different quantities, and are variously modified before they reach the brain, and the study of these quantities and modifications, which we call phenomena and their laws, and which are known to us only as they are further changed and form part of our consciousness, is science. Mind, then, is correlated force : a few simple impressions are received through the senses, which are worked up by the complicated machinery of the brain into what we intuitively believe to be the world without us. A real world without consciousness would be the same as no world at all ; and a world existing only in our consciousness is quite as good as if it had objective reality, and requires quite as much wisdom and power in its creation.

But what is Force ? It is time we answered that question. Force is everything. It is known to us only as the ability or power to produce certain changes ; but by force I mean the entity to which this ability or power belongs, from which it is no more separable than motion from the thing moving. It is not motion, but the cause of motion. It is not the action, but the agent. Deceived by appearance, we erroneously suppose force to result from the action of matter, whereas the action of matter in all cases is the result of force. We think the power is in the motion, but motion is merely the sign of the presence of the force. In the instance we have given, the grindstone, its working force seems to be in the motion, but the free force has been transmitted to the grindstone, and as soon as that has been used up, that is, has passed on, its grinding power and motion cease. To say in this case that the force results from the action of matter, is a delusion of the senses—a vulgar error. It is altogether illogical ; it is confounding the entity with its mode of action—the cause with the effect, the phenomenon with the noumenon, the motion with the thing moving. It is equally an error to confound the action or molecular motion of the brain with thought. The brain, like the grindstone, simply passes the force, or mental power, on in the peculiar condition known to us as consciousness ; the force is not the creation or the result of the action of the brain ; it existed before it entered the brain, and it exists afterwards. We are told that “ to suppose mental phe-

nomena to be anything but phenomena is nonsense"; the nonsense must be in the supposition that phenomena are separable from noumena, or motion from the thing moving. We are told that "force viewed separately from matter is nothing": this is merely a repetition of the same error, and is only true in one sense, viz., that force cannot be viewed separately from itself, for matter is force. "The phenomenon called matter arises from two forces, the one acting towards, and the other from a point or centre".* The existence of matter is based upon its supposed extension and solidity, but extension is an idea inseparable, as we have seen, from the sensation of colour, and solidity is in the same way based upon the sense of feeling, and that is mere repulsion—resistance to motion. J. S. Mill says, "when the question arises whether something that affects our senses in a peculiar way is, or is not matter, what seems always to be meant is, does it offer any, however trifling, resistance to motion?" In fact, solidity is a mere mental hypothesis invented in order to explain resistance. Huxley says, "every form is force visible; a form of rest is a balance of forces; a form undergoing change is the predominance of one over others."

Science now reduces all things to "the attractions, repulsions, motions, and co-ordination of the ultimate particles of matter;" but these ultimate particles of matter—molecules and atoms, are the unknown quantities, the x , y , of certain forces,—they are creatures of the imagination, and as pure assumptions as the spirits of the spiritualists. If force viewed separately from matter is nothing, what is it fills the interstices between these supposed atoms? Sir Isaac Newton supposed that all these atoms in our globe, if they could be brought together, would not occupy the space of a square inch; what, then, is the rest? in fact, what is compressibility? What draws the needle to the magnet? What fills the space between star and star, and draws each to the other? What draws the waters of the ocean to the moon? Is it the moon, at 240,000 miles away, or something that really exists between and unites the two? It is true that force may not be evident to our senses, except through its connection with what we call matter; but we mean by force the principle of action, the *unseen cause* of all change or motion, and as everything is in motion, so force is the universal interpenetrating medium throughout the universe. The forces at present known to us we call heat, light, electricity, galvanism, chemical affinity, attraction, and repulsion,—these, in their modes of action and manifestations, produce half the phenomena around us; the forces of life and mind produce the other half. These forces are indestructible and persistent, and as they pass readily into each other, we reasonably infer that they are in reality only one and the same

* *The Philosophy of Theism*, p. 73.



force. But force, and cause, and the ability to produce a change, are the same thing: but a cause implies two things,—power or ability, and direction or determination; for every change has a purpose, a direction towards a definite object, and the force then includes both power and intelligence. This is not necessarily conscious intelligence. It may very reasonably be asked, what is *unconscious* intelligence? In automatic action we have the power, and all the effects of intelligence, where consciousness has ceased to attend it. We know nothing of mind in its essence, and can judge only by analogy as to its mode of action; and if, therefore, we may judge of universal mind by the small glimmer that appears in our own consciousness, we find conscious action constantly passing by repetition into unconscious; what at first requires a separate and distinct volition, goes on now without. Secondary Cause, or Natural Law, is thus simply automatic action of Universal Mind. That which originally required a distinct *conscious* volition, has passed, in the ages, into the fixed order of nature. We have thus intelligent *action* without consciousness or volition.*

There is no bridge, then, from physics to metaphysics,—there is no

* Moleschott tells us very positively that “Force is not an impelling god, not an essence separate from the material substratum of things. A force not united to matter, but floating freely above it, is an idle conception. Nitrogen, carbon, hydrogen, oxygen, sulphur, and phosphorus, possess their inherent qualities from eternity.” Now, since Faraday’s time, philosophers have agreed to drop this “material substratum of things”, but admit that nitrogen, carbon, hydrogen, oxygen, etc., show certain definite and determinate forces, certain likes and antipathies; the much higher probability is that their definite action, to fulfil determinate ends, was once the result of conscious volition, now become automatic. “Qualities are eternal, inalienable, and untransferable,” says Dubois-Reymond; and Dr. Büchner says, “it seems incomprehensible how so simple and necessary a conception as that of the eternity of the world could ever have been lost to the mind.” Now, instead of this being a simple and necessary conception, it is an impossible conception: our consciousness tells us nothing of the eternal; and in point of fact, there is no more reason to believe that the world was eternal, or without origin, than organic beings; and we know they began to be.

Again, Dubois-Reymond tells us that “matter is not like a carriage to which the forces, like horses, can be put and again removed from.” Now, we have seen, in the instance I have given, that the forces were put to the grindstone and again removed from it. Force is in no case a *mere property of matter*; it is received from without and passes on. A body at rest will continue at rest for ever, until the horses are put on, *i. e.*, until external force is applied to it; or, to put this first law of motion shortly, all forces will continue in unvarying action until other force is applied to them. “Every giving off of forces has, for its necessary effect, the storing up of force in equal amount elsewhere;” or, as Faraday puts it, “what disappears in one place must reappear in another.” It must, therefore, have a separate existence. Büchner says, “all the so-called imponderables, such as light,

road that way ; the only way is from metaphysics to physics ; for all force is mental force, such "will-power" as we are conscious of exercising in our small individuality. Universal Mind passes into unconscious action in general law, and again becomes conscious in the brain of percipient beings, in brains so modified that each sentient existence has its own special world, created by the correlation of the same external force in its own brain and nervous system. "The old speculations of philosophy, which cut the ground from materialism by showing how little we know of matter, are now being daily reinforced by the subtle analysis of the physiologist, the chemist, and the electrician. Under that analysis, matter dissolves and disappears, surviving only as the phenomena of force ; which again is seen converging along all its lines to some common centre, sloping through darkness up to God."*

Berkeley denied the existence of an external world, and declared that our perceptions were mere ideas evoked in the mind by Deity ; and we find that each brain creates its own world by the correlation of force from without, and as its consciousness is modified by its own structure. But force or power without cannot be separated from that of which it is the force or power,—that is, of Deity. Dr. Thomas Brown holds that the entity that has this ability is this ability ; and Spinoza says, "God's power is the same as his essence" ; and thus all

heat, electricity, magnetism, etc., are neither more nor less than changes in the aggregate state of matter,—changes which, almost like contagion, are transmitted from body to body." The imponderables, he says, are changes, that is, motion, and he commits the common error of confounding motion with its cause. It is with that which "almost like contagion is transmitted from body to body" with which we have to do, and which, if it were not a something in itself, could not be so transmitted. He also says, "Nothing but the changes which we perceive in matter, by means of our senses, could ever give us any notion as to the existence of powers which we qualify by the name of *force*. Any knowledge of them by other means is impossible." This may be very true ; but that is no reason why we should confound the mere sign with the thing signified,—the changes with their cause. Again, he tells us, "No real naturalist doubts that forces are but qualities, or motions of matter." Now, motion is a condition, but qualities are forces or powers ; as J. S. Mill says, "What we term the properties of an object are the powers it exerts of producing sensations in our consciousness." With respect to these "changes" by which force is manifest to us, Mr. E. T. Wyld says : "Were force freed from this connexion (with physical body), it would attain immediate equilibrium, and the physical universe would instantly cease to exist,—action and reaction, momentum and inertia, resistance and localised force being at end, physical law and the physical world would be at an end with them ; for the physical world consists but of the antagonism of contending forces."—*On Free An-atomic and Transmissible Power*.

* *The Reign of Law*. By the Duke of Argyll.

manifestations are manifestations of the one Supreme Power, and all change "the varied God." Berkeley, in denying the existence of an external world, did not deny that there was *nothing* external; he admitted God's power, both conscious and automatic.

Let us now consider what the bearing of these principles is upon certain physio-metaphysical questions of long standing. "Locke had shown that all our knowledge was dependent upon experience. Berkeley had shown that we had *no* experience of an external world independent of perception; nor could we have any such experience. He pronounced matter to be a figment. Hume took up the line where Berkeley had cast it, and flung it once more into the deep sea, endeavouring to fathom the mysteries of being. Probing deeper in the direction Berkeley had taken, he found not only was matter a figment, mind was a figment also. If the occult substratum, which men had inferred to explain material phenomena, could be denied, because not founded on experience; so also, said Hume, must we deny the occult substratum (mind) which men have inferred to explain mental phenomena. . . . Matter is but a collection of impressions. Mind is but a succession of impressions and ideas."* This was felt to be unanswerable; but then it was not to be judged by its truth, but by its supposed consequences; it led to scepticism, whatever that may be, and the efforts of almost all metaphysicians since have been directed to the evasion of this truth. Lewes says, "Remark, also, that Hume's scepticism, though it reduces philosophy to a singular dilemma, viz., that of either refuting his sceptical arguments, or of declaring itself and its pretensions to be vain and baseless, nevertheless, affects in no other way the ordinary judgments or actions of mankind.† Now, the only dilemma to which philosophy was reduced was, that it had found a truth that it did not then know how to use; but if, instead of being frightened, we had allowed it "to affect our ordinary judgments and actions", it would have placed mental science on the same firm basis of induction as physical. We now know that "no idea or feeling arises, save as the result of some physical force expended in producing it;" that each idea and feeling is a separate correlation of force, and that the mind is merely, as Hume says, a succession of those ideas and feelings. There is but one entity in the universe, which Spinoza called Substance and physicists call Force. Mind is force, matter is force; consciousness tells us nothing of their essence, but they are the same in their manifestations and obey the same laws. The strongest force prevails equally in the mind as in the world without. The will is but the trigger that lets off this force in the direction of the object aimed at. The

* Lewes's *Biographical History of Philosophy*, p. 481. † Idem.

strength of the mental force is in proportion to the size of the organ through which it passes on its road to consciousness.

But mind is not a mode of action or motion—it is an entity itself; it is so much force, which is indestructible; it may change its form, but cannot cease to be. Each thought and feeling is a separate, independent, indestructible existence. Mind, however, has no existence apart from these thoughts and feelings. It is not mind, then, that is indestructible, but these thoughts and feelings. Hume says, “Tis still true, that every distinct perception, which enters into the composition of the mind, is a distinct existence, and is different, and distinguishable, and separable from every other perception, either contemporary or successive.” The question is, what becomes of those “distinct existences”? Our own ideas of the world—our thoughts and feelings—are supposed to exist only in the percipient, in the “ego,” but the force of which the ideas are composed existed separately from the “ego,” and may, indeed must, do so again. That this mental, or voluntary, or will power, is in great part again converted into physical force, as heat and muscular motion, there can be no doubt.” We have, as Mr. R. S. Wyld says, “a direct experience that the amount of physical power obtained is, *cæteris paribus*, in constant proportion to the amount of the mental effort which we are conscious of exerting in producing this physical power.”* Certain narcotics and stimulants act directly upon the mind, greatly intensifying its action, and these immediately show themselves again in the expression of the eye, and in every muscle of the body. Tobacco suspends mental activity; opium and hashish greatly increase it. A snake, as often tried by experiment, when sluggish, and only just awake, takes half-an-hour to kill its prey; but when excited and made angry its venom kills instantly. Illustrations of the direct connection between mental and physical force are everywhere around us, only little attention has yet been called to them. The torpedo strikes its prey at a distance of some feet. Here is mental force, or voluntary will power acting at a distance through the medium of the water; and Professor Owen tells us that the *amœba* draws its prey towards it as rubbed amber draws light substances. The mesmerist by voluntary effort can act upon others at great distance, through what medium he does not at present know, or whether any medium is required other than the all-pervading force around. Still the force that passes into consciousness in the brain is at present by no means sufficiently accounted for. I know that it is the orthodox opinion among men of science that “thought cannot exist without brain;” but this proposition, I hold, is by no means

* Paper read before the Royal Society of Edinburgh, “On Free, Atomic, or Transmissible Power,” May 3rd, 1869.

proved. Thought is not a motion of the brain, or a mere mode of action at all, for "it is force which causes the movement, and not the movement which causes the force"; and it must exist as force after the movement of the brain ceases, and why not as mental or conscious force? And if so, the question is what becomes of it? This inquiry becomes deeply interesting when at the present time we have many scientific men declaring that they recognise, in so called spiritual manifestations, both power and intelligence apart from brain. What is "thought reading"? it cannot be a mere recognition of the action of the brain. I have seen the number on three watches, consisting of five figures each, told successively by a mesmerised child, when they could be read only in the mind of the operator: for until there was light enough for him to see they could not be told by the child. There could be no possible doubt about this case, and at present we have no means of explaining it. Here we have a separate and distinct "form" of figures, not a mere action of the brain, recognised by one person in the mind of another. A perception or idea then is a positive entity; and again, I say, what becomes of all those ideas that pass through the brain? Do they retain consciousness or merely possess the power to create the same ideas in others? Are they packed up somewhere in the brain for future use? or have we souls made of them? As the body is made of protoplasm, or infinitely small vital cells, so may our spiritual body be made up of these thoughts and feelings.

I am told that Mr. C. F. Varley, the electrician, who sees ghosts, thinks that all the thoughts of our lives make up the body of the spirits. If a single drop of water may contain five hundred millions of animalcules—living creatures, and that these "have organs of locomotion, the mode of which leaves no doubt that they each possess sensation and will, and that consequently they must have organs and tissues accordingly," there must be plenty of room to pack any amount of *ideas* in the brain.

Professor Owen, in the last volume *On the Anatomy of Vertebrates*, summing up his general conclusions, says, "Life is a sound expressing the sum of living phenomena." "These phenomena are modes of force." "Into these modes of force other modes of force have passed from potential to active states." Nerve force and electric force are convertible; and, asks the Professor, "may there not be conversion of force, magnetic, electric, thermotic, nervous? Is not thought to the brain what electricity is to the battery? Nerve force rises from reflex acts to volitional acts: the quiver of the pricked muscle to the resolve to write a book. With the size and complexity of the brain centres, from Aztecs to Europeans, correspond the intellect and will." The Professor, subsequently, writing about what he calls "thought-force," says, "if lines of thought-force were visible, the ghost (of Samuel) would not

therefore be more material." May, then, thought-force ever become visible? It is evident Professor Owen does not think it impossible. Does what is called by spiritualists, a "medium," supply the conditions?*

If consciousness or thought, as Professor Owen says, "is to the brain what electricity is to the battery," no one believes that electricity ceases to exist when discharged from the battery, and yet the positive school of physicists always reason as if thought being discharged ceased to exist. Thus Dr. Louis Büchner, in *Matter and Force*, says, "The brain is, then, only the carrier and the source, or rather the *sole cause* of the spirit, or thought; but not the organ that secretes it. It produces something which is not materially permanent, but which consumes itself in the moment of its production." How the brain can be merely the carrier of that of which it is the source or sole cause, or how *something consumes itself*, is not clear, but this passage furnishes a pretty fair sample of the Doctor's ordinary style of reasoning.

The force that works the body is derived from the food, and is originally derived from the sun, in the divorce of the carbon from the oxygen in plants; and as "nerve force and electric force are convertible," no doubt we are sensibly alive to the electric states around us. Temperature does not affect us as it does the thermometer, but according to the electric condition of the atmosphere. We often *feel* colder with the thermometer at 50° than at 40°. The *Spectator* (July 3, 1869), speaking of the intimate relation between the sun's spots and perturbations and the magnetic currents of our own earth, says, "Could we really establish any periodic law of electric excitement on the earth, it would not be irrational, but in the highest degree rational, to expect marked human phenomena in connection with it—either a great concurrent depression or a great concurrent stimulus to the energies of the human brain. . . . In point of fact, it is by no means impossible that the issues of peace or war, of a financial crisis, or a religious agitation, may be closely bound up with these phenomena."

* A Mr. Munder of Boston, now of 630, Broadway, New York, was put upon his trial last spring for obtaining money upon the false pretence of taking spirit photographs. The trial lasted four days and he was acquitted, as his brother photographers, after every facility offered to them for investigation, had failed to detect any imposition. The *New York Sun* of February 26, 1869, reports the case at considerable length. The reporter to this paper says he watched the process from beginning to end. After various sittings, with various results, always taking care that the glass was well cleaned and polished, "he thought he would try the effect of calling to his mind the appearance of his father, as he looked just before he died, some eleven years ago. This time the negative gave a face in profile rather dim, but in general outline, he must confess, very like his father, as he thought of him."

The force supplied to our organism is a definite quantity, and it has to work the whole machine ; people who spend much time out of doors are ordinarily not great thinkers, and thinking and digesting cannot go actively on together, but the most important vital process is the putting in the new material to replace the old and worn out, and while this is going on the force to the brain is turned off and consciousness ceases in what we call sleep.*

Dreaming is the consequence of the partial supply of force to the brain, some parts of it being thus brought into activity while others are asleep. The greatest incongruity in thought and feeling is the consequence, and yet the world of our dreams is quite as real to us as that of our waking hours. Sometimes, the force being absent from other parts of the brain, is supplied in unusual quantities to the intellectual faculties, and there is greater intellectual vigour than when awake.

Having seen, then, Whence comes Consciousness, we have now to inquire, What is the object of it? This brings us face to face with final cause, and the question is, Do we know anything, or can we know anything of final cause? The *Athenæum*, in its review of Prof. Owen (July 17, 1869), says, "long ago philosophers have proved both final causes, and innate ideas, and tendencies to be mere assumptions." Dr. Büchner says "the motion of matter is as eternal as matter itself. Why matter assumed a definite motion at a definite time is as yet unknown to us ;" but if matter ever *began* to move towards any definite aim, this is admitting voluntary action and intelligence, which I think the Doctor denies. The question then is what was the object when matter began to move towards the production of organised beings? Is it as the Doctor says unknown to us? A world without consciousness is practically non-existent—the same as no world at all. The production of consciousness, then, is more desirable than the production of a world, but consciousness that was merely cognizant and took no interest would be no better than none at all ; it must be either pleasurable or painful. Now no one desires a painful consciousness, and a pleasurable consciousness therefore is the only desirable

* Mr. Charles Moore, in an Essay "On Going to Sleep," brings together, from different quarters, various facts which appear to him to justify the conclusion that a contraction of the cerebral arteries, shutting off to some extent the supply of blood to the brain, is the physical occasion of sleep ; this contraction being due to the unimpeded energy of the sympathetic ganglia which comes into play when the inhibitory action of the brain upon them is withdrawn. He conjectures, also, that states of somnambulism and double consciousness may be produced by the separate contraction of particular arteries, the area of the brain dependent upon other arteries not being asleep.

end in the production of sensitive organised creatures. This is the final cause; this is "why matter assumed a definite motion at a definite time," and things are right or wrong as they tend towards this object, that is, towards pleasurable consciousness. Alphonso the Wise of Castile constructed the Alphonsine Tables on the Ptolemaic hypothesis, that the sun went round the earth, then universally received, but he suspected there was something wrong, and ventured to suggest that if the Creator had consulted him, he should have recommended a solar system far more simple and beautiful—with the sun in the centre, etc. So theologians now make man the centre of their system, making everything to revolve round him, and when they find things do not square with this hypothesis, they think it a very bungling contrivance, and make another world on the pattern of what they think this ought to have been if it had not been spoilt. The "plan" is evidently to produce the largest amount of pleasurable sensation, and not to flatter man's pride as the lord of creation; he is but a small part of a much larger system, even on this planet, and is moved by the same laws as all the rest of the sensitive creation, and, whatever he may think, he makes rather a ridiculous figure strutting about in his borrowed plumes, regardless of the wires or natural laws by which he is pulled, and at present in utter ignorance even of their existence. The world was inhabited hundreds of thousands of years before he came upon it, and at this time there is a whole Ocean world, and world within world besides, of sensitive existences in which he can take no part: a fly with its hundred eyes sees things differently to us, and fortunately its tastes, particularly its gustative ones, are different to ours. The world, as we conceive of it, is not a reality; each creature creates its own world and carries it about in its own head; outside itself there is nothing but the play of forces on the nervous centres of each being. This creates a thousand worlds adapted to the different wants of each, and is so much better, therefore, than if it had objective reality; and man stupidly thinks it was all made for him, and that the way these forces affect him is the absolute measure of truth: whereas a very few only of the forces around him reach him through his five senses or otherwise, and produce those impressions and ideas which are sufficient to guide him towards the objects of his being, towards his *real* world—that of his pleasures and pains, and which he calls his moral world. In reality he knows very little indeed of all that is going on without him, as he is cognizant only of the influences that can penetrate through his thick skin; and whole worlds of beings may exist *without* his intellectual ken. Locke, however, says truly that "how short soever our knowledge may be of a universal or perfect comprehension of whatever is, it yet secures our

great concernment ;” and again, “as to myself, I think God has given me assurance enough as to the existence of things without me ; since, by their different application, I can produce in myself both pleasure and pain, which is one great concernment of my present state.” If our faculties, then, are few and limited, and not designed to penetrate into the inward essence and constitution of things, they are yet sufficient for our purpose, the use of our intellectual consciousness being not to teach absolute truth, but to guide us towards our wants, which in their fulfilment are always pleasurable, and thus contribute towards the stock of happiness in the world.

The world, then, is created within us. Certain forces derived from the food set the brain in motion, and other forces from without, coming through the senses, act upon these, and produce within us perception, or ideas, or nervous impressions of colour, form, size, a sense of resistance or weight, order, number, relative position, motion, likeness and unlikeness, and connection. These are called ideas of Simple and Relative perception, and Reflective Faculties. Simple ideas are real entities, formed or conditioned by the brain, and having no resemblance to anything out of the mind, or in the world : these simple ideas are by other faculties of the mind worked up into our conception of the world : for what would the world be without colour, or form, or size, etc. ? and yet colour, form, and size, etc., are ideas or feelings, not things.

Properties, which we call of matter, are separate and distinct forces, but they are united by association in the mind, and rarely act singly, one generally calling the other into activity. Unity is also given to them in the mind, that is, by the faculty of Individuality, and we say these properties belong to body or matter. The same faculty individualises or gives unity to our separate ideas and feelings, and we say they belong to the mind, and more, we individualise each separate act of power or ability, dress this image in our attributes, and thus create a god after our own likeness, with our passious and modes of thought.

It is to this unity of body and mind, which is a mere form of thought, to which we give the name of “I,” and which assumes importance in proportion as it is associated with more or less of the feeling of self-esteem. All that is meant by this “Ego” is the succession of ideas and feelings which constitutes consciousness. “I am,” means only, these ideas and feelings are. The percipient, as when we say “I perceive,” is the action of one class of faculties upon the others—it is reflection on consciousness, *i. e.*, on perception. It is this also that accounts for the unity of consciousness ; for although our ideas and feelings are simultaneously various, the reflective faculty that attends to them is one, and they can therefore only be attended to one at a time, whether they be simple or complex.

The sequence and variation of our consciousness, and which we call modes of action of the mind, are divided into Perception, Conception, Memory, Imagination, and Judgment. The first of these—perception, is composed of the force within and the force from without, and therefore has a double intensity to either of the others, which proceed from the action of the brain alone without the sense. Intensity of thought and feeling is always in proportion to the amount of force expended in producing it, and this furnishes a good criterion of externality, that is, of the difference between the ideas we receive from without and those that are the produce of the mind alone. The external world has thus double the reality of mere ideas; a child lives a life of sensation and perception, an old man one of ideas. The difference between Primary and Secondary qualities is not that generally recognised by metaphysicians between colour and extension, &c., as the latter is as much in the mind as the former, but between the ideas of simple and relative perception, that is, between the ideas received directly from without and those manufactured in the mind out of these.

Belief—does it belong to the intellect, the emotions, or the will? James Mill resolves it into purely intellectual elements, but it is a feeling,—as Hume says, an act of the sensitive part of our nature, rather than of the cogitative, and we necessarily believe in the intuitions of our faculties. We take the results of their action for granted as fundamental truths, and as nature obliges us to eat without reasoning upon its necessity, so she obliges us to believe what is equally necessary for our action and well being, without reference to its absolute truth or even speculative reasonings. We reason and doubt afterwards, and begin to suspect that our faculties do not always tell us the truth. We believe in the real existence of the external world of our consciousness, and do not doubt till we find it is created within us. We believe in matter and in mind, and not in a correlation of forces or manifestation of Divine Power. We believe that every effect has a cause, but that is no reason why it should be true; there may be only sequence. We believe in Space as an objective reality, when, like motion, it is nothing in itself—it is that in which an entity exists, and is as inseparable from the entity as motion from the thing moving, or power from that of which it is the power.

As to the *necessary* connection between cause and effect, of unalterable laws, of the immutability of the laws of nature, consciousness tells us nothing about this. The higher probability is that this connection has been established for a purpose, and will continue as long as that purpose is required. J. S. Mill says, “Any *must* in this case, any necessity, other than the unconditional universality of the fact, we know nothing of . . . All I know is, that it always does.” Reason is based upon the invariableness, upon the knowledge that what has

taken place, in the same circumstances and under the same conditions, will take place again. Law, in my opinion, as I have said before, is automatic Will-power, and changeable should circumstances or conditions require. Oersted says, "the world is governed by an eternal reason, which makes known to us its actions by unalterable laws." I object to such terms as "eternal" and "unalterable" as we can know nothing about them. As far as we know, the same laws exist throughout the universe, but that is no reason why they should always continue to do so. Laws of nature are attributes of Deity, and the manifestations, if not the attributes, are ever changing.

The sense of Personal Identity is, like faith or belief, a feeling, and not a mere intellectual perception. It is an instinct, an intuition, a pure creation of the mind. The "I" of which we are conscious, and which we say "thinks, wills, and feels," is, as we have seen, the aggregate of our bodily and mental states, to which unity has been given by a faculty of the mind. Any kind of sameness or identity must be a delusion, an anthropomorphism, for we are never the same for any two seconds together. In both mind and body we are part and parcel only of the ever-varying forces around us. This notion of "self" and identity is not dependent upon memory, for it remains when all memory is lost; past sensations give no such feeling. That it is dependent upon a condition of the brain is evident, as under certain states of excitement this sense is lost altogether, as in the case of the two gentlemen who had been dining out: in passing through a ford one of them fell into the water and called out to his companion, "I say, Bill, there is *some one* fallen into the water." The feeling also of personality is sometimes "double," and otherwise deranged.

What are we, then? A mere correlation of forces. This may shock some people, but is it saying anything more than what every Christian professes to believe, viz., that "in Him (God) we live and move and have our being"? For is not force or power as inseparable from its Great Source as motion from the thing moving? Matter and mind, object and subject, are the same; all are force and all are subject to the same laws of force, and we arrive at the great and fertile truth of "the reign of law, even in the realm of mind," as the Duke of Argyll expresses it.* This establishes man's dominion equally over the world of mind as of matter without any "freedom of will," or liberty to obey law or not, or cessation in the law of causation to bar

* The Rev. C. A. Row, in the *Contemporary Review* for July last, says— "But God acts by law in the spiritual, no less than the material world; and there is no greater irreverence in investigating the mode of action in the one than in the other. Through whatever media it may be traced, it will be ultimately found that all spiritual vitality, no less than all material force, ultimately centres in Him."

his progress. God would not have trusted men with such a fatal gift as this, for not only would it have stopped all progress, but he might have damned himself, and all his race with it, as theologians say Adam did. The strongest force, or *motive* power, prevails every where without exception. Men can no more resist the strongest motive, which means motive or moving force, in mind than in body. He has a desire, which is an impelling force, to act selfishly, which is wrong; if his sense of right or other motive is stronger he will abstain, not without. What then! these forces are under the control of law and order, and can be strengthened as it may be found desirable, and cannot be capriciously exercised at what is called the "free will" of the owner. How is it, then, that this great truth has been so long hidden, and is not now accepted? Because consciousness does not include the external force of which will is composed, and by which it is determined. As Spinoza says, "Human liberty, of which all boast, consists solely in this, that man is conscious of his will, and unconscious of the causes by which it is determined." But if man is not "free," but, like everything else, *must* act in accordance with the laws of his being; what then, it is asked, become of the interests of morality? what of Conscience and Responsibility? The interests of morality are safe enough, as all the laws of man's being tend to the production of the largest amount of enjoyment—of pleasurable sensation, which I maintain is the object of all consciousness. As to responsibility, about which so much is said, it simply means that we must accept the consequences of our actions; and when we know what these are we regulate our conduct accordingly. As to conscience, it is merely inherited experience of what is good or bad, that is, pleasurable or painful. It is a cow's conscience that makes it want to toss every dog it sees, from the inherited effects of dogs' ill conduct towards the cow's paternal ancestors in bull-baiting, which so universally prevailed in England fifty years ago. A cow has a conscientious objection to dogs in general, and she tosses her head every time she sees one, very much as some young ladies do at fast young puppies of another race.

Conscience is innate, that is, it is, "the gathered-up experience of bygone generations, transmitted to us by inheritance." It is founded upon experience, although not our experience. Oersted thus describes its origin, "It could not be otherwise but that man presupposed in his fellow creatures an intellectual being like himself. When one man excited an agreeable feeling in another there arose love; if the reverse was the case, hatred. Such influences may have given rise to the idea of a something in the actions of a man, which is to be reprov'd or to be rejected; and this small beginning became the seed of the notion of right and wrong."

Good and evil are purely subjective, and the moral world is as entire

a creation of the mind as the physical world. It is merely a record of man's pleasure and pains, of his likes and antipathies, and of the various fine names by which he distinguishes the different varieties of feelings as he wishes to promote the one and to prevent the other. As our thoughts and ideas compel a reference to objects out of self, so do our feelings, and we talk of the eternal and immutable distinctions between right and wrong, whereas these distinctions have no existence out of ourselves, and one action is as good as another *in itself*, and is good, pure, holy, &c., in proportion as it tends to carry out the purpose of creation, which is not man's happiness alone, but that of all of sensitive existence. Morality is the science of living together in the most happy manner possible; at present it is confined to men alone, but we must widen its sphere of action so as ultimately to take in all living creatures. Do not let us be alarmed, then, for the interests of morality, for as J. S. Mill says, "a volition is a moral effect, which follows the corresponding moral causes as certainly and invariably as physical effects follow their physical causes."

Physical science has made rapid progress since the introduction of the inductive method, while mental science, to which it is supposed not to apply, is little further advanced than it was two thousand years ago; but on the recognition of this great truth, that causation is as constant, and that law reigns as much in the realm of mind as of matter, our future progress in this department must depend. This truth occupies, in the present day, much the same position in mental science, as the earth's position with respect to the sun in the days of Copernicus did in physics. Men saw that the sun went round the earth, and the Bible said it did, and Galileo was imprisoned for saying it did not. A student of that day being asked at his examination on theology whether the sun went round the earth, or the earth round the sun, answered, "Sometimes one, and sometimes the other." This is precisely the attitude of our philosophers and our men of science of the present day towards this doctrine of philosophical necessity, or of mind governed by law. Men say they now *feel* that they are free, as they before *saw* that the sun went round the earth; and theologians say that responsibility, which, according to them, is the right to take revenge for past misconduct, depends upon this freedom, and that morality depends upon this kind of responsibility; and when our philosophers are appealed to as to whether man is free, or subject to law, like everything else, they say, "Sometimes one, and sometimes the other." To give an instance in each class: Froude, the philosopher, says, "The foolish and the ignorant are led astray by the idea of contingency, and expect to escape the just issue of their actions; the wise man will know that each action brings with it its inevitable consequences, which even God cannot change without

ceasing to be Himself."* Praise and blame "involve that somewhere or other the influence of causes ceases to operate, and that some degree of power there is in man of self-determination, by the amount of which, and not by their specific actions, moral merit or demerit is to be measured."† How "inevitable consequences" are to be expected where "causes cease to operate," he does not tell us; but no doubt the earth goes round the sun in physics, and the sun round the earth where man's volition is concerned. Huxley, the man of science, says, "Theology, in her purer forms, has ceased to be anthropomorphic, however she may talk. Anthropomorphism has taken her stand in its last fortress—man himself. But science closely invests the walls; and philosophers gird themselves for battle upon the last and greatest of all speculative problems. Does human nature possess any free volitional or truly anthropomorphic element, or is it only the cunningest of all nature's clocks? Some, among whom I count myself, think that the battle will for ever remain a drawn one, and that, for all practical purposes, this result is as good as anthropomorphism winning the day."‡

Notwithstanding, we are slowly, but surely, coming to the conviction that in nature there is no beginning,—merely pre-existent and persistent force and its correlates—that is, "that each manifestation of force can be interpreted only as the effect of some antecedent force, no matter whether it be an inorganic action, an animal movement, a thought or feeling";§ that all force, or power, or ability is derived and inseparable from that of which it is the force—the Supreme Cause of all. If we have lost matter, we have found force; if we have lost mind—a supposititious, capricious existence, *governed* by nothing—we have found universal law, and "a supreme and infinite and everlasting Mind in synthesis with all things." In the correlation of force, we have one great heart-beat of the Absolute Existence. "Being underlies all modes and forms of being."|| "Nature is an infinitely divided God. . . . The Divine One has dispensed itself into innumerable sensible substances, as a white beam of light is decomposed by the prism with seven coloured rays. And a divine being would be evolved from the union of all these substances, as the seven coloured rays dissolve again into the clear-light beam. The existing form of nature is the optic glass, and all the activities of spirit are only an infinite colour-play of that simple divine ray."¶

* Froude's *Essays, Spinoza*, vol. ii, p. 48.

† *Fortnightly Review*, June, p. 664.

§ *First Principles*, by Herbert Spencer.

|| Hegel.

† *Idem.*, p. 59.

¶ Schiller.

ANTHROPOLOGY AT THE BRITISH ASSOCIATION, 1869.

IN accordance with our usual custom, we give a notice of the papers read at the Exeter meeting of the British Association. We shall confine our remarks in this number to the reports of the public proceedings, and await the usual official report of Sir Duncan Gibb, Bart., to the Society in November next, which will contain a narrative of the transactions that took place at the Committee of Section D (Biology). The composition of the section may be estimated from the following list.

President.—George Busk.

Vice-Presidents.—Professor Balfour, C. Spence Bate, Dr. Hooker, Sir John Lubbock, Dr. W. Ransom, E. B. Tylor, A. R. Wallace, Professor E. Perceval Wright.

Secretaries.—Dr. Spencer Cobbold, Professor Michael Foster, E. Ray Lankester, Professor Lawson, H. T. Stainton, Rev. H. B. Tristram.

Committee.—Dr. Beddoe, H. G. Bohn, J. C. Bowring, H. B. Brady, W. K. Bridgman, C. Brooke, C. E. Broome, H. Buckley, Dr. Bucknill, W. Carruthers, Professor Cleland, E. O. Cunningham, W. Boyd Dawkins, Walter C. Dendy, Professor Dickson, H. E. Dresser, Dr. Martin Duncan, R. Dunn, W. S. M. D'Urban, The Mayor of Exeter, M. P. Edgeworth, D. G. Elliott, Colonel Lane Fox, Neville Goodman, J. Galton, Sir Duncan Gibb, Dr. Heaton, W. P. Hiern, H. H. Howorth, Professor Huxley, Dr. J. Hunt, Dr. Richard King, Dr. Kelburne King, Dr. L. Knij, Dr. H. Lawson, R. McAndrew, Professor McDonald, General Munro, Professor A. Newton, Rev. A. M. Norman, P. O'Callaghan, Dr. Proctor, Dr. B. W. Richardson, J. D. Sanderson, P. L. Sclater, Dr. Scott, C. Stewart, Dr. Pye-Smith, Dr. J. L. Stewart, Dr. Thomson, H. B. Woodward, Dr. George Wilson.

Professor Busk opened the proceedings of the section with some remarks intended to explain why he had not prepared an address to be delivered to the members of the section of which he was the chairman. It arose out of no disrespect to the section. It had been originally intended that his friend Dr. Rolleston should preside. Circumstances had, however, prevented him from attending, and it had fallen to his (Professor Busk's) lot to fill the office, and pressure of engagements had rendered it impossible for him to prepare an address. Following the precedent of former years, they had divided the section into different departments. The first, including all subjects of natural history, botany, zoology, and ethnology; and the second including subjects of human and comparative anatomy and physiology. The committee had decided to add Ethnology to the title of the first department. That subject had originally been joined with geography. Everyone would recollect the warm feelings exhibited in previous years on the subject of Ethnology or Anthropology, for it was a matter of indifference which word was used. But having ceased to be joined with geography, the members of the Biological Section thought that it was fitting that so important a subject as the study of man should not be omitted from the proceedings of the British Association. It was in truth one of the most important subjects that they could have before them. For those reasons it had been added to the section, and he begged to announce that the papers on Ethnology should be read on Monday and Wednesday next. Having said so much, the Professor retired to the Physiological department.

Mr. SPENCE BATE continued the proceedings with a brief address. He referred to the increase in the influence of the society since its last meeting

at Plymouth thirty years ago. The Association had now become a power in the State, and was second to none in influence on the encouragement of science among the educated masses of the country. He alluded to the desire felt at Plymouth, Barnstaple, &c., as well as in Exeter, to welcome the Association in this county. He pointed out some features in the western counties of special interest to the members of the Association. Perhaps there was no part of England that afforded more varied contrast than might be seen in this county. The wild and rocky district of the north, the uncultivated waste of Dartmoor, together with the fertile valleys of the south shores offered every inducement to naturalists to extend their researches into their peculiar path of science. The narrow neck of land that separated the ancient Damnonia from the rest of England lay between Bridgewater and Lyme Regis, a line running nearly north and south. It was one moreover which corresponded with the most westerly limit of the nightingale. This was an interesting and unexplained fact. The influence of the geological character of soil in the growth of plants might well be studied here. Perhaps the botanist could have no more curious sight than that of Wistman's wood in the heart of Dartmoor, a grove of oaks that had been recorded in the Duchy Annals within a short period of the Roman conquest. Their roots were amongst the granite boulders. He then directed attention to certain museums which contained local collections interesting to the biologist—those of Dr. Leach and Charles Prideaux, of Kingsbridge, and also referred to the antiquities of Devon and Cornwall, interesting to the Ethnologist. On the wastes of Dartmoor and the uncultivated lands of Cornwall stood many an unrecorded monument of antiquity. Year by year they were gradually passing away. It appeared to him that it was the duty of the Ethnologist to earnestly take steps to record all of those that were in existence, to explore those which had not been examined, and to preserve all from destruction.

On Monday, August 23rd, the following papers were read:—

On the Primitive Condition of Man, by Sir JOHN LUBBOCK.—The author commenced by expressing a fear that some introductory observations made by the chairman would lead his audience to expect a paper of a more general character than the few remarks he should make would prove to be. It would be remembered that he read a paper at the Dundee meeting "On the Origin of Civilisation and the Primitive Condition of Man," in answer to opinions and arguments which had been brought forward by the late Archbishop of Dublin. The Duke of Argyll had replied to him in a paper in *Good Words*, which had since been collected into a volume entitled *Speculations on the Primeval Condition of Man*, and obtained a great circulation. In that paper the Duke of Argyll had misunderstood some of his (Sir J. Lubbock's) views, and he was anxious, before that large meeting, to present a few remarks in reply. He then proceeded to say that the Duke of Argyll had also attacked Professor Huxley for proposing to place man and the quadrumana in one order of mammalia, and considers that, though this course would be justified if we considered merely the anatomical characters, it is precluded by the immense difference in intellectual power. Sir John, however, pointed out that this was a dangerous argument, since, if man was to form an order by himself on account of his mental superiority, it would be impossible any longer to maintain the unity of the human species, since they must allow a proportionate weight to the immense differences existing between different races of men. Sir John congratulated himself that the Duke, though maintaining Whately's theory as to the primitive condition of man, abandoned the arguments on which, in the opinion of that eminent logician, that theory mainly rested. He then defended himself against the Duke's criticism, that he looked on all brutal customs as primeval, and pointed out that the Duke misunderstood his argument, which was that a definite sequence of habits and ideas might be traced, and that certain customs still lingering in civilised communities told a tale of former barbarism, rather, however, on account of their simplicity than of their barbarity. The Duke's theory that savages are "mere outcasts of the human race" was then criticised as incompatible with the im-

mense area until lately occupied by tribes in a state of barbarism, and it was shown that the Brazilians, occupying a rich and fertile country, were lower than the Esquimaux tribes on the shores of the icy sea. In old times, as now settlers of new countries were, in Sir John's opinion, not "mere outcasts," but men of energy and enterprise. The Duke had asserted that "all Sir John's facts, when properly understood, told against him," which he endeavoured to prove by giving three instances, taken, however, by a curious oversight, not from Sir John's *Memoir on the Primitive Condition of Man*, but from a different work. The author, however, showed that these cases did not really tell against his view. For instance, the Duke maintained that the Tasmanians, who had no boats when discovered, must originally have possessed some, "because they could not have walked over the sea;" but the same argument would apply to the kangaroo, the echiidna, and other animals which inhabit both Australia and Tasmania, and whose presence proves a former land connection between these two countries. The Duke, proceeded the author, though admitting the antiquity of man, does not, I think, appreciate the geological changes which have occurred during the human period. The only other case which he quotes is that of the highland Eskimo, who had no weapons, nor any idea of war. The Duke's comment is as follows:—"No wonder, poor people! They had been driven into regions where no stronger race could desire to follow them. But that the fathers had once known what war and violence meant there is no more conclusive proof than the dwelling-place of their children." It is perhaps natural that the head of a great highland clan should regard with pity a people who, having "once known what war and violence meant," have no longer any neighbours to pillage or to fight, but a Lowlander can hardly be expected seriously to regard such a change as one calculated to excite pity, or as any evidence of degradation. In my first paper I adduced as an argument the condition of religion among the different races of man, a part of the subject which has since been admirably dealt with by Mr. Tylor, in a lecture at the Royal Institution. The use of flint for sacrificial purposes long after the introduction of metal seems to me a good case of what Mr. Tylor has aptly called "survival." So also is the method of obtaining fire. The Brahmin will not use ordinary fire for sacred purposes,—he does not even obtain a fresh spark from flint and steel, but reverts to, or rather continues, the old way of obtaining it by friction with a wooden drill, one Brahmin pulling the thong backwards and forwards while another watches to catch the sacred spark. I also referred to the non-existence of religion among certain savage races, and, as the Duke correctly observes, I argued that this was probably their primitive condition, because it is difficult to believe that a people which had once possessed a religion would ever entirely lose it. It is hardly necessary to explain to any one that I did not intend to question the possibility of a change in, but a total loss of religion. This argument filled the Duke with "much astonishment." "Surely," he says, "if there is one fact more certain than another in respect to the nature of man, it is that he is capable of losing religious knowledge, of ceasing to believe in religious truth, and of falling away from religious duty. If by 'religion' is meant the existence merely of some impressions of powers invisible and supernatural—even this, we know, can not only be lost, but be scornfully disavowed by men who are highly civilised." Yet, in the very same page, with that curious tendency to self-contradiction of which I have already given several instances, the Duke goes on to say, "the most cruel and savage customs in the world are the direct effect of its 'religions.' And if men could drop religions when they would, or if they could even form the wish to get rid of those which sit like a nightmare on their life, there would be many more nations without a 'religion' than there are found to be. But religions can neither be put on nor cast off like garments, according to their utility, or according to their beauty, or according to their power of comforting." With this I entirely agree. Man can no more voluntarily abandon or change the articles of his religious creed than he can make one hair black or white, or add one cubit to his stature. I do not deny that there may be excep-

tional cases of intellectual men entirely devoid of religion, but if the Duke means to say that men who are highly civilised, habitually, or frequently, lose and scornfully disavow religion, I can only say that I should adopt such an opinion with difficulty and regret. There is, so far as I know, no evidence on record which would justify such an opinion, and, as far as my private experience goes, I, at least, have met with no such tendency. It is, indeed, true that from the times of Socrates down to those of Luther, and perhaps later, men in advance of their age have discovered particular religions and particular myths; but the Duke of Argyll would, I am sure, not refuse a desire for reformation with the scornful disavowal of religion as a whole. Some philosophers may object to prayers for rain, but they are foremost in denouncing the folly of witchcraft; they may regard matter as aboriginal, but they would never suppose, with the Redskin, that land was created, while water existed from the beginning, nor would any one now suppose, with the South Sea Islanders, that the Peerage were immortal, but not commoners. If, indeed, there is "one fact more uncertain than another, in respect to the nature of man," I should have considered it to be the gradual diffusion of religious light and of nobler conceptions as to the nature of God. The lowest savages have no idea of a Deity at all. Those slightly more advanced regard him as an enemy to be dreaded, but who may be resisted with a fair prospect of success, who may be cheated by the cunning, and defied by the strong. Thus the natives of the Nicobar Islands endeavour to terrify the Deity by scarecrows, and the negro beats his fetish if his prayers are not granted. As tribes advance in civilisation their deities advance in dignity, but their power is still limited; one governs the sea, another the land; one reigns over the plains, another among the mountains. The most powerful are vindictive, cruel, and unjust; they require humiliating ceremonies and bloody sacrifices. But few races have arrived at the conception of an omnipotent and beneficent Deity. It certainly appears to me that the gradual development of religious ideas among the lower races of men is a fair argument in opposition to the view that savages are degenerate descendants of civilised ancestors. Archbishop Whately would admit the connection between these different phases of religious belief, but I think he would find it very difficult to show any process of natural degradation and decay which could explain the quaint errors and opinions of the lower races of men, or to account for the lingering belief in witchcraft and other absurdities, &c., in civilised races, excepting by some such train of reasoning as that which I have endeavoured to sketch. In conclusion Sir John pointed out the remarkable similarity between savages and children, remarking that in our own homes we might trace up the gradual progress of civilisation, for that the history of the individual was an epitome of that of the race. But it was unnecessary to multiply illustrations. Every one who had read much on the subject will admit the truth of the statement. It explained the capricious treatment which single white men had received from savage potentates; how they had been alternately petted and ill-treated, at one time loaded with the best of everything, at another neglected or put to death. The close resemblance existing in ideas, language, habits, and character, between savages and children, though generally admitted, had usually been disposed of in a passing sentence, and regarded rather as a curious accident than as an important truth. Yet from several points of view it possessed a high interest. Children and savages love toys and pets. Sir John particularly instanced the rattle which was used by some savages as an emblem of authority. Tossing halfpence as dice, again, which used to be a sacred and solemn mode of consulting the oracles, is now a mere game for children. So again, the doll is a hybrid between the baby and the fetish, and, exhibiting the contradictory character of its parents, becomes singularly unintelligible to grown up people. Mr. Tylor had pointed out other illustrations of this argument, and I would refer those who feel interested in this part of the subject to his excellent work. Better understood it might have saved us many national misfortunes, from the loss of Captain Cook down to the Abyssinian war. It has also a direct bearing on the subject of the present

discussion. The opinion is rapidly gaining ground among naturalists, that the development of the individual is an epitome of that of the species; a conclusion which, if fully borne out, will evidently prove most instructive. Already many facts are on record which render it, to say the least, highly probable. Birds of the same genus, or of closely allied genera, which, when mature differ much in colour, are often very similar when young. The young of the lion and the puma are often striped, and fetal whales have teeth. Leidy has shown that the milk teeth of the genus *Equus* resemble the permanent teeth of *Anchitherium*, while the milk teeth of *Anchitherium* again approximate to the dental system of *Meryclippus*. Rüttimeyer, while calling attention to this interesting observation, adds that the milk teeth of *Equus caballus* in the same way, and still more those of *Equus fossilis* resemble the permanent teeth of *Hipparion*. Agassiz, according to Darwin, regards it as a "law of nature" that the young state of each species and group resembles older forms of the same group, and Darwin himself says that "in two or more groups of animals, however much they may at first differ from each other in structure and habits, if they pass through closely similar embryonic stages, we may feel almost assured that they have descended from the same parent form, and are therefore closely related." So also Mr. Herbert Spencer says—"Each organism exhibits within a short space of time, a series of changes which, when supposed to occupy a period indefinitely great, and to go on in various ways instead of one way, gives us a tolerably clear conception of organic evolution in general." It may be said that this argument involves the acceptance of the Darwinian hypothesis; this would, however, be a mistake; the objection might indeed be tenable if men belonged to different species; but it cannot fairly be urged by those who regard all mankind as descended from common ancestors; and, in fact, it is strongly held by Agassiz, one of Mr. Darwin's most uncompromising opponents. Regarded from this point of view the similarity existing between savages and children assumes a singular importance, and becomes almost conclusive as regards the question now at issue. Lord Dunraven, as the president of the Cambrian Archeological Association, said last week, in his opening address:—"If we look back through the entire period of the past history of man, as exhibited in the result of archæological investigation, we can scarcely fail to perceive that the whole exhibits one grand scheme of progression, which, notwithstanding partial periods of decline, has for its end the ever-increasing civilisation of man, and the gradual development of his higher faculties." I confess, therefore, that after giving the arguments of the Duke of Argyll my most attentive and candid consideration, I see no reason to adopt his melancholy conclusion, but I remain persuaded that the past history of man has on the whole been one of progress, and in looking forward to the future we are justified in doing so with confidence and with hope.

In the subsequent debate—

Sir GEORGE GREY said he had listened with extraordinary interest to the paper which had been read by Sir John Lubbock. It was marked by profound research and learning, great attention to the subject, remarkable candour, and generous and fine temper. But he found difficulty in speaking on the subject. He hardly knew what "civilisation" meant, and he hardly knew what "barbarism" meant. Living recently in London near the Royal Palace, in the heart of the most civilised nation, at the back of the house in which he resided, he had witnessed scenes of barbarism and heard language the like of which he had not seen or heard in any savage race upon the earth. With him civilisation was inseparable from religion. It really meant that if it meant nothing else. It was possible for a nation to be polished in the highest degree in arts, to be learned on scientific subjects, and yet to enfold in itself a population sunk in the deepest barbarism and ignorance. The Greeks and Romans, and Great Britain of the present day, afforded proof of what he said. He had always felt that the Archbishop of Dublin was mainly right. Regarding civilisation as the development of religious feeling, and the knowledge of man's duty to his fellow-man, he believed that no savage

nation had ever attained to that knowledge of itself. The highest state of civilisation was the highest development of Christianity—the unselfishness of man and regard for the welfare of his fellow-man—and he believed that this virtue had in every case been introduced among the various races of mankind by some race who claimed (he would not say whether rightly or wrongly) by inspiration to have received a knowledge of its truths. In every case where people did recognise duties of that kind, they affirmed that they had received the knowledge in this way. He had been much among savages, but had never seen any tendency in them to advance in the civilisation of which he had spoken, or in the arts that were beneficial to mankind generally. The laws and institutions of the savages which he had studied contained in themselves a tendency to perpetuate barbarous manners and customs, and he always believed that the greatest evil that could befall man would be for him to sink from the knowledge of that virtue and those religious truths to which he had referred. The result would be, as it had been, to fall into idolatry, which entailed innumerable cruelties and evils on mankind. He made no distinction between the cruelty of gladiatorial slaughter by the Romans and the human sacrifice and bloodshed of the Polynesian islanders. Those races that had had imparted to them the higher duties and knowledge of which he had spoken were really the only races to be regarded as civilised, and that civilisation was derived from a source beyond themselves.

Mr. HOWORTH wished to throw an apple of discord, or rather a Siberian crab, into the discussion. The views that had been delivered by Sir J. Lubbock could best be examined by the light of the knowledge they possessed of Asiatic populations. The lesson that was taught them in Central Asia was opposed to the views of Sir J. Lubbock. The great Manchoorian race which had conquered China, was now represented in Siberia by Tartars in a miserable condition. He also contrasted the original condition of the ancient Mongolians and Turks with that of the representatives of those races, as described, among others, by Professor Vámbéry. The result of this contrast was to show that the respective races had suffered degradation from a higher state of civilisation. He refused to consider the question of Africa and America, because they had really no history of the aborigines of those countries, as they had of those of Asia, to whom he had referred. He was highly pleased with the speech of Sir George Grey. There was no reliable account of any savage race having improved itself. Egypt and China might be referred to, but they knew nothing of the aborigines of those countries. But they had instances of nations having received a legacy of civilisation from others. Sir J. Lubbock had referred to the survival of savage customs among civilised people. Upon this he observed that there was a tradition among the New Zealanders that they had come from a race with whom cannibalism was not a custom. On the other hand, the existence among the Shamans of Asia of the rattle and the drum as instruments of importance, however childish it may seem, was to be traced back to the Buddhists of Thibet, and it would not be pretended that the philosophy of the Buddhists was to be ranked with the notions of the savages whose use of the rattle, &c., had been made so much of in support of Sir J. Lubbock's views. Mr. Howorth believed with Sir J. Lubbock that a certain kind of progress was going on, for when we compared Socrates with Stuart Mill, Diogenes the dog with the present Chancellor of the Exchequer for cynicism, and Zoroaster, Confucius and Moses with Hepworth Dixon as an historian, he thought that we had not fallen very far behind.

Dr. BLANC (of the Abyssinian expedition) observed that Sir J. Lubbock, by his reference to Abyssinia, had probably meant that king Theodore was a child. With that Dr. Blanc agreed, only that he was a very naughty child, and he might be made the subject of a moral to show the evil of pursuing a wilful career. Theodore came to his grave through acting like a grown-up child. When he ought to have been fighting against the rebels, he wasted two months in futile attempts to build a raft with wheels to be propelled by hands. Once his warriors propelled it 200 yards across a lake, but it leaked, and Theodore gave up the job. Another time, hearing of

English artillery being strong, he ordered his European workmen to cast a mortar. They cast one weighing 16,000 lbs., and lost four months in bringing it to Magdala, when it was never used. In the third place, when the English army was approaching, the advanced guard carrying ordnance covered with cloth on the backs of camels, he judged they were treasure-boxes and incited his chiefs to go to the attack in the expectation of much loot. He thought the acts of Theodore confirmed Sir J. Lubbock's opinion that the savage was like a child.

Sir WALTER JAMES was anxious to call attention to the interesting analogy which Sir J. Lubbock had noticed—though it was not altogether novel, for it was to be met with in Dr. Temple's article in *Essays and Reviews*—the analogy that existed between the history of the individual and of the race. He agreed with that view, but he was not prepared to concur in the inference that the human race was indefinitely progressive. If the analogy were a true one they ought to bear in mind the characteristic faults of old age. The faults of savage life, it was assumed, were those of childhood. Were not the faults of ultra-civilisation the faults of old age? One of the characteristic faults of old age was an over-estimate of the value of money. So, as civilisation went on, the estimate of wealth increased, and the nobler and more chivalrous qualities of our ancestors might have a tendency to diminish. He did not deny that generous and self-denying men existed among them; but they should take warning against the characteristic defects of old age that might be threatening civilisation. One test of civilisation was the value put on human life. Savages put very little value on it. But was it not a melancholy thing that there were millions of men in arms in Europe, if not to the direct, to the indirect damage of human life in many ways? Turn again to the want of protection from child labour, as in our own factories. Therefore while subscribing to the analogy drawn by Sir J. Lubbock, yet they could not look forward to everything being *couleur de rose*. If the child was like the savage, the old man became in many respects, unfortunately, like the child. We were advancing in scientific knowledge and research, but an advance in morals was not so clear a fact. He feared the human heart was what mathematicians called a "fixed quantity," and not susceptible of improvement like other parts of his nature.

The Rev. H. B. TRISTRAM observed that the line of progress had not been continuous. What had become of the old civilisation of the Assyrians? With respect to savages, it must be said to their credit that they were commonly equal in conduct to the code under which they lived. The Arab had an extreme veneration for truth, which his code enjoined, although he would kill a man without compunction.

Mr. A. R. WALLACE contributed a lengthy speech to the discussion. He regretted that the Duke of Argyll was not present to reply for himself to Sir John Lubbock's admirable paper. In his Grace's absence he said he would take some points in his favour that might be made. No doubt, as a general principle, the evidence pointed to a decided and tolerably steady advance of mankind in all those arts of life, the grand sum of which determined civilisation. At the same time, there were a great many matters in which there seemed to be some objection to this view. There were one or two cases that seemed to show a degradation or loss of civilisation. The ancient remains found in America showed the existence of a race at a time not very long past which were decidedly superior to any native aborigines now in North America, inasmuch as they worked copper mines, which none of the present races did. There were also elaborate temples and works of art to attest a wide-spread civilisation once existing on that continent, and now lost. Then, again, there was a sort of special pleading in the argument of Sir John Lubbock's, that if the native Australians were the degraded descendants of a race half-civilised, the European settlers ought also to become degraded. But the European settlers were not cut off from their race, which altered the case considerably, and rendered the argument fallacious. Suppose that a European colony were entirely isolated from their race, then, he thought, there was almost a moral certainty that in the course of centuries they would suffer a considerable amount of degradation, and

hardly be recognised as the descendants of a civilised people. Therefore, he believed that the lowest races of mankind owed their low condition not to their retaining the type of the original state of man, but because they had suffered degradation from a more civilised race. In a discussion on civilisation it was almost impossible to keep morals out of the question altogether. The people who were advanced in intellect and arts, but low in morality, could hardly be considered civilised. Therefore, although he believed the two things were, to a great extent, distinct, he was inclined in this question to place more weight on morals than on intellect, while Sir J. Lubbock would put more weight on intellect than on morals. It was indisputable, in regard to arts, that man was improving, but he would hardly say so much with regard to morals. We could trace backward to pre-historic races the diminution of the arts of life till we arrived at a period when the arts enabled man to do no more than fashion flints into weapons and tools. But as to morals, we did not find such decided diminution as we looked backward. He had met with savage tribes destitute of the arts of life and low in intellect, but possessed of a wonderfully delicate sense of right and wrong in morals. How did they get that sense? He had met some savages who would refuse to do an action which they thought would infringe on the rights of others, and had refused to answer questions lest they should tell a lie. He was speaking of the Dyaks of Borneo. How was that moral feeling to be accounted for? If they represented the original state of man, how came the moral sense to have grown, and the other faculties not to have grown? There was some evidence of a moral or religious sentiment existing even in pre-historic man; he alluded to the discovery in the Cave of Aurignac of preparations made for the food of the dead of the pre-historic race laid in the cavern. This showed the appreciation of a future state—a feeling which showed man to be above the brute. He agreed in the similarity drawn between children and savages. But was not the moral sense of children and their affection higher than their intellect? But morals were hardly a scientific question; but he still thought that on its determination depended the true state of early man. They ought not to conclude that because man had advanced in the arts of life therefore he had advanced in morals. He did not say it was proved that man had not advanced in morals; but all the arguments that went to prove that ancient man was not civilised intellectually utterly failed to prove that he was not civilised morally. The evidence as yet only went to prove that the moral nature of man was only modified, not improved, under civilisation. Therefore, the argument of derivation from the lower form of life did not in the slightest degree touch the unknown region of his moral nature.

Mr. EVANS thought much of the discussion had arisen through different views being taken by the Duke of Argyll and Sir J. Lubbock of the word "civilisation." It could be shown in regard to the lowest state of man that the struggle for life must occupy so much time as to leave little or none for moral culture. He did not attach much importance to the evidence of the cave of Aurignac, but he thought there was great evidence of improvement in man. Our own civilisation was derived from the Romans, the Greeks, and, further back, from the Egyptians; and when we had gone back to the Egyptians, it was found we had arrived at a period when many of our civilized appliances were unknown. Languages of civilised people bore evidence of having been derived from languages of monosyllables which marked the uncivilised. When man appeared on earth he was deficient of domestic animals and of corn, and must have been in a state not much above that of the animals that surrounded them. It was improbable that he was in morals very far above the animals with which he was somewhat connected in those early times.

Mr. BOYD DAWKINS said a few words relative to the Cave of Aurignac. As regarded the supposed religious history of the people who used that cave, and who were contemporaneous with the mammoth, he had indisputable evidence that the cave contained nothing that bore on the religious condition of this ancient folk. On the contrary, he had bones in his possession taken from the cave, showing that it must have been opened after it was

occupied by pre-historic man. The bones were those of animals unknown to Western Europe until ages after the ancient folk and the mammoth were lost. He could not concur with Mr. Wallace that arts and morals were ever divorced.

The Rev. J. INGLE said that he thought that Sir J. Lubbock had misread some portion of the Duke of Argyll's book, and suggested that it would be advisable to have a definition of "civilisation" as a means of simplifying the subject before them. He should like to hear Sir John Lubbock on the question of languages and on that of traditions. How was it that the tradition of savage people so generally spoke of their progenitors having been civilised? Again, as to the ancient civilisations, and as to the arts, ancient Rome was better supplied with water by means of its aqueducts than London was in the present day. If there was a universal law of progress he would ask Sir J. Lubbock to quote one specimen of a savage nation having advanced of itself to a state of civilisation. Without this specimen he thought the theory of Sir J. Lubbock might be rather termed a nebulous hypothesis.

The PRESIDENT said the discussion had been most pertinent. Mr. Wallace had told them that they should divide those two lines of enquiry—arts and morals; but he did not concur with Mr. Wallace that the question of moral history was not a scientific one. He thought it was; but the moral progress had not been studied as that of material conditions had. Sir J. Lubbock's paper was directed to the question of the material progress of mankind, and he was bound to say that in his opinion the paper had not been answered. Mr. Howorth had not met the exigencies of the case. He could assure Mr. Ingle that he was wrong in thinking that the traditions of savage races generally pointed to their having descended from civilised men; it was more commonly the reverse. He agreed with Sir John Lubbock, and disagreed with the Duke of Argyll. He would ask confidently whether there was really much difference between the good but ignorant savage of whose existence travellers had told them, and the ignorant primeval man to whom the Duke of Argyll looked back as the early representative of our race.

Sir JOHN LUBBOCK briefly replied to the several speakers.

Human Remains in the Cave of Cro-Magnon, in the Valley of the Vézère.—

Dr. P. M. DUNCAN read a paper upon some cave remains found in the valley of the Vézère in the course of certain railway operations. The remains have been scientifically examined by order of the French Government, and there were four distinct layers of charcoal, or hearths, with considerable intervals between them. Bones of the mammoth were found here, mixed with human bones, and also the bones of the reindeer. M. Lartet, who examined the bones for the French Government, held that the men and the mammoth had existed together; but Dr. Duncan, and those who took part in the discussion, did not favour the view, and it was generally agreed that the bones of the mammoth might have been found by reindeer hunters, and carried to the cave.

Flint Implements in the Valley of the Thames.—Colonel LANE FOX described some researches he had made recently near Acton, Middlesex, and at various places along the valley of the Thames. He had found a large number of flint implements in such a position as to leave no doubt that the river Thames had once occupied banks one hundred feet higher than the present, and for many miles in width.

Mr. EVANS said that the gravels in which the implements were found must have been deposited in the river terraces at a period wonderfully remote, yet the men who had made and used the flint implements must have lived prior to that time.

Discovery of a Lake Island in South Wales, by the Rev — DUMBLETON.—

The paper was abundantly illustrated by drawings, and also by some piles and other articles found on the island. The description of the island showed it to be identical with the lake dwellings of Switzerland; and it appeared that there had been a tradition in the neighbourhood of a city buried in the lake. The bones found round the island were pronounced to be those of the horse, of a small species of ox, sheep, and wild boar.

Mr. LEE said he was not of opinion that a very remarkable antiquity could be claimed for the island.

So called "Petrified Human Eyes" from Peru.—Dr. SPENCER COBOLD, for the Rev. Dr. A. HUME, read a paper on the discovery of what had been supposed to be petrified human eyes at Arica, in Peru. The region is exceedingly arid, and animal remains are not decayed, but dried, when put into the earth; and the communication stated that the corpses of Indians who had been buried before the Spaniards had landed were frequently to be found. In one part of Arica, near to where large numbers of people were known to be buried, a quantity of eyes had been obtained. Some of these had been found near the corpses, and some, it is said, in the eye-holes of the skulls. A belief had prevailed that they were human eyes petrified; but, on a collection of them being sent to Professor Owen (see on this subject *Trans. Ethno. Soc.*, new series, vol. iv, p. 59, read January 10th, 1865), he pronounced them to be the eyes of cuttle-fishes. Several were exhibited by Dr. Cobbold, and examined with much interest by those in the room.

The following proceedings took place on August 24th:—

On Stone Implements from Rangoon, by ADMIRAL SIR EDWARD BELCHER.—This paper was written by a gentleman who is now in India, and communicated to the British Association by Admiral Sir E. Belcher, with a recommendation to furnish the former with the means of pursuing his investigations. Description was given of the several implements discovered, and elicited some remarks from the President.

On the paucity of Aboriginal Monuments in Canada, by SIR DUNCAN GIBB, Bart.—Being familiar with the archaeological discoveries in Canada from long residence there, it seemed to the writer that there must be some reason why monuments of an aboriginal character were wholly absent or exceedingly scarce. Humboldt referred to one found in the Western Prairies, but now lost. The author in his inquiry excluded small Indian remains, such as flint implements, pottery, burying grounds, &c., also mounds or barrows. It referred to monuments of stone, built either as dwellings or temples, as met with in Central America. There were two reasons, he said, why such remains were not found in Canada and other northern nations. The first was the extreme cold and rigour of such a climate as existed in Canada, with its six months of winter. The ground covered with snow was unfavourable for the preservation of architectural monuments or remains of any kind, unless carefully looked after as in modern times. The action of the frost he described. For the same reason similar remains were scarce in Northern Europe and Asia. Climate was not only the great drawback to their preservation, but if any monuments had existed some centuries of frost would have completely destroyed them. Secondly, the people who built the American and Canadian mounds, he believed, were the descendants of the Tartars who crossed into America by Behring's Straits, and occupied the whole or greater part of the continent. He considered them a different race to those who built the magnificent temples of Central and South America. They were not builders of stone, unless as met with in some of the mounds. But supposing either race to be builders of stone, had any such monuments existed in the colder parts of North America they would not have held together for any period of time. Although the climate varies somewhat in Canada, being milder in the western part, still no evidences of true Aboriginal monuments were to be found. The climate of Egypt and Central America was peculiarly favourable for their preservation, and who could say the builders were not the descendants of the same people? Of rock sculptures and markings Canada could boast few, especially in caverns, but there was no reason why some day they might not be discovered, particularly in the series of caverns existing between Flamborough and Georgian Bay, and also in a series of caverns which the author conjectured would be some day discovered in rocks of a similar formation in the Island of Anticosti.

On the Primæval Status of man, by Mr. W. C. DENDY.—“Men of faith should inquire more, and men of science should believe in more.” Starting from these premises, the writer of the paper enunciated the principle that matter,

ere it could act, must be specially endowed with the force and faculty of action. Chemistry had not yet evolved a living cell. Mr. Dendy criticised, and, in criticising, satirised the Darwinian theory; and contended that fossil palæontology indicated not exaltation but degradation. Was it not wonderful, on the hypothesis of the simial origin of man, that the chimpanzee, with a brain so nearly resembling that of man, and with organs fitted for speech, had never learnt to utter one word? Certainly the difference in the brain of man and the ape was more in quality than quantity; and there was a near resemblance between the most anthropoid ape and the most pithecoïd man. But there was no chance of modern transmutation; and palæontological researches had failed to supply the missing link. If the link were found, would it prove either exaltation or degradation—the ape-man or the man-ape? Man, at least, historically had confirmed the purity of his blood, and the inborn dignity of his intellect and prowess.

Dr. COBBOLD referred to palæontology to prove that there had been a definite succession and progress in the appearance of animal life on the globe from the lower to the higher forms.

Dr. DUNCAN, in reply to an assertion of Mr. Drake, denied that anthropologists were irreligious. If they attempted to evolve man from any animal they must go far back, as Professor Huxley did, into geologic time. It was ridiculous to try to connect man with the apes.

Sir DUNCAN GIBB and the Rev. Mr. NORMAN also defended the anthropologists and ethnologists against the charge of irreligion.

Mr. E. VIVIAN suggested that there was evidence of two origins of the human race—that they had evidence of a primeval barbarous race existing in far back times; and of the introduction of a later race, highly civilised and moral, at a period not further back than that indicated by Ussher's Chronology. Hence there was truth and error in the opposite theories on the subject of the origin and progress of man.

Mr. LEWIS, Mr. WALLACE, and others, continued the discussion.

Megalithic Monuments, by Mr. A. L. LEWIS.—He said there exists a practically unbroken chain of megalithic (druidic) monuments extending from India to Great Britain. Who were their builders? Circumstances—namely, such an identity of plan as could not be accidental, extending through an unbroken chain of communication, and the existence of common practices and superstitions, and other traces of affinity throughout that chain, led to the conclusion that there must at least have been a great common influence at work throughout this area, though possibly not an absolute community of race. Judging from the probable social condition of the builders of these monuments, the localities in which they are principally found, the remains found with them, and other circumstances, they were probably constructed under Celtic influences, at least in Europe and Africa. The consideration of a number of facts induces the belief that the single upright stones (menhirs) were used as memorial pillars, the circles and alignments primarily as places of sacrifice, and the dolmens, or table stones, of which there are two well-marked varieties, as places of sepulture on the one hand, and places of sacrifice or memorial on the other hand.

Westerly Drifting of the Nomades from the fifth to the nineteenth Century, by Mr. H. H. HOWORTH.—The papers identified the Circassians of modern writers with the White Khazars of the Byzantine and Arabian writers, from the evidence of tradition, language, and historical notices, and also with the White Huns of Priscus. This fills the area north of the Caspian and the Oral, with a race of Agrian affinities, and very highly cultured; remarkable, too, for being the last nation added to the list of Jewish proselytes. The Turks, in the eighth century, contrary to the opinion of Dr. Latham and others, were confined to the countries east of the Altai Mountains; the previous invaders of Europe, Avares, Huns, &c., having all belonged to the great Ugrian family of races.

Origin of the Tasmanians, by Mr. J. BONWICK.—The origin of the Tasmanians has at this moment a painful interest, the last man of the race having departed, the sole survivor of the island being an old woman. Coming himself from the land of the gum tree, the lecturer stated at large the habits of

the aboriginal inhabitants, and exhibited some very interesting sketches and details of this extraordinary race.

A discussion followed, in which the President and others took part.

Dr. MILLIGAN mentioned some very interesting particulars respecting his personal experience among the aborigines.

On August 25th, *Notes on the Woolwa and Mosquito Vocabularies*, by Drs. R. S. CHARNOCK and C. C. BLAKE, were the first papers called on. The Secretary explained that the bulk of the paper consisted of the vocabularies and their explanations; he did not think it need be read. It was accordingly taken as read.

The Natives of Vancouver's Island and British Columbia, by Dr. R. KING, F.A.S.L.—The natives are called Flat Heads, of which there are four varieties:—the elongated head, from before backwards, the conical head, the square head, and the elongated head from side to side. These artificial heads are produced by pressure on the forehead, and bandaging on the sides (the elongated head from side to side excepted), until the child is a year old. It does not affect the intellect. It is mere displacement of brain. He called this the artificial deformity, in which there is conformity of error; but he described a deformity which is going on to a great extent in civilised life, which he called natural deformity, or non-conformity of error, which he attributed to the mode of nursing. For instance, the child is nursed on one side, there being a loss of one breast; or the mother has twins, and nurses one child on side and the other on the other side; or she is a wet nurse, and nurses her own child on the one side and her foster child on the other. This mode of nursing necessarily inclines one side of the head downwards; it may be the right side, or it may be the left. Now, as the brain necessarily forms the brain case, or skull, as the kernel of the nut forms the shell, the brain in its growth, which is very rapid in early life, necessarily carries the bones now incomplete to the depending side; thus the head of the child is larger on the depending side than on the opposite for life; if not corrected before the several bones of the head are consolidated into one form. Thus, the cranial vault is deformed, and in proportion as the cranial vault is deformed so is the face. The cranial vault of the European is well represented in the egg of the turkey. The forehead represents the apex of the egg, the back-head the base of the egg; reverse this, and the base of the egg will represent the forehead of the face, and the apex the chin of the face. Deformity of face is, therefore, necessarily the result of deformity of the cranial vault. A further deformity of face takes place in the child sucking its thumb, the index finger being placed as a rest on the nasal bones, then inclining them to one side, either right or left, as the child takes to its right or left thumb to suck. In order to obviate the deformity natural, Dr. King has taken a hint from the Esquimaux. He found in his visit amongst them that they nursed their children from their back, and by a shrug of the shoulder the child is brought under the right or left arm as the mother desires, thus the right head and left head are depending alternately; thus the civilised mother, having lost one side by alternately nursing from the front and the back, will make up for the loss she has sustained, and produce a symmetrical head and face, and not a deformed head and face, and an intellect of conformity, instead of non-conformity. The native population of Vancouver's Island is estimated at eighteen thousand, but, as in all cases of estimates of the uncivilised races, wandering as they do, this estimate cannot be relied upon. By far the most numerous of powerful tribes live on the west coast or on the outward seaboard of the island, and the white man is respected by them. The natives generally are in a very degraded state; occasionally industrious, trustworthy individuals are to be met with, but, as a body, continuous labour cannot be depended on. They live entirely on fish, and on a small esculent plant called cumass, which they collect and store up for winter, as we do potatoes, and they cook them as we do by boiling and baking. The cumass digging is a great season of *r union* for the women of the various tribes, and answers to our haymaking or harvest home.

On the Esquimaux, considered in their Relationship to Man's Antiquity, by Captain W. S. HALL.—The Esquimaux, as is well-known, inhabit regions within the Arctic Regions, comprising Greenland and the islands to the west

of that continent. Ethnologically considered, they are of the Mongolian type, and in this respect allied to the Finns and Laplanders, and the races of Central and Eastern Asia. The question arises, where and when did this peculiar people originate? That no originating centre of the human species can have occurred within the Arctic Circle as at present constituted is self-evident. That the progenitors of the present inhabitants migrated within any recognisable period of history, from southern and more genial latitudes, is equally irreconcilable with ordinary reason, even if their peculiar type did not render such hypothesis untenable. Against the possibility of Greenland having been peopled from Lapland or Finland, the evidence is so strong as to amount almost to a certainty. In the first place, the North Cape of Europe is separated from Cape Farewell, in Greenland, by at least sixty-nine and a half degrees of longitude. Again, the prevailing winds in these latitudes are from the west, or from Greenland to Lapland; and lastly, the Gulf Stream in its north-easterly course, between Iceland and the coast of Norway, would naturally carry any fragile craft from the north rather towards Nova Zembla than to Greenland. The lecturer then proceeded to show that a temperate climate prevailed in the Arctic regions during the miocene era, and proved this by giving a list of the fossil plants which had been found in Greenland, and submitted to Professor Heer. These showed that, at the time they lived within the Arctic circle, a warmer circle characterised that latitude than that now prevailing in Devonshire. From this Captain Hall deduced the conclusion that the miocene was the epoch when man first made his appearance on the earth.

Sir JOHN LUBBOCK, Bart., said he had no doubt that ultimately man's advent on the globe would be traced to the miocene epoch, but he differed from the author, in holding that man was to be found in his original condition in the Devonshire bone caves, rather than in the temperate fossil forests of the extreme North. The reindeer and the whale had always accompanied prehistoric man, and he did not see why he should be less happy than in more temperate regions. Were it not for such intellectual treats as the British Association meetings, and were he to choose a purely animal life, he should prefer an Arctic condition to that of the dripping forests in Central America.

Sir E. BELCHER next gave a short account of the raised beaches in the Arctic regions, and of the various fossil plants he had himself found.

Mr. VIVIAN thought that the Bovey Tracey lignite beds were of the same age as the Greenland, and if Captain Hall's ideas were correct, human remains might be found there.

Notes on an Inscribed Rock, by Mr. R. TATE, was so well illustrated by diagrams that the Chairman said they were sufficient.

An Obstacle to Human Longevity beyond Seventy Years, by Sir DUNCAN GIBB, Bart.—He drew attention to the position of the leaf-shaped cartilage at the back of the tongue, known as the epiglottis, in 5,000 healthy people of all ages, and in eleven per cent. it was found to be drooping or pendant, in place of being vertical. He discovered the important fact that in all persons over seventy, its position was vertical, without a single exception—a circumstance of the highest importance bearing upon the attainment of old age amongst Europeans. In a number of instances, where the age varied from seventy to ninety-five, in all was this cartilage vertical. Many of these he cited as examples, such as the well-known statesmen, Lord Palmerston, Lord Lyndhurst, Lord Campbell, and Lord Brougham. He also gave instances among old ladies still alive, at ages from seventy-six to ninety-two, whose epiglottis was vertical. But the most remarkable was that of a gentleman still alive, 102 years old, in whom it occupied the same position. His facts clearly demonstrated that longevity beyond seventy could not be attained with a pendant epiglottis. He summed up his views in the following conclusions:—1. As a rule persons with a pendant epiglottis do not attain a longevity beyond seventy. Possibly a few may overstep it, but such examples are exceptional. 2. With pendency of the epiglottis, life verges to a close at or about seventy, and the limit of old age is reached. 3. A vertical epiglottis, on the other hand, allows of the attainment of fourscore years and upwards, all other things being equal, and affords the best chance

of reaching the extremest limit of longevity. 4. Lastly, pendency of the epiglottis is an obstacle to longevity, certainly beyond the age of seventy years, and it is a peculiarity that occurs in eleven per cent. of all ages amongst Europeans.—He followed this with a paper on *A Cause of Diminished Longevity beyond Seventy Years*. He said a considerable portion of the Jewish race possess a physiognomy, to which he gave the name of sanguineo-oleaginous expression, characterised by varying degrees of flushed face, sleepy aspect, greasy look, guttural or husky voice, and fulness of body. The best examples of the class are to be seen in the furniture auction rooms of the metropolis. With this expression is usually associated pendency of the epiglottis. As a rule, longevity is rare among such persons, for they are liable to those diseases of a congestive character, which influence the heart, brain, and liver. The main cause of all this is eating food, especially fish, cooked in oil, which tends to the destructive formative processes in the system, and induces old age before the prime of life is reached, although the individual may appear to be the personification of comparatively good health, from his weight and size. The extensive use of oil in the South of Europe has the same effect in giving rise to congestive diseases and diminished longevity. Pendency of the epiglottis associated with the sanguineo-oleaginous expression is of serious import. The persistent use of oil, therefore, as an article of diet, is pernicious, unless in persons of a spare habit of body, delicate constitution, and liability to disease wherein its employment would prove useful.

Mr. DENDY quoted some cases corroborative and confirmative of the facts mentioned by Sir Duncan.

Mr. A. P. PROWSE said that the epiglottis, as people advanced in years, would naturally fall.

Dr. STEWART thought the subject of both papers was of the greatest interest and importance. Speaking of health and longevity, he thought that if digestion was particularly looked after it would be conducive in a great measure to long life; most of the diseases of the throat were due, in addition, to bad digestion.

Human Remains in the Gravels of Leicestershire, by Mr. F. DRAKE, F.G.S.—In 1866, a tusk belonging to the elephant species was found directly on the Keuper sandstone, at twelve feet from the surface among gravel, near the banks of the river Soar, in Leicestershire. This he regarded as very significant, and plainly indicated that before the deposit of the great drifts of gravel, and when the river here was at least a mile in width, those animals roamed about on the neighbouring hills, and if we co-relate man as contemporary with these animals, we shall probably reach Pliocene times as the date of his appearance. Near Stoney Stanton last year, in a bed of gravel, fifteen feet from the surface, a portion of a human skull was found. It was very low in type, and the brain cavity was small. There was every indication of its having belonged to such a race as the flint weapon makers. There was no remark or discussion on this paper.

Method of Forming the Flint Flakes used by the Early Inhabitants of Devon, by Mr. T. M. HALL, F.G.S.—The flint flakes and chippings found distributed throughout the soil in several parts of North Devon, and those associated with the submerged forests at Northam, occur so abundantly that the question has sometimes been raised whether or not they may have been naturally formed, or whether they may be the result of some unknown kind of accidental fracture. In about ten different localities flint cores have been found buried with the flakes, and, from a careful observation of them, it appears that they are of great importance in deciding this point; for, whilst a flake may possibly, in some cases, be caused by an accidental blow, the cores show unmistakable evidence of design. They show also that, owing to the extreme scarcity of flint all through the northern parts of northern Devon and Cornwall, the early inhabitants appear to have adopted in these districts a somewhat peculiar method of forming the flint flakes, which were probably used by them as knives and scrapers for domestic purposes, or as darts and arrow-heads for war and the chase. This method, as far as I know, differed considerably from that which prevailed in flint-producing countries; and it

seems as if the value of material was such as to induce the makers of these flakes to adopt a plan by which the maximum number was obtained with a minimum amount of waste. All the flint flakes and cores from the ten different stations along the coast, from Croyde to Bude, show a singular uniformity in their design; and the method by which they were formed appears to have been as follows: A model having been selected, a flat surface or base was then formed by striking off the flattest end as near the point as possible. If the flint was cherty, or showed an uneven and hackey fracture, it seems to have been rejected in this first stage of its manufacture; but if, on the other hand, it split with a smooth conchoidal fracture, a series of blows was administered from the flat surface at intervals round the margin, so as to peel off the rough coating of the nodule on three sides. The second series of blows produced the largest flakes; and a third, or even a fourth, set of flakes would successively be obtained in this manner before the core was used up. This peculiarity was incidentally noticed by me about two years ago, in the course of a communication to the Society of Antiquaries; and a subsequent examination of many hundred flakes and cores has served to prove that the same process was in use throughout the whole of this district. The largest flakes hitherto found in North Devon are about three inches in length, but between these and the smallest, which measure not more than three parts of an inch, there are innumerable gradations in size. The result of the principal excavations which had been made at Croyde and Northam shows that the average proportion of cores to flakes is about fourteen per cent.

Sir JOHN LUBBOCK did not see that there was any difference in the formation of the flakes found in North Devon and those found in other parts of the country. He had noticed in the Exeter Museum one or two labels which he would like to see removed; he referred to some natural flakes which were labelled as cores, but there was not the slightest evidence that they had been subjected to human operation.

The PRESIDENT observed that if private remark were made to the curator of the museum, he had no doubt that the labels would be corrected. When there was any doubt or uncertainty about objects, they should be kept separate.

Mr. R. GARNIER read a brief paper *On the Head of a Negro*, which he compared with the European skull.

This was followed by a lengthy paper *On the Frontier Line of Ethnology and Geology*, by H. H. HOWORTH, Esq.

Mr. J. H. KINAHAN, in his paper, *On the Race Elements of the Irish People*, remarked that they seemed to be of a very mixed origin.

Race Affinities of the Madecasses, by Mr. C. S. WAKE, was too voluminous to be read at the present point of the proceedings.

A short extract was read of Mr. J. STIRLING's paper, *On the Races of Morocco*; after which the Chairman declared the work of the section at an end.

The following papers, which were taken to Exeter, were withdrawn by the authors, in consequence of no Anthropological Department having been appointed:—

Dr. BEDDOE—"Anthropology of Devon and Cornwall."

L. O. PIKE—"Method of Anthropological Research."

L. O. PIKE—"Psychical Elements of Religion."

Dr. HUNT—"On the Question of the Acclimatisation of Man considered with reference to Europeans in the United States."

Dr. HUNT—"On the Negro in the New World."

E. PEACOCK—"On the Anthropology of the Isle of Axholme."

Drs. CHARNOCK and CARTER BLAKE—"On the Mosquito and Wulwa Dialects."

J. P. HEWORTH—"The Races of Jamaica."

And others the names of which have not reached us. The following papers were read in other departments of the Association:—

The Occasional Definition of the Convulsions of the Brain on the Exterior of the Head.—This paper, which was read by Mr. T. S. PRIDEAUX, was illustrated by a cast, and the leading conclusions were thus stated:—The general outline of the skull—with the exception of its base and certain

limited portions covered with muscle, more especially beneath the arch of the zygoma and behind the external angle of the orbit—is convex, presenting a flowing curve. Occasionally, however, and perhaps more frequently in the forehead than elsewhere, the outline of a cerebral convolution is so prominently defined in the skull as to be very apparent in the exterior of the head through all the integuments. Sometimes it happens that, after wasting from sickness, the outline of convolutions masked before through the thickness of the integuments, becomes so conspicuous that relatives call the attention of the medical attendant to these prominences, and declare them to have grown out since the illness. Now, could we discover the cause which underlies this exceptional configuration of the brain, we could scarcely fail of being much enlightened as to the laws which generally preside over the development of this organ. Are we to regard this peculiarity as an indication of progress towards perfection, or the reverse. The result of my own observations leads me to think there can be little doubt of the greater frequency of this occurrence in civilised than in savage races. Minute examination reveals great differences in the proportion the size of the convolutions bear to each other in brains of the same general size. In two foreheads of the same breadth, for example, in A the convolutions seated in the mesial line shall be much wider than in B, whilst in B the lateral convolutions shall be much wider than in A. As in different families or races, the features of the face bear very different proportions in size to each other, a certain average proportion being characteristic of each, so with the convolutions and groups of convolutions of the brain. Now, the theory I have to propose as an explanation of the protuberance of isolated cerebral convolutions is that either exercise or the crossing of races by marriage has caused offspring to be born with a predisposition towards the more energetic manifestation of a function than the extent of surface allotted to it by the brain type of its race will furnish; that this extent of surface not being susceptible of being widened without subverting the general packing arrangement and proportionate surfaces of organs and figure of the brain as a whole belonging to the type, Nature effects her purpose by thrusting the skull outwards. This theory requires that the cerebral convolutions most frequently protuberant shall be those appropriated to functions which the progress of civilisation has a tendency to cultivate, and render men more active than they are found in a ruder state of society; and, if I am right in believing that the convolutions which in the frequency with which they occur, defined on the exterior of the head, surpass all others, are those of the organs of music and causality, I think it must be admitted that so far the test does not fail. Gall especially described two different forms or modes of development assumed by the organ of music. In some of the most eminent composers, the external corners of the forehead are enlarged and rounded towards the temples, giving extent of superficies to the organ without clearly defining its outline. In others, equally celebrated, the organ presents a well defined prominence in the form of a pyramid, the base of which rests above the eye, whilst the apex reaches half way up the forehead, and terminates at its external edge. Gall gives the Mozarts, father and son, Michael Haydn, Paer, Dussek, Crescentini, and several others, as examples of the first conformation; Beethoven, Joseph Haydn, J. J. Rousseau, Gluck, etc., as examples of the second; and I may add to the list of great musicians presenting the outline of the organ in a well defined pyramidal form the names of Mendelssohn and Weber. I am acquainted with a lady, who possessed from childhood an extraordinary genius for music, in whom the organ presents the first form. The configuration of the external corners of the forehead is such as to provide a wide extent of surface for the organ of music, but no defined outline is perceptible. This lady married into a family singularly wanting in musical capacity. She has two daughters who, without equalling their mother in genius, inherit from her a capacity for music much above the average. Their heads, however, follow in general outline the type of their father's family; they lack the spacious temporal region of their mother, and present the organ of music in the pyramidal form, and this form is, beyond doubt, that which is most commonly met with in England. On an average, I have

my attention arrested at least once in six months, by seeing a very conspicuous development of the organ of music in the pyramidal form in a complete stranger. When circumstances permit, I always endeavour to ascertain whether the endowment with the faculty is commensurate with the development of the organ, and I can say with truth, that I never yet received a negative answer. This mask which I hold in my hand, I took from the head of a gentleman a few days since, as a good example of the development of the organ of music in the pyramidal form. Calling recently at an office in the city, a perfect stranger came forward to address me. As he approached, the cross-light from a window brought his organ of music into such prominent relief, that I half-involuntarily exclaimed, "Why, you ought to be a musician." "What makes you say so?" said he. "Because you have it written in your forehead," I replied. "Ah! I suppose you are a phrenologist," he rejoined; "but it is strange you should have discovered it, for I have had my head twice examined, especially for the organ of music, by lecturers on phrenology, who visited the town where I then resided, and they both told me I had very little of it. You, however, are right; by an accident you found me in this office, but I am the organist of —, and well known in the musical world."

In the course of the discussion, which was more irregular and conversational than usual, various objections were started by the Chairman, Professor McClelland, Mr. Wallace, and others, to the theory of Mr. Prideaux, as to how it was that Mr. Prideaux could distinguish between the human voice in conversation and in music, as he (Mr. Prideaux) had stated he could.

The CHAIRMAN (Professor Busk) said he should be glad to hear remarks upon the subject. He was not satisfied himself that the prominence pointed out by Mr. Prideaux was caused by the development of the brain at the particular point, or whether it might not be the temporal muscle, or whether it might not be fat.

Mr. PRIDEAUX denied that it could be a development of the temporal muscle which produced such a protuberance, as that did not extend so far.

The CHAIRMAN said he doubted whether the convolutions of the brain could produce a change of appearance on the exterior of the skull. They were often made on the interior of the skull.

Mr. PRIDEAUX said they would always find the prominences, as he showed them to exist in this case, in all great musicians.

The CHAIRMAN said it remained to be seen whether there were not brains of people of equal musical power which did not show any such external mark.

Mr. PRIDEAUX said that was just what the phrenologists had been asking the anti-phrenologists to show them for years. It was for the anti-phrenologists to produce those proofs. He would take upon himself to say that it was an invariable fact that a great power for music would be accompanied by the conformation of skull which he now pointed out.

The CHAIRMAN said in this particular instance the man Mr. Prideaux spoke of seemed to have been amongst phrenologists, and they had not discovered his musical powers.

Mr. PRIDEAUX said that was because the people who pretended to a knowledge of phrenology were often not capable of distinguishing such cases.

Mr. WALLACE complained that only one instance had been brought before them. They ought not to be asked to accept such a theory except on the production of an overwhelming mass of facts. If the crania of two hundred or three hundred musicians could be brought before them, all showing the development of that one part of the skull, then there would be some force in the argument; but to bring a solitary case, and say there were others, was merely a waste of time.

Mr. PRIDEAUX, in reply to various other questions, said that he could not tell how the brain performed its functions with regard to musical pitch. It could only, of course, be a matter of analysis, and in every great musician ever known, that part of the forehead had been very large. The theory of music was founded on the musical pitch, or the number of vibrations in a second, and in some way the organ of music, or that part of the brain, took cognisance of the number of those vibrations, just as the organ of colour

would take cognisance of the number of vibrations in the rays of light. He would venture to say that he could at once detect, in a number of strangers, those who would be likely to sing in tune. He was himself deficient in that faculty, but had an extraordinary memory for voices, and could recognise any one he knew by hearing him utter two syllables.

Mr. WALLACE: How do you distinguish between that faculty and that which gives the power of a musician?

Mr. PRIDEAUX said by the peculiar intonation of the voice. He did not know whether physicists had as yet defined mathematically what produced an agreeable voice or otherwise, but phrenologists could, by the shape of the head, tell what sort of a voice a man had. A man with a low head never had a rich voice. There was, too, a deep ringing voice given by the presence of what the phrenologists called destructiveness, which in some actors lent great force to their outbursts of rage. As to bringing a great number of examples, that had been done by Gall years ago. Phrenologists had filled the museums with casts and examples, and he only wanted men of science to turn their attention to the subject, and to bring facts in opposition. The onus rested with their opponents to disprove the position taken by phrenologists.

The CHAIRMAN suggested to Mr. Prideaux that he should experiment upon the audience in picking out the musicians, but Mr. Prideaux demurred to that course as not being scientific in method; and the discussion shortly ended, as did also the business of the section, with a vote of thanks to the chairman.

Mr. PENGELLY, F.R.S., was called on by the President to read the *Fifth Report of the Committee on the Exploration of Kent's Cavern*. He said that beneath the floor of the "vestibule" was a layer of black soil, six to nine inches deep, which had yielded 366 flint implements, bones and teeth of recent and extinct animals, charcoal, flint cores, &c. It had been objected that people could never have lived in the caverns, because smoke would have suffocated them. An experiment which had been tried, in burning six faggots of wood, showed the fallacy of the objection. In the exploration of the cavern, a daily journal had been kept, and every circumstance was noted down. 3,948 boxes of fossil bones had been found, and these Mr. Boyd Dawkins undertook to examine for the purpose of determining the species to which they belonged. Among other objects, a bone needle had been found in the black band beneath the stalagmitic floor. The eye was capable of carrying a thread the thickness of thin twine. A bone harpoon or fish-spear, forked on one side only, had been met with. Other undoubted evidences of early human art had been found. During the years 1868-9, Mr. Everitt, who is engaged by the Rajah of Sarawak to explore the caves of Borneo, visited Kent's Hole for the purpose of familiarising himself with the mode of operation. Mr. Pengelly then detailed the various layers underlying the stalagmitic floor, in which he was aided by a series of large diagrams. The cave earth, or floor underneath the stalagmite, was full of flint implements, teeth of the mammoth, bear, hyæna, &c., and gnawed and split bones. Inscriptions dated 1688 had been found on the stalagmitic walls of that part of the cavern known as the "crypt." The deduction drawn by Mr. Pengelly was that this period of time, although the dripping of water was very copious, had been insufficient to coat over and obliterate the writing. This gives some idea of the immense age of the stalagmite floor, and of the time occupied in its formation. Beneath the earth was a breccia, and up to last year not the slightest traces of man had been found. This year, however, a flint flake was met with, thus carrying the antiquity of man further back. A monthly report had been sent up to Sir Charles Lyell. In some places the stalagmitic floor was as much as twelve feet thick. Associated with the flake were the remains of the cave-lion, the cave-bear, mammoth, &c. In fact, this was the most important anthropological relic which the cavern had yielded. Mr. John Evans, F.R.S., had seen the flint flake, and had declared it to be of undoubtedly human workmanship.

Mr. BOYD DAWKINS read a few notes on the mammalian remains men-

tioned by Mr. Pengelly. He showed that the various strata of the floor of the cavern contained remains of animals of different epochs, from the post-glacial upwards. During the time the black or upper band was being formed, a race of cannibals inhabited the cavern. The older deposits contained remains of the glutton, a species of hare larger than the existing type, the beaver, &c. Mr. Dawkins concluded by remarking on the vast antiquity of the human race as indicated by the facts mentioned in the report.

The Extinction of the Mammoth.—A paper on this subject was next read by Mr. H. H. HOWORTH. The various historical notices in old authors of the mammoth remains in Siberia and elsewhere, were condensed. The usual idea was that the mammoth was a sort of huge mole, which rarely came to the surface. This was the way their vast remains were accounted for. Mr. Howorth did not think the extinction of the mammoth ought to be ascribed to the men of the early stone age.

Professor PHILLIPS and Mr. BOYD DAWKINS made some remarks on the above paper, the former dwelling at some length upon the more popular geological notions of the former conditions of northern geography, and the latter observing that Mr. Howorth had misunderstood him. He had never said that the extinction of the mammoth in Siberia was owing to his being hunted down; but he had stated that in England and Western Europe generally, there was no doubt that the mammoth had become extinct by the hand of man.

Mr. HOWORTH briefly replied, stating that he still differed from Mr. Dawkins as to the extinction of the animals mentioned. He thought that different races of man had become extinct along with the animals.

Mr. PENGELLY next read a paper *On the Alleged Occurrence of Hippopotamus major and Machairodus latidens in Kent's Cavern*. Mr. Pengelly thought there was no reliable evidence as to the occurrence of the *Hippopotamus*, but the *Machairodus* was undoubtedly associated with the other remains.

In Memory of
JAMES HUNT, P.H.D., F.S.A.,
 FOUNDER AND FIRST PRESIDENT
 OF THE
ANTHROPOLOGICAL SOCIETY OF LONDON,
 AND
 SOLE EDITOR AND PROPRIETOR OF THIS REVIEW,
 WHO
 DIED AUGUST 20, 1869,
 AGED 36 YEARS.

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JOURNAL
OF THE
ANTHROPOLOGICAL SOCIETY OF LONDON.

SPECIAL GENERAL MEETING.

OCTOBER 28TH, 1868.

DR. HUNT, PRESIDENT, IN THE CHAIR.

The Director read the following Circular convening the Meeting.

ANTHROPOLOGICAL SOCIETY OF LONDON.

4, *St. Martin's Place, W.C., 17th October, 1868.*

SIR,—I am directed by the council to request your attendance at a Special General Meeting of the Fellows, to be held on *Wednesday*, the 28th day of *October*, 1868, at Eight o'clock in the Evening, at 4, *St. Martin's Place, Trafalgar Square* (in accordance with the Resolution* of the Special General Meeting of the 2nd September last), for the purpose of considering a Report prepared by Dr. DUNCAN, Mr. AVERY, Mr. BENDIR, Mr. LEWIS, and Mr. RAMSAY.

I am, Sir, your obedient servant,

EDWARD W. BRABROOK, *Director.*

* Resolution of Special General Meeting, 2nd September, 1868.—“That a Committee of five Fellows of the Anthropological Society of London, who are neither members of the Council nor friends of Mr. Hyde Clarke, be nominated, that shall report to a Special General Meeting of the Society upon the general and financial condition of the Society.”

The Chairman then called upon Dr. Duncan to read the Report as follows:—

*The Report of the Committee of Investigation into the general and financial condition of the Anthropological Society of London.**

ORIGIN OF THE COMMITTEE.

A resolution which was proposed at the Special General Meeting of the Anthropological Society, held on September 2nd, 1868, by Dr. P. Martin Duncan, F.R.S., and seconded by Mr. Brebner, F.A.S.L., was carried by a majority of twenty-two to thirteen votes. It was thus worded:—“That a Committee of five Fellows of the Anthropological Society, who are neither members of the Council, nor friends of Mr. Hyde Clarke, be nominated; and, that it shall report to a Special General Meeting upon the general and financial condition of the Society.”

* See explanatory note of Council at p. xviii.

NOMINATION OF THE COMMITTEE.

The impossibility of choosing such a Committee at the Meeting was evident, but Dr. Duncan asserted that a committee would be chosen, and a report made. Shortly after the day upon which the resolution was carried, Dr. Hunt, in his capacity of President, forwarded Dr. Duncan a list of the Fellows of the Society, and requested him to nominate a committee.

Dr. Duncan, as proposer of the resolution, elected to become a committee-man, and after some slight trouble, the undersigned consented to serve.

Proceedings.—At the first meeting of the committee, held September 16th, 1868, at the rooms of the Anthropological Society, it was clearly understood between the members constituting it, that they had the success of the Society at heart, that they would act independently and without bias, and that no evidence would be received except that of a documentary character. It was resolved that the committee had nothing to do with the quarrel between Mr. Hyde Clarke and the Council of the Society, except in a secondary sense, but that the details upon which the charges brought forward by Mr. Hyde Clarke rested would, of necessity, come before it and be reported on.

Dr. Duncan was chosen chairman.

The inquiries of the Committee may be arranged under the following heads.

1. The income, assets, expenditure, and liabilities of the Society.
2. The Review and Journal.
3. Other publications.
4. Arrears of subscriptions and resignations of Fellows.
5. Estimated income for 1869.
6. The accounts of the Society.
7. Amalgamation proceedings.

Conclusion, with recommendations.

The committee reports that the balance sheet submitted to the Annual Meeting of the Society, January, 1868, agrees with the entries in the books of the Society, and that a statement of the assets and liabilities made up to the 2nd September, 1868, and submitted to it, is correct.

That the following was the financial condition of the Society at the end of the year 1867.

Liabilities	£1430	2	8
Assets	1249	17	3
<hr style="width: 50%; margin: 0 auto;"/>			
Balance against Society	£ 180	5	6

The correct amount of cash at the bankers then amounted to £72 7s. 3d., and this was the only available asset. Consequently, the debt of the Society was £1357 15s. 5d.

Liabilities	£1430	2	8
Cash	72	7	3
<hr style="width: 50%; margin: 0 auto;"/>			
£1357 15 5			

It must be noticed that the Society is a "Publishing Society," and

that a considerable stock of books is in its possession. This stock, although not an available asset, may be fairly considered to be nearly so.

The assets not immediately available were :—

1. Value of stock at the Publisher's, taken at the lowest valuation, and not including copyright	-	-	£350	0	0
2. Subscriptions in arrear, estimated as good	-	-	470	0	0
3. Office sales of books	-	-	7	10	0
4. Value of Furniture, Museum, and Library, at the lowest valuation	-	-	350	0	0
					<u>£1177 10 0</u>

The available assets - £ 72 7 3

The not immediately available assets 1177 10 0

Total assets, December 31, 1867. £1249 17 3

That on September 2nd, 1868, the financial condition of the Society was as follows :—

Liabilities	£ 825 11 4
Assets	1468 13 9

Balance in favour of the Society £643 2 5

The only immediately available asset was, cash at bankers £118 13s. 9d. Consequently, the debt of the Society was £706. 7s. 7d.

Liabilities	£825 11 4
Assets	118 13 9

£706 17 7

The assets not immediately available, were :—

1. Stock at Publisher's	-	-	£350	0	0
2. Arrears of Subscriptions (£1,300) probably good	-	-	650	0	0
3. Value of Furniture, Museum, and Library	-	-	350	0	0

1350 0 0

Available assets - - - - - 118 13 9

Total assets, September 2nd, 1868 £1468 13 9

That subscriptions to the amount of £888 : 6s. have been paid into the Society's hands from January 1st to September 2nd, 1868.

That after a careful examination of the items of expenditure during 1867, it considers due economy was practised.

That the publications of the Society have been well done, and that the price charged against the Society for them has been fair and reasonable.

That the total sum expended by the Society up to Christmas, 1867, was—

For the Review and Journal	-	-	£1365	8	6
For other Publications and Printing	-	-	1473	3	5

Grand Total £2838 11 11

That, at Christmas, 1867, the Society owed for :—

Publications	-	-	£262	14	2
For the Review and Journal	-	-	200	0	0

Total owing for Publishing £462 14 2

That on September 2nd, 1868, the Society owed :—

For Publications	-	-	£283	1	4
For the Review and Journal	-	-	387	10	0
Total owing			£670	11	4

That the cost of the Review and Journal in 1867 was, without postage, at the rate of £450.

According to a communication from Dr. Hunt, the charge for each copy of the Review and Journal is to be reduced to 2s. 3d.; consequently, the cost of the Review and Journal will be about £337 10s. a year, if it be supplied to the same number of Fellows as now receive the book. This sum is thus made up :—

Cost of Review	-	-	£227	10	0
Ditto of Journal	.	.	110	0	0
			£337	10	0

That no profits have as yet been handed over to the Society from the proprietor of the Review, and that this Committee is not aware of there having been any.

The President of the Society having written a letter to the *Athenæum*, informing the public that he is the Proprietor and Editor of the Review which circulates with the Journal as an independent publication, the Committee advises that the sense of the whole Society be taken whether the continuation of this arrangement is desirable.*

The Committee considers that the bargain between the proprietor of the Review and the Society has been straightforward and business-like, although it would have been better had there been no mystery on the subject of the Editorship and Proprietorship of the Review.

That it cannot discover that the Council has acted preferentially, as has been alleged, as regards the payment for the Review. The Review and Journal have been published together; they are serial publications; nevertheless, it cannot be sustained from the books of the Society the Committee has had before it, that there have been preferential payments.

That after a careful examination of the figures sent to the chairman by Mr. Hyde Clarke, in support of an allegation of preferential payments, the Committee reports that it cannot find any proofs of such preferential payments. That it considers the observations of Mr. Hyde Clarke concerning this allegation, to be offensive to good taste, and not to be warranted by facts.

The Committee reports that the Society has in the hands of the publisher, one volume of memoirs, which will cost from £150 to £200, and that there are no other publications in hand for which the Society has a liability.

That the arrangements made some time since with the *Reader* newspaper for advertisements, were justifiable; † but that those which referred to the supply of a copy of the *Reader* to the Fellows, were injudicious.

That the arrears of subscriptions are large in amount.

In 1866, Subscriptions were paid by	535	Fellows.
1867,	523	"
1868,	423	"

* See note of Council, p. xviii.

† *Ibid.*, p. xviii.

That it is the opinion of the Committee, that the report of the Council for 1867 did not give a sufficient explanation of the financial condition of the Society.*

The Committee is anxious to impress upon the Society, that, if all the Fellows in arrear would pay up their subscriptions, the debts could readily be liquidated; and, that it is the obvious duty of the Fellows to fulfil the undertakings they have entered into; for the council, anticipating such conduct, has incurred a serious debt for publications, of which the Fellows have already had the benefit.

It recommends that candidates for election as Fellows of the Society, be required to sign the following form of obligation:†—

“I, the undersigned, being desirous of becoming a Fellow of the Anthropological Society of London, do hereby promise, that I will duly and regularly pay my subscription to the Society as it becomes due, that I will observe all the regulations of the said Society, and that I will endeavour to advance the objects and interests of the said Society. Provided, that whenever I shall signify in writing to the Society that I am desirous of withdrawing my name therefrom, I shall (after the payment of any annual subscription which may be due by me at that period), be free from this obligation.

Witness my hand, this day of ——— ”

The Committee reports, that the following is a correct copy of the proceedings in council in reference to Dr. Hunt's and Mr. Brabrook's resignations, and it is content to leave the facts to tell their own story.

ANTHROPOLOGICAL SOCIETY OF LONDON.

Extract from the Minutes of Council, June 16th, 1868.

DR HUNT, PRESIDENT, IN THE CHAIR.

The President submitted a report on the action of the Committee appointed by the Council to confer with the Committee of the Ethnological Council respecting the proposed union of the two Societies; and he concluded, by laying before the Council the recommendation of the joint Committee, that the name of the new amalgamated Society be, “The Society for the Promotion of the Science of Man.”

The Rev. DUNBAR HEATH proposed, and Dr. SEEMANN seconded as an amendment:—

“That the existence of flourishing Societies under the name of Anthropological Societies in several of the capitals of Europe, is, in itself, a sufficient reason to prevent this Society acceding to a change of name.”

The above resolution having been put, there appeared fifteen votes in its favour, and four against.

Captain BEDFORD PIM moved, and Dr. KING seconded the following resolution, which was carried, one vote only being recorded against it:—

“That the name recommended by the Committee, ‘The Society for the Promotion of the Science of Man,’ is not a better name than ‘Anthropological’; and that the Council of this Society do not con-

* See note of Council, p. xix.

† *Ibid.*, p. xix.

sider such a change desirable ; but they are quite willing to leave the selection of the name for the joint Society to the vote of a combined General Meeting of both Societies.

The Council then suspended its sitting.

On its resumption, Dr. HUNT announced that he had just submitted the above Resolutions to the Committee of the Ethnological Council, and they had been rejected by that Committee. Negotiations for a Union were consequently at an end, and he tendered his resignation of the Presidency of the Society.

Mr. BRABROOK also tendered his resignation of the office of Director.

Mr. PIKE proposed that the best thanks of the Council be given to the Committee for their efforts in endeavouring to carry out the proposed union of this Society with the Ethnological. (Carried unanimously.)

ANTHROPOLOGICAL SOCIETY OF LONDON.

Extract from Minutes of Council, June 19th, 1868.

DR. HUNT, PRESIDENT, IN THE CHAIR.

Resolved, that the Resignations of Dr. Hunt, as President, and Mr. Brabrook, as Director of the Society, be accepted.

Dr. J. BARNARD DAVIS, F.R.S., was then unanimously elected President.

Dr. DAVIS having taken the chair, the last two Resolutions were rescinded, and the following Resolution, proposed by Captain BEDFORD PIM, seconded by Mr. VAUX, was adopted, one vote only being recorded against it:—

“That the resignation of Dr. Hunt, as President of this Society, be not accepted, his services being of such importance to the Society, that they cannot be dispensed with.”

Proposed by Dr. CHARNOCK, seconded by Mr. COX, and carried unanimously:—

“That the resignation of Mr. Brabrook, as Director of this Society, be not accepted, his services being of such importance to the Society, that they cannot be dispensed with.”

The Committee is of opinion that an amalgamation of the Ethnological and Anthropological Societies, would, in the interests of both Societies, and of science, still be desirable if it could be effected on equitable terms, and it recommends that any reasonable concession should be made.

It urges the publication of the Memoirs, and the continuance of the Journal of the Society, but it deprecates reflections upon the character and peculiarities of any of the learned Societies.

The Committee regrets the number of resignations, and considers that there must be some other cause for it than pecuniary disability.

It is impressed with the notion, that the objectionable expression of opinions upon sacred subjects which is occasionally found in some of the publications of the Society, has much to do with the secession of Fellows.

Believing that Anthropology can only flourish under the flag of

wisdom and peace, this Committee urges the adoption of such means as will prevent the appearance of paragraphs in the Society's publications which are 'uselessly offensive to the religious convictions of a greater or less number of the Fellows.

In presenting this Report, the Committee considers that it will give those, who are now engaged in a bitter quarrel, which is doing serious injury to the Society and the science it professes to study, an opportunity of admitting errors of statement, of retracting offensive expressions and accusations, and of joining in the attempt to establish the Society on a firmer basis.

That we, the undersigned, are unanimous in this our Report.

P. MARTIN DUNCAN, F.R.S., F.A.S.L.

J. GOULD AVERY, F.A.S.L.

A. BENDIR, F.A.S.L.

A. L. LEWIS, F.A.S.L.

A. RAMSAY, JUN., F.A.S.L.

The DIRECTOR said, that as representative of the Council he begged to move that the report be received and printed. He was certain that he but expressed the general feeling of the meeting when he said that the report was a most valuable document, and did the highest credit to the industry, ability, and good feeling of the gentlemen who had made it. The Society were greatly indebted to the Committee, who had entered carefully into matters of detail, had worked day and night to make themselves acquainted with all the facts, and had presented a completely exhaustive and satisfactory report.

The Rev. DUNBAR HEATH (Treasurer), expressed great satisfaction in seconding the motion. The Council had been uncertain up to that moment what their fate was to be, and after the anxiety which they had felt, it was a relief to be thus exonerated from the charges that had been brought against them. As Treasurer of the Society, he was happy to say that the report proved that in the statements of their accounts they had told no fibs. The recommendations of the Committee he had no doubt would be received by the Council in the spirit with which they were given. He had never made any observation intended to be offensive to the religious feelings of any member; and as to the *Review* question, the Council had no other object but the interests of the Society. It was an open question. It was satisfactory that parties totally independent and very desirous to know the real facts, had told them what the actual position of the Society is. He always had the idea that the state of the accounts was a simple matter, and it seemed from the report to be so. With regard to the question of amalgamation, the Council had been unanimous in its favour and had no objection to offer. They had offered to give up everything to effect it, and they could do no more. He hoped, that after what had occurred, they would go forward from that day with increased energy to carry out the objects for which the Anthropological Society was established. No scientific society was more desirous of doing good. Dr. Hunt, their President, was most

energetic in working for their success, and there was no reason why they should not double their numbers.

Mr. MACKENZIE expressed satisfaction at the report of the Committee. He said he had always thought the Council of the Society had done the right thing, and the report had proved that it was so. The correctness of their motives and of their manner of dealing with the finances had been settled by the report, and he wished to give his testimony to its exceeding value. Dr. Duncan had elicited much which had escaped the notice of others who had looked into the accounts. He considered, however, that the investigation was an irregular proceeding, and that strictly speaking, the report was a null and void document; and it was only on account of what it contained, as justifying the accounts of the Society, that they should receive it at all. It was simply because it was a good report in itself, which it was considered necessary to place before the Society. As to the question of amalgamation, he was totally against it. He thought the two Societies could not do better than take their own course. Their Society could never enter into fusion with the Ethnological under any circumstances. The report confirmed the opinion that this Society should work independently and without reliance on any other body. There was no Society in London so straightforward in their pursuit of truth and science. They had no dirty linen to wash. It had been all washed and ironed by the committee; all they had got to do was to wear it properly.

Mr. HYDE CLARKE said he had hoped there might have been some response to the concluding observations of the Committee. He should refrain from making any observations which the nature of the report suggested. The report established nearly everything he had said. One remark in the report as to the nature of the payments was unfair; there was no statement of assets and liabilities in the accounts presented at the Anniversary Meeting. At that Meeting the liabilities were stated generally to amount to £400. The total amount of the printer's bill at that time was £800, and it appeared to him that about £200 was due on account of the *Anthropological Review*. He had stated the circumstances under which he made the remarks at the anniversary meeting, and the origin of his statement was that what took place was the subject of controversy. When those remarks were published he had no other course than to appeal to the public press, and he could not regret the result which had been attained. His only object was to get at the true state of the affairs of the Society and to reduce the amount of the debt. That object had been effected since the last Anniversary Meeting. At that time the debt amounted to £1400, and was increasing, while the income was diminishing. The Council responded to his remarks by reducing the debt, and he trusted the result of what had occurred, instead of doing damage to the Society would place it on a more sure foundation. He had no desire to withdraw from the subject of the discussion, for the report of the Committee showed, that on the 31st December last the Society required reform.

Dr. KING gave his vote for the adoption of the report *in toto*.

He said he must express strongly his opinion that Mr. Hyde Clarke's proceeding in publishing the letter in the *Athenæum* was most unjustifiable, as was shown in the report. That report was a perfect contradiction of Mr. Clarke's statements. Mr. Clarke had done all he could to prevent the amalgamation of the two Societies; but he was wrong from the beginning to the end. He had said that the proposed plan of amalgamation went off on the question of finance. But he (Dr. King), said positively it was not so.

Mr. DENDY observed that the tenour of the report was unexpected. The investigation was undertaken adversely to the Council, but he was glad to find that the Committee had vindicated the conduct of the Council in every way. They had proved that the Council of the Anthropological Society had done right in incurring expenses in the anticipation of the good that would eventually be derived. He wished to take cognisance of that portion of the report which alluded to the atheistical tendency of the remarks of some of the members. He thought that a wrong view had been taken by the Committee of the occasional remarks during the discussions. In considering the correlation of Scripture with science, he thought they ought not to take under review those parts which were of divine origin, such as the prophecies, etc., but they might take the historical parts and comment on them. He believed that the public thought that because little discrepancies appeared between some received religious opinions and the opinions occasionally expressed in that Society, that they had an atheistical tendency. In his opinion, religious men should enquire more, and scientific men believe more. They should induce men to neutralise their opinions; and though the union might produce a little effervescence at first, it would accomplish much good in the end. He regretted that the amalgamation of the two Societies had not taken place, especially as it came so near as to be a mere question of name. The proposed name of "Society for the promotion of the Science of Man," was objectionable, for it was very difficult to put such a title on paper. He trusted that, by and bye, both Societies would agree to amalgamate, and that they would retain the word "Anthropological."

Mr. BROOKES begged Dr. King not to make this matter a personal question again. He had not intended to do more than to deprecate the exhibition of the strong personal feud between Dr. King and Mr. Clarke which ought not to be. He thought that the report did substantiate the charges brought against the Council. There might have been some incongruities and some degree of intemperance in the manner in which the charges were preferred; but substantially, they were to the effect that an investigation of the affairs of the Society was required, and they led to that report, the concluding recommendations of which were judicious and were calculated to restore peace. There was no statement of assets and liabilities shown to the auditors at the General Meeting; for the auditors were told that they had nothing to do but to examine the receipts and payments of the last year. Mr. Bendir asks why the statement was not demanded? It was demanded; and he would ask in return, why was it kept back?

A statement of assets was, indeed, subsequently shown to them, but not officially, and it was incomplete and imperfect. With regard to the proposed amalgamation, he thought a great mistake had been made which prevented it from taking place. When the delegates were appointed by the Council to negotiate the matter, it was understood that the name of the Society would be a question, perhaps the great question in dispute, and that a neutral name would be accepted. The delegates went to carry out the arrangement on that basis. And the Council were pledged to support the delegates, and there should not have been any further reference to them on the point.

The PRESIDENT explained that the Council changed the basis of negotiation, and it was arranged that the name should be retained if no better name could be found ; and Professor Huxley, who had said that no better name was possible, had afterwards said, that if they did not accept some other name the amalgamation must come to an end.

Mr. BROOKES, in continuation, said the delegates were instructed to adopt any name they thought proper. There was no reservation, therefore there should not have been any subsequent reference to the Council. The resignations of the President and Director showed the nature of the pledge given to Professor Huxley, to the effect, that if not supported by the Council they would resign.

The PRESIDENT stated that they resigned, because they had told Professor Huxley that if the Council did not accept the name proposed, they would resign.

Mr. BROOKES thought that the President's explanation was not different from his assertion. If the matter were as he stated, then the delegates ought not to have submitted the question to the Council again.

Mr. PIKE observed, that every-one seemed to accept the report of the Committee in the same sense ; no sophistry and no verbiage could convert that report into anything but a complete vindication of the Council, and a wholesome rebuke to the two persons (and there were only two) who had attacked it. There were certain points in the report on which remark might be made, one of which was the alleged atheism of the Society.

Dr. DUNCAN (Chairman of Committee), rose to explain. He said, the words of the report were : "It is impressed with the notion, that the objectionable expression of opinions upon sacred subjects which is occasionally found in some of the publications of the Society, has much to do with the secession of Fellows. Believing that Anthropology can only flourish under the flag of wisdom and peace, this Committee urges the adoption of such means as will prevent the appearance of paragraphs in the Society's publications which are uselessly offensive to the religious convictions of a greater or less number of the Fellows."

Mr. PIKE agreed with the report in that recommendation ; and the adoption of it would give power to the Council to expunge from their reports expressions that might be offensive. As to the question of amalgamation, he had at one time thought, that in the interests of

science an amalgamation should be made on any terms; but upon further consideration he was not certain that if any little feeling of rivalry existed between any two Societies, such a spirit might not stimulate the members of each body to increased exertion, and prove in the end beneficial to science. The Societies, if amalgamated, would incur less expense; but, it seemed hardly within the province of their Society at present, to make any application to the Ethnological Society for union.

Mr. VAUX considered it to be beneath their Society to go into the question of amalgamation, and that they ought to maintain their own position. There was no necessity to quarrel among themselves or with others; they had their own work to do, and if they did it well they need not mind what others might say.

Mr. BENDIR (Member of the Committee), felt obliged, not as a Committeeman, but as a Fellow of the Society, to protest most emphatically against Mr. Clarke's perversion of the meaning of the report. He had examined Mr. Clarke's figures, but could not find them correct in any one instance; the figures of the report proved numerous and important errors by Mr. Clarke, for which he ought not to hesitate any longer to apologise in a sincere and gentlemanly way. If Mr. Clarke did not do so, the Fellows would excuse him if he reluctantly followed Mr. Clarke in the discussion of a few personalities, which he was sorry to introduce, although they were pertinent to the subject. But he paused, to wait for the apology he still desired to listen to. Well, he hardly expected Mr. Clarke would apologise; the fact was, he was only doing to this Society what he had been and was now doing in others; the report of a meeting of a Railway or Financial Company appearing in the daily papers of the 30th September, had increased the world's knowledge of Mr. Clarke, "who was listened to with much impatience," etc., etc., and afterwards led to a squabble in a police court. The Ethnological, Horticultural, and Statistical Societies, were also benefited by Mr. Clarke's activity and energy: the latter he was, as he called it, "now reorganising." Add to this, Mr. Clarke's frequent contributions to the weekly paper which had opened its pages to him; and there was a nice catalogue of his labours for the present. As to the past, a gentleman, whose name need not transpire, but would carry some weight if it did, had graphically described Mr. Clarke's conduct; and accounted for his retiring from the service of a great and glorious, but inappreciative country. The character of Mr. Clarke was summed up in four brief words: "always in hot water." If gentlemen did not feel as interested in the biography of the individual as in the history of the race, they were not yet practical Anthropologists; but he would gladly change the venue to suit their taste. If gentlemen present, take into their consideration the antecedents of the man as far as they were on record, they would, perhaps, be able to judge of his motives, which no longer could be mistaken by anybody. Mr. Clarke was on the Council of a rival society, and he could only congratulate the cause of science on the acquisition. He, for his part, called upon Mr. Clarke after the report

was in print to look into it carefully ; another opportunity would then be afforded him of either withdrawing or substantiating the charges he inconsistently published ; he said inconsistently, as Mr. Clarke by joining this Society had pledged himself to its rules, which prescribed a remedy very different to that which Mr. Clarke had attempted to apply.

Dr. DUNCAN (Chairman of the Committee), thanked the meeting for the reception they had given to the result of their labours, which he hoped would prove beneficial to the Society, and that in a few days certain acerbities of expression which had occurred would be softened and apologies made. He thought that Mr. Clarke was wrong in the assertion that the Council had indulged in preferential payments, and that in making that charge he had got hold of wrong figures in the accounts. It should be borne in mind that the *Anthropological Review* and *Journal* together, constituted a serial publication, and that they must be paid for at certain periods. With respect to other matters, he thought that Mr. Dendy had mistaken the tenour of the last sentences of the report, which were not to the effect he seemed to conceive. As to Mr. Brookes, he was glad that he praised the Committee, and with regard to his audit of the accounts it was correct so far as it went, but he should have insisted on having a statement of the liabilities of the Society, which was drawn out ready to be produced. He advised the Council in future to have a balance sheet, which would contain a statement of assets and liabilities, placed before the auditors, and then there would be no difficulty in understanding the position of the Society's affairs. There could be no doubt that in past years they had struggled through great difficulty, and that on more than one occasion the Treasurer had sometimes put his hand into his own pocket to meet urgent demands. With regard to the amalgamation scheme, it had received the support of some who were anxious for both Societies to flourish. If it could be properly effected, the amalgamation would be greatly to the benefit of the Society. The Anthropological Society comprised within its objects much more than the Ethnological Society had in view. As to the past, it was probable, that after the explanations which had been made, the members in arrear would pay up their subscriptions ; and if all that had occurred went forth to the world, it was to be hoped that the difficulty which had arisen would be only temporary. The positions of the Society now and in December last, were very different, and now there was a good look out. He hoped, after what had taken place, that the Council would forgive, forget, and forbear, and that they and Mr. Clarke would again come together.

The DIRECTOR said he felt the same desire for peace, but at the same time the Council could not accept peace at any price. It was a case in which the Council had felt it to be their duty to bring a grave charge against a member of the Society in nearly the same terms as Dr. Duncan had expressed that night. When the subject was brought before the General Meeting, he (the Director), told them that the statements made by Mr. Clarke were not true ; that there had been no preferential payments nor anything like jobbing on the

part of the Council, yet that person did not wait to inquire, but said that the payments made showed jobbing. He (the Director) knew, when the committee of investigation was appointed, what the result would be, and the facts were as much within Mr. Clarke's reach as his. Every statement Mr. Clarke made was incorrect.

Mr. BROOKES here remarked that Mr. Clarke did not know at the time that the President was the proprietor of the *Review*.

The DIRECTOR, in continuation, and without noticing the interruption, asked whether the Council were not to have any apology for such conduct. Since the Anniversary Meeting the Society had been kept in a ferment by assertions which were contrary to fact; and he should feel it to be his duty to resist such proceedings to the utmost. Mr. Clarke sent his letter to the Council on the 10th of August and it appeared in print on the 15th, before there was time for a reply. Mr. Clarke now insinuated that his interference had been advantageous to the Society; but he (the Director), said most decidedly that it had produced evil to the Society. Two years ago arrangements were made for a reduction of the expenditure; and a reduction equal to 33 per cent. had been made long before Mr. Clarke interfered in their proceedings. The financial position of the Society was in consequence much improved, and they were now in a position fully equal to that of any Scientific Society in London at a corresponding period of its history. The report of the Committee was fair, honourable, and straightforward; but the epithet "judicious," by which it had been designated by Mr. Brookes, did not apply to it. The report was the result of the unbiassed labour of the Members of the Committee. They would not have his assistance, but they had pursued the inquiry perfectly unbiassed.

Mr. J. GOULD AVERY (Member of the Committee), made some remarks on what had been said by Mr. Clarke and by Mr. Brookes. Mr. Clarke had said that the substance of the report justified his accusation against the Council as to the state of the Society. But the fact was that the result of the inquiry had been to damage Mr. Hyde Clarke. Mr. Brookes said that it had shown that there was something amiss; but the general impression of the Committee was that almost every one of Mr. Clarke's allegations was contrary to fact, for he had failed to produce a semblance of evidence in their favour. The Committee investigated all these matters, and the result was very damaging to him. Their verdict was, not only "not proven," but "not guilty" on every point; and in bringing in that verdict, they said that it was due from Mr. Clarke to the President and to the Council to make an apology. He considered that Mr. Clarke could not stand right with the Society or with the public until that had been done, and the apology ought to be as public as the accusation had been.

Mr. A. L. LEWIS (Member of the Committee), expressed his entire approval of every word Mr. Avery had uttered, and he hoped that Mr. Clarke would accept his advice.

Mr. HYDE CLARKE said he had no wish to impugn the conduct of the Committee, and he felt surprised, that after having made that

report any Member of the Committee should impugn him. What must be the character of that Committee, he asked, one of whom could come there and say, that he (Mr. Clarke), had been for many years concerned in disturbing scientific societies and financial bodies? The Statistical Society was said to be one of them. He would not, however, waste the time of the Meeting with idle matters of that kind; he regretted that Members of the Committee should show their personal feelings by making such remarks. He conceived that the person to receive an apology was himself, and not the Council. When the Report came before the public, it would then be seen who were the parties to make an apology, and he knew the result of the publication of that report would be to show that there had been errors in the past of the nature he had pointed out. Nothing had occurred to shake his conviction that he was right. He would refrain from commenting on the report; he would only say, that if the advice it gave had been adopted there would have been no personalities, and the Society might have enjoyed the benefit of it; but one controversy raised the ground for another, and he should consider what course he should take.

Mr. BENDIS said that all the evidence offered by Mr. Clarke was laid before the Committee, but they resolved not to be dictated to by him.

The PRESIDENT said he was much pained by the remarks just made by Mr. Clarke, who he hoped would have apologised; but instead of doing so, asserted the investigations had not been properly conducted. After such remarks he would say nothing more about Mr. Clarke, but his statements at that meeting would serve to show the difficulty the Council had in dealing with him, and why it was thought desirable that he should be expelled from the Society. He (the President) believed that there were few scientific societies with which, after six years of struggling with difficulties, more faults might not have been found, and he was thoroughly content with the report of the Committee. As to the alleged mystery regarding the *Review* and *Journal*, he had stated that he was the editor; and as to the apparent mystery about it, it was adopted as a matter of self-defence, for if he had made it known that he was the editor, it would be doubtful whether he would have been there that evening. The copyright of the *Review* had been offered to the Council again and again, and there was no mystery as to that. If it were thought incompatible with the office of the President of the Society that he should be the editor of the *Review*, he should be ready to resign either one or the other, or both. As to the question of amalgamation, he would say nothing. He consented to accept another name; but he now heard his friends say that the name proposed was ridiculous. All that could be said for it was, that it was not so ridiculous as any of those proposed by Professor Huxley. As to the alleged offensive remarks on sacred subjects, he hoped the Council would attend to the recommendation of the Report; but the members who contributed the papers, rather than the Council, were attacked by those remarks. As to the recommendation respecting attacks on other societies, he said that this So-

ciety had abstained from any until after the meeting of the British Association at Bath, when the Anthropological Society was attacked, and it was thought desirable to reply to those attacks. The President mentioned that Professor Huxley had announced that ladies would not in future be admitted to the meetings of the Ethnological Society, and they would thus be deprived of any cause for comment on this head. He concluded by putting to the meeting the motion, that the report of the Council be received, and printed in the Society's official journal.

The motion, "That the Report of the Committee be received, and printed," was then put to the vote, and was carried with one dissentient (Mr. Hyde Clarke).

Mr. DIBLEY proposed a resolution to the following effect,—

"That this meeting has great pleasure in declaring its fullest confidence in Dr. Hunt, President, and the Council of the Society; and takes this opportunity of expressing their regret at the unwarrantable statements made by Mr. Hyde Clarke, and their hope that he will publicly retract the same, at the earliest opportunity, or at once retire from the Society."

Mr. WALFORD said he felt satisfied that the report was an independent one, and that he had never listened to a report so convincing and gentlemanly; therefore, the members of that Committee well deserved the thanks of the meeting. After having read the statements of Mr. Clarke, he must say that a more damning refutation of such charges was never made in so mild and proper a manner. If there had been anything objectionable in the *Review*, the proper channel for a reply would have been the *Review* in which it appeared, and departure from that channel was evidence of the vilest intention. He still, however, hoped that they would hear from Mr. Clarke, and from the other gentleman who had attempted to bolster up his statements, a retraction and apology. Never yet did English gentlemen hesitate to apologise where they had made wrongful accusations; and he hoped that apologies would be made by them, that night, for the vile and scandalous attempts to defame the President and officers of that Society. If they refused to do so, they would, in the public mind, be expelled after these proceedings. He concluded by moving, "That the best thanks of the Society be given to the Committee for their investigations and report, and that any expenses they might have incurred by the inquiry should be repaid."

Mr. DIBLEY's motion, which was being written out while Mr. Walford was speaking, took precedence of this resolution, and, having been seconded, was put to the meeting.

Dr. DONOVAN declared that Mr. Hyde Clarke had met with the fate of every reformer. He had been cried down, degraded, and vilified; but he would ultimately triumph. He dissented from any vote of thanks to Dr. Hunt, whom he considered the great enemy of the Society, as the promulgator of atheistical opinions in the *Anthropological Review* and *Journal*, which were supposed to be the organs of the Anthropological Society. In the management of the Society, he had got men of similar opinions to his own on the Council; and it was no

wonder that independent members had been driven away by scores. Men having such opinions were, he said, disqualified from holding the management of any English society, and he "stigmatised the whole lot of them." He concluded by moving an amendment, to the effect "that the Society viewed with regret and disapprobation the fact that a great majority of the Council are professed atheists."

The amendment was not seconded.

Mr. ANDERSON ROSE agreed with the report of the Committee, and expressed his thanks to them for every word of it; but he saw in the report no ground for the personal attack which had been made on Mr. Clarke. The result of the charges alleged against the President and Council by that gentleman, had been the production of a report which would put the Society right with the public; and he thought Mr. Clarke had been punished enough by the opprobrious terms that had been heaped upon him.

When Mr. Dibley's motion was about to be put to the vote, Dr. Donovan insisted on his amendment being put first, and for some time he persisted that it should be done, though told that it would be irregular to put an amendment, which had not been seconded, to the vote.

Mr. BROOKES expressed himself astonished at the turn matters had taken. It might be well, he said, to talk about gentlemanly feeling; but what, he asked, had been the feeling exhibited that night? After reading the report of the Committee, recommending peace and amity, one member of the Committee after another rose to make violent and vituperative attacks on Mr. Clarke because he would not apologise. It was unreasonable to call on Mr. Clarke to make an apology on the mere reading of that report. It required to be read over and considered. So far as he understood it, it appeared to substantiate the charges made by Mr. Clarke. There were no means by which he could get accurate figures; therefore, mere inaccuracy should not be made a serious charge against him. When the report was printed, they would be able to compare it with the statements in the *Athenæum*, and he should be one of the first to call on Mr. Clarke to apologise, if the report did not agree with his statements.

Mr. VAUX suggested an alteration in the resolution, to the effect "that the meeting feel pleasure in expressing their confidence in Dr. Hunt, and regret that Mr. Clarke should have published his statements, for which it is hoped he will take the earliest opportunity to apologise."

Mr. HYDE CLARKE asked what he had to apologise for. There were a great many parts of the report which confirmed his statement. The only part which contradicted him was that respecting the alleged preferential payments, and they had heard nothing from the Chairman of the Committee which showed that he was wrong on that point. If he found he were in the wrong in regard to that or any other matter, he would be ready to apologise.

The resolution, altered by the omission of the words "or at once retire from the Society," was then put to the vote, and carried with one dissentient (Dr. Donovan):—

“That this meeting has great pleasure in declaring its fullest confidence in Dr. Hunt, President, and the Council of the Society; and takes this opportunity of expressing their regret at the unwarrantable statements made by Mr. Hyde Clarke, and their hope that he will publicly retract the same at the earliest opportunity.”

The PRESIDENT returned thanks. He said that since the attack commenced he, as a representative of the Society, had received such a number of letters from all quarters as to inspire him with far greater enthusiasm as to the present state of the Society and their future prospects. In that respect he thought the attack had done good service. He expressed the hope that he should soon be able to retire from the honourable office he held as their President, and take an independent position in the Council.

Mr. Walford's resolution of thanks to the Committee was then proposed, and passed unanimously.

Dr. DUNCAN, on behalf of the Committee and for himself, returned thanks. He said he trusted that Mr. Clarke would withdraw his expressions towards the Committee; and that when he had examined the figures and compared them with his statement, he would do what was right, and apologise. He thought the Council should consider *seriatim* the recommendations suggested by the Committee.

The PRESIDENT assured Dr. Duncan that not only would the recommendations of the Committee be discussed, but they would most probably be adopted. As to the recommendation of amity and goodwill, he said he had been a fighting Fellow of the Society for the last six years, but he should have much pleasure if this dispute came to an end; and if Mr. Clarke and Mr. Brookes came forward to apologise for the injury they had tried to do to the Society, he should be most ready to let bygones be bygones.

The meeting then separated.

[APPENDIX.

I. EXPLANATORY NOTES.

P. i, line 20.

The Council find it necessary to append some explanatory notes to the Report of the Committee. The necessity probably would not have arisen if the Committee had thought it consistent with their duty to avail themselves of the offer of the Director and several Members of the Council to attend and give verbal explanations.

P. iv, line 22.

The Council anticipated this suggestion of the Committee by ordering at their Meeting on October 7th, 1868, that the opinion of Fellows should be taken on this subject.

P. iv, line 5 from bottom.

The arrangement alluded to, was an experiment which lasted seven weeks, from the 17th April to the 7th June, 1866.

P. v, line 14.

The statement of the Committee is incorrectly worded. The Council are informed that its real meaning is, that the election of

twenty Fellows has been cancelled at their own request, the proposer not having had their authority to nominate them; and that the present addresses of eleven Members, who have paid no subscriptions, are not entered in the office books; though, of course, the addresses of all were known at the time of election.

P. vi, line 3.

The recommendation that a printed statement of assets and liabilities should be made every year, is one that the Council feel great difficulty in assenting to. As the assets of the Society consist mainly of two items, the value of which is conjectural, viz. :—Unsold books in the hands of the publishers, and arrears due from Members, the Council feel great hesitation in accepting the responsibility of placing an estimated value upon them; and to insert them in the accounts at their gross value, would be certain to mislead. The Council are advised, moreover, that the publication of such a statement would not be in accordance with the general custom of publishing societies. The Committee remark that, had a statement of assets and liabilities been published, some passages in the Report of Council for 1867, would have been modified. The Council have not been able to discover the passages alluded to. As delegates and representatives of the whole body of Fellows, they have always desired to communicate their views quite unreservedly to their constituents, and they are not aware that they failed in doing so on that occasion. The Committee do not appear to have had before them the proposition submitted to the Council some time ago, viz., that the property of the Society in unsold books should be transferred to a body of Fellows, each of whom should contribute £50 to a fund for paying off the debt to the printer. Some names have been already handed into the Council as willing to enter into this arrangement, and the Council would have been glad to have had the support of the Committee to this proposition.

P. vi, line 11.

This is ordered by the Regulations (form No. 2). The Council on the 5th November, 1867, resolved that a letter of similar nature should be prepared and signed by each Fellow. Such printed forms are in the office, and have been sent out. It is to be regretted that they are very rarely returned by the Fellows.

II. REPORT OF A SPECIAL COMMITTEE APPOINTED ON NOVEMBER 3RD, 1868, TO INQUIRE INTO THE DESIRABILITY OF ACCEPTING THE COPYRIGHT OF THE ANTHROPOLOGICAL REVIEW, AND TO REPORT ON THE WORKING OF THE PRESENT PLAN OF PUBLISHING THE JOURNAL OF THE SOCIETY.

GENTLEMEN,—Your sub-Committee have had before them a number of documents with reference to the conduct and cost of the *Anthropological Review* and *Journal of the Anthropological Society of London*, and, among these, especially, the statements of Messrs. Richards and Trübner, the one as to the cost of printing, the other, as to the sales which have been effected.

They have found :—

1. That the cost of the first 19 Numbers of the *Review* and *Journal* amounted to £2866 15s. 11d. ; of which, the Editor will receive back £2326 17s. 1d ; losing by the transaction £539 18s. 10d., or, on an average, about £28 8s. per quarter.

2. Your sub-Committee find, that the above statement of the costs of publication, etc., which they have computed from the reports of the printer and publisher, is fully confirmed by the estimates forwarded to them by the Editor of the *Anthropological Review*. Thus, Dr. Hunt has put the very lowest cost of everything at £325 per annum. In this estimate he has allowed nothing for the cost of possible or probable translations, for the remuneration of an editor or sub-editor, or for the many incidental expenses unavoidable in the efficient carrying out of a Scientific Journal. We consider, therefore, the second estimate he has sent, to be, in all probability, much nearer the mark. According to this, the whole cost per annum is about £425, or £100 more than the first estimate. To this sum, we think we cannot add less than £75 for editorial expenses—a very moderate amount, it should be remarked, when we bear in mind the class of editor required for such a *Review*. It will be seen that, on this view, we cannot assume that the entire cost will be much less than £500. Of this sum, however, we may reasonably expect to recover from £75 to £120—by sales on the part of the publishers,—in other words, not less than £400 per annum must be set aside as the usual annual cost of the *Review* and *Journal*.

3. Your sub-Committee can see no ground for supposing that, were the Society to accept the copyright of the *Anthropological Review*, they would be able of themselves to publish it at a rate less than that at which it is at present conducted. As compared with the Quarterly Journals of other Societies, and looking at the amount of matter it contains, it must be pronounced to be a cheap publication to any one ; and, especially so to members of the Society. Add to this, that if the Society were to determine on taking it on their own shoulders, they could not do so without first securing a special Editor, whose salary must be adequate to the very varied knowledge he must possess.

4. Your sub-Committee further feel strongly that it is inadvisable, to say the least, as a question of policy, that the Society by accepting the ownership of the *Anthropological Review* should, thereby, become responsible, as they assuredly would become, for every phrase or argument which may hereafter occur in any of its pages ; the only results of which would be, that the Council would be constantly involved in unpleasant and profitless discussions. Nor do they believe that such a step would be a wise one as regards the *Review* itself. The very essence of such a publication—as it seems to them—consists in the fact, that it is as free as possible from control on all matters of legitimate scientific inquiry ; and they believe that its energies are liable to be grievously cramped and checked if once bound down by the tight ropes of a Council and of a Special Editor. At the same time, as remarks have from time to time been made

as to the matter occasionally admitted into the *Review*, and on the tone in which certain subjects have been handled, your sub-Committee would recommend, that all future numbers of the *Review* shall contain on their commencing fly-leaves or wrappers, a notice such as is always attached to the "Archæologia," to the effect, that the Society is not to be held responsible for the individual opinions set forth in the following papers.

5. On these and other grounds, which it is needless to urge here, your sub-Committee are clearly of opinion that, while offering the heartiest thanks to Dr. Hunt and the publishers of the *Anthropological Review* for the readiness with which they have supplied them with all needful information, the Society would be in no sense a gainer by accepting either the copyright or the conduct of the *Review*, and that it is unquestionably the wisest policy for the Society to leave the arrangements between it and the *Anthropological Review* exactly in the same position they occupy at present.

W. S. W. VAUX, M.A., F.R.S., Chairman.

H. BEIGEL, M.D., M.R.C.P.Lond., Chairman of
Finance and Publication Committee.

L. OWEN PIKE, M.A., F.A.S.L.

17th November, 1868.]

SESSION 1868-69.

FIRST ORDINARY MEETING, NOVEMBER 3RD, 1868.

DR. JAMES HUNT, PRESIDENT, IN THE CHAIR.

The following new members were elected :—

Fellows.—Thomas Inman, Esq., M.D., Liverpool; Arthur Dyott Thomson, Esq., M.A., Belvedere, Tunbridge Wells; William Ralph Benson, Esq., Allahabad, North West Provinces, India; John Heaton Esq., Eastwood, Notts; William Arbuthnot, Esq., Oriental Club and Hardwick Hall; Daniel de Castro, Esq., Mitre Court, Temple; Thomas H. Morgan, Esq., Oakhurst, Ore, near Hastings; Lawson Tait, Esq., M.R.C.S., Wakefield; W. H. Harrison, Esq., Herne Hill; L. E. Sewall, Esq., M.D., Boston, U.S.; J. McCormack, Esq., Congo River, W. Africa; H. J. Hulse, Esq., M.D., Louisville, U.S.; J. B. Sparhawk, Esq., Fernando Po; Joseph Kaines, Esq., 13, Finsbury Place South; S. J. Smithers, Esq., 1, College Street, St. Albans; Arthur Turrel, Esq., New York; Felix Garden, Esq., Penzance; Chas. Napoleon De Gardi, Esq., Brass River, West Africa; James Strathern, Esq., Old Calabar River, and Glasgow; Karl V. Nordman, Esq., C.E., Calicut, Madras; Basil Lovery, Esq., Madras; Capt. C. E. Russell, 2nd W.I.R., Accra, Cape Coast, West Africa; A. A. Stewart, Esq., M.D., Staff Surgeon, Cape Coast Castle.

Corresponding Members.—Benjamin Robert Winthrop, Esq., New York; Dr. C. B. G. Miraglia, Aversa, near Naples, Italy; Robert S. Newton, Esq., New York.

Local Secretaries.—Dr. Diezmann, San Juan del Norte, Nicaragua;

Dr. J. H. HULCEE, Louisville, U. S. America ; John McCORMACK, Esq., Congo River, W. Africa.

The following presents received since the last session were announced :—

From the SOCIETY.—Proceedings of the Royal Society, Vol. xvi, Nos. 102, 103, 104.

From the EDITOR.—The Medical Press and Circular.

From the AUTHOR.—Sopra il cranio ed encefalo di un idiota ; memoria di Paolo Gaddi.

From J. CUTHBERT, Esq.—Kosmos, 2 vols., A. Von Humboldt.

From DR. HUNT.—Fisica del Globo : Gerolamo Borcardo.

From the AUTHOR.—Observations on Crania : Dr. Jeffries Wyman.

From the ACADEMY.—The American Naturalist, July.

From the EDITOR.—The Farmers' Journal, May, June, July, August.

From the AUTHOR.—Geology of Northumberland and Durham : Geo. Tate.

From the SOCIETY.—Proceedings of the Cotteswold Naturalist's Field Club, 1867.

From C. C. BLAKE, Esq.—Instincts of Races : Dr. J. C. Nott. Quelques Remarques sur les monuments du Perou : E. G. Squier. Baker's African Explorations : Dr. J. C. Nott. Art of Travel : F. Galton. Synopsis Mammalium, Fischer. Manual of Zoology : M. Edwards.

From the SOCIETY.—Bulletins de la Société d'Anthropologie de Paris Jan. à Fev., Fev. à Avr., 1868.

From the AUTHOR.—The Myths of the New World, Daniel G. Brinton.

From the AUTHOR.—Sull' Antropologia della Grecia, A. Garbiglietti.

From the AUTHOR.—Two Pamphlets on an extraordinary Will Case. Address on Peculiarities of Professional Usage. Address on the Injurious Tendency of Corporate Misrule : Dr. T. R. Tatham.

From the AUTHORS.—Reliquiæ Aquitanicæ : Lartet and Christy.

From the AUTHOR.—Grammatik der Sonorischen Sprachen : J. Karl E. Buschmann.

From the AUTHOR.—Antichità dell' Uomo dell' Italia Centrale : G. Nicolucci.

From the SOCIETY.—Transactions of the Royal Society of Victoria, part I, vol. ix.

From the AUTHOR.—Estudios Prehistoricos : F. M. Tubino.

From the MANX SOCIETY.—Antiquitates Manniæ : Rev. J. G. Cumming.

From the AUTHOR.—Tribes on the Neilgherries : Dr. John Shortt.

From the AUTHOR.—Prolusione dei Lavori della Società Frenopatica Italiana : Mar. and July, 1862. R. Manicomio di Aversa : Ricerche Statistiche per l'Anno 1867. Programma di Un Manicomio : Modello Italiano. Della Costruzione di un Manicomio Muliebre. Trattato de Frenologia, vol. i and ii, with Atlas : B. G. Miraglia.

From W. S. WINDHAM, Esq.—The Pedigree of the English People : T. Nicholas.

From the AUTHOR.—Anales del Museo Publico de Buenos Aires, part v : Professor Burmeister.

From the ACADEMY.—Verslagen en Mededeelingen der Koninklijke

- Akademie van Wetenschappen, 1868. Jaarboek, ditto, 1867.
 Processen-Verbaal, ditto, May 1867, April 1868.
- From the AUTHOR.—Temperature of the Sea: N. Whitley.
- From the SOCIETY.—Proceedings of the Royal Geographical Society, vol. xii, Nos. 2, 3, 4, Oct. 1868. Journal of the Royal Geographical Society, 1867.
- From the INSTITUTE.—Journal United Service Institute, May, August, 1868.
- From T. S. BARRETT, Esq.—The Ingoldsby Letters.
- From the SOCIETY.—Proceedings of the Royal Society of Antiquaries, vols. iii, iv, No. 2.
- From the SOCIETY.—Bulletins de la Société Impériale des Naturalistes de Moscou.
- From the SOCIETY.—Bulletins de l'Académie Impériale des Sciences de St. Petersburg.
- From the INSTITUTE.—Journal of the Royal Institution of Cornwall, No. ix.
- From the AUTHOR.—Vorarbeiten zu einer Cryptogamenflora iv. Laubmosses, 1 serie. Die Trichinose in Brünn: Dr. J. Kalmus.
- From A. W. FRANKS, Esq.—Guide to the Christy Collection.
- From the AUTHOR.—On Foreign Missions: G. Harris.
- From the SOCIETY.—Journal of the Asiatic Society of Bengal and India, Pt. 1, No. 3, 1867.
- From the AUTHOR.—Narrative of Captivity in Abyssinia: Dr. Henry Blanc, F.A.S.L.
- From the AUTHOR.—Atavisme: E. Dally.
- From the SOCIETY.—Fortieth Anniversary Address of Gesellschaft für Erdkunde in Berlin, 1868.
- From the SOCIETY.—Leeds Phil. and Lit. Trans. Report, 1867-8.
- From the AUTHOR.—Das bestandige in den Menschenrassen: Dr. Bastian.
- From the ACADEMY.—Novorum Actorum Academiæ Cæsaræ Leopoldino Carolinæ.
- From the AUTHOR.—American Eclectic Medical Register, Transactions of the Eclectic Medical Society: Dr. R. S. Newton.
- From the AUTHOR.—Various Papers: C. O. Groom Napier.
- The PRESIDENT, after proposing the thanks of the Society to the Donors, congratulated the Meeting on the return of Dr. H. Blanc from Abyssinia, and on the return of their Honorary Fellow, Dr. Carter Blake, from Central America.
- The following reports were read:—

Report upon the state of Anthropology at the Meeting of the British Association for the Advancement of Science at Norwich. By SIR G. DUNCAN GIBB, Bart., M.A., M.D., LL.D., F.A.S.L., etc.

At the late meeting of the British Association at Norwich, the science of Anthropology was almost wholly unrepresented; and this was due not to the falling off in the general interest of the science, but to two causes that presented themselves, one depending upon the

other. The chief of these was the annual meeting of the Congress of Archaic Anthropology, the name of which was there changed to that of Prehistoric Archæology. Mainly in consequence of this meeting occurring at the same time and place as that of the British Association, no Anthropological department was nominated in Section D, and papers that would have been brought before the latter, were read before the Congress. Those, also, who had papers bearing on some of the divisions of Anthropology, did not desire to interrupt the harmony and well working of the Congress by any endeavour to read them before a department of Section D. The Congress, therefore, represented all that was interesting concerning the Science of Man. It must be stated, however, that a large number of valuable papers, intended for the British Association, were not submitted to the Congress, their authors reserving them for reading elsewhere.

Before the British Association the following papers were read, bearing more or less upon Anthropology :—

“On the Native Races of Abyssinia.” By Dr. H. Blanc.

“Fourth Report of Committee for the Exploration of Kent's Cavern.” By Mr. W. Pengelly.

“The Great Prairies and the Prairie Indians.” By Mr. W. Hepworth Dixon.

“Inhabitants of the Cyrenaica and Western Libya.” By Captain Lindesay Brine, R.N.

“On Type Polymorphism and Variation, in relation to the Origin of Species.” By Mr. B. T. Lowne.

“Remarks on Language and Mythology, as Departments of Biological Science.” By Mr. E. B. Tylor.

“On Sixteen Eskimo Skulls.” By Professor Rolleston.

“Sepulchral Remains in Southern India.” By Sir Walter Elliot.

“On the Difficulties of Darwinism.” By the Rev. F. O. Morris.

“On the Physiology of Language.” By Dr. Hughlings Jackson.

“On the Seat of the Faculty of Articulate Language.” By Prof. Paul Broca.

“On the Power of Utterance, in respect of its Cerebral Bearings and Causes.” By Mr. R. Dunn.

“The North-east Turkish Frontier and its Tribes.” By Mr. W. G. Palgrave.

“On the Uigurs.” By Professor A. Vambéry.

“Nomade Races of European Russia.” By Mr. H. H. Howorth.

“On the Tehuelche Indians of Patagonia.” By Consul T. J. Hutchinson.

“On the supposed Differences in the Minds of Men and Women with regard to Educational Necessities.” By Miss Becker.

Many of these papers contained new facts and incidents, possessing more or less anthropological interest ; but we do not purpose going into any of them on the present occasion.

With regard to the Prehistoric Congress, there was no lack of matter of value and importance, for the most part contributed by our own countrymen. The attendance at the Congress was not a very large one, unless, perhaps, on a few occasions, when papers of un-

usual interest were being read; for instance, that by Prof. Huxley "On the Distribution of Races of Mankind as bearing upon their Antiquity." It was unfortunate that the two great meetings should have been held at the same time and place, as it was quite impossible for members of both to attend many of the meetings. This inconvenience will not happen next year; and it is to be hoped—indeed, we have no doubt on the matter—that an Anthropological Department will be nominated as at Nottingham. This year, too, Ethnology was detached from Geography, and was not represented by any department of the British Association; whether hereafter it will be tacked on to Anthropology, time will determine.

Of the papers brought before the Congress, without venturing to classify them under particular heads, they numbered twenty-six, according to the daily programmes, and were upon the following subjects:—

"On the Condition of Prehistoric Races, as inferred from Observation of Modern Tribes." By Mr. E. B. Tylor.

"On Stone Circles and Allignments."

"Notice of Groups of Cists in Aberdeenshire and Ross-shire."

"Note on Sculptured Stones in Scotland." By Mr. John Stuart.

"On Wayland's Cave and the Sarsden Stones, Vale of White Horse, Berkshire." By Mr. A. L. Lewis.

"On Rude Sculptures in various parts of the World." By Mr. Hodder M. Westropp.

"On the Antiquities of the Pacific and South Sea Islands." By Mr. J. H. Lamprey.

"On the Distribution of the Races of Mankind, as bearing upon their Antiquity." By Professor Huxley.

"On Crania discovered in Caves on Windmill Hill, Gibraltar, associated with Implements of Stone and Bone." By Prof. George Busk.

"On the Discovery of Human Remains in Caves in Perigord." By M. Louis Lartet.

"On some Human Crania." By Professor Broca.

"On the Mode of Sepulture observable in late Romano-British and early Anglo-Saxon times in this country." By Professor Rolleston.

"On the Antiquity of the Iron Works of the Weald." By Mr. W. Boyd Dawkins.

"On some Flints from near Bury St. Edmunds." By Mr. Henry Prigg, Junr.

"On the Manufacture of Stone Implements in Prehistoric Times." By Mr. John Evans.

"On Prehistoric Sepulchres in Algeria." By Mr. J. W. Flower.

"On Prehistoric Sepulchres in Brittany." By Rev. W. C. Lukis.

"Exhibition of Flint Implements from the Quaternary Deposits near Paris." By M. Reboux.

"On Quartzite Implements of Drift-Type found in Laterite Deposits of Madras." By Mr. R. Bruce Foote.

"On Sepulchral Remains in Southern India." By Sir Walter Elliot.

"Exhibition of Flint Implements." By Mr. Robert Fitch.

"Exhibition of Collection of Eskimo Stone Implements." By Mr. Edward Whymper.

"On Stone Implements from Japan." By Mr. A. W. Franks.

"On the Mammalia associated with Prehistoric Man." By Mr. W. Boyd Dawkins.

"On the Ogham Monuments of the Gaedhal (Gael)." By Mr. Richard Robert Brush.

"On the Ruins of Hajar Kim." By Mr. P. Furse.

"On the Curvature of the Tusks in the Mammoth from Ilford, compared with those from Siberia." By Mr. Henry Woodward.

"On the Connexion of Prehistoric and Historic Ages in Western Asia." By Mr. Hyde Clarke.

"L'Age du Renne en Maçonnais." Par MM. H. de Ferry et A. Arcelin

(Signed)
Oct. 23, 1868.

G. DUNCAN GIBB, Bart.,
Chairman of British Association Committee.

Report on the International Congress of Archaic Anthropology.

By ALFRED L. LEWIS, F.A.S.L.

The Congrès International d'Anthropologie et d'Archéologie Pré-historiques, of the formation and history of which a short account was given in the April number of the *Anthropological Review*, met, for the third time, in August last, at Norwich, with the somewhat abbreviated title, for the time being, of the "International Congress of Prehistoric Archæology."

The proceedings, which were participated in (amongst a number of other *savans*, British and foreign) by Messrs. Broca, Nilson, and Vogt, were opened, on the 20th August, by an inaugural address from the President (Sir John Lubbock, Bart., F.R.S., etc.). In the course of this address, which attracted a larger audience than any of the subsequent proceedings, Sir John Lubbock gave a sketch of the formation, history, and objects of the Congress, and paid an appropriate tribute to the memory of M. Boucher de Perthes, and other eminent archæologists lately deceased. He vindicated the manner in which prehistoric antiquities were being studied, discussed, at great length, the evidence upon which the distinctions between the palæolithic, nœolithic, bronze, and iron ages were drawn, and concluded by impressing upon his audience the desirability and necessity of studying the archaic monuments of our own country, and the characteristics of those races in other countries who were still living under the stone age, before the materials for such studies, which were in both cases rapidly disappearing, should be entirely destroyed.

The Committee of Management had issued a kind of programme, detailing twelve classes of subjects relating to the earliest existence, physical characteristics, habits, manners, customs, manufactures, buildings, and implements of prehistoric man, and to the fauna associated with him, upon which it was desirable that information should be obtained, and the papers received, in accordance with this programme, were so numerous that we can only briefly notice each, referring for further particulars to the Proceedings of the Congress when published.

The real business of the Congress was commenced on Friday, 21st August, by Mr. E. B. Tylor, who read a paper "On the Condition of Prehistoric Races, as inferred from observation of Modern Tribes," the general object of which was to illustrate the customs of the prehistoric populations of Europe, and explain the uses of objects found in their interments, and the purposes for which they were buried, by the customs and implements in use among other nations of the historic period. This was followed by three papers from Mr. John Stuart (author of "Sculptured Stones of Scotland"), on "Stone Circles and Alligments," on "Groups of Cists in Aberdeenshire and Ross-shire," and on "Sculptured Stones in Scotland." Mr. Stuart maintained the theory that the stone circles were exclusively used as sepulchral monuments; and it happened, curiously enough, that the next paper (on "The Sarsden Stones, etc., Berkshire," by Mr. A. L. Lewis, F.A.S.L.) took up the opposite view, namely, that their primary use was as places of worship, their use as places of sepulture being merely subsidiary, as is the case with our own churches. We believe that the extensive remains known as the Sarsden Stones, had never been described before, having been considered by topographers as a natural phenomenon; but this point was lost sight of in the discussion, which mainly turned upon the question of the uses of the stone circles. The next paper was by Mr. Hodder M. Westropp, F.A.S.L., etc., on "Rock Sculptures in various parts of the world," which he considered as being mainly the product of the idle hours incident to a pastoral life. In the course of the paper he also introduced some of the suggestions as to the sequence of phases of civilisation and contemporaneous implements, which he laid before the Anthropological Society of London during the Session 1867-8. The day's proceedings were brought to a close by a paper from Mr. Lamprey (the Librarian of the Royal Geographical Society) on "The Antiquities of the Pacific and South Sea Islands," in which he expressed the opinion, based upon the magnitude of the monuments, that they must have been the work of some other race than the present inhabitants, or that the latter must have degenerated vastly from their ancestors. These views were, however, combatted by Professor Huxley, and most of the participants in the discussion which ensued.

It had been proposed to devote the Saturday to an excursion to the Drift Beds of the Valley of the Little Ouse, but as it unfortunately happened to be very wet and stormy, an ordinary session was held, at which Mr. Busk exhibited a large number of stone implements from the Cape of Good Hope, and Mr. Boyd Dawkins also exhibited some human and other remains from Spain, which he considered, on what were thought by some to be hardly sufficient grounds, to be the remains of cannibal feasts. Mr. Heywood then read a paper on Legends of celebrated archers, which, although its connection with the programme of the Congress was not very plain, contained much that was interesting. Taking the popular history of William Tell, the authenticity of which he denied, he traced a similar legend in various forms and with various dramatis personæ, from an oriental source, and through Scandinavia into Switzerland; and this legend,

which he thought was the foundation of the Tell story, he also suggested might tend to prove a connection between the various peoples he had mentioned. This day's proceedings were closed by a paper from Mr. Ellis, on flint-flakes, from the submerged forest of Barnstaple, North Devon, which elicited a lengthy conversational discussion.

Refreshed by a day's rest or wearied by a day's compulsory idleness, as the case might be, the Congress re-assembled on Monday morning to hear a paper, or rather a lecture, from Professor Huxley, on the distribution of the races of mankind, as bearing upon their antiquity. The views which Professor Huxley enunciated in this paper, were in some respects similar to those which have been propounded to the Anthropological Society by Mr. C. S. Wake; after dividing mankind into five leading groups, he observed that he found two, the Australoid and the Negroid, scattered over parts of the world, separated from one another by the Indian and Pacific oceans, in such a manner as to lead him, having reference to their present state of civilisation and general characteristics, to believe that these races had been in existence at a time when a land communication existed between Australia and the Deccan on the one hand, and South Africa, Malacca and New Guinea on the other. It may indeed seem to some that the difficulties attendant upon this theory and its requisite machinery of convulsions, junctions, and separations are as great in their way as those which it is intended to remove, but for all that Professor Huxley's opinions are fully entitled to the profound attention which was accorded to them by a larger audience than attended any of the proceedings of the Congress, with the exception of the President's inaugural address. This paper was in more than one respect the great event of the Congress, as Professors Vogt and Broca both took part in the discussion which followed, M. Vogt generally in support of, and Dr. Broca, to a certain degree, in opposition to Professor Huxley's views, the latter considering that his classifications were based rather on superficial than anatomical characteristics. Mr. Busk, F.R.S., then read a paper on some crania discovered in caves on Windmill Hill,—not the hill dear to cockney frequenters of Gravesend, but one of the same name at Gibraltar. These crania, which were associated with implements of stone and bone, were of considerable interest. A valuable communication from Dr. Broca on the recently discovered remains in the caves of Périgord, the substance of which has already appeared in the *Anthropological Review*, for October, terminated the proceedings of this day.

On Tuesday, papers were read by Professor Rolleston, F.R.S., on the modes of sepulture, observable in late Romano-British and Anglo-Saxon times in this country, periods which can hardly perhaps be considered pre-historic, though wrapt in much obscurity, owing chiefly to the persistency with which the British accounts and traditions respecting them have been ignored and rejected; by Mr. Boyd Dawkins, F.R.S., on the Roman or perhaps British iron works of the Weald; by Mr. John Evans, F.R.S., F.A.S.L., Hon. Secretary of the Geological Society of London, on the manufacture of stone implements in pre-historic times, a very elaborate and interesting communication, illus-

trated by practical experiments; by Mr. Flower on pre-historic sepulchres in Algeria, shewing the connection between the megalithic monuments of North Africa and Europe; appropriately followed by one from the Rev. W. C. Lukis, on pre-historic sepulchres in Brittany; by Mr. Bruce Foote, on quartzite implements of drift type found in laterite deposits of Madras, which were of the same forms as the flint implements found in Europe; and by Sir Walter Elliott, on sepulchral remains in Southern India. The interest of the proceedings was much enhanced by the exhibition of large numbers of specimens belonging to M. Réboux of Paris, Sir Walter Elliott, Mr. Foote, and Mr. Fitch, the Sheriff of Norwich.

Wednesday being the last day for reading papers, it was proposed to hold an evening meeting, to dispose of those which might remain after the labours of the morning. The papers read this day were by Mr. A. W. Franks on Stone Implements from Japan, from which it appeared that the Japanese, like the Shetlanders, considered these implements to be thunderbolts; and that the forms of the Japanese implements resembled those of Europe; by Mr. Boyd Dawkins, F.R.S., on the mammalia associated with prehistoric man, a very elaborate and exhaustive communication; by Mr. H. Woodward, on the curvature of the tusks in the mammoth from Ilford, compared with those from Siberia; on the Ogham Monuments of the Gaedhal, from Mr. R. R. Brash, who considered that these monuments were of Spanish origin and of great antiquity, views which it may be supposed did not meet with unanimous assent; and from Messrs. de Ferry and Arcelin on the Reindeer period, in certain parts of France.

The remainder of the week was chiefly spent in London, where it was arranged for the Congress to visit the College of Surgeons, the British Museum, the Christy collection, and other places of interest, a final meeting being held at the rooms of the Society of Antiquaries, when it was arranged that the Congress of 1869 should take place at Copenhagen.

Owing probably to the counter attractions of the section meetings of the British Association, the meetings at Norwich were not on the whole so well attended as might have been anticipated, which was much to be regretted, since the proceedings were, as may be judged from this imperfect sketch, of a most interesting and valuable character.

Thanks were voted to Sir Duncan Gibb and Mr. A. L. Lewis for their Reports.

Mr. DENDY then read a Paper on Anthropogenesis, which he pre-faced by quoting the remark of a Rt. Rev. Doctor at Norwich, that it was the duty of every man of faith to inquire more, and of every man of science to believe more; and he said that it was in that spirit that the paper was written:—

(Abstract.)

The paper referred to the two contrasted opinions regarding the genesis of man, creation and evolution, analysing the dogmas of Lamarck and Oken (to the rejection of all historic testimony), and the hypothesis of Mr. Darwin, transmutation or natural selection. It was argued, that the origin of man in the evolution of a monad (a process in which, in

Mr. Darwin's words, "force almost creates, in production"), is as great a mystery as the creation of a man. Allusion was made to the experiment of Crosse, of Bristol, the vitalising or evolution of an insect from inorganic matter. Spontaneous development, the doubt of a first cause, necessitates, of course, the possibility of an effect without a cause. Passing over the zoophytes and lower animals, the paper discussed the subject of transmutation, by a happy accident in the act of generation of the most anthropomorphous of the simiæ, the Chimpanzee, into perfect man. Yet, this man-like ape, with all his association with man, is absolutely deficient in the most noble endowment or faculty of speech, although provided with vocal organs almost identical with those of man; while pies, and daws, and parrots, can, by imitation, articulate the human language. It is strange, if transmutation be a fact, that during the whole historic period, not the slightest approximation to the "missing link" has ever been noted in the generative accident of a monkey; indeed, the ape has seemed rather to have retrograded in his anthropomorphism. In referring to the most important comparative anatomy of the skull and the brain, allusion was made to the rudimental lateral ventricle and the non-overlapping of the cerebellum, arising from an arrest in the growth of the cerebrum in the simiæ; the brain of the young Chimpanzee and the infant so closely resembling each other. In reference to palæontology, in proof of their theory, the disciples of Darwin taboo all historic testimony of the Jews, and adopt the testimony of the rock, and yet palæontology, with all their specious advocacy, has proved little or nothing for transition. Then, the equatorial apes and dwarfs (the highest simia and the lowest homo), although for ages in juxtaposition, have never been known to "cotton" together. The contemplation of this persistent degradation, certainly favours Max Müller's assertion, that the chasm between ape and man can never be bridged over.

In favour of plurality of race, in coincidence with Rudolfi, Vogt, etc., allusion was made to the greater difference between the Chimpanzee and Gorilla, than between the Mandingo and the Guinea Negro, the latter of whom has never, in any climate, changed his form, his colour, or his wool. The historic traditions of Genesis were adduced in illustration of polygenesis, Adam being the archetype of the last creation, the Aryan or Caucasian variety; the word man being, therefore, considered a generic term, signifying mankind. Holy writ may, therefore, be congenial with historic anthropology, Shem, and Ham, and Japhet being the progenitors of the three races, with which number Cuvier was content to form his classification.

The paper, therefore, did not agree with Mr. Darwin or Sir John Lubbock regarding the simial parentage, or the "utter degradation" of man in his primitive form.

The following gentlemen joined in the discussion.

The Rev. DUNBAR HEATH observed that the central point of the paper appeared to be, whether it is more likely that there should have been an original creator of organised matter than that monads should have been developed from inorganised matter. He had been accused of being an atheist, he would therefore state what his opinions were, that

it might be seen whether that term was correctly applied. He thought that they might feel there is a God and trust to Him ; but they did not know him. The composite organism called man was a duality consisting of intelligence and feelings, including moral feelings. Though the two were in all actions united in one, they were logically distinguishable ; thus it was possible to feel what they did not know, and to know what they did not feel. For instance, he felt the heat of the fire but he did not know the nature of heat ; no one knew anything of the cause of heat, there was no novelty in that opinion ; it was admitted that feeling was different from knowing. Knowing was also distinct from feeling : it was known, for example, that two sides of a triangle are greater than the third, but they did not feel it ; the knowledge was not accompanied by any emotion ; he knew it logically, but he had no feeling of it. Having thus shown the paths by which they must travel, they might trace the source of man's belief in God. It was found that in all times of man's experience, whether of sorrow or of joy, he feels there is a God ; in times of misery man leans upon a God, and he does the same in times of happiness. No society could wipe away that feeling—mankind, it must be admitted, accepts a God. He did not deny that. But it was a different matter when the question came to be examined in a scientific society, whether it was more probable that the origin of man was by creation or evolution. It was a million times more probable, in his opinion, that a living monad was evoked from inorganic matter than that it should have been created. By the latter hypothesis it was attempted to explain a little mystery by one a million times greater, for it was more easy to conceive the original existence of a monad than of a God. The Hebrews solved the difficulty by conceiving their deity to be an organised being, who clothed himself with light as with a garment, and was surrounded with organised matter as a vestment,—the strength of the hills is His also. That was the Hebrew way of getting out of the difficulty. But the Greeks, in their Septuagint, altered the Hebrew Bible to introduce the idea of a pure spirit ; he thought that in sketching the question as he had done he had logically given an answer to the paper. With regard to such matter they knew nothing about it, they only knew the phenomena of matter ; the phenomena could be weighed, their effects could be calculated, and their properties might be known ; but of matter itself nothing could be known. They might assume certain things, they might conceive points endowed with certain forces and call them matter, but it was merely a name ; they did not know matter ; and in the same way they might speak of God, but they knew Him not. Referring again to the paper, he said he did not think that Mr. Dendy had shown that creation was more probable than evolution ; he could not conceive independent creation, but he could conceive it to be possible that a little carbon, hydrogen, and oxygen being the centre of certain forces might, by their mutual actions, produce a fourth force, and that might be an organic force and act according to a type. Organic forces act with a purpose, and might produce others ; how organic forces could be evolved from forces not organic they did not know, but he contended that it was a millionfold more improbable

that such forces should have been created than that they should have evolved.

Mr. PIKE considered the basis of the paper to be the theory that it is more probable that a creator has produced man than that man has been evoked from a cell. He felt great difficulty in discussing any subject which seemed to require a confession of faith. As a matter of opinion, he thought Darwinism might as easily as any other scientific view be reconciled with scripture; but inasmuch as the paper was avowedly founded in fact upon the Bible, he felt that he could hardly call its conclusions in question without exciting a suspicion that he wished also to call in question the book upon which it was founded. He did not see how it was possible to discuss the paper without the introduction of subjects which a scientific society should avoid.

Dr. DUNCAN said that the Committee of Investigation, whose recommendation had been alluded to, had no wish to limit reasonable discussion upon sacred subjects; but it considered that it was not advisable to publish every thing that might fall from the Fellows in the course of a free and open debate. He was hardly prepared to hear Dr. Dendy's paper treated in a metaphysical manner, and although he admired the eccentric arguments he had heard, he considered that the Fellows should limit themselves to the analysis of concrete facts. The question really was, not as Mr. Dunbar Heath had put it, but did man come from an ape? Darwin had never written a passage which asserted the ape origin of man, and it was not fair, nor according to scientific logic, to infer from passages in the *Origin of Species* that such was Mr. Darwin's opinion. In no place had Mr. Darwin asserted the origin of the monad from inorganic matter, but he had protested that analogy was an unsafe guide. Dr. Duncan considered that the reason why Mr. Darwin had not carried his theory farther was because he had insufficient data, and he thus gave a tacit reproof to scientific men who like to jump at conclusions upon very slight facts. There was at present no more right to assert that man came from an ape than that the species of a genus well and structurally separated from those of another descended genetically. The structural peculiarities of the nervous systems of men and apes had much in common, but there were considerable microscopical differences, some of which had lately been published by Lockhart Clarke in the *Philosophical Transactions*. Nevertheless, it was an uncomfortable fact that the anomalies in the origin and insertion of muscles in man were normalities in the ape. The "sports" were backwards in the quadrumana. Whatever was the truth, it was evident that in Holy Writ man came from "the dust;" and if so, whence comes the monkey? metaphorically from "the earth."

Dr. CRISP said he had listened to Mr. Dendy's paper with much pleasure, and although not opposed to Darwin's theory, in the main, he thought, with Mr. Dendy, that the line of demarcation between the apes and the human species was so well marked, that he felt surprised that any persons who had studied the anatomy of the quadrumana could come to a contrary opinion. He could say a great deal upon this question, but he would only occupy the time of the Society in

alluding to a few important points. The anthropoid apes and the generality of the monkeys had a dark-coloured sclerotica; the spinous processes of the cervical vertebræ of the gorilla were longer than those of the lion, rhinoceros, or hippopotamus, the thirteen ribs of the gorilla and of the chimpanzee; the absence of skull-sutures; the absence of the ligamentum teres of the hip-joint; the want of the styloid processes; the rudimentary mamillary processes, and many other osteological characters might especially be mentioned. But when we came to the visceral anatomy of the anthropoid apes, of the gorilla, for example, as he (Dr. Crisp) had recently shown at the British Association, what a difference was observed! No valvulæ conniventes in the intestines, in the gorilla the cæcum and large intestines of enormous size, and furnished with glands differing materially from those of men; a tripartite liver, and other peculiarities which time would not allow him to mention. Those who supported the transition theory of ape to man, Dr. Crisp thought, were like special pleaders, who saw the resemblances but forgot the differences. In 1864 he had heard Professor Huxley state in his lectures at the College of Surgeons, that anthropoid apes had no penis-bone. Not satisfied with this statement, he, Dr. Crisp, as on other occasions, determined to judge for himself, and in more than a dozen anthropoid apes (chimpanzees and ourangs) he had found a penis-bone in all; the gorilla he could not speak of, as one he had examined was a female, and in the other the organs of generation were absent. In a young ape, sent over in spirits, said to have been a Koolookamba (Nshiego-mbouvé), he did not find a penis-bone. The question as to the existence of a penis-bone in the gorilla was one of great interest; he had placed on the table the penis-bones of the orang and chimpanzee, and of many species of monkeys that he had dissected.

Dr. CARTER BLAKE thanked Mr. Dendy for a thoroughly philosophical paper, which bore out his (Mr. Dendy's) high reputation as a scientific man. He was glad to see that the Anthropological Society maintained their old character of producing the strongest advocates against the Darwinian theory; Mr. Dendy had spoken of Darwin as if he were the Coryphæus of the transmutation hypothesis, but it ought to be remembered that Professor Owen (whose writings had been strangely misinterpreted by the less educated class of Darwinites, in and out of the Society,) whilst opposing Darwinism, had long advocated a rational system of accounting for the origin of species according to the method of "derivation by secondary" law exemplified in his "Anatomy of Vertebrates." He expressed what he thought of those Darwinites who could not appreciate scientific investigation, and could only pick up the garbage which Lamarck and Darwin dropped, and he wished such scientific dabblers would just try to find out what it was that Prof. Owen really said and really meant. With regard to Peter, the wild boy, to whom Mr. Dendy had alluded, cases of the same kind were described in Professor Vogt's "Memoir on Microcephali." As regarded the "hippocampus minor" controversy, he was glad to see that Mr. Dendy, an anatomist "loyal et compétent," was on the right side, and agreed with Tiedemann, Cruvelhier, and Owen, that the structures

called the "third lobe," "posterior horn of lateral ventricle," and "hippocampus minor", were peculiar to, and characteristic of man, while absent in the brains of the highest apes. Less reliable anatomists had impugned this, but in the year 1868 the truth might as well be told. Mr. Dendy had selected the chimpanzee as the species of ape most closely allied to man. As its muscular system had been thoroughly investigated, the chimpanzee might most certainly be most convenient for comparison; but in his (Dr. Blake's) opinion the gorilla was the species which most resembled man. The faculty of speech had been stated by Dr. Broca to be coincident with one of the frontal convolutions of the brain, a convolution which might be conveniently called "Broca's convolution." Mr. Dendy had shown that that convolution was developed in man to a greater extent than in the apes. Dr. Blake said he was much pleased with the collection Dr. Crisp had exhibited of the penis-bones of various apes, and he could not but notice that the size of the penis-bone seemed to bear no relation whatever to the size of the animal; it was as large in the small bonnet-chinois monkey (*Macacus sinicus*) as in the chacma (*Cynocephalus porcarinus*). In the koolookamba, as Dr. Crisp said, it might be absent, and that was a very strange fact, as the koolookamba, according to Du Chaillu's description, was more closely allied to man than any other ape. Though Mr. Dendy's facts were exceedingly well marshalled to oppose the hypothesis of transmutation, they should not make Fellows of the Society forget that the human remains of greatest antiquity are certainly the most anthropoid. Dr. Blake, in conclusion, observed that as it seemed to be the fashion that evening for gentlemen to make their confessions of faith, he would say that his conviction was that the differences between man and ape did not consist in speech, mind, soul, and thought, but in anatomical differences; the distinction between the sub-class archencephala, comprising man alone, and the sub-class gyrencephala, being enormous. Mankind differed from the apes by distinctions which could be tested by the scalpel, the callipers, and the measuring tape, and by nothing else.

On the motion of Mr. MACGRIGOR ALLAN, seconded by Mr. MACKENZIE, the debate was adjourned to the 17th of November.

NOVEMBER 17TH, 1868.

SIR DUNCAN GIBB, BART., VICE-PRESIDENT, IN THE CHAIR.

THE Minutes of the previous meeting were read and confirmed.

The following list of presents was then announced:—

FOR THE LIBRARY.

From the AUTHOR—Ancient Faiths (second copy); On Myalgia; The Preservation of Health; Foundation for a New Theory of Medicine; Spontaneous Combustion; On Ancient Pillar Stones and Cairns; Is Alcohol Food? Dr. Inman.

From the SOCIETY—Bulletins de la Société d'Anthropologie de Paris.

From the SOCIETY—Proceedings of the Royal Society.

From the EDITOR—Medical Press and Circular.

- From the SOCIETY—Proceedings of the Royal Asiatic Society of Bengal, 6, 7, 8; Journal 1, 2, and Ex. No.
- From the INSTITUTE—Proceedings of the Essex Institute, January and April, 1868.
- From the COLLEGE—Annual Report on the Museum of Comparative Zoology at Harvard College.
- From the SOCIETY—Memoirs of the Boston Society of Natural History: Annual, 1868-9; Report, May 1867-8: Proceedings, Vol. XI, 1860-8.
- From the INSTITUTION—Annual Report of the Board of Regents of the Smithsonian Institution.
- From the AUTHOR—Fresh-water Shell-heaps of St. John's River, East Florida. Dr. J. Wyman.
- From the AUTHOR—Handbook of Archæology. Hodder M. Westropp.
- From EDWARD JARVIS—Census of United States Mortality and Population, 2 vols., 4to. J. C. Kennedy.
- From SIR DUNCAN GIBB, Bart.—The Laryngoscope in Diseases of the Throat: Sir Duncan Gibb, Bart. Annual Address of Geological Society of London, 1846-59, 47 and 51. The Mineral Waters of Vals: Dr. Tourrette. Essay on the Mineral Waters of Eaux Bonnes: Dr. L. Leudet. The Book of the Chronicles of the City of many Fountains, chap. xxxi.

The DIRECTOR announced that the Council had resolved that, for the future, any member of the Society who sent to the Secretary addressed and stamped envelopes, corresponding to the number of evening meetings in the Session, would receive a printed slip of the Proceedings the day after each meeting.

The adjourned discussion on Mr. Dendy's paper on "Anthropogenesis," read at the previous meeting, was then resumed.

Mr. KENNETH R. H. MACKENZIE said there was one thing in the paper, in reference to his lamented friend Mr. Crosse, on which he desired to make a few remarks. The discoveries of that gentleman, of electrical *acari*, were spoken of as the result of experiments undertaken for the purpose of developing them; but that was not so. The spontaneous generation of these *acari* was quite unexpected by Mr. Crosse, and was the result of an experiment undertaken with a different object; he subsequently instituted exact experiments. The first experiment had been continued for 212 days in a darkened room, when, on looking at the apparatus, he observed a number of white spots, which budded into worms, and then assumed the appearance of scaly insects. In another experiment, in which an oyster-shell had been subjected to electrical action for one hundred and forty-eight days,—the healthy oyster disappeared, and a marine plant grew out of it. Mr. Mackenzie further explained that Mr. Crosse had no desire to make known the spontaneous generation of electrical *acari*; but that a conversation between him and the poet Southey having been overheard by the editor of a Taunton paper, the discovery was blazoned forth with much exaggeration, and against his wish. He had been personally acquainted with Mr. Crosse, and would, with the chairman's permission, read a letter on the subject.

June 12th, 1853. Broomfield, Sunday.

My dear Sir,—The experiment to which you allude in your communication, and which was very carefully carried out, was the following:—

I prepared a tubulated glass retort, through the tube of which was passed a wire of platinum, *hermetically sealed*, standing vertically in the bulb of the retort. The glass tube fitted *air-tight* into its neck. This retort was supported by a wooden frame, and its open end dipped into a glass cup of mercury, from which proceeded a long wire of platinum through the whole length of the retort, and was bent at right angles where it entered the bulb, so as to be *parallel* to the first wire, about two inches distant from it. The bulb was half-filled with a carefully prepared solution of *silicate of potash*. The opposite poles of a sustaining battery were connected with either wire, and a *weak electrical current* kept constantly passing from wire to wire, decomposing the liquid in the bulb. Oxygen and hydrogen gases were given out constantly, which were liberated from the mouth of the retort, and slowly bubbled out through the mercury in the glass cup. No communication with the atmospheric air was possible. The solution was *highly caustic*, and the atmosphere of the retort was, of course, *explosive*; and yet, in this caustic solution, and yet, under this explosive atmosphere, *one single* remarkably fine acarus made its appearance on the hundred and fortieth day. The apparatus was kept in a dark cellar.

I give no opinion as to the cause of the appearance of this acarus, not having formed any opinion on the subject. I have now fresh experiments in action on the connexion of electricity with animal and vegetable life.

You are welcome to do as you please with this letter, and I beg to remain, dear Sir,

Kenneth Mackenzie, Esq., F.S.A.

Yours sincerely,

ANDREW CROSSE.

Mr. A. L. LEWIS said, in reference to the allusions to the apparent contradictions in the accounts of creation given in the first and second chapters of Genesis, that there were no differences in them that might not be reconciled. He agreed with Mr. Dendy in thinking that it is far more easy to believe in the existence of a Creator than in the springing up of everything spontaneously, no one knew where nor how. He thought, however, it was a pity that any discussion should have arisen on that point, as it was impossible to bring forward conclusive evidence on either side, and, therefore, no practical end could be attained.

Mr. DIBLEY considered there was not sufficient evidence to justify any convictions on the matter, and that it was not possible, by any scientific investigation, to arrive at a satisfactory conclusion. There was a potency of form in Nature, the cause of which could not be grasped by science. Thus, life is a potential form, and the matter in which it is made apparent is nothing more than an inert mass. The connection between them was, however, beyond human comprehension, and not until man had some higher powers given to him could

they properly discuss the subject, and arrive at any scientific conclusion. The only way to arrive at a rational conclusion on the matter was to reason from a general principle. There was known to be a certain perfect order in all things, governed by certain laws, and the most rational explanation appeared to be to allow the existence of a Being, who is order and perfection in himself.

Major OWEN thought that Mr. Dendy was right in reference to Holy Writ, and that if the facts stated rested on a basis that was untenable, it was better to get rid of them.

Mr. DENDY in accepting the confession of faith of the Rev. Dunbar Heath, said, he would waive all polemical allusions, and the discussion of the metaphysics of Berkeley, and limit the arguments between Mr. Heath and himself to the question regarding the inorganic monad, and the vitalised ovulum. Mr. Heath affirmed his belief that it was a millionfold more difficult to accept the idea of a creation, than that of a monad. Why? They were both assumptions; but for one there was tradition, for the other there was not. Admitting the existence of the ovulum in preference to the monad, we could reason on and accept its evolution, a process that is hourly exemplified in the uterus of a mother, and thus we might readily conceive the origin of historic man. In confirmation of his views, he might cite the objection to the monad of many an accomplished Anthropologist, especially that of Paul Broca. (Mr. Dendy read a passage from the works of Dr. Broca, clearly illustrating his decisive opinion.) In alluding to the comments of Mr. Pike on his reference to Holy Writ, Mr. Dendy reminded him that he only adduced the historic tradition of the Bible in his illustration of Polygenesis, as he would the record of Josephus, or the "Disquisition on Ancient India," by Robertson. Of the devotional and theological portion he had been scrupulously reticent. Mr. Dendy expressed his thanks to Dr. Crisp for exhibiting his valuable specimens of the *os penis* of apes, as a very prominent exemplification of the comparative dissimilarity of the apes to man. In referring to the speech of Dr. Carter Blake, he was gratified that Dr. Blake thought that the comparative anatomy of the paper strongly supported the difference between man and ape: yet he (Mr. Dendy), thought that the condition of the mental faculties (so to speak), was even of greater importance than the structural forms: the power of speech, for instance, afforded a powerful example of this distinction; the organic structure appertaining to utterance, being closely resembling in man and ape, yet the endowment or faculty of speech being utterly wanting in the simiæ. Regarding the Neanderthal and other skulls (casts of which were before him), there had been very great exaggeration. We might light on crania of equal deformity in men of the present day; and with respect to palæontological "finds", there was often much suspicion. The quarrymen of France were known to practise frauds—for instance, their own manufactures of them, *langues du chat*, were often offered and accepted as flint-arrow heads. Mr. Dendy then exhibited the skeleton of a rickety abortion, which he himself had delivered, and which, he believed, had it been found in strata associated with the relics of extinct mammalia, would have been

readily accepted as the "missing link". But, even if we found the treasure, it would not prove the Transmutation Theory. It might indicate degradation of species, as well as exaltation, the regress as well as the progress of man; favouring the notion of the Oceanic savage that the ape is a dwindled and degraded man. With regard to the Electric Acarus of Mr. Crosse, alluded to by Mr. Mackenzie, it did not add weight to the theory of spontaneous generation: it might have been the excited evolution of some minute vitalised ovulum, lying latent, even for ages, like the mummy wheat of the Egyptian.

Dr. Charnock, F.S.A., F.R.G.S., V.P.A.S.L., read a paper, written by himself and C. Staniland Wake, F.A.S.L., on "Language as a Test of Race".

[*Abstract.*]

The question, as to whether language is a test of race, is really one of probabilities. Is the race affinity of two peoples, speaking the same language, probable? The affirmative would appear to be almost self-evident, when it is considered that peoples related to each other do generally speak the same, or a dialect of the same, language. This is not only probable, but certain, in many cases; and it may be laid down as a general proposition, therefore, that peoples speaking the same, or dialects of the same, language are racially related: that is, that language is a test of race. The value of this test, however, depends on its agreement with the tests of history, physical structure, religion, and customs, the application of which will either weaken or strengthen the argument derived from linguistic affinity. The objection urged against language being a test of race, derived from the fact of some peoples having changed their language, may be met by showing that every instance of such a change has been the result of circumstances so special, that this loss of language can have taken place only in a limited number of cases. Doubtless, where peoples have taken the language of their conquerors, language loses its value as a race-test. Even these instances, however, may be provided for by enlarging Waitz's proposition, so as to include those peoples who have only temporarily ceased to exist as such. These may be divided into two classes, of which the first will include the case of a semi-civilised people conquered by one much more highly civilised. Under these circumstances, the substratum of the aboriginal language will probably always continue to exist. The second class will include the case of a people almost in a state of nature, conquered by a civilised race, which will generally be accompanied by the imposition of the language of the conquerors. Even here, however, the tendency to perpetuation in the ignorant mind (which in the case supposed would be that of the most primitive element of mixed peoples) of old customs and superstitions, would supply us with materials for correcting the false evidence of language. It has been said (in opposition to Prof. Max Müller's opinion) that some languages have a mixed grammar; and therefore, that as grammatical structure is the test of linguistic affinity, language cannot be a true test of race-relationship. This objection is, however, worthless. Languages do, indeed, sometimes present a mixture of grammatical forms, but it is merely because certain words have been borrowed

without undergoing alteration in the process. Grammatical terminations are accepted as part of the words thus borrowed. That these peculiar forms cannot be taken as proof of the existence of a mixed grammar, is shown by their not influencing the grammatical evolution of the words in the language with which they have become incorporated; and by their being governed in their own evolution, if they do ever undergo further change, by the genius of the language into which they have been translated.

The following paper by Mr. Hodder M. Westropp, "On the Origin and Development of Language," was then read.

A Few Words on the Origin and Development of Language. By
HODDER M. WESTROPP, Esq., F.A.S.L.

Language, like everything that has growth and progress, has its stages of development, its origin, progress and maturity. In discussing the origin of language, we should strictly confine ourselves to the consideration of language in its earliest stage alone, without introducing any irrelevant discussion as to the later modes of word formation, and to the corruption or decline of language, which have no connection with that of its origin, these belonging to later phases of its development. Each mode of word formation ought to be considered according to its stage in the development of language. In treating of the origin of language, it must, in the first place, be admitted that there is an innate aptitude in man to evolve language; for by his organic structure and by his faculties, he has been formed capable of framing speech. He has been furnished with intellect and organs of articulations necessary for that purpose. Language is as necessarily evolved and developed in man, according to fixed laws, as the development of mind, or as the natural growth of the human body. Secondly, that man's faculties are of a slow and progressive nature, and that, consequently, the evolution of language was of slow and progressive development. In this, man is distinguished from the lower animals, whose instincts are simultaneous with their birth, or spontaneously called into play at a certain period of growth. Thirdly, in considering language in its earliest phase, we should keep in view that man in his earliest stage,—the rude savage and the infant,—is a being of sensation before he is capable of thought, consequently he will give utterance to his sensations before he endeavours to express his thoughts.

These premises admitted, we shall find just grounds for believing that speech originated in those inarticulate cries instinctively expressive of pleasure and pain, joy and sorrow, primitive man's and the child's first utterances. Interjectional utterances, expressive of his sensations and wants, will therefore be his first attempts at articulating sound. This is the first stage of the development of speech. This is in reality the origin of language. All other modes form the progress and development of language. If we take the individual man as the basis of an analogy, with man in the aggregate, we may reason thus: As the individual man is born in a state of mutism and helplessness, and in his infancy cannot speak, until he gradually

learns to utter articulate sounds expressive of his sensations, and ultimately of his ideas: so man, in his primitive state, must have been a mute and speechless being, until by degrees in the course of his development, he learnt, like the child, to give utterance to those instinctive interjectional sounds expressive of his sensations and wants, and in the further development of his mind to words expressive of his thoughts and ideas. An undeserved odium has been cast on this view, and the terms low and degraded applied to it. A similar odium has been cast on the analogous view of the first stage of man's existence, as expressed by Horace. But, as Sir Charles Lyell remarks, they who in later times have embraced a similar theory, have been led to it by no deference to the opinion of their pagan predecessors, but rather in spite of very strong prepossessions in favour of an opposite hypothesis. In these views there is nothing inconsistent with analogy, nor is there any reason why the terms low, bestial, should be applied to these hypotheses, no more than to the certainty that we, now grown and mature men, were once helpless and speechless infants, as Shakspeare expresses it, "mewling and puking in the nurse's arms": man, like an upstart, in his pride of matured intellect, in his pride of acquired position, ignores his low and base origin. We may carry the analogy further. If the individual man is many months after his birth in a state of mutism, and incapable of articulating sounds, man in his earliest and primitive phase must have been for a long period in a state of mutism, and capable only of expressing his wants by gestures, and then by articulate sounds. Of this stage in the development of language, the Veddahs of Ceylon afford an example. Sir Emerson Tennent remarks, that so degraded are they that it has appeared doubtful in certain cases, whether they possess any language whatever, their communications with one another being made by signs, grimaces, and guttural sounds, which bear little resemblance to distinct words, or systematised language.

Articulate language, as in a child, was thus a slow and gradual acquirement, the instincts and intellect of man contributing to its advancement. It was the product of human sagacity, the result of many ages, rising from the rudest elements to its perfect culmination. To sum up, we may say that the power of speech is the gift of God, and that words are the product of the mind of man. The growth and progress of language, whether in the individual man, or in man in the aggregate, was coincident with the regular development of man's mind, in accordance with definite laws. In the second stage of the development of language (the development of mind and language synchronising,) man was a nomenclator. He formed certain sounds, which in his mind became associated with certain qualities and attributes of things: these he then applied to the things themselves. As some Indians call a horse a running thing, a gun a shooting thing, so children distinguish things according to their qualities, as a blue thing, or a white thing. By the means of these appellations, the ideas of them were recalled to himself and others, when the objects themselves were absent. One man named a thing, this name was unconsciously adopted by another, then by another, until it

obtained a wide circulation ; like a coin new from the mint, it passed from hand to hand until it passed into the possession of almost every person in the country in which it was stamped. This process is still visible in schools, and suggests a comparison with that early stage of the development of language, when man was a nomenclator ; one boy gives another boy or a thing a name, or as commonly called a nickname, this is picked up by another boy, and then another, until it goes through the whole school. Thus the earliest process of name giving is still retained at the present day. Imitative sounds also began to contribute to the stock of words, for onomatopœia was a later development of word formation when man was led to invent words bearing a fancied likeness to sounds proceeding from animals and things, a marked distinction from the earlier articulations which are mere sounds of instinctive and spontaneous evolution. In the third stage of the development of language, when man began to form general ideas, words were invented as signs of those ideas. When man wished to become intelligible to his fellow men, a great progress in language began. At a more advanced stage, words were used conventionally.

The origination of words in primitive roots, is a stage of language in a more advanced phase, and argues a more reflective mind. Has a child when he gives utterance to such natural expressions as *papa*, *mama*, to pause and search for the root of these words? Before he names his father and mother, has he to go through a process of ratiocination, which leads him to call his father *papa* from the root *pa*, to feed, as he is his feeder, and his mother *mama*, from the root *ma*, to fashion, as it is said? It would be more rational and more consistent with the nature of the development of language, to suppose a mode of word-formation, the reverse of that suggested by Prof. Müller, and to attribute the origin of such words to the Greek *παῦ*, to feed, and the Sanscrit *mātar*, "maker," to the primitive instinctive sounds *pa*,—*ma*, first uttered by infants, and which are synonymous with the names of father and mother, in almost all languages. *Mātar*, among the earliest Aryans had the meaning of "maker." To ascribe the origin of language to root formation, is a most untenable hypothesis. The words *papa* and *mama* obviously belong to the earliest stage of language, for they are the natural instinctive child-words of all races, as Sir John Bowring remarks, these two sounds (*po* father, and *me* mother, in Siamese,) or something approaching them, being the first lisping of infancy, may be found indicating the parental relations in almost every language of the world.

When language began to be developed among different races, to undergo varieties, and become separate idioms, radical, agglutinative and inflectional stages in its structure were evolved according to the greater or less refinement of organisation of the race in the bosom of which it was developed. Dr. Latham thus distinctly gives the sequence of these stages. "The first stage of language exhibits single words, chiefly nouns or verbs, in a short form, and with a minimum amount of inflection, some subordinate to the others, but still separate words. The Chinese is usually considered to be the type of language in this state. In the

second, the subordinate words coalesce with the main ones, but not so as to wholly conceal their original separate existence. Languages in this state are called agglutinative. This is the state in which most of the languages of the world exist. The Mantshu and Mongol are the usual examples of this condition, most other tongues, however, would serve as well. The coalition of the subordinate with the main word, having become so perfect, as for the former to look like a part of the latter, rather than a word originally separate, the combination becomes *amalgamate* instead of agglutinate, and the language inflexional. The Greek and Latin are types of this form". This inflexional stage, it is evident, is the most perfect stage of the development of language. But to reach this perfect stage, language must pass through the earlier stages of radical and agglutinative: as Müller remarks, we cannot resist the conclusion that what is now inflexional, was formerly agglutinative, and what is now agglutinative, was at first radical. "The mechanism of inflections, the grammatical constructions, the possibility of inversions, all are the offspring of our own minds, of our individual organisation; there is in man an instinctive and regulating principle, differently modified among nations not of the same race."—*Humboldt*.

From the evident uniformity in the development of the human mind, and the similarity in the organs of speech among all men, it is natural to find an analogous evolvment of language among all races. Certain first principles must have presided over the formation of languages, which were necessarily observed by all, and consequently led to some general resemblances. Unity in language is, therefore, the result of the unity or uniformity of the development of the human mind among all races, a unity in the processes by which language is evolved in all countries; for the working of men's minds is nearly alike according to the stages of the development of men's intellect.

The stages of language were evidently synchronous with the phases of mind and civilisation of any race, as Sir G. Wilkinson justly remarks, "Turanian speech is rather a stage than a form of language," and seems to be the earliest mould into which human discourse naturally, and as it were spontaneously, throws itself; being simpler, ruder, coarser, and far less elaborate than the later developments of Semitism and Aryanism. The Aryan, or inflexional stage, would thus be the necessary result of a higher phase of mind and civilisation, and the consequent refinement and more perfect development of language, and of the elimination of all rude Turanian forms,—the agglutinative ripening ultimately into the inflexional.

The similarity in grammatical processes, visible in Sanscrit, Greek, Latin, and other so-called languages of Aryan origin, is not the result of derivation from an original Aryan source, but is the result of the independent development of language among the higher races of mankind, call them Aryan, Indo-European, Caucasian, or what you will, ultimately leading to the formation of a more complete grammatical construction, the necessary product of a mind of superior development. For a mind of more perfect organisation, operating on language, will work out and form a similar grammatical construction independently

of other similar minds in other countries;* like the young Pascal, who, it is told, worked out the first propositions of Euclid without any previous knowledge of that author. A writer in the *Quarterly Review* confirms this view; his words are, "Unless in cases of the most minute or complex coincidence, we should shrink from using abstract similarity of grammatical processes alone as proof of common descent in two languages. Thus the ancient Mexican is capable of putting together the words *ehua* (*tl*, leather), and *amatl* paper, so as to describe parchment as *ehuamatl*, or leather-paper; now we use precisely the same mode of compounding words, but no one would say that the occurrence of this same grammatical process in Aztec and English is any proof of hereditary connection between them. This is a very elementary case, but the same view applies to more complex forms,—for instance, to the appearance in two languages of the practice of forming persons of a verb by affixing to its root more or less mutilated personal pronouns. Such a process, when found both in Turkish and Sanscrit, can hardly be urged to prove anything but that mankind is apt to do the same thing under the same circumstances."

There is thus every reason to suppose that languages had an independent origin among different races, the perfection they attained to being dependent on the greater or less refinement of organisation of the race amongst which a language originated. A natural instinct working uniformly among races widely diverse will produce those forms of language peculiar to their stage of development in civilisation and intellect; the Turanian, or agglutinative, was the offspring of a rude, coarse civilisation and an inferior grade of mind, the Aryan or inflectional, the product of a higher civilisation and a more refined intellect. An analogous hieroglyphic alphabet has been worked out independently by the Egyptians and the Mayas of Yucatan; why may not an inflectional stage of language be also evolved independently?

In America we have certain evidence of the independent growth of languages. The two civilisations of Mexico and Peru were developed

* Humboldt gives an instance of the independent development of the same grammatical construction in three countries most remote from one another, Greenland, Biscay, Congo. His words are,—“In the Greenland language, the multiplicity of the pronouns governed by the verb produces twenty-seven forms for every tense of the Indicative mood. It is surprising to find, among nations now ranking in the lowest degree of civilisation this desire of graduating the relations of time,—this superabundance of modifications introduced into the verb, to characterise the object. *Matarpa*, he takes it away; *mattarpet*, thou takest it away; *mattarpatit*, he takes it away from thee; *mattarpagit*, I take it away from thee: and in the preterite of the same verb, *mattara*, he has taken it away; *mattararit*, he has taken it away from thee. This example, from the Greenland language, shows how the governed and the personal pronouns form one compound, in the American languages, with the root of the verb. These slight differences in the form of the verb, according to the nature of the pronouns governed by it, is found in the Old World only, in the Biscayan and Congo languages. Strange conformity in the structure of languages, on spots so distant, and among three races of men so different,—the white Catalonians, the black Congos, and the copper-coloured Americans!” This conformity of grammatical construction is evidently the result of a similar phase of mind in the three countries.

in separate and independent lines, without any trace of any connection between each other; their languages were also formed and developed in successive stages of unconnected and independent growth.

Further, the peculiar synthetic structure by which every dialect of America appears to have been fashioned, from the land of the Esquimaux to Tierra del Fuego; a system which, bringing the greatest number of ideas within the smallest possible compass, condenses whole sentences into a single word; and its total dissimilarity with every idiom of the Old World may be considered as a most convincing proof of the independent development of language in the New World.

In America we also find a witness of the first stage of language in the Otomi tongue, which, in its monosyllabic composition shows a very singular affinity to the Chinese.

Language, too, like every thing that has growth and progress, has its cycle of development; when it reaches its highest point of perfection it exhibits the invariable tendency to decline, it passes through its stages of decay and dissolution.

Many languages have run through their cycle of development: Sanscrit, Pehlevi, Egyptian, Chaldee, Hebrew, Greek, Latin, have all had their rise, progress, maturity, decline, decay; have passed away and have become things of the past. Other languages have become utterly extinct, like some races of men, leaving not a trace behind.

Mr. PIKE opened the discussion on the two papers. He said that some time ago he had read a paper on the same subject as Mr. Westropp's, and the conclusions at which he arrived were the same, so far as they differed from those of Professor Max Müller. It was at that time maintained that in the origin of words abstract terms were first used, and in his paper he showed that that could not have been. The theory against which he had protested was no longer put forward, and he was glad that Mr. Westropp, in his very able paper, agreed with the opinions which he (Mr. Pike) had then advanced. As to the paper by Dr. Charnock and Mr. Wake, it was an instance of dys-genetic hybridity. The two authors had put their heads together, and the product of their joint wisdom was puny and abortive. There were great differences manifest between the two parents of the paper. Dr. Charnock was a philologist of the old school, and attached undue value to the number of words in the vocabulary of different nations. Mr. Wake, on the other hand, was to be looked upon as an Anthropologist of the future, and he was surprised to find him in alliance with Dr. Charnock. No new facts were stated in the paper, and there was only one argument adduced,—a fact which might be explained by the manner in which the paper was got up. It was a lady's argument—it is so, because it is so. That was the only argument, if it might be so called. The question was stated to be one of probabilities—that is to say, it is probable that peoples speaking the same language are of similar races. But if they looked to Europe, he contended that there was no part in which similarity of language indicated similarity of race. In France, for example, the people of Normandy, of Auvergne, and of Provence spoke the same language, but it was manifest that they were of different races, if the word race meant anything. This

point had been established beyond all doubt by Dr. Broca. It was the same in different parts of Germany, of Italy, and in Spain. Every one of the examples brought forward in the paper was an exception to the rule which the authors wished to prove. As to the question of comparative grammar, he referred to his paper entitled "What is a Teuton?" in the *Anthropological Review*. He believed that it was now generally admitted that a grammar could be hybrid. If a grammar could not be hybrid, it would contradict one of the best known laws of the association of ideas. Viewing the paper as a whole, it appeared to him to contain neither facts nor arguments, and that the views expressed in it ought to be abandoned.

Mr. A. L. LEWIS observed, that the authors, while admitting that various peoples had changed their language during the historic periods, ascribed these changes to special causes, but, as no one knew whether similar causes might not have taken effect during the pre-historic period, he thought too much importance should not be attached to language as a test of race. The authors had remarked, with respect to the negroes of the West Indies, who spoke Indo-European languages, that if a race resembling the Indo-Europeans had existed under similar circumstances, they would have accepted the language as proof of a racial connection; but in this case it was known that there was no racial connection, and he thought this knowledge should make them more cautions in other and more doubtful cases. He thought Mr. Hodder Westropp's paper was fairly argued from the premises, but he objected to those premises; he was not prepared to admit that the human race was brought into existence mute, and that language had been developed from emotional interjections.

The Rev. DUNBAR HEATH thought that Mr. Westropp's paper was very valuable in its statement of the fundamental truth, that there is an important difference between the emotional and the rational. All animals, he believed, had a language intelligible among themselves, which was emotional; but there was a great difference between emotion and thought, and they should endeavour to trace the growth from emotional into rational language. In his opinion it might be traced, and thus an ape might be gradually trained in the struggle for existence to express a thought. He illustrated the difference between emotional and rational language in this manner. A dog, in calling to her puppy to come to her used emotional language, which the puppy understood; but if the dog told the puppy to go into the next room to find more food behind the door, and it could understand, that would be rational language. His impression was that language, to some extent rational, might thus be traced in animals. With respect to the other paper, the subject treated of was a large one, and was different from the first; he thought it was probable that language might be a test of race, but that was all. He thought before any satisfactory answer could be given to the question, whether language were a test of race, they should determine, in the first place, in what sense the term race was used. "Race" was an indefinite word, as applied to modern peoples, but if they went so far back as the Turanian, Semitic, and Aryan races, which had well-marked distinctions, he thought that

in those cases language might be considered a test of race. It was, however, all a question of degree; in certain divisions of mankind, where the distinctions between them were well defined, language might be a test of these distinctions, but when they came to minor divisions the people were, in many respects, similar, and they could not be called different races. He maintained that both race and language were questions of degree, and that one mingled with the other. With regard to the question whether grammar can be composite, he thought it could be, as Mr. Pike had shown.

Mr. WAKE, in reply, said that the paper which he had contributed in connection with Dr. Charnock, was read before the Society for the sake of discussion. If it was meagre of argument it was because the affirmative of the question was, as a rule, so evidently true; it was clear that persons closely related must speak the same language and the presumption therefore is that peoples speaking the same language are related. Without doubt, when applied to the great divisions of mankind, language is a test of race, and in most cases it must be so when applied to the several subdivisions. Language is not asserted to be an *absolute* test of race, but it is a better one than any other, except perhaps in cases where there has been great admixture of peoples as in Europe. Mr. Wake adduced the gipsies as a remarkable instance of the indication of race by language; it was for a long time uncertain where they originally came from, but it had been determined by an examination of their language that they were natives of India. Examination of the language of the people of Madagascar would prove them to be closely related to the peoples of South Africa, language in this case being a valuable test of race.

The Meeting then adjourned to December 1st.

DECEMBER 1ST, 1868.

SIR DUNCAN GIBE, BART., V.P., IN THE CHAIR.

THE minutes of the previous meeting were read and confirmed.

The following were elected—

Fellow.—F. G. H. Price, Esq., 12, Upper Berkeley Street, Portman Square.

Corresponding Member.—M. Le Hon, Chev. Ord. Lcop., Memb. Geol. Soc. France, etc., Brussels.

The following presents were then announced, and thanks were voted to the donors, with a special vote to Dr. Paul Broca and the Minister of Public Instruction.

FOR THE MUSEUM.

FROM the ANTHROPOLOGICAL SOCIETY OF PARIS, through the French MINISTER OF PUBLIC INSTRUCTION—Casts of three Human Skulls, two Lower Jaws, six Long Bones, one Collar of Shells, fifteen Flints, derived from the Station of Les Eyzies, department of Dordogne, France.

FOR THE LIBRARY.

From the AUTHOR—On Vegetable Products used by American Indians:
Robert Brown, Esq.

From the LIBRARY—Tenth Annual Report of the Public Free Library
of Manchester.

The following paper was then read:—

On the Claims of Women to Political Power. By LUKE OWEN PIKE,
Esq., M.A., F.A.S.L.

It is no uncommon event to hear the question,—What is the aim of Anthropology? To that question I do not presume to attempt any complete answer in the present paper; but I hold that the science, in order to be worthy of the name, must deal with practical as well as speculative difficulties, and I know of no subject upon which it ought to give a more authoritative decision than upon the claims of women to political power. Let it not be supposed that I wish to trespass on the domain of the statesman; he is the judge of times and seasons, of present expediency or in expediency, with which the mere anthropologist has no concern; but if the science of mankind is unable to throw some light upon the proper relative position of the two sexes in matters of government, there can be but little hope that it will ever fulfil the expectations of its votaries.

There is an impression on the mind of the public, that “philosophers” desire to see women on a footing of complete political equality with men; and there is also a tendency to confound the “philosopher” with the man of science. Unless, therefore, a protest is raised in time, it is by no means improbable that the anthropologist will be confounded with the metaphysician. Much has been said about the abstract right of every human being, and therefore of every woman, to a vote. I need hardly remark that such an expression as the “abstract right of woman” is quite meaningless to the scientific student of mankind. He knows that a right in the abstract is often only a synonym for a wrong in the concrete; he detects in the very use of the word “right” an *à priori* assumption instead of an inductive generalisation; he recognises in the use of the word “abstract” a favourite resource of loose reasoners; and he suspects that the inventor of the whole phrase would shrink from a definition of “woman”. But to the eye of the public, the self-elected champion of feminine virility is an anthropologist, until anthropologists disavow his opinions.

I do not, of course, propose to discuss the matter on the ground of abstract right; but women are encouraged to enter upon active political life by those who appear, at first sight, to bring forward arguments of a wholly different character; and what I hope to prove, is that all these specious arguments are in reality only metaphysical; that they had their origin, in one form or other, long before man had conceived his present ideas of science, and that they show a deficient insight into the laws of nature. But I must, at the same time, admit that some of the advocates for this sexual revolution have done good service in bringing prominently forward the great problem which under-

lies the whole dispute,—how to secure the greatest happiness of the two sexes in civilised life. And this problem I shall hold in view throughout my paper, though I cannot for a moment pretend to solve it.

There are few educated men who have not heard of the Malthusian doctrine, that the increase of population, in long-inhabited countries, is too rapid, and ought to be checked.* There are also probably few in ignorance of the fact that the same opinion is held by living men of eminence, who maintain that they have discovered the exact limit of permissible procreation, and would restrict every human couple to a family of two children. I believe I am correct in stating that, although the end is pronounced desirable in works of high character and reputation, there is no further rule of conduct given, except in books published in Holywell Street, or its neighbourhood. In short, the philosopher, after having uttered his dictum, ceases to be a guide or a friend, and leaves his followers to unnatural celibacy, to their own devices, or to the quack doctor. But what, it may be said, has all this to do with the political claims of women? Just this much: the political claims of women are associated, and always must be associated, with an attempt to make human nature something different from what it is, with an attempt not to untie the knot, but to cut it,—to adapt not human laws and customs to the laws of nature, but the laws of nature to a philosophical panacea. It is an attempt which has been made again and again in the history of the world, which has always failed, and which, if there be any truth in science, must always fail hereafter. It is an attempt to deprive woman of her motherhood.

Philosophers of the present day—to whom freedom of thought is often imputed as a crime—have, perhaps, never paused to consider that, although their motives and their means are different, their end is precisely that which was aimed at by the early Christians. The extremes of enthusiasm, like other extremes, frequently meet. It is impossible to conceive minds cast in more different moulds than those of Tertullian and Origen on the one hand, and those of Malthus and his disciples on the other. Yet, all alike have made war upon nature; the one party in the name of religion, the other party in the name of reason. And though all must command respect from their earnestness and sincerity, I must confess that I have a higher respect for some of those ancient Christians, than for some of these modern philosophers. The former were, at least, free from that arrogance which is the enemy of all patient thought; and if they recognised a power higher than nature, they did not believe that power to reside in themselves. They, in the wildness of fanaticism, proclaimed the touch of woman to be pollution; they shut her up in a monastery; they assigned her a dark corner in their houses of worship: they even mutilated themselves to escape temptation; but there was not a little of sublimity in their folly, and they never went so far beyond the point where sublimity ends, as to imagine that a woman could be converted into a man. We may smile at their sober treatises on the "Veiling of Virgins," at the instructions given to women for the conceal-

* Malthus on Population: see especially book iv, c. i.

ment of their charms, at the fences drawn round men to exclude the shafts of desire ; but in all this there is nothing so unscientific, or so opposed to healthy sentiment, as the efforts of modern androgylists to unsex a sex.

It is well known that in the monasteries folly degenerated into foulness, that the ecclesiastics, who saw no prospect of their own justification by their works, enlarged the doctrine of justification by faith, and that at last the veiling of virgins became another name for the veiling of vice. Man, in attempting to expel nature on the impulse of fanaticism, illustrated on a grand scale the maxim of the Roman poet,—

“ *Naturam expellas furca, tamen usque recurret.* ”

and Nature, like human beings, does not return from exile in a better mood. Everyone who is acquainted with the writings of mediæval authors knows how at length many tribes of barbarians overspread the greater part of the Roman empire, and, while they adopted, gave a new life to the vile practices which the Roman priest had inherited from the pagan. In those days there were no morals, little government, and a splendid religion. A great experiment had been tried, and had failed. Men had no principles to guide them, and little faith, save in their confessors. The strongest and the richest could secure the largest share, not only of lands, of wine, and of women, but of heaven itself ; and Europe had all of barbarism, except its simplicity.

Such was the end of a great sexual revolution, which began in all honesty of purpose, but which was opposed in principle to the natural laws of humanity. In the early days of Christianity, the great sexual problem was demanding solution, just as it demands solution now. There existed, even then, immense disparities of social life ; there were men who could afford to keep as many wives or mistresses as they pleased ; there were others who hardly knew how to support themselves. As the new religion spread,—as it proclaimed itself to be the religion of the poor,—as it was accepted by the ignorant,—it is not very strange that the words of its founders were misinterpreted, and that the needy consoled themselves for their misery by denouncing indulgence as a crime. The indigent, whose flesh was mortified, not from choice but from necessity, began to regard their poverty as a virtue. They supposed that they were doing God's will in the abandonment of all domestic ties, and as their creed spread upwards, their unnatural ideas of morality spread with it, until at last it was considered the duty of a Christian to make not the best but the worst of humanity in this life. All who had a lively faith, considered that they could best fulfil their duty by retiring from the world ; monasteries were built in every part of Christendom ; and then a truly Utopian scheme was tried on a grand scale,—with what success is now but too well known.

This was the Utopia of ignorance. But we are now threatened with the Utopia of enlightenment, which, if it were possible, would probably extinguish all happiness for ever. Woman is no longer to be put out of sight as an unclean animal, which should be ashamed of its own existence ; but she is to have a position assigned her which is

hardly less insulting to her womanhood. Instead of confessing that to be feminine is to be foul, she is encouraged to believe that the masculine is her true model. She is told that she has been feminine too long; but she is assured that, with the assistance of legislation, she may succeed in repairing the monstrous defect. The male school-master will restore her mind to its naturally masculine tone. The physician, perhaps, is ready with some device which shall rescue her from the indignity of bearing children, or at least of bearing too many. She is to be treated in almost all respects as Plato would have treated her, but with one well-marked exception. He wished to exhibit her naked among naked men in the public gymnasium; her modern panegyrists wish her no less to forget her sex, but to forget it by concealment even from herself.

It is not improbable that the present remarkable phase in woman's history may have made its appearance, partly at least, through reaction against the very common opinion that the male is the superior sex. This idea, offensive as it is to all feminine sentiment, receives its best illustration in the old fable, according to which various parts of the body, each being necessary to the rest, each put in a claim to superiority. The truth is that in the sexes, as in the members, there is neither superiority nor inferiority; but it does not therefore follow, as has been hastily assumed, that there is equality. No two things can be pronounced equal or unequal, superior or inferior, unless there is some common standard by which they can be measured. The colour *blue* is not equal nor inferior, nor superior to the colour *yellow*; and the *green*, which is produced by the mixture of the two, owes no more to one than to the other. In the same way, humanity is perpetuated by the coexistence of male and female; and if the functions of either one sex or other were radically changed or perverted, humanity itself would cease to exist.

I trust that I shall not be thought to have wandered away from the subject in making these apparently general remarks. The most vital point in my argument is that woman must be regarded as woman, not as a nondescript animal, with a greater or less capacity for assimilation to man. The question, regarded from a scientific point of view, is not how far the female intellect can be trained to imitate the male; but what it may be shown to be from observation, or inferred to be from correlations of physical structure. The argument, from observation, which would be considered sufficient by most men of science, is controverted on the ground that human laws have been stronger than the laws of nature. It is said that man has oppressed woman by his superior muscular power, and has impeded the natural development of her intellect. If this be true, and if mere strength of body can thus get the better of mind, it is certainly strange that horses and elephants have not become the masters of men; and hardly less strange that the stalwart Negro should long have been the slave of the more intellectual, but not more muscular, white man. But as it is useless to prove the relations which have existed, to those who preach of relations which ought to exist, between the two sexes, it becomes necessary to investigate the matter from the point of view of physical structure and its correlated functions.

Among other and better known features distinguishing the female sex from the male, are the smallness of the braincase, the width of the pelvis, and the tendency to deposit adipose tissue, rather than muscular fibre. To the rule, of course, there are exceptions; there are masculine women just as there are effeminate men, and those exceptions I propose to consider before concluding, but they ought not to affect the broad general treatment of the subject. To these and other differences of structure, correspond numerous differences of function. Both the capacity and the desire for muscular exertion are less in the female than in the male; the strength of the system develops itself in another direction. So also the desire, if not the capacity, for the prolonged study of abstruse subjects, is less in the female than in the male; and mental activity pursues another course. It does not follow, that because a man can lift a greater weight on the average than a woman, he is therefore her superior, any more than that he is her inferior because she can bear children and he cannot. Nor is woman man's inferior because she has never devised a system of philosophy, any more than she is his superior because he lacks all her wealth of maternal tenderness, and some of her ready powers of expression.

Much has been said of the difference of weight in the male and female brain; and it has been argued that the female intellect must, for that reason, be necessarily inferior to the male. But apart from the difficulty of finding a common measure for the two, there is great uncertainty concerning the relation of mental activity to the contents of the skull. The average stature of women is less than that of men; and therefore the absolute difference of weight cannot be a fact of any value, unless the various mental functions are localised. He would be a very bold man who ventured to pronounce that the brain has no influence over the muscles of voluntary motion, or even over those which are beyond the control of volition. And when inferior stature is found in combination with less development of the muscular system, who can say how far these conditions may be the correlates of some condition of the brain? It may be, and probably is, true that the brain is intimately connected with intellectual and emotional manifestations; but it is probably no less true that the brain is connected with all manifestations of volition; and until we have determined the relative position and the quantity of cerebral matter necessary for combined muscular movements, we have no means of determining the quantity or the position of that which is necessary for thought and feeling. I am aware that many attempts to localise the various functions have already been made; but the mere fact that the various inquirers and experimenters have arrived at various and contradictory conclusions, is in itself enough to prove that the contents of the skull have not yet been correctly mapped.

Women of all nations are, I believe, generally considered to possess not only more emotional characters, but greater powers of observation than men. If this be true, it follows, I think, that their senses must be more strongly developed than those of the male sex, and that their memories must be equally if not more retentive. It matters little that the objects which they observe are not the objects observed

by men. It is as great an effort for the eyes and mind to see and remember all the colours and all the forms in a room full of human beings, as to define the position of the earth's strata, and assign every fossil to its place. But women, on the average, prefer millinery to geology, and men, on the average, applaud the preference. The matters with which attention is occupied must, to a great extent, depend upon the bodily capabilities of each individual. The man who has lost his limbs cannot scale mountains, and the blind man cannot paint; but the energies of either may flow in a direction suitable to his circumstances, and each may distinguish himself in some field of thought. And so, although woman may be more at home in the drawing-room or the nursery, than in the field of battle or the seventh heaven of metaphysics, her walk in life may exhibit qualities as high, and energies as well directed, as those of the chemist, the engineer, the philologist, or even the philosopher. Nothing can be more ungenerous than to flout her with her domestic cares, or to depreciate her efforts to please. If her form is more susceptible of adornment than man's, it is but natural that she should be more anxious to adorn it. If it is a privilege of her organisation that she can become a mother, the wish to deprive her of it is not consistent with the teachings of science, with manliness of character, or with common sense. If her maternity forces upon her the consideration of minute details which are unobserved by men, or have no interest for them, the tendencies of her mind are not a fit subject for detraction, unless that detraction be intended, as it commonly is, for maternity itself.

The elements of the female mind (to regard the mind alone, for a moment) are probably, as the champions of women's rights assert, identical with those of the male; and the inference which some persons would draw is that the mind itself ought not to be different. No one would seriously deny that woman possesses emotions, will, senses, and intellect; or that man's mind is susceptible of precisely the same division. It does not, however, require even a knowledge of chemistry to discover that combinations of the same elements, in different proportions, will produce compounds of different qualities. But chemistry, perhaps, illustrates the subject better than any other science. Not only may the same elements, mingled in different quantities, produce substances of different properties; but the same elements, even in the same proportions, may, under different circumstances, yield dissimilar products. Not only do the ethers differ from the alcohols, and each alcohol and each ether from its namesake, though all are compounded of carbon, hydrogen, and oxygen in different proportions; but alanine and sarcosine—which are both compounded of carbon, hydrogen, nitrogen, and oxygen in exactly the same proportions—have properties entirely different from each other. If, therefore, it could be shown that the male and female minds are, in the language of chemistry, isomeric, it would not follow, according to any natural law, that they should be identical in character; still less if they merely possess the same elements without being isomeric. And it would surely be not more unscientific to preach the conversion

of all ether into alcohol, and all sarcosine into alanine, than to insist that the feminine mind should undertake all the functions of the male.

While the senses, and the faculty of retaining impressions, are as strong in women as in men, and perhaps stronger, it will hardly be denied that in all ages and in all climates women are and have been more prone to the display of emotion than of pure reason. Rachel weeping for her children, Sappho burning with desire, Iphigenia grieving not to die, but to die unwedded, Aspasia brilliant with wit and cruel in hate, the girl who, as Horace says, lied gloriously to save her lover, the woman prodigal of her ointment upon the Saviour's head, Cleopatra, too proud to live when she could not captivate her conqueror, are immortal types of what is good and what may be bad in feminine nature. It is not out of such qualities that statesmanship can be developed or science advanced; but science and statesmanship are not the only good things in the world, and the world may enjoy enough of them without calling in the assistance of women. If man's highest prerogative is to think, woman's noblest function is to love; and this assertion is not a metaphysical dogma, nor even a generalisation from the history of mankind, but is an inference from the relative position of the sexes throughout the whole of that class of animals to which mankind belongs. The maternal instinct, as it is commonly called, is shared by the females of all the mammalia, from the tigress to the gorilla, and is not, as might be inferred from certain teachings, the sad consequence of iniquitous legislation. The skull of the female gorilla differs from the skull of the male, just as the skull of the woman differs from the skull of the man. And this difference has not been caused by centuries of oppression; it merely gives evidence of the healthy operation of that natural law by which structure corresponds more or less to function. In some respects the skull of the female gorilla is more human in its form than that of the male; and so, also, in some respects the skull of the woman exhibits, in a more striking manner, the attributes of humanity than that of the man. Nor are these skull differences restricted to a few species; they extend throughout almost the whole of the vertebrate family; they are accompanied by differences of muscular development, which are no less constant; and the whole of these physical differences are correlated with a psychical difference which is indisputable,—the greater pugnacity of the male as compared with the female. Considered, then, apart from individual peculiarities, the diversities of male and female capacities may be seen to have arisen from the widespread action of natural laws, and are not to be annihilated by a merely human decree. It is not the fault of the male human being that he possesses more than the female, of that combativeness which is necessary not only in political life, but even in the ordinary struggles for existence. It is his privilege to protect, and hers to be protected.

It may be suspected that the advocates of a sexual revolution have been unfortunate in their experience of the sex opposed to their own. There is no doubt that, century after century, women have shown a preference for men possessing the qualities which seemed to them dis-

tinctively masculine ; and that men have wished their wives to possess the virtues which are considered distinctively feminine. In other words the intellect of either sex has found pleasure in association with something dissimilar to itself, not because one is better or worse than the other, but simply because the two are different. There is no more reason for the assertion that a woman's brain is an undeveloped man's which requires cultivation, than for the assertion that a man's pelvis is an undeveloped woman's which requires to be expanded, or that some of his muscles should be converted into fat. To him it is not, as a rule, given to express himself so rapidly as a woman ; to her it is not, as a rule, given to think so deeply as a man. But she often sees what is lost to him during a fit of abstraction ; and he is often indebted to her for the materials upon which his reflection may work. Genius, it has often been said, is of both sexes at once ; and the saying well indicates the true relation of the male and female intellects. Each has powers and beauties of its own ; each may profit by contact with the other, and it is not until some resemblance to a combination of the two has been effected that men recognise that highest mental development to which they give the name of genius.

There are few subjects interesting to man in which clever women do not sometimes also take an interest ; and from this fact it has been hastily inferred that women might, with profit, devote the same attention as men to any and every branch of study. Such an inference leaves out of sight the fact that women rarely look at any subject from the same point of view as men ; their opinions often have the value which is to be found in the observations of an intelligent spectator when persons, whose whole attention is absorbed in any pursuit, fail to perceive what most concerns them. The best critic is not always a good author or composer ; and excellent suggestions are frequently made by those who are not fitted by nature to carry their own ideas into operation. This is especially the case with women, who if they were to devote their whole energies to science or to politics, would do violence to their physical organisation. The prolonged effort which is necessary in order to work out any great scheme, to make any great discovery, to colligate any vast mass of materials by a great generalisation is a heavier strain on the vital powers than any merely physical exertion. It is, like military service, inconsistent with that bodily constitution which is adapted to maternity, and all that maternity implies ; nor does it seem possible that by any process of selection, either natural or human, this difficulty can be overcome. The change in woman's nature must (if effected at all) be effected either in one generation or more ; if in one, humanity must immediately cease to exist ; if in more, humanity would only be extinguished by degrees ; but the diversion of woman's vital powers from the course which they take by nature is neither more nor less than the abolition of motherhood. And this, either wholly or in part, either directly or indirectly, is what some earnest men are preaching in the name of sexual equality.

The modern attempts to deprive woman of her womanliness belong to the metaphysical school of thought, as much as any dogma of a mediæval schoolman. They start from the assumption that living

women either conform, or should be forced to conform, to some *a priori* definition of woman, evolved from the inner consciousness of a human being. They ignore all the ascertained facts of anatomy and physiology. They are directed not towards the perfection of womanhood in all its functions, but towards the transformation of woman into something different. They suggest not the study of natural laws, nor the observation of facts in nature, but the worthlessness of all facts, and all laws in comparison with a *dictum* issued from the study. It is not wonderful that ignorant enthusiasts should have placed woman in a false position through their inability to comprehend their own religion, but it is perhaps the strangest feature of the nineteenth century that thousands of persons advocate a still more unnatural revolution of the sexes in blind obedience to a purely metaphysical proposition.

The stages into which Auguste Comte divided the progress of human thought are admirably illustrated by modern attempts to alter the position of woman. Seventeen hundred years ago she was a stumbling-block in the way of the religious enthusiasts; to the metaphysicians of to-day she is no more than an abstraction. The early fathers of the Christian Church regarded her physically as a temptation to sin; some modern philanthropists regard her intellectually as the equal of man. It is possible that there may be truth in both opinions, but it is certain that the whole truth is not to be found in either. The religious doctrine is intelligible enough at first sight, but the metaphysical doctrine takes us back to the middle ages, to the conflict between the realists and the nominalists, to the verbal quibbling in which great minds, for want of better occupation, frequently expended all their energies. The woman for whom a vote is demanded is not, when carefully inspected, a woman of flesh and blood, but an abstract or archetypal idea for which the realists of the nineteenth century claim a positive existence. The process by which such ideas were arrived at in former times, and by which, in all probability, they are arrived at now, is of the following character.—Men and women possess certain attributes, or a certain attribute, in common, and to this attribute, or to these attributes collectively, may be given the name of humanity. All points of difference are by the very nature of the process disregarded, or drawn off, or in technical language *abstracted*; or rather the point of resemblance is *abstracted* from the point of difference. Now when humanity and similar abstract terms had been thus invented by men who perceived their value as a species of mental shorthand, they were invested with a substantial existence by Plato and many of his mediæval followers. The “humanity” which is reached by this mental operation is, of course, divested of sex along with all other differences. If the human beings who are actually born into the world could in reality, or even in imagination, be made to conform to this sexless archetype, there could be no objection to voters on the score of sex. Thus much may be safely admitted; but it would then be in the power of any human being to coin such a word as “mammality,” or “animality,” or to make use of the old word “entity,” to assert the existence of a substance corresponding to each word, and so to destroy not only the distinction between man and brute, but between organic

and inorganic matter. In short, the very same argument which would introduce woman to man's occupations on the ground of her humanity, would introduce whales on the ground of their mammality, or stocks and stones on the ground of their entity.

I trust that I shall not be considered guilty of any disrespect in reducing some well known arguments of some justly influential thinkers *ad absurdum*. I no more mean to show disrespect by my treatment of the subject, than to deny the sincere philanthropy of many who advocate woman's rights, when I say that it savours not a little of priestcraft. Just as the metaphysical stage of thought bears a great resemblance to the religious, so the attempt to carry a philosophical doctrine into execution is by no means unlike the attempt to impose a creed. Every ideal form of government which has hitherto been conceived has had innumerable elements in common with the church of the middle ages. From the time of Plato to our own, philosophers have always presented themselves upon the domestic hearth to dictate the relations between husband and wife; all who are acquainted with the early books of penance will remember that the priest took upon himself the same office even to the minutest details. In all the mediæval works which touch upon science it will be found that the final authority upon every controverted point is not the evidence which may be discovered, but the doctrine of the church; so neither Plato nor Malthus, nor the followers of either, appeal fairly to physiological facts or laws, but would repress the very instincts of human nature wherever they are opposed to the philosophical idea.

The apostles of all religious and all metaphysical doctrines have commonly been not only energetic but thoroughly honest men. They would direct all thought and all action into the groove worn by their own minds, not from an innate love of tyranny, but from an enthusiasm which cannot admit the possibility that persons of a different opinion may be in the right. In the apostle there is always much to admire, but it happens only too often that his priestly successor inherits his faults without his virtues. The present may be called the apostolic age of the doctrine of equal humanity; and many followers will be won through respect for the character of the apostles, rather than from conviction after sober consideration. But to the student who desires something positive in science, and who would use that science for the benefit of mankind, there is sad discouragement in the spectacle of a new intellectual crusade for an idea. To this there are only two possible issues—on the one hand, complete failure; on the other hand, government by a metaphysical priesthood which will not even spare sex in its efforts to crush out all individual pre-eminence.

It may, perhaps, be thought that the Anthropologist who endeavours to assign woman her true position according to the laws of nature is practically not less tyrannical towards her than the reformer who would have her modelled according to rules of his own. There are, however, two most important distinctions to be borne in mind; in the first place, the man of science knows from observation and experience that when structure is healthily developed, and function of every kind unimpeded, there results the nearest approach to happiness of which

any individual is capable. But the Utopian of the *à priori* school gives no pledge for happiness except a general proposition, or a series of general propositions, well enough suited to the days of Plato, but wholly without value in the days of Darwin. In the second place, the propounders of new schemes make no provision for exceptional cases, but would reduce all mankind to one dead level, while variation is admitted, and the efforts of remarkable individuals are watched with interest by the observers of nature. The latter, conscious that they are not yet masters of the universe, would allow fair play to all alike in the hope of learning something new; the former, tacitly assuming that the apex of knowledge is reached, would issue edicts, from their metaphysical Olympus, for the reconstruction of humanity.

There cannot be a doubt that human beings exist who, though not of the male sex, have more masculine intellects than many men, and others whose muscular development and power of enduring fatigue are far superior to those of many a conscript. Had conquerors possessed Utopian minds, they would long ago have declared the fitness of women for military service, for which they are adapted just as well as for political life. But it is only in such a work as the Republic of Plato that we find a plea for the application of the same physical training to both sexes. In that treatise* an objector is made to suggest that the spectators would begin to laugh if men and women were seen struggling together in the same arena. The philosopher whose ideal republic would have possessed a hermaphroditic army, could not see the point of the joke, and expressed a profound contempt for the sneers of the unphilosophic. It is, however, worthy of remark that although he would gladly have seen women converted into wrestlers, boxers, and soldiers, and even thought of giving them a share in the government of the state, he declared them to be in all things weaker than man. The idea of absolute equality is of quite modern growth, and has probably been suggested by the undeniable success of the female intellect in many fields of literature.

To write ingenious novels, and even successful dramas, to paint from nature, to interpret the works of the greatest musical composers, to act with taste and discrimination—all these and a thousand similar accomplishments, each requiring an effort of intellect, are now within the range of women who are no more exceptional than the front rank of men in every generation. Such distinctions may be attained by women who lose none of the charms of womanhood; and even a knowledge of the latest discoveries in science is in no way incompatible with any of the feminine graces. But a little consideration will lead to the conclusion that all this mental activity is but the evidence of human progress in general, and that its root, as well as its most perfect development, is to be found in the domestic life. Long before the invention of printing, mothers amused their children with nursery tales, lulled them to sleep with songs, and imparted to them the rudiments of such knowledge as the world possessed; maidens and wives could act well enough to deceive husbands or attract lovers in the

* Book v, cc. iii to vi; see, also, the "Laws," book vi, c. xxiii.

days of Homer or even of the patriarchs. And many of those beautiful poetical stories which constitute the mythology of all imperfectly civilised nations bear the stamp of woman's imagination, and have often been narrated to excite or to soothe the terrors of the young.

Women, however, with intellects truly masculine, are, and have always been, even more rare than women with a masculine development of muscles. There are few, if any, distinctively masculine pursuits in which any women have ever succeeded; there is no great law of nature, no great mechanical invention, no great legal code, nor even any great metaphysical system of which any woman can say, "of this the world owes the knowledge to me." A reason for this fact is to be discovered not in the inferior quality of the feminine mind, but in the character of the objects to which woman's physical organisation naturally directs her attention. The practice of medicine, which is now becoming recognised as a feminine occupation in America, suggests at once that instinct for nursing, which every one admits to be the special gift of woman, and which is, in fact, a correlate of her power to become a mother. In short, if there be any truth in science, the intellect of woman not only has but must have, a certain relation to her structure; and if it could be shown that there exists no difference between the male and female minds, there would be an end of Anthropology. But the directions in which clever women have developed their mental activity afford the best possible illustrations of the scientific view of woman's position, and show how the long-inherited instinct matures itself according to the truly feminine type. All the different lines, when traced back, converge through the nurse upon the mother.

It should not, however, be forgotten that there may be individual peculiarities of structure caused by circumstances either antecedent or subsequent to birth, that the constitution of society may impede the natural development of function, and that there may be a number of women in every age whose case demands special consideration. Though the births of males are slightly in excess of the births of females, the females in the prime of life exceed the males in number, and it follows, therefore, that even could every male afford to marry, there would still be some women husbandless. The difficulty which here meets us is only one among many of those which appear irremediable not only to statesmen, but to men of science; it is no more probable that the body social will ever be so constituted as to secure the happiness of every individual, than that the human frame will cease to be subject to disease. There is indeed no doubt that the science of health and the science of politics are closely allied, and that each must be imperfect without the other. The end of both is the extinction of mental and bodily pain, but that end seems to be unattainable. Anatomists and physiologists know only too well that had freedom from disorder been the object with which our organs are constructed, the means would have been lamentably ill adapted to the end, that every malady is easily induced and with difficulty checked, and that the greater part of mankind start in the career of life with some inherited weakness. It is true that much has been done towards the mitigation of epidemic diseases, and it is possible that something may be done towards the

alleviation of social grievances ; but the success which has been achieved in one case affords a very instructive lesson towards the mode of proceeding in the other. Epidemics have been deprived of their worst sting, not by any political theories, nor by a statement of human rights, nor by a definition of man or woman, nor by a refusal to consider our physical organisation, nor by any attempt to alter it, but by a careful study of the facts of nature, and by placing humanity, such as it is, in a more favourable condition towards the outer world, such as it is.

How the woman who cannot marry may be most favourably placed is a problem which can hardly be solved in general terms, and which must be answered according to the exigences of each particular case. But it may be safely asserted that the gift of votes to the whole female sex would not in any way improve the condition of old maids ; wherever keenness of observation and a retentive memory are of service, there is a good prospect of success for a cultivated female intellect. In proportion as the instincts of sex are suppressed, the range of acquisition may be widened. Woman naturally loves to teach the young, and when she is without husband, home, or children, she may well succeed in teaching more than children can learn. She naturally loves to tend the sick of her family, and when she is without family ties she may, perhaps with advantage, add a knowledge of medicine to her other gifts, and bring comfort to the bed-side of strangers. In short, she may exercise her feminine capacities in a more extended field of action than that of her own house ; but should she ever enter fairly into competition with men in all professions she will have ceased to be woman, though she will not have become man. The experiment, could it really be made on a small scale, would not be without its interest to the students of science, though from the conditions of the problem it could never be made to illustrate any theory of the origin of species. To the unwomanly woman it is a virtue to be childless.

A state with a hermaphroditic form of government, if even it could exist for a generation, is by nature doomed to extinction ; it may, however, be worth while to consider what kind of being a woman would become who should take an active part in the election of a representative. As an energetic member of his committee she would have to fight the battle, foot by foot, with his opponents of either sex ; she could not always sit at home and restrict herself to the use of a voting paper, because she would then tacitly admit her unfitness for political life with all its hard work and its turmoil of speech-making ; she would be like a foreigner giving a vote from a distance, without a knowledge of the qualities requisite for success in Parliament. It would be necessary for her to be thoroughly prepared for the fray—breeched instead of petticoated, with a voice hoarse from shouting, with her hair cropped close to her head, with her deltoid muscles developed at the expense of her bust, prepared with syllogisms instead of smiles, and more ready to plant a blow than to shed a tear. She hurries from her husbandless, childless hearth to make a speech on the hustings ; with hard biceps and harder elbows she forces her way through the election mob ; her powerful intellect fully appreciates all

the ribald jests and obscene gestures of the British "rough;" she knows the art of conciliating rude natures, and can exchange "chaff" with a foul-mouthed costermonger; or, if necessary, she can defend herself, and blacken the eye of a drunken bargee. She has learned all the catechism of politics, and when she mounts the platform she can glibly recite her duty to the world according to the side she has chosen. Experience has taught her the value of invectives, and she denounces her opponents with a choice selection of the strongest epithets; at first she speaks loud in a tone of contentment and self-satisfaction; she ends by losing her temper and bawling at the top of her voice. The crowd, never very indulgent, has no mind to respect a sex which makes no claim and has forfeited all right to forbearance. The hardened lines of her face are battered with apples, brick-bats, and rotten-eggs—the recognised weapons of political warfare. Perhaps the very place where she stands is the mark of a storming-party; and after enjoying the glory of an encounter with a prize-fighter (it may be of her own sex), she is at last brought to the ground by superior skill and strength. Then probably she retires to her home; but I, for one, had rather not follow her thither, or into that House of Parliament of which she is destined one day to become an ornament.

Such a description, I am aware, could only be applied to an electioneering woman in modern Britain, and not to an inhabitant of Utopia. In that, or some other republic of the future, not only is woman to be different but man also; the sexes are to lose their characteristic distinctions not simply by the conversion of woman into man, but by the partial conversion of man into woman. As soon as this sexual compromise has been effected by means not clearly described, the world will enjoy what enthusiastic heathens used to call the golden age, and what modern enthusiasts of another school now call the millennium. Envy, hatred, malice, and all uncharitableness will disappear; there will be neither wars nor rumours of wars, and an angelic population will know its own place and limit itself to its own number. Mankind will then have developed itself into a species of gigantic trade-union, in which women and their accomplices will infallibly be "rattened" if they create too much competition among men.

A state of society in which humanity shall no longer be human, in which not only sex but intellect and emotion shall have been remodelled, and the aspect of the outer world changed by a new and metaphysical cosmogony, is, like the doctrine of abstract right, beyond the grasp of the humble Anthropologist. His occupation will be gone as soon as that era shall commence. But until then, until murder, theft, and villany of every kind shall have been extinguished, until that struggle for existence, which pervades all nature and constitutes the only healthy check upon population, shall have been abolished, until every evil passion shall have been rooted out, he may perhaps be permitted to raise his feeble protest against innovations which would not only subvert man's civilised customs but contradict nature's first lessons. If statesmanship can amend the laws which press hard upon some unfortunate and exceptional women, if ingenuity can devise harmless occupations for mothers whom prosperity or adversity has deprived of

their maternal cares, in short, if any grievance can be met with a remedy which is not opposed to the teachings of science, every human being will have cause for gratitude. If men have met with women who prefer political to domestic life, and despise all conceptions but those which are purely mental, let them in the name of liberty cultivate their acquaintances; but let them also, in the name of liberty and in the name of nature, permit other men and other women to choose for themselves. If they have but little liking for women who are womanly, if they care nothing for the conversation and the tone of thought which are most in accordance with woman's voice, and mouth, and brain, if they are unable to realise that pleasure which either sex may derive from the sense of intellectual difference, let them by all means endeavour to gratify themselves, according to their own constitution, but let them not, Vandal-like, attempt to destroy those beauties which they do not appreciate.

The thanks of the Meeting having been voted to the Author, an interesting discussion followed, in which the Rev. Dunbar Heath, Mr. Villin, Consul Hutchinson, Mr. MacGrigor Allan, Dr. Langdon Down, Mr. Dendy, Mr. Alfred R. Wallace, and Mr. A. L. Lewis took part.

The Meeting then adjourned.

DECEMBER 15TH, 1868.

DR. JAMES HUNT, PRESIDENT, IN THE CHAIR.

THE minutes of the last meeting were read and confirmed.

The following presents were announced to have been received, and thanks were given to the donors:—

FOR THE LIBRARY.

From Dr. J. HUNT—An Essay on the Harmony of Language. The Quarterly Review, No. cviii, Sept. 1835. An Essay on the Means of Discovering the Sense of Words: Rev. J. P. Potter, M.A. Anecdotes of the English Language: S. Pegge, Esq., F.S.A. Philological Inquiries, in three parts, vol. i and ii. Philosophical Arrangements. Three Treatises. Philosophical Inquiry concerning Language: James Harris, Esq. Inquiry into the Principles of Harmony in Language: W. Mitford, Esq.

From K. R. H. MACKENZIE, Esq.—Statuts de la Société Anthropologique de France.

From the AUTHOR—A Conjectural Solution of the Origin of the Classificatory System of Relationship: L. H. Morgan, Esq.

From J. FRASER, Esq.—Sketch of the Religious Sects of the Hindus: H. H. Wilson, Esq., LL.D. La Constitution Française.

From the AUTHORS—Extrait du Dictionnaire Encyclopédique des Sciences Médicales: Dally and Guillard.

From the SOCIETY—Proceedings of the Literary and Philosophical Society of Liverpool, Nos. 20, 21, and 22.

From the SOCIETY—Journal of the Royal Asiatic Society of Bengal, Part I, No. 1, 1868; Part II, No. 3, 1868.

From the SOCIETY—Proceedings of the Philosophical Society, Glasgow, 1867-8.

From the AUTHOR—Natural History of Man, Africa: Rev. J. G. Wood.

FOR THE MUSEUM.

From R. B. N. WALKER, Esq.—Photographs of Girls of the Aku Tribe, Lagos, W. Africa. Photographs of Mandingos, Sierra Leone, W. Africa.

From C. C. BLAKE, Esq.—Two Pictures of Formosan Skulls.

Sir DUNCAN GIBB read a paper "On the Character of the Voice in the Nations of Asia and Africa, contrasted with that in the Nations of Europe"; but before reading it he explained, with the aid of several large coloured diagrams, the different organs of the throat which contribute to the production of articulate speech, pointing out particularly the difference in the position of the ventricles in the throat of the Negro from their position in Europeans. He then proceeded to read the paper, of which the following is an abstract.

[*Abstract.*]

The subject was quite new, and difficult to handle from the comparatively few facts bearing upon it; the author, however, trusted to these and to his general experience in its elucidation. The voice of the Chinese and Japanese was of low power, feeble compass, and whining in its tone, possessing at times a sort of metallic twang. Among the natives of Tartary, Thibet, and Mongolia, the voice was stronger, louder, more powerful, yet still partaking of the metallic twang; the female voice was not inferior in power to that of the male sex; the metallic and deafening tones of the voice in those peoples were a well-marked and distinctive peculiarity. In India and Birmah, the voice was generally soft and very feminine, not so powerful as shrill; the natives of the hills had a more robust voice than those in the plains,—the former possessing a somewhat metallic twang, and the latter, a plaintive and whining tone. In Africa, the Negro was taken as the type, whose larynx was of intermediate proportions between the Chinese and Tartars, but differed from all other races of mankind in certain peculiarities, which the author described. The Negro wanted vocal power in whatever part of the world he was placed, but possessed the elements of a bellowing or roaring voice,—a deafening noisy sound, without harmony or distinctness. In speaking, the voice was smooth and harmonious, or rough and husky. Considered generally, the various nations of Europe possessed strong, powerful, sonorous, and clear voices; variations as to character and tone might and did exist, but, as a rule, they all agreed in power, full compass, range, clearness, and loudness of sound. The German had the most powerful voice in Europe, for reasons which the author gave; but in strength of voice he must yield to the Tartar, who, without exception, has the most powerful voice in the world. The condition of the larynx, with the length of the vocal chords, and other circumstances

bearing on the subject in the various nations of the three great continents, were considered, and the reasons given for the general conclusions arrived at.

The thanks of the meeting having been given to the author of the paper,—

Mr. PIKE said that he was able, from his knowledge of the Germans, to confirm every word that had been said respecting their voices. There was not the least doubt that, in ordinary conversation, they had the loudest voices of any people in Europe, and he considered that fact to have a connection with the German character. Mr. Pike mentioned, as an illustration of the loud voices of the Germans, that he had frequently noticed, when on the continent, that in rooms where there was a mixture of Germans and English present, the din of the German voices quite overpowered the buzz of English conversation, and was almost deafening. In that opinion he was confirmed by an American, who expressed his admiration of the superior modulation of the English voice. Mr. Pike, however, thought that the difference in voice, between the Germans and the English, was to be attributed as much to difference of mental constitution as to difference of vocal organs; and he thought the same difference showed itself in the profuse use of emphatic marks and typographical display in German publications. They emphasised all facts, making little distinction between those that were important, and those that were insignificant. Mr. Pike referred to a paper he had read some years ago before this Society, pointing out the difference between the mental characteristics of Germans and Englishmen,—the Germans showing a greater diligence in the acquisition of facts and the English a greater aptitude for generalisation and construction. There was, however, sometimes great confusion produced by not distinguishing Germans proper from German Jews, the latter being quite distinct; and he wished that distinction had been noticed in the paper. A very large proportion of the so-called Germans who had become famous were Jews. He thought there was a correlation, on the one hand, between the delight in the acquisition of mere facts, the love of emphasis carried to excess, and so defeating itself, the loudness of the voice, and the breadth of the head; and on the other hand, between length of head, and the power of grouping facts in accordance with principles, of inventing, of constructing, and of modulating the voice so as to agree with the ideas to be expressed. The German Jews were distinct in the shape of the head, as well as in the character of the voice, from Germans proper. He believed that the Tartars had very short heads, and the Germans also; and both nations were similar in the strength of their voices. The English, on the other hand, had long heads, and less obtrusive voices, with more modulation. Sir D. Gibb's paper confirmed his opinion that there was a correlation between the voice and the mental constitution.

Dr. CARTER BLAKE remarked on the difficulty which the Negroes and mixed races in Central America experience in pronouncing English and Spanish, while they pronounce French with great facility. The Spanish *v* they do not pronounce as a Spaniard would, like a vari-

ation of the *b*, but as a direct coarse *b*. He conceived there might be some relationship between the thick lips of the Negro and the difficulty of uttering labial sounds. They had also great difficulty in pronouncing the Spanish *j* like the Greek χ , but sounded it like *k*. These difficulties were experienced alike by Negroes of pure blood and by Mulattoes, while they had no difficulty in pronouncing the vowels of the French language; the French *u*, in particular, they pronounced more correctly than most Englishmen could do. The "Caribs" of the Mosquito coast talk a mixture of French and of harsh native, frequently *Wulwa*, language; yet they change from the one to the other with a facility which few Englishmen could rival, though the English and Spanish they cannot speak with accuracy, which he attributed to some anatomical peculiarity.

Dr. ROWDON considered that Sir Duncan Gibb attached too much importance to the anatomical construction of the larynx, and too little to other parts that were essential to voice. The nasal organs, for instance, had a wonderful influence on the voice; and there was great advantage in having large powers of inspiration and expiration, which had a marked influence on the voice. Great differences were perceived in the voices of the inhabitants of different counties in England. It would be desirable to consider how far these differences were affected by differences in the construction of the larynx, to establish any safe conclusions; and he thought the conclusions arrived at in this paper were not borne out by the statement of facts.

Mr. MACKENZIE doubted whether the Germans had a louder voice than other Europeans; and he differed from Mr. Pike as to the relation between the loudness of voice and mental constitution. He thought the difference depended more on the manner of living. He differed from the opinion that the Germans indulge in too much emphasis; and he observed also that their articulation was more distinct than that of other nations.

Dr. CHARNOCK said he had some acquaintance with most of the peoples of Europe, and the loudest voices that he knew of were those of the Venetians and the Neapolitans. The term Tatar was very vague, there being thirty or forty different denominations of Tatars. When at Kasan, on the Volga, which was partly inhabited by Kiptshak Tatars, he did not notice anything peculiar about the voice of the people. Nothing had been said as to the lungs, which were, no doubt, important organs in relation to the strength of the voice. He thought the voice increased as you went from east to west, the voice of the Germans being more powerful than that of the Asiatics; while that of the Americans was more powerful still.

Mr. McGRIGOR ALLAN thought that the paper did not do justice to the Negro, who had a most musical voice,—so musical, indeed, that a Negro could almost be distinguished by his voice alone. It was not the loudness of the voice but the pitch of it that made a man the best heard. As to the Germans, he questioned their speaking so loudly as had been asserted: for they smoked too much to speak loudly, though they used longer sentences than the English. Referring again to the voice of the Negro, Mr. Allan said that its musical

character showed that he was far removed from the ape ; which animal uttered a sound that was extremely harsh and dissonant.

The Rev. DUNBAR HEATH thanked Sir Duncan Gibb for the valuable papers he had contributed to the Society on the human throat. In the present one, he should have preferred entering more fully into the consideration of the four parts which were specially required for articulation, viz., the lips, the tongue, the throat, and the palate,—particularly the power of the tongue. Mr. Pike had suggested that the length or the roundness of the shape of the head was an indication of certain peculiarities of voice ; and if that suggestion were adopted, they should have to bring in also the human mind on the subject, and it would have to be further divided. By considering all these divisions of it, they might, no doubt, learn much as to the character of races ; but what was the value of race-character, after all ? If it were merely accepted as a fact, that difference of voice indicated difference of race, they would learn little ; but the mind went back to distant times, and the subject would become interesting if race characteristics led to the origins of people. He believed it would be found that all European nations were once Tartars, and dumb, and that an Aryan race arrived among them, who taught them speech. Given one race, with such powers as suggested, whose attention was directed to modulation of the voice, that race would arrive earlier at the acquirement of useful speech than any other, and the rest of Europe would ultimately acquire the same.

Mr. G. CAMPBELL said that his impression, after a long residence in India, was that the voice of the Indians was very good, and, like that of Europeans, capable of being very well modulated. He had had great opportunities of noticing the voices of the Bengalese when speaking the English language in the law courts in India, and he considered their facility in the use of English was marvellous ; and their voices were as strong as those of Englishmen, in proportion to physical strength. The exactness with which they pronounced English words was superior to that of any European race, except the Low-Germans of the north, which was the more extraordinary as they had not the free social intercourse with English people which many foreigners possess, having been merely taught it in schools. He suggested that it was worthy of inquiry whether the capacity for pronouncing correctly English words, evinced by these Indians, was not one more proof of their relationship to ourselves, and might not possibly point to a closer relationship to ourselves and the North Germans than to the other races of Europe.

Mr. JONES said he had been for many months associated with a mulatto who, in outward appearance, resembled a negro, and who spoke the most polished English, and he spoke also French, Italian, Spanish, and German.

Dr. KING observed that it was a very original paper, and he believed it was the first time that the organs of the voice had been considered as characteristics of race. The voice was, indeed, a distinguishing character in several races, and he adduced, as an instance, the *click* of the Bushman, which was very peculiar and produced several different

sounds. The Esquimaux, again, were uniformly ventriloquists; there must be some peculiar organisation to give that remarkable power which all, more or less, possessed, and some to an extraordinary degree. The Indian races of America also possessed great power in modulating their voices, which enabled them to imitate correctly the calls of all animals.

Sir DUNCAN GIBB, in replying to the remarks on his paper, said that many of the speakers had confounded the elements of speech with the voice, the character of which was a totally different thing from the capacity of speaking different languages. In considering the power of the voice they must not only take into consideration the bellows action of the lungs, which would have little effect in producing modulated sounds but for the formation and structure of the larynx. Sir Duncan Gibb referred to the diagrams to explain further his observations on the voice of the negro, the sound of which, owing to the peculiar position of the ventricles, could not be reverberated to the same extent as in the cavern-shaped ventricles of Europeans. It was the anatomical peculiarities of the larynx which regulated the character of the voice in various peoples. In the Chinese the voice of the men approached that of the females, because the larynx was shallower than in Europeans. As to the Tartars, in speaking of them he referred to all the races which possess the same character of voice; and those of Russia, alluded to by Dr. Charnock, must have lost some of their powers of voice. The pronunciation of certain letters with ease and of others with difficulty, mentioned by Dr. Carter Blake, was a peculiarity that did not affect the strength of the voice. He agreed with Dr. Campbell in his remarks on the natives of India, which applied to the females as well as to the males, as was noticed in the paper. With regard to the elements of speech, referred to by Mr. Heath, there was no doubt that speech depended on combined influence of the various parts alluded to, but it was difficult to take them into consideration separately, when considering the question of the voice in general.

Dr. CARTER BLAKE, F.G.S., Hon. F.A.S.L., made a communication on the skull, jaw, and limb-characters afforded by the specimens recently discovered at Cro-Magnon (Les Eyzies), France, and contrasted them with those of similar, and in one case greater, age from the Belgian bone-caves. He pointed out that whilst the Belgian caves afforded evidence of man in some degree pithecoïd, yet, on the whole, exaggerating the characters of the lower Slavonian races; the French remains were entirely *sui generis*, and were those of men who, although presenting some simial characters, yet, in cerebral capacity, were superior to most existing races, and in some respects resembled the Celtic crania of the present day.

The Meeting was then adjourned till the 5th of January.

JANUARY 5TH, 1869.

DR. CHAENOCK, VICE-PRESIDENT, IN THE CHAIR.

The minutes of the previous meeting were read and confirmed.

The following new members were elected :—

Fellow—Tom Craston, jun., Esq., 2, Romsey Road, Stockwell Park, S.

Local Secretary—Charles Gilman, Esq., for Jamaica.

The following presents were announced :—

FOR THE LIBRARY.

From the SOCIETY.—Journal of the Royal Asiatic Society, North China Branch, No. iii.

From the EDITOR.—The Medical Press and Circular.

From Dr. CARTER BLAKE—The Travels of Pedro de Cieza de Leon. By C. R. Markham.

From E. W. BRABROOK, Esq.—Antiquity of Man : Sir C. Denison.

FOR THE MUSEUM.

From CHARLES GILMAN, Esq., Loc. Sec. A.S.L.—Two Bows and Five Arrows of Rama Indians from Nicaragua.

From Captain BURTON.—Human Remains of Tupy Indians from a Brazilian Kjökkenmödding.

Dr. CARTER BLAKE read the following description of a skull, which was placed on the table, received from the Chincha Islands :—

On a Skull from the Chincha Islands. By C. CARTER BLAKE, Doct. Sci., F.G.S., Hon. F.A.S.L., Lecturer Comp. Anat. and Zool. Westminster Hospital.

The skull exhibited by the Rev. J. G. Wood, Loc. Sec. A.S.L., is derived from the Guano Deposit, Chincha Islands. To avoid all logomachy, I may premise that in no sense can it be termed a Chincha skull in the sense in which the word has been commonly used.* The word, in the signification applied to it by Cieza de Leon, has been applied to the inhabitants of the Great Valley of Chincha. The present skull has been derived from the islands bearing a similar name. It remains to be seen whether it belongs to the Qquichua or Chincha type of skull, if as I have suggested in my paper on the "Cranial Characters of Peruvian Races," that the inspection of a very large series of ascertained skulls will alone enable us to decide whether there is really any distinction between the Chincha and Qquichua types of cranium.

Cieza de Leon (p. 260) says that the first inhabitants of the Chincha Valley were of small stature, and that the Chinchas drove them before them and finally exterminated them. The theory might be propounded that the inhabitants of the Chincha Islands were the descendants of this early race. The small cranium of the present specimen might lead one to infer that some of these smaller races were driven towards the Chincha Islands ; but I guard myself against advancing such a theory.

The present skull is markedly brachycephalic, and affords marks of sinistral occipitolateral comprimation. The foramen magnum has its

* *Mihî in Trans. Ethn. Soc. Lond.*, new series, ii, 222, 225, *q. cf. passim. Travels of Cieza de Leon*, by Markham, 228, 260.

longitudinal median axis towards the dextral side. The mastoids are large. There are neither paroccipitals nor pneumatic processes. The basisphenoids and basioccipitals are unusually broad. The glenoid cavities are deep and laterally extended; a condition which is concomitant, or perhaps subserves relationship with the hard diet of the maiz-eating aborigin. The teeth are large and worn. The individual was probably of between twenty-five and thirty years of age, as shown by the condition of the unworn crown of *m* 3. The lateral view of the skull shows that the line of greatest height (to a spot about half the total length of the sagittal suture) is longer than Frère's line to the confluence of the coronal and sagittal sutures. All the sutures are open, especially those near the lateral fontanelles, a character which has reference to the occipital compression which the skull has undergone. The alisphenoids and parietals join on both sides. The sutures are not remarkably complex, and there are no Wormian bones. The superciliary ridges are not excessive, and the suborbital foramina are small. Slight maxillary prognathism exists.

In the general characters it rather agrees with the skulls labelled as Quichua, and derived from Pachacamac, in our public collection than with the known Chinchu skulls (as, *e.g.*, Coll. Surgeons, No. 5424, British Museum, *y*). I should not infer from this specimen that it belonged to any other race than that of the brachycephalic inhabitants of the Western Peruvian Valleys, which again reappears on the eastern side of the Andes, amongst the Aucas, and other south-eastern tribes. The Auca skull in the Society's collection may be profitably compared with the present specimen.

TABLE OF MEASUREMENTS.

Greatest length	165 millimètres.	Cephalic index	...	83.6
„ breadth	138 „	Facial angle	...	75°

The Rev. DUNBAR HEATH said he would take that opportunity to deliver himself of a heresy on the subject of skulls which he had not hitherto had the face to proclaim at any of their meetings. The skull on the table was no doubt a very small one; he would not dispute its form as a round skull. But what he wanted to know was, whether they learned anything by those facts—in short, was there anything in craniology or was there not? He admitted the facts, but he could not admit that from one skull the relationship of the race could be distinguished. There was no doubt consanguinity in races; but when attempting to distinguish the characters of savage races by the forms of their skulls, there should be hundreds of skulls produced to determine by a great mass of evidence that there was a general character in all. He wanted to know how many of the skulls had been measured, and what generic differences really existed between the skulls of different races sufficient to distinguish them. Unless these points were satisfactorily determined, he could not admit himself to be a craniologist.

Mr. MACKENZIE, while admitting that there were great differences in the size and form of skulls, did not consider these differences to indicate correctly either the size or the quality of the brain. With

regard to the skull on the table, he wanted to know where it came from, as the Chinchá Islands was somewhat vague.

Dr. CARTER BLAKE, in replying to the remarks of Mr. Heath, said that in the collections in New York, Paris, and London there were about 3,000 Peruvian skulls, amongst whom there were marked and well ascertained distinctions. He had examined many Chinchá skulls; he had made his deductions from them, and he saw no reason now to disturb those deductions. He felt certain that the skull on the table was not a Chinchá skull, and that they, that race, were of eastern origin. The Chinchá skulls, however, in our collections had some peculiar characters which the one now exhibited did not present. It was not a Chinchá skull, although it had come from the very small Archipelago termed the Chinchá Islands. With regard to Mr. Heath's remarks on the general value of craniology, Dr. Blake observed that in that part of South America, from the Equator to Valparaiso, there was a certain series of tribes with a certain fixed character of skull—the brachycephalic—and each of those different races, amounting to about twenty-three, presented distinct craniological characters, so that they could be distinguished one from the other. In point of fact, we know more about those races than of the races in any country in Europe, because in the collections of skulls it was known more clearly where they were derived from. He thought the induction quite enough to found a satisfactory theory.

The Rev. DUNBAR HEATH observed that what Dr. Blake had said was to him incredible. The large number of skulls he had examined must have been those of individuals of different ages, and it was known that each year of life altered the form of the skull. To believe that twenty-three distinct but cognate races could be distinguished by the characters of the skulls of individuals of all ages, possessing all kinds of habits, and who must have been also more or less connected, would require stronger evidence than he conceived it possible to obtain.

Dr. DONOVAN: As Dr. Blake has commented on certain physical characteristics of the skull brought forward, he, Dr. Donovan, begged to ask if Dr. Blake drew any inferences concerning the mental qualities of individuals—whether nationally or personally considered—from the size and form of their skulls; and if so, to what extent such indications might be trusted. Unless skulls afforded some such information they could have no ethnological value whatever.

Dr. CARTER BLAKE said the only fact he should like to infer from the shape of the skull on the table, so far as mental peculiarities could be defined from it, was that it was a skull which had been much altered in youth by deformation. Through all Northern Peru, without exception, there was not a single case of an Indian whose skull had not been depressed or compressed in youth. That compression, perhaps, produced an alteration in the size of the brain, although an opposite opinion was expressed by Professor Owen. The brain in the skull under examination had been excessively small, therefore, to a certain extent, it might be inferred to indicate small mental power. Dr. Blake added, in reply to a question from Mr. Macgrigor Allan,

that the skull had been artificially compressed on the left side. He had no doubt that when Mr. Heath studied the voluminous literature relating to Peruvian skulls, he would change his opinion ; as it was, the *argumentum ad ignorantiam* was scarcely admissible.

The Rev. J. G. Wood then gave an account of the chief poisons used by savages, commencing with those employed by the Bosjesmans of South Africa. He pointed out, in the first instance, the distinction between them and the bushmen of Australia, with whom they were sometimes confounded. To illustrate his description, specimens of the poisons and a large display of weapons used by savage tribes were exhibited, all of the arrows being poisoned and requiring great care in handling. The first class of poisons described were those made from animal substances. One of those poisons used by the Bosjesmans was formed from the poison-secreting glands of certain serpents, especially of the puff adder, mixed with the inspissated juice of an euphorbia. That poison, however, could not be exhibited in perfection, as the comparatively cold climate of England rendered brittle a composition which required heat to retain it in its proper condition ; in consequence of this brittleness nearly all the arrows had lost some of the poison. In applying the poison to arrows a barb made of a triangular slip of quill was generally used, which was separate from the arrow itself, but was inserted into the poison while still soft. When an arrow so constructed entered the flesh the barb became detached and remained in the wound, retaining a sufficient quantity of the poison to produce death. Another kind of animal poison used by the Bosjesman was that of the larva of an insect called kaa, or n'gwa, sounded with a peculiar click with the tongue. It was the grub of a beetle that feeds on a peculiar tree in South Africa ; the grub, on falling to the ground, formed a cocoon with the earth on which it fell. The Bosjesmans took the grub, broke it asunder, and with each half spotted the juices on the points of their arrows. The effect of that poison was to madden the wounded animals, and to kill by inducing furious mania. The points of the poisoned arrows were separate from the shafts and were kept inverted in the hollow head of the shaft, which served as a case until they were required for use. One of the arrows poisoned with the n'gwa grub was exhibited. Mr. Wood exhibited specimens of the grub itself, and the earthen cocoons, which were presented to him by Mr. T. Baines. He then proceeded to describe several vegetable poisons used by the natives of Guiana, respecting which he had gained much information from the late Mr. Waterton, who had given him a complete set of the weapons which were exhibited to the meeting. The Macoushi Indians made a very strong poison, the manufacture of which was kept so great a secret that the person who made it entered covertly into the woods with a basket for collecting the materials, and built a hut wherein to concoct the poison unseen, and after it was made the hut was burned down for the better preservation of secrecy. Among the materials said to be used in the composition were certain ants, and the fangs of venomous snakes, but Mr. Wood believed that they had no practical effect in the poison, and that in all probability they were merely collected for the sake of deception. The poison was used in

various ways ; in one method of using it the points of small arrows were covered with it and propelled through a long blow-pipe, with which the Indians could strike an object at a distance of upwards of one hundred yards, and under circumstances in which a gun would be useless. These small arrows were strung together horizontally, so that they could be conveniently rolled into a bundle and inserted in a quiver adapted to hold them. By this contrivance, which Mr. Wood exhibited, the arrows could be safely deposited and readily taken out when wanted without danger. The effect of the poison was stated to be instantaneous, as it rendered the bird, or animal, struck immediately senseless, and thus prevented their escape. Mr. Wood said he had tried the effect of the poison on a hedgehog : the respiration of the animal immediately became slow, its eyes, which remained wide open, were without sensation and bore the touch of the finger on the eye-ball without shrinking, yet the animal went on breathing for upwards of thirty seconds. Mr. Wood then produced one of the blow-pipes used by the Indians for propelling their arrows, which had been given to him by Mr. Waterton, consisting of a very slight reed (called by the natives ourah) eleven feet long, having a natural polish inside ; for the sake of security the reed is inserted into the hollowed stem of a young palm (called by the natives samourah), its total diameter being barely an inch. It had a back sight (made of two incisor teeth of an agouti) as well as a fore sight in the manner adopted in the most approved rifles. With that weapon the Indians could propel their small poisoned arrows with great velocity and accuracy ; a piece of cotton wool being twisted round the arrow to make it fit the bore of the blow-pipe. The arrows are sharpened by being drawn between the saw-like teeth of the pirai fish (*Serrasalmus piraya*), just as knives are sharpened by being drawn between two steel plates ; half the lower jaw of the pirai is always attached to the quiver, together with a hank of silk-grass thread. The flight of the arrow was so rapid that it could not be seen until it struck the object. Mr. Wood showed the action of the weapon by blowing a small arrow through it at an object in the gallery ; the effect was produced by a sharp quick puff of the breath, not by continuous blowing. The poison retained its power for a long time if not allowed to get damp, and the Indians are so well aware of the fact that they construct quivers for holding them which were ingeniously contrived for keeping the arrows dry. One of these quivers was exhibited. For killing large animals bows and larger arrows were employed, the poisoned ends of the arrows being kept separate and fitted on to the shaft just before being used. Rotary motion was communicated to the arrows in their flight by attaching to their lower ends two feathers, one from the right wing the other from the left wing of a bird, which acted obliquely against the air, and thus imparted the rotary motion required. Mr. Wood then briefly described the arrows and blow-pipes used by the savages of tropical America, by the Cingalese, and by the Dyaks of Borneo. He also exhibited two blow pipes, or sumpitans, used by the Dyaks for shooting their arrows, to one of which the head of a spear was fixed, so as to combine the uses of the two weapons, in the manner of a musket and bayonet ; this

weapon was presented to him by C. T. C. Grant, Esq., who served for several years in Borneo with Rajah Brooke. The other was remarkable for the manner in which the butt was inlaid with metal. The small arrows used by the Dyaks are poisoned with an extract from the upas tree, the nature of the action of which he said Mr. Grant, who was present would explain. A bamboo flask of the poison was exhibited. Mr. Wood concluded his very interesting account of the poisons used by savage races by exhibiting some skilfully made daggers of the Dyaks, the blades of which were striated for the purpose of retaining poison on the surface.

Mr. GRANT, formerly attached to the government of Sarawak (Borneo), said the upas was a magnificent tree; he had seen one at Borneo proper, and under the shade of its branches were many Malay graves, but the old stories about its deadly effects to human beings approaching it, or the birds flying amongst its foliage, were the fabrications of a people given to a highly coloured imagination. The poisonous gum was only fatal when fresh, and if old it could be extracted by sucking the wound immediately after it was inflicted. The principal danger under such circumstances was the barbed fish-bone point of the poisoned "sumpit" (arrow) breaking off and remaining in the wound. When, however, the poison is fresh the effect is rapid, and causes death in little over an hour; the fever and sleepiness resulting from the upas is not unlike, in its effects, the poison of the "cobra capella" snake. Six or seven years ago an attack was made on a tribe of "Kanawit" Dyaks (Borneo), a retaliation for the assassination of two English government officers of Sarawak. The Kanawits (a tattooed tribe) used the sumpitan freely, and from twenty to thirty of the government native force were killed by the arrows, which were freshly poisoned. The lives of a few of those wounded were saved by the gentleman commanding the force giving them strong doses of brandy and ammonia, keeping them in constant active motion, and thus warding off the fatal sleep. This appears to be the only remedy at present known. He (Mr. Grant) spoke from personal experience, as he was well acquainted with the Kanawit and other tribes using the sumpitan, as also with that weapon itself. The two officers killed were personal friends of his own, and he assisted in equipping and despatching the expedition alluded to, which was commanded by his own comrades, while he was acquainted with many of the natives composing the force. One of the Malays who was wounded with the upas, but whose life was saved by brandy and his being kept in incessant motion, was well known to him (Mr. Grant). Mr. Grant concluded by stating that it was a remarkable fact that all the Borneo aboriginal Dyak tribes using the sumpitan are, more or less, tattooed; while those clans who are not thus ornamented seldom or never use the blow-pipe and poisoned arrow. Anthropologists may, perhaps, be able to explain this circumstance, and to discover whether it exists amongst the American Indians, in Africa, or in other countries where the blow-pipe is used; he (Mr. Grant) merely mentioned the fact.

Mr. RIDDELL read an extract from Humboldt, describing the manner in which the wourali poison, is made, and its effects.

Mr. MACGRIGOR ALLAN said he was not aware that natives so low in the scale of civilisation as the Hottentots and Australians used such virulent poisons, and he thought that the term "savages" could scarcely be applied to a people who were capable of making such ingenious weapons, and of concocting the deadly poisons which they applied to the points of their arrows. When it was found that so much ingenuity was displayed by such people, it threw a light on the origin of civilisation, which appeared to have been a gradual process. There was no absolute inferiority in the races of man if they were taken on their own ground, and the ingenuity exhibited by people usually reckoned as savages, showed that civilisation proceeded by degrees and was not originated in a supernatural way.

The Rev. DUNBAR HEATH observed, that though the poison used by savages was not abstractedly an Anthropological question, yet the consideration of the subject suggested by Mr. Allan rendered it so. The construction of the arrows, the methods adopted of poisoning the points, and of propelling them, showed great ingenuity in the races who produced such weapons. As to the nature and quality of the poisons, he did not think much consideration need be given in that Society. The manner in which the poisons acted on the blood was, no doubt, an interesting point viewed physiologically, but in an Anthropological point of view the question principally related to the ingenuity of the races by whom such weapons were constructed.

Dr. BEIGEL was glad that Mr. Grant had confirmed the opinion that the poisons used by savages were not so fatally poisonous as they had been described. Poisons manufactured without a knowledge of chemistry must differ very much in their effects. The practice mentioned of using the fangs of snakes in concocting poisons showed ignorance of the fact that the poison was only contained in the glands which secreted it, and not the fangs which merely pressed against the glands and extracted it : the fangs themselves being merely channels to convey the poison. Before travellers like Alexander Humboldt, Sir George Schomburgk, and others, had gained knowledge of the preparation of the poison, fabulous accounts have been given of the latter which still partly exist in the minds of those who have no means to enter into the scientific examination of such questions. The quantity of the ourara poison which is likely to be dissolved from the spear was not capable of killing a man or any large animal. He had himself administered ourara to hundreds of people, as it was recommended as a cure for epilepsy ; the physiological action of it was most wonderful. It required about two grains to produce any poisonous effects on man ; and after that quantity had been taken, for the first few minutes no change was observed. In ten minutes the eyes became dim and the power of sight was lost ; and finally, the limbs become motionless, being paralysed, but the patient remained perfectly sensible. In twenty minutes the effects of the poison went off, and he was restored. That poison was dissolved with difficulty ; it could not be dissolved in water, and if an arrow tipped with it were thrust into any muscle no quantity sufficient to poison could be absorbed by the blood. As long as the muscles of respiration are not paralysed by the poison, no

danger to life exists ; and, therefore, if artificial respiration is performed, life can always be preserved, even if the action of the poison has been very intense. Thus, Mr. Waterton gave some to a donkey, which was paralysed, but continued breathing, and ultimately, after seven hours, recovered, though a large quantity was used. In his (Dr. Beigel's) opinion the savages could do very little injury with the ourara poison. Ourarine, an alkaloid prepared from that substance, was much more powerful, and therefore more adapted for accurate experiment on the action of the poison. The action not taking place till after about ten minutes of introducing a well-dissolved solution of the poison into the circulation, therefore it could be of no use in preventing the escape of animals wounded by arrows tipped with it. He was inclined to think, therefore, that when an animal was suddenly killed by the arrows the effect was not produced by the poison but by the arrow having struck some vital organ.

The Rev. J. G. Wood, in replying to the remarks on his communication, said that the upas poison lost its power very quickly, but such was not the case with the wourali poison. The arrows given to him by Mr. Waterton had been covered with that poison sixty years ago and still retained their full power, because they had been kept quite dry. Great many experiments had been made with that poison, and failures had often occurred because sufficient care had not been taken to use the best poison in a perfect condition. There was a great difference in the power of the poison, some of which was made for use and some for sale ; and, in answer to a question from Dr. Beigel, he mentioned an instance of an Indian who had been wounded in the arm by one of his own poisoned arrows, and who died a few minutes afterwards.

The meeting then adjourned.

ANNUAL MEETING.

JANUARY 19TH, 1869.

DR. JAMES HUNT, PRESIDENT, IN THE CHAIR.

The Minutes of the last Annual Meeting having been read and confirmed, the following statements of account, prepared by Messrs. Grey and Prideaux, of Lincoln's Inn Fields, and audited by Mr. J. Gould Avery and Mr. J. Epstein, were read by the Treasurer.

DE.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1867.

	£	s.	d.	
To balance at 1st January 1868	72	13	1	
To subscriptions received				
Year 1868—				
Annual	976	11	0	
Life	84	0	0	
		1060	11	0
On account of arrears—				
Year 1867	116	10	0	
" 1866	29	8	0	
" 1865	4	4	0	
" 1864	2	2	0	
		152	4	0
In advance for 1869	29	8	0	
		1242	3	0
To sale of publications				
Translations—				
Broca's Hybridity	3	4	6	
Waltz, Anthropology	7	2	10	
Pouchet's Human Race	3	16	10	
Vogt's Lectures on Man	11	4	5	
Blumenbach's Life	4	1	7	
Gastaldi's Lake Habitations	3	16	10	
		33	7	0
Memoirs—				
Volume I.	24	18	6	
" II.	22	10	0	
		47	8	6
Office sales	10	13	3	
		91	8	9

London, 18 January 1869.—We have examined the foregoing account of Income and Expenditure, and compared the same with the Secretary's cash book, bankers' pass book, and vouchers, and find the account correct in every respect,

(Signed) J. GOULD AVERY,
(") J. H. EPSTEIN.

£1406 4 10

By payments on account of debts at 31st December 1867:—			
On account of loan of £200	175	0	0
On account of arrears of rent	32	10	0
Printer's accounts—			
General account, 1866	117	6	0
Vogt	100	0	0
Gastaldi	93	7	2
Anthropological Review, 1867	142	11	9
Memoirs, Vol. II.	100	0	0
Sundries as under	90	12	9

851 7 5

By payments on account of annual expenditure:—

Reporting	22	1	0
Advertisements	15	15	2
Exploration	3	0	0
Library, binding, &c.	19	12	0
"The Last of the Tasmanians"	2	5	0
	62	13	2

Salaries, &c.—

Secretary	100	0	0
Ditto assistance	32	7	6
Commission on subscriptions	29	9	0
Wages	26	10	0
	188	6	6

Rent, office expenses, &c.—

Rent	130	0	0
Office expenses	64	19	8
Manchester Branch	8	18	6
Postage	36	9	8
Stationery and lithography	38	19	9
	279	7	7

530 7 3

Deduct—Belonging to 1867 carried up

90 12 6

439 14 9

By balance at bankers' in hand

93 9 1
21 13 7

115 2 8

£1406 4 10

4. *As to Honorary Fellows.*—The following distinguished men of science have been elected Hon. Fellows of the Society during the year :

Professor Rudolph Virchow, of Berlin ; Professor-emeritus G. Tschurowsky, of Moscow ; Professor E. Julius Bonsdorff, of Helsingfors ; Prof. Giustiniano Nicolucci, of Turin.

Your Council congratulate the Society on the honour done to it by the enrolment of these illustrious names on its lists.

5. *As to Deaths of Honorary Fellows.*—On the other hand, the Society has lost three of its Honorary Fellows by death,

John Crawford, Esq., F.R.S. ; Professor Van der Hoeven, of Leyden ; M. Boucher de Perthes.

6. *As to Corresponding Members.*—To the list of Corresponding Members the following fifteen names have been added during the year :—

Victor Baron V. Erlangen, Wiesbaden ; Contre-amiral Vicomte A. de Fleuriot, Finisterre ; Professor Paolo Gaddi, Modena ; Professor Antonio Garbiglietti, Turin ; Dr. W. H. Hammond, New York ; Dr. Isidore Kopernick, Bucharest ; Dr. Leemans, Leyden ; M. Louis Leguay, Paris ; M. le Hon. Brussels ; Cavalière B. G. Miraglia, Naples ; Bábu Rájendra'la Mitra, Bombay ; Dr. Robert S. Newton, New York ; Dr. Petermann, Gotha ; Dr. Sophus Ruge, Dresden ; B. R. Winthrop, Esq., New York.

7. *As to Local Secretaries.*—The following additional Local Secretaries have been appointed during the year :—

Buenos Ayres—Daniel Maxwell, Esq. ; Congo River—J. McCormick
Fernando Po—A. Struthers, Esq., F.A.S.L. ; Granada, Nicaragua—A. Downing, Esq., M.D. ; Louisville, U.S.—Dr. H. J. Hulcee, F.A.S.L. ; Memphis, U.S.—F. Ramsay, Esq., M.D. ; New Guinea—T. A. Campbell, Esq. ; Rio San Juan—Chas. Gilman, Esq. ; San Juan del Norte—Dr. Diezmann [since dead] ; Sydney, N.S.W.—W. G. Moore, Esq., F.A.S.L. ; West Kent—Rev. J. G. Wood, M.A., F.L.S.

8. *As to deaths of Ordinary Fellows.*—The deaths of fourteen Fellows of the Society have been reported to your Council during the year, as follows :—

H. W. Barlow, Esq. ; H. C. Bingham, Esq. ; F. E. Blyth, Esq. ; Rajah Sir James Brooke ; J. Smith Burke, Esq. ; W. Cory, Esq., F.G.S. ; J. T. J. Doyle, Esq. ; H. Driver, Esq. ; Robert A. Drew, Esq. ; J. Gill, Esq. ; Major G. A. James, F.R.G.S. ; John Lister, Esq., F.G.S. ; W. R. Milner, Esq. ; Dr. Samuel Rule, of Madras.

9. *As to Resignations and Elections.*—Your Council, having resolved during the present year to take strict measures for the recovery of subscriptions in arrear, they regret to have to report the resignation, which they attribute principally to this cause, of fifty-nine Fellows. On the other hand, sixty-three new Fellows have been elected during the year.

10. *As to the Rose Collection.*—The Fellows will recollect the interest caused by the exhibition in the Society's rooms, during the early part of the year, of the remarkable collection of worked stone implements accumulated by Mr. J. Wilmot Rose, during several years' residence in Denmark. The collection was offered to the Society for purchase, but was necessarily declined, no fund being available for that purpose.

11. *As to amalgamation with the Ethnological Society of London.*—The Fellows have been made acquainted, through the several Reports

published in the Society's Journal, with the whole history of the negotiations that have taken place between the Society and the Ethnological Society of London, with a view to effect the union of the two Societies. Your Council regret that an object, in many respects so desirable, should have been frustrated by the unscientific opposition raised to the name "Anthropological;" but they felt it their duty, upon this point, to listen to no compromise.

12. *As to Exchange of Publications.*—Your Council have authorised exchanges of publications as follows:—

With Prof. Ecker's *Archiv für Anthropologie*; the War Department of the United States; the Paris Society of Archaeology; and the Manchester Free Library.

13. *As to the Museum.*—Valuable presents have been received for the Museum of the Society from,

Professor Bogdanoff, President of the A.S. Moscow, Hon. F.A.S.L.; Dr. E. Canton, F.A.S.L.; Dr. Diezmann, Loc. Sec. for San Juan del Norte, Nicaragua; Dr. C. Donovan, F.A.S.L.; Consul Hutchinson, F.A.S.L.; Dr. Kopernicky, of Bucharest, Corr. Mem. A.S.L.; Dr. J. Shortt, F.A.S.L., of Madras; G. B. Snell, Esq., Jun., through Dr. Charnock, V.P.; Dr. E. T. R. Tenison, F.A.S.L.; the Paris Anthropological Society, through the Minister of Public Instruction in France.

It has also given your Council much pleasure to accede to a suggestion from their valued Local Secretary for West Kent, the Rev. J. G. Wood, M.A., F.L.S., for the exchange of duplicate or surplus specimens between his private museum and that of this Society. The condition of the Museum has occupied much of the attention of your Council during the year, and they have constituted Mr. W. C. Dendy, Dr. Beigel, and Dr. Carter Blake a Committee for the special charge of this department.

14. *As to the Library.*—Contributions to the Society's Library have been received during the year from the following persons and public bodies:—

T. S. Barrett, Esq.; Dr. Beigel; Dr. Carter Blake; A. C. Brebner, Esq.; R. Brown, Esq.; Dr. H. Callaway; Dr. E. S. Charnock; S. E. Collingwood, Esq.; Rev. F. F. Cooke; F. W. Conrad Cox, Esq.; Dr. Barnard Davis, F.R.S.; S. Phillips Day, Esq.; Rev. J. Doyle, M.A.; R. Dunn, Esq., M.R.C.S.; Professor Garbiglietti; S. Guppy, Esq.; C. Harding, Esq., F.R.G.S.; G. Harris, Esq., F.S.A.; Dr. H. J. Hulce; Dr. James Hunt, President; T. Inman, Esq., M.D.; M. Leon Van der Kindere; M. Edouard Lartet; K. R. H. Mackenzie, Esq., F.S.A.; Capt. Morrison; Dadabhai Naoroji, Esq.; Professor Nicolucci, Hon. Fellow; W. Pengelly, Esq., F.R.S., Local Sec.; M. Périer; Dr. C. Pearce; M. Quetelet; Professor H. Schaaffhausen; Dr. Carl von Scherzer; E. G. Squier, Esq.; M. J. L. Steenstrup; J. Stevens, Esq., M.R.C.P.; G. Tate, Esq.; Dr. E. T. E. Tenison; D. Francisco Tubino; R. H. Ulrichs; C. Staniland Wake, Esq.; E. G. Wake, Esq., M.D.; The American Antiquarian Society; the Anthropological Society of Paris; the Asiatic Society of Bengal; the University of Christiania; the Academy of Sciences of Copenhagen; the Essex Institute; the Ethnological Society of London; the Editor of the *Farmers' Journal*; the Geological Society of Glasgow; the Philosophical Society of Glasgow; the Editor of *Archiv für Anthropologie*; the Imperial Leopoldino Carolina Academy; the Royal Academy of Brussels; the Editor of the *Medical Press*; the Editors of the *New York Medical Journal*; the Editor of the *British Medical Journal*; the Imperial Society of Naturalists of Moscow; the Royal Society of Literature; the Royal Society of London; the Royal Geographical Society; the Royal United Service Institution; the Royal Society of Sciences of Saxony; the War Department of the United

States; the Royal Society of Victoria; the Academy of Sciences of Vienna; the Geological Society of the West Riding; the Academy of Natural Sciences of Philadelphia; the Society of Antiquaries of Scotland; the Institute of Sciences of Palermo; the Canadian Institute; the Public Free Library of Manchester.

Your Council regret that the necessity for rigid economy and the insufficiency of the office staff have prevented their giving to the Library, during the year, the attention its intrinsic value and importance deserve. They hope that the Council for 1869 may be more fortunate in this respect.

15. *As to Publications.*—The system of close retrenchment in expenditure which has been adopted by your Council during the last two years, has prevented the issue to the Fellows of any publications other than the Society's *Journal* and the *Anthropological Review*. The third volume of *Memoirs*, however, is in the press, and is in a very forward state. On the completion of that volume, your Council recommend to their successors the immediate issue of the instructions to Local Secretaries, as a matter of very urgent importance.

16. *As to the New Prospectus.*—Your Council have prepared a new issue of the Prospectus of the Society, copies of which will be supplied to Fellows upon application.

17. *As to the "Anthropological Review."*—The arrangements with the publisher of the *Anthropological Review* have been several times brought under the attention of your Council during the year. The result has, in each case, been to convince your Council that their often-expressed conclusion—that these arrangements were unexceptionable, and were advantageous to the Society—was a correct one. So much capital, however, was attempted to be made out of these arrangements, in certain quarters, that your Council at last determined to appeal to the Members at large for an expression of their opinion. It is very satisfactory to your Council to find that an overwhelming majority of the replies to their circular were in favour of the continuance of the existing arrangements: the numbers being—one hundred and fifty for the retention of the present arrangement, eight for the acquisition by the Society of the copyright, and twenty-four for the cessation of all connection of the Society with the *Anthropological Review*. They trust that the question has now been permanently laid at rest.

18. *As to the Presidency.*—It was with real sorrow and concern that your Council learned from Dr. Hunt that, acting under medical advice, he should be unable to serve if re-elected to the office of President. They felt that such a decision was beyond challenge on their part: that it was not for your Council to urge upon Dr. Hunt further sacrifice of health and time in your service, when he had already devoted himself so long and so faithfully to the interests of this Society and of Anthropological Science. At the same time it appeared to your Council that it was their duty to ask Dr. Hunt still to favour them and the Society with the aid (as often as his health and convenience would allow) of that remarkable insight into difficult questions of policy, that ready generalisation and power of combining various in-

terests which distinguish him, and which have so largely contributed to the success of the Society under his presidency. With this object, and with the further desire to satisfy the Fellows that the retirement of Dr. Hunt involves no change of policy, your Council are glad to be able to state that his name will still remain in prominent connection with the Society, even though that connection should not involve the performance of any onerous duties, under the rule of the Society which retains Ex-presidents permanently on the Council. They abstain from any further comment on this question, knowing how readily all that is lacking in their attribution to him will be supplied by the conscientiousness of every Fellow.

19. *As to the Official Staff.*—Your Council regret to state that the arrangement mentioned in the Report of Council for 1867, relative to the securing the services as clerk, collector, and reporter of a Fellow of the Society was not carried out by him; and that, in consequence, the whole business of the Society has had to be transacted by Mr. Collingwood alone, with slight temporary assistance. Your Council think that the special thanks of the Society are due to their early Fellow and valued Secretary, Mr. J. Fred. Collingwood, for the voluntary extra exertions made by him during the year. Unasked, he gave up his vacation when a Fellow of the Society chose that opportunity for a bitter attack upon its management; and he attended during many nights till very late hours, while the Committee, of which Dr. Duncan was chairman, were engaged in their laborious researches.

20. *As to Travelling Secretaries.*—Edward Charlesworth, Esq., F.G.S., F.A.S.L., has been appointed Travelling Secretary to the Society in England; and Dr. C. Carter Blake, Honorary Fellow, held a diploma as Travelling Secretary, during his residence in Nicaragua, with great advantage to the Society.

21. *As to the Finances.*—Your Council refer with great gratification to the fact, developed by the Report of Dr. Duncan and the other Fellows nominated by him, and established by the statements of account now presented, that during the year, the liabilities of the Society have been reduced by £400 : 11 : 5. Your Council decline, as their predecessors have properly done, to affix any estimate of their own to assets, the value of which is not exactly ascertainable; but taking an estimate less than that of Dr. Duncan's Committee, as representing the relative improvement which, by strenuous measures of economy, they have been able to effect, the aspect of the Society's financial position has changed from a deficit of £180 : 5 : 5 to a surplus of £376 : 13 : 11. At the same time, your Council have been anxious to adopt measures for entirely freeing the Society from debt, and with this object a scheme was drawn up by the President and Director for transferring the Society's stock of books in the publisher's hands to a body of Fellows; each of whom should contribute £50 for their purchase. Several Fellows joined in this scheme, and your Council would still be glad to carry it into effect, should a sufficient number offer themselves.

(Signed)

G. DUNCAN GIBB, Bart., M.D., Chairman.

The Chairman appointed Rev. Dr. Kernahan and Mr. A. L. Lewis scrutineers of the ballot, which he declared to be opened.

Mr. W. B. Row moved, "That the Report of the Council be adopted." He had attended this meeting chiefly in consequence of a correspondence which had lately appeared in the pages of a public journal upon the financial position of the Society, and the management of the Council. After hearing the balance-sheet and Report of the Council, he must say he had been agreeably surprised by the figures and statements laid before the meeting. He believed that many other Fellows present shared in this feeling; but even had it been otherwise, he would venture to say that he was expressing the opinion not only of this meeting but of the Society at large, when he characterised the conduct of those Fellows, who had thus dragged the private affairs of the Society into public discussion, as being reprehensible. It was discreditable to themselves, and derogatory to the Society. With reference to the clause in the Report relating to the *Anthropological Review*, he desired to thank the Council for their resolution to continue its publication. He had formerly been a member of a provincial Society, in connexion with the parent Society in London, and he well knew the popularity of the *Review*, and the good service it did in begetting and keeping alive an interest in the science of Anthropology. Its discontinuance would have been doubtless injurious to the Society, and to the science it professes. He trusted that whatever change in the arrangement for its publication might be considered expedient from time to time by the Council, they would never allow the *Anthropological Review* to be wholly dissociated from the Anthropological Society.

Dr. FRED. M. SKUES seconded the motion.

Dr. NICHOLAS remarked, that as the finances of the Society seemed to be in so satisfactory a condition, he would take the liberty of suggesting an alteration with respect to the fees. It was now the rule to charge new Fellows with the fees of the whole year, notwithstanding that they may have been entered, and begun to enjoy the advantages of the institution in the last quarter. This was not properly paying fees "in advance," but also retrospectively. It was the custom in other societies—for instance, the Geological—to require payment only from that point of the year when the Fellow happened to be elected. He did not blame the conductors for their thriftiness; the Society was young, and doubtless required all the money that could be got: but he thought the rule in question had an unfavourable as well as a favourable bearing, since it had a tendency to prevent persons from joining in the autumn of the year, the time when entrance into our Societies was chiefly sought.

After further discussion by Dr. Donovan, Mr. Bendir, Dr. Duncan, M. Avery, Mr. Heath, Major Owen and Mr. Goldsmid, the Director replied, and the resolution having been put, it was carried *nem. con.*

The following obituary notices were submitted:—

Obituary Notice of the late Professor John van der Hoeven, Honorary Fellow of the Anthropological Society of London. By J. Barnard Davis, M.D., F.R.S., Vice-President A.S.L. — At an early period of the last year, March 10th, 1868, the Anthropological Society suffered the loss, by death, of one of its most distinguished Honorary Fellows. Our loss was one common to many other learned Societies, in this country as well as others, which had enrolled him among their Associates. It was felt in Holland, a small country, that one of their chief citizens, one of the great ornaments of science, had departed; by the University of Leyden, which occupies so high a rank, that the first of its Professors in Natural Science had become silent. Zoology, wherever studied, lost in him one of its most ardent cultivators and promoters, who had by his eloquent discourses, during a period of forty years, and by his various writings disseminated a knowledge of this science very extensively,—perhaps as extensively as any one of the present age. It is due to Professor Van der Hoeven to say that anthropological science, as the highest branch of zoology, lost in him an everyway accomplished investigator, who had long directed his high powers, by predilection, to the Natural Science of Man, and had made Craniology an especial study. It is, therefore, exceedingly appropriate that we should devote some short testimony to his memory.*

* To justify the undertaking of such a task, it may be desirable to state, what opportunities the writer has been favoured with to become acquainted with him, besides a perusal of most of his anthropological writings. The first is the enjoyment of a somewhat active and never interrupted correspondence with him for fifteen years, as a large sheaf of upwards of sixty of his letters testifies. The honour of being received by him twice at his house, in Leyden, once on a visit to that city in 1856, and again in the year 1864; moreover, to be gratified with much further personal intercourse with him at the meetings of scientific associations, as that of the British Association at Oxford, in 1860; that of the Scandinavian Naturalists, at Stockholm, in 1863; and again, that of the British Association, at Birmingham, in 1865. As this continued intercourse with so learned and so excellent a man has exercised a most important and beneficial influence upon the career of the writer, he has much satisfaction in recording it here. There is a graceful tribute to the kindness shown by Van der Hoeven to those who were brought into contact with him, in Professor P. Harting's account of his life, read before the Royal Academy of Sciences of Amsterdam (1868). Professor Harting says,—“It is now thirty years ago that I first came into contact with him. I was then a young physician, established in a small inland town, shut out from all the aids academic cities afford, without name,—let me add, for it is the truth,—without any expectation that I should ever obtain one. Van der Hoeven, on the contrary, was already a renowned man, whose name, both at home and abroad, was mentioned with honour. I did not know him personally; yet his writings had taught me to look up to him with great reverence. It was then, moreover, with true reluctance, and after much hesitation, that I determined to address to him the question, whether he judged an account of some observations made by me, whilst I was a student, and in the midst of the interruptions of practical life, worthy of a place in the *Journal of Natural History and Physiology*, at that time edited by him and

The leading events of his life may soon be stated. He was born in the city of Rotterdam in the beginning year of this century (February 9, 1801), and was the youngest of four brothers; three of these lived to mature age, and became eminent. One, and he is the oldest, only survives, that is Pruyss Van der Hoeven, emeritus professor at Leyden. In 1803 John Van der Hoeven lost his father, and in 1810 his mother was married for the second time to Dr. Martinus Pruyss, a physician of Rotterdam.

It was at first intended that young Van der Hoeven should become a surgeon, but, on commencing his education in this profession, he soon acquired a desire to go to the University, and to make a beginning of his career from a higher point. As he had not at that time acquired any knowledge of the Latin tongue, his step-father at once acceded to his wishes, and afforded him the aid of private lessons in classics. In this study there is every proof that he was pre-eminently successful, for, in the subsequent years of his life, he not only wrote Latin with correctness and elegance, but spoke it readily.

In 1819 he was inscribed as a student at the University of Leyden, where he first devoted his especial attention to physics. The Professorship of the Natural History Sciences was then vacant, by the death of the eminent Professor Brugmans,* in that year. It was only three years afterwards, in 1822, that it was filled by Reinwardt, on his return from the East Indies. It thus becomes obvious that Van der Hoeven received scarcely any instructions from the professors of the University upon that great branch of science to which his life was subsequently chiefly devoted. The distinguished Professor Gerard Sandifort, whose department was Human Anatomy and Physiology, was a cultivator of Comparative Anatomy also. It was at an after period that he brought out his grand work on Craniology. He was almost the sole teacher, at the time of Van der Hoeven's student-life, who at all embraced zoological subjects in his course.† It is apparent that Van der Hoeven

our former colleague, De Vriese. The kind answer received from him, in which he corrected, with the utmost delicacy, a little mistake I had committed, together with the warm and encouraging welcome to the youthful, little experienced contributor to science, to go forward in the footsteps marked out, has exercised upon my subsequent course of life a decided influence. The encouragement received from such a man, has always remained in my grateful recollection." *Levensberigt van Jan Van der Hoeven, door P. Harting, 1868.*

* Brugmans had been accustomed for many years to deliver lectures on the Natural History of Man. He also made a collection of human skulls, availing himself of his position of physician to the Netherlands army, during the Napoleonic wars.

† Van der Hoeven was the pupil of Sandifort, from 1819 to 1824. Of Sandifort's "*Tabulæ Craniorum*," which only extended to three fasciculi, Van der Hoeven writes, in 1856:—"I often had the intention to give a continuation of this publication; but the occupations of my zoological profession, and other publications, prohibited the execution of this plan. If I can find time, and another shall not take it up, perhaps I may do it afterwards."

was, in a large measure, thrown upon his own resources of study, and derived but slight aid from the Professors in that which ultimately became his own special department, zoology. In the first year of his residence at Leyden, he felt himself able to answer a prize question proposed by the Academy of Ghent. The question was: "What is the use and value of Comparative Anatomy in establishing the divisions of the animal kingdom?" On the 3rd of October, 1820, an answer was deemed to be satisfactory which proved to be the production of the student of nineteen years old. This extraordinary incident influenced his future career materially; he had already besought the permission of his step-father to allow him to prepare himself for the Degree of Doctor in the Mathematical and Natural History Sciences. At this time his step-father desired for him, as a profession, that of a physician, to be exercised in his native city.

His success at the Ghent Academy removed every obstacle, and he was allowed to follow the promptings of his own mind in the future course of study he pursued.

The mathematical and natural faculty of the Utrecht University, in 1821, proposed a question for prize competition, which must be regarded as one of great difficulty.* It was, to give "A short and clear exposition of the structure and functions of the organ of hearing in man, so illustrated by the observations of recent anatomists and by comparative anatomy, that it may be seen what portion of this organ is most essential to hearing, and in what respect this is more excellent in man than in brutes."

Two answers to this question were sent in: the Faculty was of opinion that one of these answers would have deserved the prize if it had been the only one received, but that it was surpassed by the second: "the writer of which had given such abundant proofs of experience in human and comparative anatomy, as well as in *literæ humaniores*, and natural science in general, that certainly, without any doubt, the golden prize must be accorded to him." On opening the sealed letters containing the names of the competitors, it was found that the writer of the first answer alluded to was Willem Vrolik, and that of the second Jan Van der Hoeven.†

About the same time, namely the 23rd of June, 1822, a silver medal was awarded to Van der Hoeven, by the Provincial Society of Arts and Sciences at Utrecht, for a treatise which subsequently saw the light, under the title of a "*Disputation on the Doctrine of Final Causes, and its application to Zoology.*"

Professor Reinwardt, on coming to Leyden in 1822, became acquainted with young Van der Hoeven, showed himself highly prepos-

* The anatomy and physiology of the organ of hearing, has been more recently much advanced by the laborious researches of Professors E. Reissner, of Dorpat, E. Huschke, of Jena, Kölliker, Claudius, Leydig, A. Böttcher, M. Schultze, O. Deiters, V. Hensen, and K. B. Reichert, of Berlin.

† On the death of our mutual friend, the second Vrolik (William), Van der Hoeven reminded the present writer that all three had a common year of birth; viz., 1801. The only survivor lives to write these lines.

essed with him, and himself opened the prospect to him, after the completion of his studies, to transfer a portion of the heavy burden resting upon his own shoulders to Van der Hoeven as his assistant.

On the 9th of November, 1822, Van der Hoeven was promoted to Doctor of Natural Philosophy and Master of Mathematics, after defending his Dissertation "on the Skeleton of Fishes."

In the following year there appeared in the *Transactions of the Leopold Caroline Academy of the Curiosities of Nature*, a treatise written by the Doctor of two-and-twenty years, entitled "A Memoir on the Genus *Ornithoryncus*." And a year later, on the 11th of June, 1824, he obtained the degree of Doctor of Medicine, after defending his "Pathological Dissertation on the Diseases of the Ears and of Hearing."

There is conclusive evidence that Van der Hoeven laid a broad and solid foundation before he left the University as a disciple, and a prospect was opened to him to return to the University as a teacher, which was ultimately, though not immediately, fulfilled. On the completion of his studies he made a journey to Paris, chiefly with a view to perfect his knowledge of medicine in the Parisian hospitals; here he gained the acquaintance of Cuvier and of Latreille, and some of their disciples, with one of whom then become known in his especial matter by his anatomy of *Melolontha vulgaris*, Strauss Durckheim, he practised insect anatomy. On his return to Holland he established himself as a physician at Rotterdam. Soon afterwards he was appointed Reader by the Batavian Society of Experimental Philosophy at Rotterdam, in which capacity he gave lectures on Physics.

In this position he only remained a year and a half, for, in 1826, he received the appointment of Extraordinary Professor to the University of Leyden, where he continued during the remainder of his life, for forty-two years, as one of the most eminent ornaments of that seat of learning. He entered upon his office on the 29th of April, by delivering a Discourse "On the diligent Study of Truth, especially in the quality of an Expounder of Nature."

In the same year he married Anna Van Stolk, whom he survived many years. Of the children born of this marriage there are three living: a son of the same name as his father, who is treading in his footsteps, practises medicine and surgery in the city of Rotterdam, and has given many proofs that he inherits his father's tastes and talents; and two daughters, the elder of whom is married to Mr. H. W. Fangman, judge at Dordrecht; and the younger, the amiable widow of Dr. P. Hoekema Kingma, late physician of Leyden, whose mournful decease took place on the 8th of January, 1868, and cast a shade of gloom on the last days of Van der Hoeven.

He became ordinary Professor in 1835. He often attended the Meetings of Foreign Scientific Associations. In July, 1842, he was present at the meeting of the Scandinavian Naturalists at Stockholm. Of this journey he printed an account on his return to Leyden, of which a second edition was afterwards issued (1845). More than once he took part in the meetings of the German Naturalists, and also of the British Association, as the "Reports" of the latter for 1847, 1850,

&c., testify. By these journeys, by visits of eminent men of science to the famous University of Leyden, and particularly by a very extended correspondence in various countries, he was brought into intimacy with the contemporary cultivators of natural science very generally. His merits were recognised by a large number of the learned academies of his own country, and of the other countries of Europe, in electing him among their Honorary Associates. The numerous catalogues of these and other honours conferred upon Van der Hoeven given by his friend, the excellent Professor P. Harting, cannot be further detailed here.

Nor will it be necessary here to dwell at any length upon those writings of Van der Hoeven which refer to that branch of science to which he was especially devoted, *i. e.* zoology. The first of these in importance was his large systematic treatise, entitled "Handbook of Zoology," in two octavo volumes (1828-33); of which the second edition appeared in 1849-50. The latter was translated into German by F. Schlegel and R. Leuckart, 1850-56, and then into English by Professor W. Clark of Cambridge, 1856-58. Besides this great work, very numerous other writings upon this branch of science issued from his pen, among which may be especially mentioned his important monographs on "The great *Salamander of Japan*," 1838; "*Recherches sur l'Histoire Naturelle et l'Anatomie des Limules*," 1838; "Anatomical Contributions to the knowledge of the *Nautilus Pompilius*," 1856; "Anatomical and Zoological Contributions to the knowledge of the *Menobranchus*, the Proteus of the North American Lakes," 1867. Besides these his chief contribution to this science of late years was his "*Philosophia Zoologica*," a work which is peculiarly impressed with the genius of Van der Hoeven. It was issued in 1864, and he regarded it as probably the last of his great labours. The "*Philosophia Botanica*" of Linnæus was before his mind in this production, which he had long contemplated. Professor Harting says it resembles this latter in many respects: "The same concise aphoristic form, the same art of saying much in few words, the same power over the language employed, we meet with in both books. Also the object for which both works were written is the same, *viz.*, to draw together in short sentences the chief contents of the science, and likewise to point out the way its cultivators must pursue in order to advance it further." Professor Harting afterwards expresses his decided preference for the "*Philosophia Zoologica*." In four books Van der Hoeven treats,—1, Of the bodily Structure of Animals, on the ground of Comparative Anatomy. 2, The History of their Development; 3, The Doctrine of their Arrangement; and, 4, The Geographical distribution of Animals. These four books, which take up scarcely 400 pages, "contain that which we may name the scientific quintessence of proper zoology, and besides that a very extensive literature."*

* The "*Philosophia Zoologica*" was noticed at some length in the *British and Foreign Medico-Chirurgical Review* for July, 1866. This article is remarkable for embracing in its heading another and quite distinct work, upon an entirely different subject, of its distinguished author, *viz.*, his "*Catalogus Craniorum*" (1860), to which the reviewer devotes a few sentences. Such a

Van der Hoeven at an early period gave this definition of zoology : "It is the knowledge of animal life, as it manifests itself in different forms upon the earth." In each of his subsequent works he followed out this comprehensive definition, first with respect to one animal or genus, and then with respect to another, until, in this way, he passed over almost all the chief divisions of the science. As Professor Harting says : "Such a broad comprehension of the aim of science was, in Van der Hoeven, his only possible choice, because he united in himself, in a high degree, two qualities, namely—a vigorous and trusty memory and a clear understanding, which knew how to combine facts in a higher unity, and to climb along the logical way to general deductions."

Besides his great merits as a cultivator of science, of which in this place but little can be said, Van der Hoeven was also very eminent as a teacher. His lectures were full of information, and always embraced the most recent investigations ; they were well arranged, concise, but very clear. His extraordinary memory afforded him ample illustration of every subject upon which he descanted ; and his cultivated taste and hand enabled him to render every aid to his spoken words by endless sketches.

It would be improper not to mention that he entered freely into every proposal to diffuse scientific knowledge, and to give a moral and religious bent to its application. At the latter part of his life he was accustomed to give special lectures to teachers, both male and female, in order that instructions might be conveyed by these to their own pupils. He wrote popular scientific tracts, some of which were translated into the German language. He contributed the zoological portions to a new edition of Uilken's *Perfections of the Creator contemplated in His Creatures*. These were afterwards included in a volume, under the title of the *Natural History of the Animal Kingdom*. Of this work Dr. Salverda, of Groningen, speaks in the highest terms ; he pronounces it "infinitely excellent, and perhaps one of the best books Van der Hoeven ever wrote on zoology." Those who knew him would be quite sure that his engagement in this labour would be most congenial to him. He was also a liberal contributor to another work, which appeared in annual volumes, entitled the *Album of Nature*.

Besides his regular courses on zoology, he gave at different times others on Comparative Osteology, on Mammalogy, on Entomology, on Geology, and on Anthropology. These last he commenced in 1831, and repeated them every two years ; they attracted the attention of the Professors themselves, as well as the students of the University.*

proceeding seems somewhat singular, and not very easy to be explained, forasmuch as there appeared a distinct and somewhat lengthened review of the "Catalogus" in the same periodical, when it issued from the press (*Brit. and For. Med.-Chir. Review*, July 1860), which is wholly ignored by the reviewer of the "Phil. Zool."

* In 1844, Van der Hoeven published a sort of syllabus of this last course, under the title of "Sketch of the Natural History of Man," designed for the use of his lectures (*Schets der Natuurlijke Geshiedenis van den Mensch. Ten dienste zijner lessen ontworpen door J. van der Hoeven*). In the pre-

It has been already said that this last, Anthropology, was the subject for which he had an especial predilection. He regarded it earnestly and constantly as the highest department of the more extended science of zoology; he saw clearly that it should be based upon the comparative anatomy and physiology of human races; and there is no doubt that he contemplated, at different periods of his life, the illustration of the races of man upon a much larger scale. With this view he made collections of human skulls of the people of all countries, for he regarded craniology in a great measure as the basis, and unquestionably as a substantial and essential element, of Anthropology. He also collected drawings of the different races of men, coloured from nature, which the writer had the gratification to examine in 1856. And it is tolerably certain that had his mind been less entirely engrossed by the immediate duties of his Professorship, and had the success of his fine work, entitled *Contributions to the Natural History of the Negro Race* (1842) been more decided, that he would have issued a series of volumes, as he proposed in the Preface to this last book, each of which would have been devoted to some great division of mankind, which would have had accurate and artistical illustrations. With such a comprehensive design, we cannot help regretting that he should not have

face, he says, he employs the word Anthropology in the sense pointed out by Rudolphi, as a synonym for the Natural History of Man, in the same manner as naturalists use the words Ornithology, Ichthyology, etc. He adds that the renowned Brugmans, who for more than thirty years, from time to time, gave anthropological courses at Leyden, used the term in the same sense. He regrets that he did not happen to be present at Brugmans' lectures, of which he had only got a sketch of the last course, that of 1818-1819, from his fellow students, as he himself only came to the university in September of the latter year, Brugmans having died in July. Van der Hoeven divided his subject, very naturally, into two parts,--first, the difference between man and animals; second, that between men among themselves; still, he adds, his course varied a good deal at different times. He remarks that the portion which treats of the congenital differences of races and people, he gives rather copiously, in which he makes use of collections of skulls freely, mentioning that in the anatomical museum, collected by Brugmans, and that of his respected fellow professor, G. Sandifort, who was always disposed to assist him. He then alludes to his own small collection, and says, that for more than ten years he had been gathering together drawings of crania and portraits of various races of people, of which he had then got many, and finally mentions his further projected writings upon anthropology. This sketch, or syllabus, extends to twenty-four octavo pages, and enumerates all the works by different authors on the matters treated upon in the various divisions of this great department of knowledge, with occasional quotations from eminent writers. It is a syllabus distinguished for the range of its subjects, and the completeness of its references, showing the accomplishment of its author, and how thoroughly he had entered into the grand study of anthropology. Van der Hoeven's historical remarks go far to prove that, if Holland were not distinguished by being the first country in which our science was publicly taught and cultivated, it came very closely after Hanover.

found leisure to carry it out, and to give his whole mind to so noble a study. Van der Hoeven was a sober and truly scientific Anthropologist; his writings relating to this science are marked with his usual characteristics, simplicity, and modesty. A keen perception of facts, which are always stated and described clearly, a full and correct estimate of what others have observed, an avoidance of speculation and hypothesis, in a division of knowledge in which the temptation to such seems to be especially alluring, a cautious and reserved deduction of conclusions only in cases in which the substantial evidence was sufficient. In truth, he took up Anthropological subjects on sound grounds, zoological and biological. He took them up as a matter of zoological science, and came to them furnished with every accomplishment natural science could supply. Viewing man as an animal, he could appreciate the minutest differences in the size, forms, colours, habits of the different races of mankind. The human cranium, especially, he described with the nicest accuracy, seizing all its marked features, measuring all its chief dimensions, but not going into those calculations of angles which others have supposed to be of so much importance. His generous estimation of the labours of others in this and in every department of science he cultivated was always obvious. Notwithstanding his opinions were fully formed, after deliberation, and decided, he differed where he was dissatisfied with the evidence, but had no proneness to the manifestation of the difference of his views, unless there arose an obvious necessity for such expression.

He dissented from developmentalism, we believe, decidedly; it has been said by Professor Welcker that, although he was sceptical upon the descendance hypothesis, he reserved himself expectant; but the readers of the well-argued exposition of his views, entitled "Some Remarks on the Succession and Development of Animal Organisation on the surface of our globe, in the different periods of its existence,"* would rather conclude that he had decided against developmentalism after careful and thorough investigation. A few sentences may be quoted from this Memoir in support of what has been said; he remarks:—

"There is a power of evidence which cannot be annihilated by our doubts, or by the difficulty of understanding the facts; and, in our researches on natural objects and phenomena, it is not fair to ask what we can explain before we see what we are obliged to admit by the authority of observation. The succession of new species of plants and animals on the surface of the earth seems to be a fact that can hardly be denied, although we cannot explain it. If we ascribe no unlimited duration to our planet, if we do not believe that it existed from eternity, we are compelled also to admit a beginning of organic bodies—an origin of life on its surface. However impossible it may be to explain the origin of organic bodies . . . this difficulty of explanation affords no reason to deny that there was a beginning" (p. 7).

"To avoid the difficulty of several consecutive creations, some writers have believed that the now living organic bodies originated by changes from those species of plants and animals which we consider to be extinct. No one, however, as far as I know, has given a detailed

* *Annals of Natural History*, September 1864.

and accurate account of the manner by which the different species which are commonly considered as extinct changed into the now living species."

"If we once admit such a mutability of species, we wander into the immense field of speculation, where reasoning, or rather imagination, must fill up the gaps left by actual observation" (p. 8).

"Such a view would require another distribution of fossils in the succeeding strata, so that, for instance, fossil cephalopods should be the latest of all mollusks, and not, as they really are, already represented in the oldest fossiliferous rocks. If the species have changed by degrees, we should expect to find traces of this gradual modification. If one form gave birth to another, why should we not find some fossils between mollusks, or insects, and vertebrata? Such a discovery has never been made."

"It is plain, if we are sincere and unbiassed observers, that geological facts give no support to those hypotheses we have been treating of, and that they rather militate against such theories, which cannot deserve the name of *natural* theories at all. Creation, the first origin of things, is, and perhaps always will be, a mystery; the mystery is by no means elucidated if we assume germs. The first animal, for instance, that possessed organs of vision, has to be derived from another without eyes. But why should such a supposition seem clearer and more intelligible than the creation of an entire animal provided with eyes? Here science does not shut her books, as it has been said by some; true science never opened books on such questions" (p. 13).

Dr. Salverda's testimony on his opinions upon this hypothesis is also distinct. He says, "Van der Hoeven more than once spoke out against Darwin's hypothesis;" and then quotes a letter of Van der Hoeven's written to himself, in which the former says: "Darwin's book, viz. his last work, *Variations of Animals and Plants in a state of Domestication*, I have not bought; I saw by turning over the leaves of the translation by Victor Carus all about the tame pigeons, &c., repeated and thought to myself, *non tali auxilio*."

But it is to his Anthropological studies that we should particularly direct our attention on the present occasion. Perhaps it may be advisable briefly to recapitulate his writings upon Anthropological Science. The earliest appear to be those communicated to the *Journal of Natural History and Physiology*, edited by himself and his friend Professor De Vriese. This Journal is not very accessible in England; there is a copy in the Library of the Linnean Society, but it is not quite complete. They appeared under the title of *Contributions to the Natural History of Man*, of which there were at least eight distinct Communications, extending from 1834 to 1839. Of these the III, v, vi, and vii are the only ones which have come into the hands of the writer; the III Contribution (1835) is entitled "Observations on the Negro Race in general, together with some measurements of the Bony Head of Negroes." This is to be regarded as the precursor of his larger work on the Negro Race, published eight years afterwards. After remarking that, "No race of men appears to be separated from the others by sharper limits than that of Negroes," he points out what

Soemmerring, Camper, Albinus, and Blumenbach had done to explain the anatomy of the Negro; refers to Jacob John Eliza Capitein, who studied theology at Leyden, and of whom a well-known portrait was taken; he soon reverts to the Negro cranium, comparing it with that of some *quadrumanus*, and those of other races of men. The concluding portion of this "Contribution," which was most likely originally illustrated with plates of Negro skulls, is devoted to the measurement of ten Negro crania, from the collection of Sandifort.

The fifth "Contribution" (1836) has the modest title of "Something on the Chinese and Japanese, as types of the Mongolic Race of Man." After commenting on the languages of the two people, and pointing out the differences observed by Kæmpfer, Thunberg, and Von Siebold between them, and, alluding to the origin of these nations, he turns to the physical constitution of the Chinese and Japanese, and takes up Blumenbach's description and those of De Guignes and Von Siebold. For a good instance of the Mongolic form of countenance and other characters of that division of mankind, he mentions the famous Siamese Twins, who had been exhibited in some of the cities of Holland a few months before. He describes the fold of skin in the upper eyelid, which descends towards the nose in the inner angle of the eye, with clearness, and points out that Rudolphi was not quite correct in attributing it to the soft parts solely; for the conformation of the bones surrounding the orbits stretches the skin in an unusual manner, and is the primary cause of the appearance which the soft parts exhibit. He then turns to a description and measurement of a series of skulls of both races, those of the Japanese derived from Von Siebold, as well as two of the Chinese skulls; the other Chinese examples from the Rijk's Museum, and the collections of Brugmans and Reinwardt. Of one specimen of the skulls of each race he has added very accurate and well executed figures, in face and profile, with outlines of vertical views. He always considered it quite necessary to supplement the description of a cranium with such figures, which he always had drawn and lithographed in a very neat manner, highly creditable to the artists of Holland. This excellent paper concluded with an enumeration of the points of difference between the skulls of the two races.

"Contribution" number six is devoted to the "Measurement of the bony head in Europeans;" this article is intended as a supplement to those already enumerated on the Negro, Chinese, and Japanese; to afford the means of comparison with the measures of the skulls of those races already given. It consists chiefly of a table of means, derived from the measurements of five Russian skulls, five German, five Spanish, of one Italian, a Scotch, an English, and an Irish cranium, and need not detain us.

The seventh "Contribution" is devoted to the "Description of a Kafir skull." This fine example had been presented to him by a pupil from the Cape, and was that of a young man who died in the Somerset Hospital, and who was the son of "Pato," a Kafir chief, therefore, of unquestionably pure blood. This skull is very carefully described and measured, as well as compared with the only other figure of a Kafir-skull then known, that in Professor M. J. Weber's work on the

Cranium and Pelvis,* and with another example in the possession of Professor G. Sandifort, which was subsequently figured by him on a folio plate, in his grand work *Tabulæ Craniorum Diversarum Nationum*. To this "Contribution" a beautiful plate is added, containing the usual three figures of the Kafir skull described.

To this "Journal of Natural History and Physiology" Van der Hoeven also contributed translations of two other anthropological papers. One by Professor S. Nilsson, entitled "Contributions to the History of the Development of the Human Race;" the other by Professor A. Retzius, "on the form of the Skulls of the Inhabitants of the North," including that of the Swedes, of the Slaves, of the Finns, of the Lapps, of a Kalmuck, and of Greenlanders or Esquimaux.

In the *Annales des Sciences Naturelles* for August, 1837, appeared his essay "on the Dimensions of the Bony Head, considered in their relation to the Natural History of the Human Races," which is very much of an abstract of the "contributions" already noticed, referring to the skulls of Europeans, of Negroes, and of Chinese.

The next anthropological work of Van der Hoeven, in the order of time, was that on the Negro Race, the largest and most important essay written by him in this department of knowledge, but probably the least known. Its being in the Dutch language may account for this. It is a fine quarto of sixty-eight pages, with four beautiful plates. Its title is *Contributions to the Natural History of the Negro Race*.† In the preface the author refers to his papers in the *Journal of Natural History and Physiology*, speaks of his design to collect them together, to enlarge them here and there, to improve them as much as he could, and to issue them augmented with his later researches. This, on the Negro race, he gives as the first of the greatly enlarged and improved series, and says that it was difficult for him then to determine whether others should follow, which would partly depend upon the reception of the present. In case he issued others, he said, he could give a general title-page to the whole. We thus see more into the author's designs as a writer upon anthropology. Unfortunately for the science, as it afterwards came to the knowledge of the writer of this notice, this fine volume never attracted the attention it deserved. The introductory chapter is devoted to general remarks on the natural history of man, and the course which ought to be followed in this field of inquiry. In the opening paragraph he distinguishes anthropology from the natural history of man, which are sometimes, he remarks, confused. "The first is a science of spacious compass, and includes in its extended circuit the latter, which is an anthropological science, but is not anthropology itself." With regard to craniology, he asserts: "It is especially from a comparison of the skulls of different people that we expect the best elucidation, without on that account neglecting other indications of anatomical structure." And, in his estimate of Prichard's *Researches*, he alludes to this point again, saying,—"Upon the whole, it does not appear from this work that the writer paid much attention to the form of the skull and other

* Die Lehre von den Ur- und Racenformen der Schädel und Becken des Menschen, Tab. xvii.

† "Bijdragen tot de Natuurlijke geschiedenis van den Negerstam." 1842.

physical characters of the people, or that he in its preparation made use of collections of crania."*

The second preliminary chapter refers to the chief divisions of the human race. After this, the author arrives at the substance of his work, the Negro race, of which he gives very accurately the anatomical and other physical characters, followed by measurements of the skull. Next comes the subject of the measurement of the skulls of Europeans; and then investigations into the capacity of the Negro skull as compared with that of Europeans. This was the subject of Professor Tiedemann's famous memoir in the *Philosophical Transactions*, 1836. Van der Hoeven makes an analysis of this memoir of Tiedemann's, and shows that his tables give a mean of 39 ounces for the weight of the brain in the skulls of Caucasians; whilst in those of Tiedemann's Negroes the weight in the mean is only 37·8 ounces. Van der Hoeven thus proved, from Tiedemann's own materials, that the skull of the Negro in an average is smaller than that of the European; and that, therefore, the cerebral mass in the mean must be less. A conclusion which was quite at variance with the deductions of Tiedemann. Professor Welcker, in his *Necrology*, quotes a passage from this part of the work to show the beautiful propriety of the Dutch language, which proves at the same time Van der Hoeven's great modesty and the power of truth over his mind. The fourth chapter refers wholly to the method of Professor C. G. Carus in the measurement of the skull, which he first described in his *Outlines of a New Craniology founded on Science*.† The distinguished Professor Carus did not adopt the views of Gall, and look upon the elevations on the surface of the skull as indications of the development of a large series of organs in the brain beneath. He took the doctrine of Oken, that the skull is fundamentally the development of three vertebræ, as a basis, and attributed certain phenomena of the mind to the portions of brain contained in these three vertebræ, the psychical powers to *know*, to *feel*, and to *will*, and estimated the force of these powers by the volume of brain covered by each of these vertebræ respectively. His measurements were made to concur with this doctrine. It was a system of phrenology as well as Gall's system, but disencumbered of Gall's organography. Professor Carus's renown as a physiologist, to which may be added his great acuteness as a man of science and of taste, gave weight to his views, and, in accordance with this system, he has brought out some of his books, especially his fine *Atlas der Craniologie*, which has passed through two editions, and contains beautiful plates of the skulls, the casts, and the masks of many celebrated men and of others, life-size. He dissects the characters of all these people by his estimate of the relative proportions of the three primary divisions of the brain, which accord with the three vertebræ.‡ Van der

* In a letter, dated May 8, 1856, he says: "I recollect that making the personal acquaintance of Dr. Prichard at Oxford, in 1847, I found him utterly indifferent to all the cranial peculiarities of different nations." This is, probably, a little overstated.

† *Grundzüge einer neuen wissenschaftlich begründeten Craniologie*. 1841.

‡ Among the rest is a plate of the cast of the head of the notorious prisoner, William Palmer, of Rugeley, which is somewhat repulsive. Carus treats it as lending support to his views.

Hoeven, in this chapter, confines himself mainly to giving the measurements of his Negro skulls, according to Carus's method, and concludes that, by this process, it appears that the Negro possesses less *understanding* and less *feeling* than the European, but a strongly developed *will*, and with that a less development of the *sense of hearing*. He defers to a future time his further observations upon the system of Carus. His next chapter is dedicated to the Kafir people, and more particularly the Kafir skull; and the work is terminated with a long chapter "on the Geographical Distribution of the Ethiopic Division of Man." This chapter is marked by very numerous references to the descriptions of different African tribes, by the many travellers who had, at that time, visited the African continent—now so greatly multiplied by the number of more recent travellers. The four plates of this volume exhibit the usual excellence of those executed under Van der Hoeven's supervision. The first gives a portrait, in full face, of "Charles Gambous," a Negro of Sierra Leone, aged twenty-three years, and his profile in outline. The second, obtained through Professor G. Breschet, of Paris, represents the skull, in three points of view, of a *Makooa*, contained in the great *uncatalogued* collection of the Jardin des Plantes. It had been observed by Van der Hoeven on his visit to Paris, eighteen years previously, and more particularly so on account of its unusually acute facial angle, and the animal development of its facial portion. It is evident that, at that early period of his life, Van der Hoeven was an acute craniologist. The Makooas are a tribe which extends inland along the east coast, from the Zambesi to the Melinda; Barrow considered them to be Kafirs, but Salt regarded them as Negroes. An attentive study of an individual of this tribe, "Tatooah," a fine young man of about twenty-five years of age, who was in England a few years ago, leads to the conclusion that the Makooas are a people quite distinct from the Negroes of the west coast, and also from the Kafirs. Tatooah had no clicks in his language. Anthropologists should look with suspicion upon all such general terms as Negro. Livingstone speaks of the Makooas as being easily known by their tribal mark, which is something like a half moon on the forehead. It is really the half of a crescent, formed by two crescentic outline wheals. The extreme prognathism of the skull figured by Van der Hoeven was not present in "Tatooah," who, although prognathous, was not repulsive, and had acquired the soubriquet of "Pretty John." Plate iii affords three views of the skull of a Kafir. Plate iv is of much interest, as it gives in outline the profile portraits of two young Ashantee princes, who visited Holland, "Kwamin Pokoo" and "Kwassi Buachi." Besides which, this plate contains two figures of the hand of another Negro, which show that the fold of skin between each of the fingers descends down further upon the first phalanges than it does in other races. This copious account of Van der Hoeven's most important anthropological treatise will probably be accepted, as the book itself is scarcely known in England.

Probably the next writing of Van der Hoeven's belonging to our series is that "on the Skull of a Kafir," which appeared in the *Journal of the Netherlands Institute* for 1849. This has not come into our

hands, but is believed to be a more particular account of his own Kafir skull.

The next following production of Van der Hoeven, referring to anthropological science, is a memoir in the second part of the *Journal of the Netherlands Institute of Science*, Amsterdam, 1849. Its title is "on the Skull of the Kafir and of the Hottentot." In the commencement he acknowledges that he has been long diverted from continuing his observations and annotations on the natural history of man by other pursuits; and states that the scope of this memoir is to subject the extant store of skulls of South Africans, of Kafirs and Hottentots to a new comparative investigation. He bases his remarks upon five Hottentot and fourteen Kafir skulls. At the beginning he names Blumenbach and his *Decades Craniorum* with esteem, and attributes what is imperfect in the execution of his *Tabulæ*, partly to the times, which were unfavourable to more costly and more artistical plates, and partly also to the defect of the limited plan and piecemeal mode of publication, which was somewhat peculiar to Blumenbach, who was more active and lively than penetrating and persevering, as is more or less apparent in all his memoirs and scientific labours. "If Blumenbach himself had been a draughtsman, like our great Peter Camper, the value of these engravings to posterity would have been greater."

He describes the peculiarities of the Hottentot skull with minuteness, and mentions Barrow's comparison of these people with the Chinese, a comparison repeated by more modern observers, only to condemn it. After a similar close investigation of the peculiar forms of the skull of the Kafir, which, as he points out, differs in many respects from that of the Hottentot, the memoir closes with an elaborate table of measurements and of the means derived from the crania of both races.

Van der Hoeven made another communication to the same journal in 1851. "Description of two skulls of Guajiros," which had been brought him by a relative from the shores of the *Rio de la Hacha*, which runs into the sea on the northern side of a promontory in New Granada, not very far from the mouth of the great river Magdalena. The author particularises the forms of these two very rare calvaria, which agree closely with each other, and refers them distinctly to the Carib race. He also makes reference to two figures of Carib calvaria, that of Blumenbach's Table x, from the Island of St. Vincent, and that of Morton's Plate 64, a Carib from Venezuela, therefore, not very far from the district from which these Guajiros calvaria were derived. He speaks of this latter figure as agreeing remarkably with his skulls. It should be observed, however, that Morton, whose language is quite equivocal in this instance, appears to have regarded it as having been distorted. Judging from Morton's figure of this Carib calvarium, it seems to have undergone the process of frontal distortion to a slight extent. The great interest of Van der Hoeven's calvaria rests on the fact that they have not been distorted, but present the natural forms. He alludes also to a figure of a Carib calvarium in Gall's great *Atlas*, and mentions that, although he cannot receive the phrenological organography, against which he had often spoken, these two calvaria

exhibit elevations in the situations marked for phrenological organs. The memoir terminates with measurements and two plates, each of which presents two delineations of one of the two calvaria, the drawings having been made by the author.

In 1859 Professors W. Vrolik and J. Van der Hoeven conjointly produced a "Description and Delineation of a Human Skull dug up at Pompeii" (quarto, with two plates), which had been discovered in the presence of the Prince of Orange, and presented by him to the Academy of Sciences at Amsterdam. The skull belongs to the brachycephali of Retzius, and, although it is judged to have been that of a man between forty and fifty years of age, has the sutures so completely ossified and effaced as, coinciding with the general thickening of the bones, induced the authors to regard it as appertaining to that series of morbid crania—hyperostotic skulls,—examples of which have been described in different countries by Jadelot, Ilg, Wenzel Gruber, G. Vrolik, E. Huschke, and more recently by P. Gaddi, J. C. De Man, C. Murchison, and J. Barnard Davis. This Pompeiian skull exhibits only an incipient state of that thickening and hyperostosis which has attained such enormous proportions in some of the instances described by these authors. The morbid condition of this cranium precludes its being of much interest as illustrative of the skull-forms of the Romans who dwelt in the city, either before or at the time of the catastrophe by which it was overwhelmed.

In the same year, 1859, appeared in the Communications (Verslagen en Mededeelingen, 8vo) of the same Academy, his "Description of three remarkable Human Skulls, from the Rijks Museum of Natural History at Leyden" (two plates). The first of these examples is from Oonalaska, one of the Aleutian Islands; it is one of half a dozen brought by Dr. Mertens, of a Russian expedition (1826-29), from this island, the remainder being in the collection of the Imperial Academy of Sciences at St. Petersburg. One calvarium of these five has been delineated by Von Baer in his *Crania Selecta*, tab. 14, 15, 16. The cranium figured by Van der Hoeven is of great interest from its rarity, and from the probability that it represents the true skull-form of these rapidly decreasing people. It is brachycephalic, having a cephalic index of '83. The only figure of the cranium of an Aleutian Islander preceding the well-executed plate given by Van der Hoeven, is that in Choris's *Voyage Pittoresque autour du Monde* (1822), or the voyage of Van Kotzebue. This is very poorly executed, but Van der Hoeven says it presents in the whole form a great resemblance to the skull described by himself. Choris's skull is also brachycephalic, having a cephalic index of about '86. The calvarium figured by Van Baer is likewise brachycephalic, with an index of '84. Another example from a different island, Atcha, of which Von Baer has projected the circumference upon the vertical view of his calvarium is considerably shorter. So that there is every reason to believe the true cranial form of genuine Aleutian Islands to be decidedly brachycephalic; they have besides a low receding forehead, and are platycephalic. The circumference of Van der Hoeven's example is 515 mm., that of Von Baer's is less. Van der Hoeven quotes the description of these people by Von Langa-

dorff: "They are of a middle stature; the colour of the skin is dark brown. On the whole they appear healthy and strong, have a full round face, broad, level and flat depressed nose, thick, black and straight hair, black eyes. The beard of the men is very thin, because they pull it out as soon as it begins to grow. They dwell in pits, which are covered with a roof of earth heaped up on the top, upon which, if the hut has stood some years, high grass grows, so that a village looks more like a churchyard with grave hillocks. The daylight enters by small openings covered with seals' bladder or fishes' skin."

The other two rare skulls, included in this memoir of Van der Hoeven's, are derived from ancient mounds in the States of Tennessee and Kentucky in North America. They were presented to the Rijks Museum by a Dutchman, Dr. Troost, who lived at Nashville in Tennessee. This gentleman had already sent a mound skull from Tennessee to Morton, which is the subject of plate 55 of the *Crania Americana*. Like most of the mound skulls, these described by Van der Hoeven, one of which he figures, which is greatly elevated in the parietal region, are very brachycephalic. The cephalic index of one of them rises to .94; both are oblique, having the left side of the occipital region flattened. This is not noted by Van der Hoeven as an indication of artificial distortion, but there is no reason to doubt that it was produced by external influences in an undesigned manner. As usual there are two nice plates representing two of the crania half size, from the author's own drawings.

In 1860 Van der Hoeven published his *Catalogus Craniorum*, a work which stands at the head of those hitherto dedicated to this subject. His private collection was small, at that time extending only to one hundred and seventy-one skulls and thirty-nine casts, but it was highly prized by him, and contained a considerable proportion of rare specimens.* Since his death it is so much esteemed and regarded as a national treasure by his countrymen that they are already congratulating themselves that it is to remain in their fatherland whole and undispersed, for it has passed into the possession of his son.

The work extends to only sixty-five pages, although, speaking to Professor Welcker, he said of it: "It has cost me much pains," and contains a brief description of the anatomical appearances and form-peculiarities, to which are added the measurements according to the method he long practised, of each of his skulls. It is preceded by "Præmonenda," containing many interesting remarks indicating the zeal of the author as a craniologist, and his thorough acquaintance with and full appreciation of all that had hitherto been produced. The generous spirit in which he alludes to the labours of those who had preceded him throughout this work, is a correct indication of the feelings with which he was habitually actuated; even the humblest attempt to promote the science was not passed by without a word of commendation. From one occupying so elevated a position this com-

* In a letter, dated Oct. 18, 1859, he writes: "At your suggestion, I have made a catalogue of my collection of skulls. The first sheet is already printed. I have written this catalogue in Latin, in the hope that it may find some chance of large circulation abroad."

mentation was peculiarly gratifying, although largely attributable to the generosity of the writer. He stood too high in the ranks of science to allow himself, even where he most differed from others, to entertain a tincture of acidity towards them. Such, we may believe, were the natural results of his vast acquirements of knowledge and of his thorough goodness of heart. He felt the extent of Anthropological desiderata, and was anxious these should be supplied, recommending the use of all the arts and appliances of modern times for this purpose.

In the notes appertaining to this volume references are made to many of the preceding writers and to their figures. The general arrangement is mainly coincident with Blumenbach's five varieties. The catalogue commences with the skull of a gipsy, which he refers to an Indian race; alluding to the absence of figures of the crania of these wandering people, he says that Blumenbach's table xi is the only one he knows of. Although examples of gipsy skulls are now much increased in museums, this, to the present time, still remains the only solitary figured specimen. As has been previously said: "The conciseness, lucidity, and elegance of the very brief descriptions of this Catalogue, are the well-elaborated results of a mature observer."

As is the case with other collections of this kind, its amiable owner received fresh contributions to his stores every year. In 1861 he printed a "Short Account of some Human Skulls, with which my collection has been increased during the two last years." These additions then amounted to twenty-two specimens. Perhaps the most rare among them is a cranium of a *Battalander*. These are the civilised cannibals of Sumatra,* and those of two *Caroline Islanders*, which latter formed the subject of a memoir to be mentioned afterwards. Besides these, it is worthy of remark that he came into the possession of the skull of a *Mandan*, which was once Morton's.

It ought not to be passed over in silence that Dr. J. Van der Hoeven brought out two treatises in illustration of examples of skulls contained in his father's cabinet. The first refers to "deviations in the form of the nasal bones;"† he points to the cranium of a Bushman (No. 165), in which the *ossa nasi* are entirely absent; and that of a Guinea Negro (No. 134), in which there is an apparent defect of the left nasal bone, arising from the anormal obliteration of the suture between it and the frontal process of the left superior maxillary. He names other cases in which there appears to be only one nasal bone (No. 163); and, lastly, others in which the nasals do not reach the frontal.‡ Sketches of all these abnormalities are added from the accomplished author's own pencil. Some of these deviations are normal among quadrumanous animals. The other treatise of Dr. Van der Hoeven's is entitled "Description of two Human Skulls, deformed in consequence of premature synostosis of the sutures."§ The first (No. 159) is the skull of a young Kafir

* *Thesaurus Craniorum*. Catalogue of the Skulls in the Collection of J. Barnard Davis, p. 275.

† *Over afwijkingen in den vorm der neusbeenderen*. 1860.

‡ See *Thes. Cran.*, p. 208. *Bakele*, nasals absent, p. 209. *Osehanis*, one nasal bone.

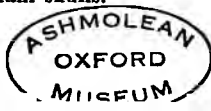
§ *Beschreibung zweier, in Folge vorzeitiger Synostose der Schädelnähte verunstalteter Menschlicher Schädel*, Jena, 1861, quarto. The writer regrets that

woman, with early ossification of the left half of the coronal suture, and that of the suture between the edge of the occipital and the *pars petrosa* of the temporal bone, on the right side. The result is a great deformity, or obliquity of the calvarium. The second is a skull which was labelled "Cranium Virginis Noviomagentis;" it exhibits indications of having belonged to a subject labouring under congenital hydrocephalus, and is remarkable for the ossification of the coronal suture, whilst the frontal persists.

In 1861 appeared another memoir of Professor Van der Hoeven's, being a "Description of a Magyar and of an Esthonian Skull." This is accompanied with two beautiful plates, each of which represents one of the skulls in two aspects, half-size. This memoir opens with an exposition of the opinions respecting the history, origin, and alliances of the Magyars; and terminates with a comparison of the measurements of the two skulls with those of other peoples. He says, the general result of the inquiry appears to be that the relationship deduced from the comparative study of languages, between Magyars and other Finnish people, is confirmed by comparative craniological investigation. The skulls are both brachycephalic.

In 1861 also was issued his paper entitled: "Something on the Unity of the Human Race." This is written mainly with a view to make the readers of the *Dutch Journal of Medicine*, in which it appeared, acquainted with the writings of Flourens and Quatrefages upon this subject. The latter, especially, is a distinguished naturalist, who had the confidence of Van der Hoeven, and is the most active exponent of monogenism at the present day. Van der Hoeven does not express any very distinct opinion upon the question, but treats it in his usual fully instructed manner, as an accomplished inquirer. He is quite ready to admit the unity of the human race, but whether the race proceeded from one pair and one spot of creation; or, as he says, "we must admit of many other kinds of animals," was created in more than one place, he speaks as follows: "He who ventures on the hypothetical expression that it is an *impossibility* that man should have spread himself from one middle point over our earth, should remember that he must, at all events, support his position with proofs, for a naturalist like Quatrefages in our days has defended the opposite opinion. *The proofs it would perhaps be possible to furnish*, and it is better only to speak of the more or less *probability* of the one opinion or the other." In regarding it as possible to furnish the proofs of this diversity of origin, we must be at liberty to look upon Van der Hoeven as no decided opponent of polygenism. On the other hand, he must have considered the doctrine of diversity of origin as reasonable when applied to man; for, when applied to other animals, he was ready to admit it fully. His position that we ought to *speak* of this opinion as a probability only is clearly sound, in a matter where there are no grounds for demonstration.

this excellent memoir, with the six full-sized plates from the author's own pencil, should have escaped his attention, and should not have been referred to in the *Thes. Cran.* It ought to have been included in the "References," at p. 215, to the figures of Kafir skulls.



In 1862 there appeared in the *Album of Nature* a memoir on "Language and Comparative Philology, in connection with the Natural History of Man." Of this work the writer is obliged to say that he knows nothing.

It was in 1865 that his "Description of skulls of the inhabitants of the Caroline Islands" appeared. This somewhat more lengthened essay is illustrated in a manner quite agreeable to his notions, with figures half the size—a vertical, a facial, and a lateral view of the skull of *Taratipa*; and side views of that of *Taraloni* and of *Laepat*, the woman. The history of the way in which these very rare crania came into the hands of Dr. C. Swaving is given at length, and the author's reference of them to the Island of Wolia, which is in the Caroline Archipelago. This excellent and elaborate memoir, which embraces all the literature of these little-known islands, and their inhabitants, has already been made known to English readers by an article in the *Anthropological Review* (No. 13, April, 1866), therefore need not further detain us. It is one of the most complete essays descriptive of interesting and uncommon skulls which the author had such facility in writing.

In 1866 appeared his account of "A Negro Skull derived from an old Convent in South Holland." This short paper gives a notice of two ancient skulls which were found in 1839, in the foundations of the Augustine monastery, Eemstein, near Dordrecht, which was destroyed in the latter part of the sixteenth century. One of these skulls had very probably belonged to a Netherlander of that period. The other was of quite a different form and of different proportions. The author, after minute examination and comparison with the crania of Negroes, felt himself obliged to conclude that it was the relic of an African, for in all its forms and features it agreed with the Negro. Craniology enabled him to determine this curious point, but how the owner of this skull came to be reckoned an inmate of the monastery as one of the brotherhood it is impossible to surmise. Might it be as a domestic of the prior?

In 1866 also appeared his remarks entitled "A Word upon Anthropology and Ethnology." They are brief, and a translation of a few sentences will suffice to show the opinions he had formed. "So far, it appears to us quite obvious that *Ethnology* (Volkenkunde) cannot be equal in signification with *Anthropology*. It is, indeed, remarkable and almost inexplicable that during late years this should have been maintained in England. . . Undoubtedly *Ethnology* or *Ethnography* belongs to *Anthropology*, only as a part to the whole. The "*varietas nativa*," as Blumenbach named it in his famous dissertation, is a part of the natural history of man. A logical division of *Anthropology* I think gives occasion, in the first place, to only two great sections: *the distinction between man and animals*, and *the difference between man and man*, which last section may be named *Comparative Anthropology*. To this last belongs also (Volkenkunde) *Ethnology* or *Ethnography*, without its making up the sole scientific inquiry of the anthropologists in general, or even of the comparative anthropologist in particular." These remarks terminate with a classical expression he was fond of

using, and which was with him an active principle: "We think that it may be believed and hoped that many of our students will make their motto through life, even in a somewhat more extended signification, the beautiful words of old Terence :

'Homo sum, humani nil a me alienum puto.'

But it would be difficult to carry out the analysis of Van der Hoeven's anthropological writings so as to embrace the whole of them. One series consisted of brief sketches of books, under the names of "Boekaankondigingen" (announcements of books), and "Boekbeschouwingen" (views of books) for Dutch periodicals, etc., to which he constantly contributed notices of new books belonging to the vast range of natural history, anthropology, and many other allied subjects. He appears not only to have made himself acquainted with all new books in the different languages of Western Europe, but to have always read them with the pen in his hand, to note down their contents in a few short sentences for the instruction of his countrymen. Of anthropological announcements may be mentioned a notice of Prof. Welcker's *Growth and Structure of the Human Skull*, 1862. In this he mentions the examination of so many of the craniological collections of Germany by the author; and, after giving a tolerably full account of this important volume, concludes thus: "We wish the writer zeal and strength to go forward in this field of inquiry."—*Ethnological Writings of Retzius*, 1864. He compliments Gustav Retzius upon the judicious step he had taken in collecting together these productions of his celebrated father in one volume. *Synostotic Crania among Aboriginal Races of Man*, by J. Barnard Davis, 1865 (4to., 37 pp., xi plates). He ends by saying "the Dutch Society of Haarlem, by the issue of these *Contributions to Comparative Craniology*, has given a new proof of the liberality by which it so greatly distinguishes itself in the publication of useful and important writings, and has a just claim to the thankfulness of inquirers in the natural sciences." J. Barnard Davis *On the peculiar Crania of the Inhabitants of certain Groups of Islands in the Western Pacific* (pp. 25, iii plates). This notice is concluded in the following words:—"The Dutch Society of Sciences, by the publication of this treatise, has merited the thanks of all those who take interest in Anthropology and Comparative Ethnological Craniology, and the writer has by this communication furnished a new contribution to a better knowledge of the natural peculiarities by which the people of our globe are distinguished."*

This is to be regarded as an imperfect account of his writings, still, it will be sufficient to show that, although Van der Hoeven's fame rests so much upon other and different foundations, yet this investigation fully proves that he must take a position, as an able and zealous craniologist, in the same line as Blumenbach, Morton, and Retzius. His geniality and affableness as a man were not exceeded by any of these. Such qualities awoke the sensibility of his friends, and en-

* In a letter to the writer, speaking of these crania, he says: "I was very glad to see and examine those interesting skulls of New Caledonia and New Hebridean Islanders. Such I never saw before."

deared them to him strongly. His own sympathies in all their wants and feelings were constant. As we have seen, he was a diligent labourer and true to his own motto, and "worked as long as it was day." His very numerous productions show that he must have spent a large share of his time in his study, yet he was a great pedestrian. Like most of his countrymen, he was a constant consumer of tobacco, and was accustomed to read and write with the solace of a cigar. The appearance of the aged woman who used to open his hall door to visitors, conspicuous for Dutch cleanliness, bore testimony to the permanency of his attachments.

There are, at least, two large lithographic portraits of Van der Hoeven. One of these was taken by J. P. Berghaus, Leyden, 1849. It is a half-length, in his Professor's gown, and wearing one of his honours. He did not regard this as a good likeness, since it was taken on recovering from an illness. The other is a fine work of art and excellent likeness. It represents the Professor as he appeared at the best period of his life, in a similar dress. It was done by Groeneveldt. It also well exhibits his most peculiar feature, that remarkable prominence of the eyes, which may probably be alluded to by the phrenologists, as he was so excellent a linguist. He had not the appearance of much delicacy, still he suffered from hæmoptysis whilst a student, and during the early years of his professional life. In May, 1867, this alarming symptom recurred. He interrupted his lectures at the commencement of the winter session, yet he felt most anxious to resume them. He was quite indisposed to relinquish work. On the 23rd of October he wrote, mentioning some books in the Russian language which had come into the hands of himself as well as of the writer :—" I am now rather too old for learning Slavonian languages :

'Ο δὲ βίος βραχὺς."

He felt the cold of the winter weather keenly, and at this time occurred the death of his son-in-law Dr. Kingma. His letter to the writer announcing this sad event is dated 17 Jan. 1868, and exhibits unmistakable signs that the tears were flowing from his eyes as he wrote it :—" My dear friend,—I am sorry that I must tell you that I have lost my dear Dr. Kingma. He died the 8th of January, at the age of only thirty-eight years. My daughter bears her great loss with calm and pious resignation, and with great strength. I myself was and am ill, coughing, expectorating, and very feeble, and the illness of Kingma and his deplorable death has necessarily aggravated my indisposition. I feel I am not young, and that this, or a similar indisposition, may easily be the end of my life ; but now, at this time, I cannot but wish that I may be restored by God's goodness, and spared some years, if it be possible, for my daughter and other children. . . . In the whole city of Leyden there is the greatest sorrow. Kingma was, indeed, the most beloved of all physicians. He was very kind and charitable. His practice was daily increasing."*

* This was in sad contrast to his pleasant letter of the same date, 1867, where he says : " We have here plenty of snow. It is a little scene of the glacial period in the diluvian time, but without mammoths, and the like, and without prædiluvian man."

Van der Hoeven's own illness, which, from the account he gives of it in this letter, was, without question, pulmonary consumption, went on increasing, and he died on the 10th of March, 1868, aged sixty-seven years. His son writes, on the 29th of that month:—"He knew his disease very well, and told me often that his disease was consumption. The last day of his life, when still up with us at the dinner-table, he said to me he was dying, but happy, having all his children round him. He died at eight o'clock in the evening, very calmly."

TITLES OF THE CHIEF WRITINGS OF PROFESSOR VAN DER HOEVEN
WHICH RELATE TO ANTHROPOLOGY.

1. DISTINCT WORKS.

Bijdragen tot de natuurlijke geschiedenis van den Negerstam. 4to., 1842.
Schets van de natuurlijke geschiedenis van den Mensch. 8vo. 1844.
Catalogus craniorum diversarum gentium. 8vo., 1860.

2. IN THE WORKS OF THE ROYAL ACADEMY OF SCIENCES, AMSTERDAM.

W. Vrolik en J. Van der Hoeven. Beschrijving en afbeelding van eenen to Pompeji opgegraven menschelijken schedel. 4to., 1859.

3. IN JOURNALS.

Ueber die Schädel Slavonischer Völker (mitgetheilt von Retzius). 1844.
Archiv für Anatomie und Physiologie.

Essai sur les dimensions de la tête osseuse considérées dans leur rapport avec l'Histoire Naturelle du genre humain. 1837. *Annales des Sciences Naturelles*.

Bijdragen tot de natuurlijke geschiedenis, van den Mensch. 1834. Dl. i, pp. 86, 247; 1835. Dl. ii, p. 356; 1837. Dl. iii, pp. 89, 116; 1837. Dl. iv, p. 262; 1839. Dl. vi, p. 247. *Tijdschrift voor Natuurlijke Geschiedenis en Physiologie*.

Over den Schedel van den Kaffer. 1849.

Beschrijving van twee Schedels van Guajiros. 1852. *Tijdschrift voor de wis- en natuurkundige Wetenschappen*.

Beschrijving van eenen Magyaren-en van eenen Esthlander Schedel. 1861.

Beschrijving van Schedels van inwoorlingen der Carolina-Eilanden. 1865. *Verslagen en mededeelingen der Kon. Akademie van Wetenschappen*.

Over de taal en de vergelijkende taalkunde in verband met de Natuurlijke Geschiedenis van den Mensch. 1862. *Album der Natuur*.

Een Negerschedel uit een oud Klooster in Zuid-Holland afkomstig. 1866.

Iets over de eenheid van de Menschen-soort. 1861.

Een woord over Anthropologie en Ethnologie. 1866. *Nederlandsch Tijdschrift voor Geneeskunde*.

Obituary Notice of Samuel Rule, M.D., F.A.S.L., etc., by John Shortt, M.D., Loc. Sec. A.S.L., and Langdon H. Down, M.D., F.A.S.L.—Dr. Samuel Rule was born at Kingsbridge, in Devonshire. His mother having married a second time to a Plymouth gentleman, that town became the place of his boyhood. He was at first placed with a Pharmaceutical Chemist of Plymouth; but his tastes and aspirations were not found to be in harmony with the drudgery of the business which fell to his lot. Instead of learning the scientific part of the business, he found himself only becoming acquainted with the mysteries of trade. Subsequently he was articled to a surgeon of the same town; and here he found that the student life, which he at once commenced, was in harmony with his wishes. At the end of his apprenticeship, in

1853, he entered as a student at the London Hospital, and matriculated at the University of London. He was a very intelligent and industrious student at the hospital, where he became a private pupil of Dr. Langdon Down, who was at that time the medical tutor of the hospital. He aimed to graduate in the University of London, and there is no doubt that he would have attained a high position in the honour-lists of that university, had not the occurrence of the Russian war induced him to leave, for a time, his studies, and volunteer as a medical assistant in the Baltic fleet. This gave him a longing to engage in the active duties of the profession he had chosen, and a taste for official rather than civil life. He hesitated to give the time which the highly honoured degrees of the University of London necessitated; and having passed the examination at the College of Surgeons, he went to St. Andrew's to graduate, justifying, however, the hopes that were entertained of him, by taking the highest position in the examination for honours which that university had then, for the first time established. He then turned his attention to the medical service of India, and he speedily obtained an appointment, by taking a high position in the competitive examination of 1858. He at once married, and was stationed in the Madras Presidency, and served with several regimental and other departments for some time, and eventually obtained the Civil Surgeoncy of Madura, where he had been some two or three years, and was much esteemed by, and popular among, Europeans and natives, as a kind and able medical practitioner. His health, however, giving way from the arduous nature of his duties at that large station, he exchanged to the smaller civil station of Chittoa, where, when he had been residing a short time, a dog belonging to one of the officers was sent to him for treatment. Dr. Rule, with his usual kindly nature, approached the animal incautiously. The dog sprang at him, and seized him by the nose and upper lip, and had to be strangled to make him let go his hold. In three or four days, symptoms of hydrophobia set in, which proved fatal to Dr. Rule in forty-eight hours from the manifestation of the first symptoms.

Dr. Rule had not written on Anthropology. He was, however, greatly interested in the natives of India; and it is probable that, but for this unfortunate event, the science in which recently he had taken great interest, would have been advanced by his labours.

The President then delivered his Address from the Chair, as follows:—

ANNIVERSARY ADDRESS,

DELIVERED BEFORE THE ANTHROPOLOGICAL SOCIETY OF LONDON,
JANUARY 19TH, 1869.

GENTLEMEN,—Having two years ago delivered to you a farewell address, as your President, and having then given my views respecting the future conduct of the Society at some length, I only now propose to say a few words.

The past year has been an eventful one, in many respects, to the Society. The financial difficulties of the Society, which pressed rather

heavily on you two years ago, have, during the past year, become very much easier.

We have to congratulate ourselves that our income, in 1868, was fifty pounds more than in 1867. This is so far satisfactory; but we cannot also hide from ourselves that we have this year lost a considerable number of members by resignation. The rigid system of economy practised by the Council, in printing, has had an injurious effect, in so far as we have lost many members on account of the non-publication of *Memoirs* or translations; and for the same reason we have not had such an increase in the number of our new members as in former years. I know not what may be the policy by which, in future, the Council will meet these difficulties; but there can be no doubt that these subjects will require very serious consideration during the coming year.

During the past year, I fear, we cannot congratulate ourselves that any great amount of scientific work has been effected. Nor can we direct your attention to the publication of important works on Anthropology. We may, however, perhaps turn our attention for a few minutes, with advantage, to a subject which has caused considerable discussion during the past year, viz., the question of an amalgamation with our brother students,—the Ethnologists. I feel it my duty not to leave the chair this day without stating, however briefly, my regret that the negotiation, commenced last summer, did not terminate successfully. I have always been of opinion that it is most desirable that a union of the students of the science of Man should be effected. On being assured in the summer that such a union could only be carried out by accepting some new title, I very reluctantly acceded to this request. The title selected was, however, thought to be absurd; and, although the proposer of it, I could not but admit that it was open to serious and, as it proved, to fatal objections. Notwithstanding all these difficulties, and the unpleasantness which has arisen from a failure of the negotiations, I still entertain a very decided opinion that, on scientific considerations, it would be highly desirable that all the students of the science of Man should be united for the furtherance of our great and most comprehensive science.

Holding, then, these views, I feel it incumbent on me to say on this occasion that I, for one, shall, in the future, be ever ready to lend my aid to any scheme having for its aim the promotion of the original objects of this Society. It is because I believe that the union of the students of Man-science is desirable, that I have advocated, and shall continue to advocate, a union of the Fellows of the Ethnological Society with ourselves. At the same time, I cannot but express my regret at the obstacles which were raised to such a union being effected. In the future, we can only go into this question on its scientific merits. Two questions arise,—first, What organisation is the best for carrying out the objects we have in view? and second, What is the best and most appropriate name for such a Society? I believe that our own organisation would form a suitable basis for a united society of all the students of the Science of Man. With regard to the name, it does not appear to me that we need give our-

selves much trouble about that. We all know perfectly well that there is but one name by which such a Society can eventually be called. I am not here to justify the means by which I proposed, last summer, to effect a union; but I wish most strongly to insist on the desirability of the union of the Fellows of the Ethnological and Anthropological Societies. While I say this, I would desire to add, that the union can alone be lasting and effectual by negotiating it on a purely scientific basis.

I feel it necessary to express these views; because I know that other feelings animate some of my colleagues, not only in the Council, but amongst the Fellows of the Society generally. There are some who say that our finances would be injuriously affected by such a union. This, if true, would no doubt be an objection of weight; but as the diffusion of science, and not the accumulation of wealth, is our object, this objection may, perhaps, be overcome, if we have only the inclination to do so. But there is a more frequent objection continually heard, viz., that by a union of ourselves with the Ethnologists of this country, the character of the Society would be changed. These views are, I believe, entirely erroneous, and arise from a mistaken notion of the real objects both of our own and of the Ethnological Society.

Six years ago, when I delivered the "Introductory Address" before this Society, I then laid down what was proposed to be done; viz., to found a really scientific Society, for the general enlightenment of the public, by the accumulation of facts, and by the publication of the same, together with other literature on the subject.

After six years' labour in behalf of these objects I wish to say that I see nothing to change in the views I then laid down. There are now, I believe, a considerable number of Fellows who think that one of the objects of this Society is the diffusion of infidel opinions; let me, therefore, here remind every Fellow that our object is not the diffusion of scepticism, but the progress of science. It would, indeed, be not only a misfortune, but fatal to this Society if such views were generally entertained; I, for one, could never be a party to the original objects of the Society being so prostituted that it should become the theatre for the display of blasphemous opinions, or for the diffusion of any set of ideas, whatever they might be. The Anthropological Society was not founded for the promulgation of special views, or opinions, respecting any scientific or other question. Our past history and publications attest how loyally these views have been carried out. If one set of opinions has appeared at any one time to be predominant, that has been purely the result of individual feeling and influence.

Let, therefore, those who hold the opinion that our object is to be any other than that of the diffusion of science, at once banish such notions, for I feel sure that the general good sense of the Fellows will not allow the original objects of this Society to be so departed from.

Let our future be what it may, we can only exist and flourish by adhering closely to our original objects.

In my past connection with this Society I have always endeavoured

to impress this on my colleagues. It has always been my aim to have a representative of every scientific opinion in the Council, so that there should be no exclusive views advocated or encouraged. Those interested in this subject have only to look at the past lists of our Councils to see how this design has been carried out.

As I now resign all official connection with the Society, it must be left to others to see that the Council is never allowed to become a clique for any objects other than those originally contemplated, the success of which has up to this time been, on the whole, so satisfactory.

Properly conducted, this Society has a great future before it, and will not fail to do an immense amount of good. If, as I believe, the real objects of the Society are praiseworthy and beneficial to the community generally, then it behoves all real lovers of truth and science to come forward and help us. If we only continue to preach and practise the diffusion of science as our sole aim, we need not be afraid of any difficulties with which our path may be beset.

If this Society is to flourish it can only be by doing good scientific practical work. We have yet to raise the character of our papers and discussions to an equality with those of our brother students in France or Germany. There must ever remain great diversity of opinion in a Society like our own, but we can all unite, even with those with whom we differ, in the object common to us all—the diffusion of truth, be it acceptable or unacceptable to the world at large.

Mr. PIKE said he wished that some one else had risen to do that which, he was sure, every gentleman present would agree with him ought to be well done, to propose a vote of thanks to Dr. Hunt for his farewell address. He felt himself to be in every way quite unequal to the task; but consoled himself with the reflection that, however little he might say, and however badly he might say it, he could not alter the feeling of the meeting towards Dr. Hunt. He did not think it necessary to comment on the various points put forward in the address; but that portion of it in which the charge of encouraging infidel opinions was denied would, he thought, meet with universal approval. It was a calumny to say that the Society, as a Society, entertained or encouraged any one set of opinions more than another. It afforded an arena for the free discussion of scientific facts and theories. The papers read before it sufficiently proved that there was not the least desire to suppress any side of any question. Dr. Hunt's conduct in the chair had always been characterised by the strictest impartiality, and had often obtained a hearing for persons whom a less indulgent or a less honest President might have put down with the general consent of the meeting. It was not, however, of Dr. Hunt's conduct, as President, that he wished to speak; for he had no doubt that a special vote of thanks, for that past conduct, would be moved by some more competent person than himself. He only desired to endorse Dr. Hunt's vindication of himself, as one who was incapable of wantonly outraging the susceptibilities of earnest believers in any religion; and to express his agreement with the proposition, that a

Society, founded with the object of discussion, could not, as a whole, entertain any opinions upon any subject whatever.

The Rev. Dr. KERNAHAN seconded the resolution. He said he wished to do so as a Christian minister. He had listened to the Address, as to all that came from their excellent President, with much interest. He was especially gratified with that portion of it which related to the charge of infidelity,—a charge which, in some quarters, is still being made against the Society. Indeed, he himself had been treated with suspicion, because of his connexion with the Society. Now, he wished publicly to say, that he had attended the meetings for a considerable time, and had paid close attention to the papers read, and the discussions which followed, and, while the utmost liberty of opinion and speech had been maintained, he had never heard a word offensive to Christian faith or life. It should be understood, as the President had expressed it, that we do not associate for the maintenance or promulgation of any particular theory. Our object is to ascertain the truth, so far as it can be known, by scientific induction, concerning the nature and history of man,—of man in all his relations and interests. We have no selfish end or purpose to serve. We are seekers after truth. And as we believe in the harmony of all truth, we have no fear. Truth is mighty, and must prevail; but in all ages of the world it has had to combat with selfish ignorance and superstitious bigotry, and we must be prepared for our share of hostility from those quarters. From what he had seen of the Society, he felt sure there were none amongst them who would treat any man's religious opinions with discourtesy, or intentionally utter a word to offend the faith of any man, be he Turk, Jew, or Atheist. He most cordially seconded the resolution.

Carried unanimously.

Mr. J. GOULD AVERY said he had great pleasure in proposing a vote of thanks to Dr. James Hunt for his services as President. Dr. Hunt, during the last six years had won great popularity amongst all the Fellows of the Society, whatever might be their personal opinions, and he had left to his successor in the Chair a body of scientific workers that was not surpassed for devotion to their favourite study by any other in the kingdom. He (Mr. Avery) believed that the Society had a bright future to look to. Anthropology was growing rapidly in the estimation of the public; and when that public was made more fully aware of the importance of the researches which it was the aim of the Society to carry out, he felt sure that large and ample support would flow in. He would congratulate Dr. Hunt on the great achievement of not only founding, but establishing, a most important Society over which any man might be proud to preside.

Mr. PINKERTON seconded the motion, which was carried by acclamation.

The PRESIDENT briefly replied.

Mr. F. MONTGOMERIE moved, and Mr. LEWIS seconded a vote of thanks to the Director. Carried.

Dr. SKUES proposed and Dr. DONOVAN seconded a vote of thanks to the Treasurer.

The DIRECTOR and the TREASURER acknowledged the compliments.

The thanks of the Meeting were also accorded to the Vice-Presidents and Council for their services during the past year.

On the motion of Dr. BEIGEL, seconded by Mr. GEORGE HARRIS, the thanks of the Society were given to Mr. J. Gould Avery and Mr. J. Epstein for their services as auditors of the accounts for 1868.

The Scrutineers of the Ballot then brought up their report as follows:—

OFFICERS AND COUNCIL ELECTED TO SERVE IN 1869.

President—Dr. John Beddoe. *Vice-Presidents*—Sir Duncan Gibb, Bart., Dr. J. Barnard Davis, F.R.S., Dr. R. S. Charnock, L. O. Pike, Esq., T. Bendyshe, Esq., Dr. H. Beigel. *Director*—E. W. Brabrook, Esq. *Treasurer*—Rev. Dunbar I. Heath. *Ordinary Members of Council*—H. G. Atkinson, Esq., J. Gould Avery, Esq., A. Bendir, Esq., S. E. Collingwood, Esq., W. C. Dendy, Esq., Dr. Langdon Down, Dr. P. M. Duncan, F.R.S., C. Harding, Esq., George Harris, Esq., Dr. R. King, Major S. R. I. Owen, E. Peacock, Esq., Captain Bedford Pim, C. Robert des Ruffières Esq., Dr. Berthold Seemann, W. Travers, Esq., W. S. W. Vaux, Esq., F.R.S., C. S. Wake, Esq., Cornelius Walford, Esq., Dr. A. Wiltshire.

Sir DUNCAN GIBB, Bart., moved a vote of thanks to the Scrutineers.

In seconding the vote to the Scrutineers, Mr. DENDY referred to the papers of Dr. Hunt in the last review. In the middle of the fifteenth century Magnus Hundt first adopted the term anthropology, and indicated the locality of faculties in the brain. The mantle of his namesake has fallen on our learned president, who is now devoting his mind to the study of the noblest elements in the physiology of man. Versed in the ancient notions of Vesalius and Chanut, he has diverted attention from the superficial craniography of Gall to those deep and intricate tissues that lie along the basal centre of the encephalon in intimate connection with the ultimate fibres of the sensory and motor nerves. In retiring from the absorbing duties of the presidency, and with renewed health, the Society may hope that Dr. Hunt will be enabled more especially to devote his attention to the elucidation of the science of the intellect of man, the most important chapter in the study of anthropology.

The meeting then separated.

FEBRUARY 2ND, 1869.

Dr. BEIGEL, M.D., Vice President, in the Chair.

The Minutes of the last Ordinary Meeting were read and confirmed.

The following were elected: *Fellows*—Vavasour Joseph Lane, Esq. Assistant-Surgeon, 4th Foot, Dover; Moncure D. Conway, Esq., 51 Notting Hill Square; J. Macrae Moir, Esq., Pump Court, Temple. Alexander Moir, Esq., Temple.

The list of presents to the Society's Library was read as follows:—

FOR THE LIBRARY.

- From the CANADIAN INSTITUTE—The Canadian Journal of Science, Literature, and History, vol. xii, No. 1.
- From the EDITOR—The Medical Press and Circular, to date.
- From the AUTHOR—R. B. Foote, Esq., F.G.S., On the Distribution of Stone Implements in Southern India.
- From W. PINKERTON, Esq., F.S.A.—The Philosophy of Natural History, 2 vols., 4to, W. Smellie, Esq.
- From the SOCIETY—Proceedings of the Royal Society, November 1868, Nos. 106 and 107.
- From the AUTHOR—Dr. Michael Sars, Des Crinoides Vivants.
- From the UNIVERSITY ROYAL CHRISTIANIA—Officielle Statistik; Gaustad, Spedalske Sundhedsstilstanden.
- From the AUTHOR—J. G. Macvicar, D.D., A Sketch of a Philosophy; Part I, Mind.
- From the AUTHOR—M. L. Lartet, Mémoire sur une Sepulture des Ancieno Troglodytes de Perigord.
- From T. HUNT, Esq.—Juvenile Crime, its causes, character, and cure, by S. Phillips Day, Esq.
- From the ACADEMY—Sitzungsberichte der Academie zu Wien, philos. hist. Classe; band 57, heft 2, 3; band 58, heft 1, 2, 3; ditto for 1868; 1 Abtheil, Nos. 1, 2, 3; 2nd Abtheil, Nos. 1, 2, 3; Almanach der Akademie der Wissenschaften, 1868.
- From the ACADEMY OF DRESDEN—Vereins für Erdkunde; iv and v Jahresbereit, Dresden.
- From Dr. SOPHUS RUGE—Ueber compas und compas Karten.
- From the AUTHOR—J. M. Winn, M.D., On the Nature and Treatment of Hereditary Disease.
- From the SOCIETY—Proceedings of the Geological and Polytechnic Society of the West Riding, Yorkshire.
- From J. W. KAYE, Esq.—Reports of Lectures on Class Morality, J. W. Fox, Esq.
- From the SOCIETY—Bulletin de la Société Impériale des Naturalistes de Moscou.
- From T. BENDYSHE, Esq.—My First Book of Science, Rev. Dr. Brewer.
- From the ROYAL INSTITUTE, Palermo—Giornale di Scienze Naturali ed economiche, vol. iv, fasc. 1, 2, 3, 1868.
- From Dr. H. BEIGEL—Metrik, 2 vols.; Transactions of Zoological and Botanical Society of Vienna; Classification of Strata, Dr. Ferdinand Senft; On Epilepsy, Reynolds ed. Beigel; Uterine Surgery, M. Sims, ed. Beigel; History of Russia, 4 vols., August Kotzebue; Political Encyclopædia, 5 vols., Rotteck ü Welcker; Anthropology of the Senses, H. Böhmer; Die Grenzboten, J. Schmidt; Journey to London, Roux; Principles of Education, A. H. Niemeyer; Medico-Chirurgical Review, 2 vols., Johnson; Polytechnic, 8 vols., Hülse and Weinley; History of the City of Frankfort, G. Lange; Principles of a Science of the Soul, F. Vorländer; De Curandis Hominum Morbis, 8 vols., J. P. Frank; Anatomy of the Human Body, Dr. Winslow; Transactions of the Society of German Naturalists, Dr. Gröser.

From the SOCIETY—Bulletins de la Société d'Anthropologie de Paris, III, IV.

From the SOCIETY—Prospectus of the Ethnographical Society of Paris.
From Dr. CARTER BLAKE—Compendio de la Historia, Geografica, natural y civil, del Reyno de Chile, by Ignacio Molina ; Spanish translation, with complete vocabularies.

Thanks were given to the donors, and the special thanks of the Meeting were voted Dr. Beigel and to Dr. Carter Blake for their very valuable contributions.

Some flint arrow-heads and North-American Indian pipes, found in Kelby's Island on Lake Erie, were exhibited, some of which had been presented to the Society's Museum by the Rev. J. G. Wood, who communicated the following Paper relating to them, by Mr. Stirling:—

The three arrow heads from Kelby's Island, Lake Erie, are the last of a great number taken from under a large surface stone, where they were undoubtedly secreted by Indians at some very remote period, as the main root of a white oak tree counting five hundred and eighty-five concentric rings, entirely overgrew the stone. The locality was adjoining a lime stone quarry, the surface of which was being cleared in order to extend the works. The stone, a large flat one, weighed three tons and a half, by measurement, and required the united efforts of several men in its removal. The arrow heads were found strewed evenly under it, and varying in size from half an inch to five inches in length, and, without a single exception, well formed and perfect in workmanship as the specimens sent you ; the entire collection filled a peck measure "heaping full." On the south side of this island is an ancient Indian earthwork (fortification) inclosing ten acres, but now under cultivation, from this space cart loads of stone implements have been removed—such as chisels, mauls, mantan, pestles, sinkers for fish nets, &c., &c. Within the two lines of earth works on the shore of the lake, is situated the celebrated "Inscription Rock," described by M. Schoolcraft in his work on the *North American Indians*.

The original cast of pipe, in the form of a falcon, perching, from this island, was found last summer under three feet of soil and clay, and is much weather worn. The material of which it is made is the Tennessee lime stone, and represents the white owl (*Strix arctica*, Bartram), a bird often found as far south as the Ohio River, in very severe winters. The pipe is the work of the ancient "mound builders," an agricultural peaceable race, once inhabiting the valleys of the Ohio and Mississippi Rivers, and, I believe, a northern offshoot, or migration, from the Aztecs of Mexico. In the Ohio valley their works extend no further north than the southern portion of this state. Consequently, the pipe, without doubt, found its way to this locality at the hands of some marauding Indians ; it was these "northern barbarians" that finally drove their less warlike and semi-civilised people from the country, and herein may be the origin of the tradition common among the people of Mexico at the time of its invasion by Cortez, that "their people came from the north ;" this remarkable event being the most ancient of their traditional history.

The heart-shaped pipe was formed from a fossil shell, common to the cretaceous deposit of the Gulf States ; it was found near one of the Aztec mounds in the state of Mississippi ; but little labour seems to have been spent upon it, save the hollowing for the bowl and stem, unless it be the ridge and horn-shaped depression on top, it is undoubtedly the work of the "Common Indians," those of the mound builders being invariably made to represent some animal, generally rare, or of extraordinary and marked appearance, with an extremely small bowl, as shown in the bird pipe. The pipe in question had been well used by its original owner, but the weatherworn marks existed previous to its transformation, as is readily seen on an examination of the original.

I send also an arrow head which I found some time ago in Northern California ; from appearance I do not think it belongs to the present period, although the Indians of that region (the Pit River, Klamath) at the time of my visit, used wholly the stone arrow head, both of flint and obsidian. We often saw them while manufacturing this weapon, which was done with great facility.

The Rev. DUNBAR HEATH inquired whether similar instruments were found in China, and whether there was anything in the finds of the two continents of Asia and America to indicate the origin of races.

Dr. CARTER BLAKE observed that one reason why black flints would be used by all savage natives was that they afforded when fractured the most handy knives that could be procured. In Central America the natives of the Rio Frio district use a cutting instrument of black flint that must have been brought from a distance of at least four hundred miles, for there is no chalk deposit from which such flint can be obtained at any nearer place. Now such a fact supposed either a certain amount of migration or of commerce. A similar fact was observed by M. Dupont in his researches in the Belgian bone caves. He described certain flint and chalcedony instruments in the caves of the reindeer period, which kind of chalcedony is not to be found either in Belgium or in Germany, the nearest point from which it could have been obtained being the south of France. There must have been, therefore, a migration from the south of France to Belgium, or there must have been commerce between the two countries. In confirmation of the latter supposition, there were found in Belgium fossil shells from Aquitaine that had been threaded by Belgian cave-diggers and worn by them as ornaments.

Col. A. LANE FOX said that the arrow-heads used by the North American Indians differed little from those found in Europe. Except that in one variety known as the barbed form, the tang of the North American arrow-heads was usually broader and the notches more towards the side than in the European specimens. There were four types of them, the leaf-shaped, the lozenge, the barbed, and the triangular. All four, and the intermediate links connecting these types with each other, were found in North and South America, in Europe, and in Japan, but he believed not in India.

Dr. CARTER BLAKE said the arrow-heads did not differ from those described by Dr. Fairbank in 1865, and the pipes were of the ordinary form of the pipes of the American Indian mound builders.

A paper, of which the following is an abstract, on "Cleveland Gravehills," contributed by the Rev. J. C. Atkinson, was then read:—

"The moorland districts of the valley of the Esk, lying to the west of Whitby, at between eight and sixteen miles distance, are thickly studded with burial mounds, or barrows, or in the old Danish country vernacular, "howes". Many have been destroyed; but of the larger ones which yet remain, a large proportion had been examined by the author. He obtained forty-five urns, and evidence of more than one hundred interments after cremation; but not any trace of metal. In some of the larger mounds, evidence appeared of three successive interments,—the first in the centre; the second, inserted at a distance from the centre, and rudely and violently misplaced to make room for a third, due to an intrusive, perhaps a conquering tribe. The author of this paper (which will appear at length in the *Memoirs* of the Society) was of opinion that the whole of the remains belong to an extremely remote period."

The following paper by Mr. Peacock was then read:—

"On the 6th and 8th of November last I was invited by Matthew Maw, Esq., of Cleatham Hall, near Kirton-in-Lindsey, Lincolnshire, to examine a barrow on his estate. Cleatham is a hamlet in the parish of Manton; on the sand hills in the latter place several relics of Celtic times have been discovered. No early remains are known to have been found at Cleatham. The place first appears in history in the *Domesday Survey*, where we are told that the Abbot of Peterborough had a manor there. This manor was afterwards subinfeudated to the family of Bussey, of Hougham and Scotton. It is now the property of the gentleman on whose estate the barrow is situate.

"The mound we opened stands in a grass field adjoining the highway leading from Kirton-in-Lindsey to Messingham. The field has some time or other been under cultivation, as it is marked by ridge and furrow. It has been pasture land during the memory of the oldest inhabitants. The dimensions of the hill could not be taken with strict accuracy, as in former times rabbits had burrowed in it, and the trenches made by rabbit catchers had, in some parts, injured its contour, and had also probably somewhat lessened the height and widened the base. The measurements before the work began were:—Length of base from north to south, 114 feet; length of base from east to west, 75 feet; central depth, 9 ft. 6 in.

"Almost in the centre of the hill, at a depth of 9 ft. 6 in., the excavators came upon the level platform on which the hill had been built. Here were the remains of a large fire. The charcoal was quite fresh, so that the grain of the wood used could be distinctly seen. The chief materials of the fire had been the branches of oak trees, there were some few bits of ash charcoal among them. This fire had been employed to consume a human body. The whole of the *débris* was full of burnt bones, but they were so much calcined that it was not possible to identify any of them except two vertebræ, a few fragments of ribs, and a lower jaw. This last crumbled to pieces as soon as touched. In the midst of these relics was an inverted urn filled quite full of charcoal. No bones seem to have been purposely placed in

this vessel. Its contents were most carefully examined: they were found to consist of burnt wood only, with the exception of one small splinter of bone, not more than a quarter of an inch long. The charcoal had been pressed down very firmly by the hand or with a rammer. At 42 ft. from this, in a direction due south, another urn was found, at a depth of 3 ft. 6 in. It was standing on its base; there were no traces of fire around it; the mouth was uncovered. Its contents were calcined human bones mixed with charcoal tightly rammed down. All the bones were in very small fragments. One bit of the upper part of the skull was the only particle we could identify. It was sufficient to show that this

‘Unknown tenant of the sepulchre’

had died in youth. The coronal suture had never united.

“At 82 ft. northward of this, and at 40 ft. from the central fire the diggers came upon another urn almost exactly similar to the last; this also was standing upright, uncovered, without any marks of fire near it. The contents, which were hardly pressed down, consisted of calcined bones and charcoal. None of the pieces, after the most exact scrutiny, could be identified.

“I believe the urns to be Celtic. I am sorry to say that they all fell to pieces when removed from their places, so that no drawings could be made of them. Pl. i, No. 3 of the *Journal of the Archaeological Association* for 1850, represents a vessel of similar type to these. The Cleatham ones were, however, somewhat narrower at the mouth. The southern one had no pattern on it, the central and northern ones had a slight indented ornament on their rims (somewhat thus IIII). They had not been decorated with the same instrument.

“About one-fourth of the mound was turned over, but I am by no means sure that the proper depth was reached in many parts.

“The sites of many fires were come upon, but no bones. Had these fires been burned for a religious purpose, in honour of the dead, in worship of God, to avoid misfortune, to pacify the manes of the departed, or were they the remains of burial fires belonging to the urns buried in the vicinity which we did not find?

“No other relics of any kind were turned up except a few chipped flints, *not* knives or spears, which may, perhaps, have been used for the purpose of procuring a light; and two bits of badly smelted iron. These last, I think, as they were near the surface, had been brought there in recent times. If not, they may, perhaps, have been used, as I have suggested the flints were, for the purpose of kindling a fire. The most interesting part of the excavation was not the discovery of the burial relics, but the light that it has thrown on the manner in which sepulchral mounds were formed. Antiquaries have long known that the materials of which these hills—or, at least, the earlier of them, were formed must have been carried in baskets or panniers. No proof of this has, however, as far as I know, yet been given. The barrow diggers at Cleatham had, however, ocular demonstration proof of this furnished to them. The hill stands on a rising ground sloping

to the south; in the valley runs a little stream. It is probable that from the sides of this brook the materials of the mound were procured.

“It was composed entirely of sand without stones in it, and this sand was of various grey and brown tints, shading off to red and white. When a section of the hill was made from east to west each basketful of sand could be distinctly traced, even the side on which the person stood who threw it down could often be made out from the slope that the fallen burden had taken. As almost every basket had a different coloured sand in it, the effect produced was like the mottling of marble. It is proper that I should mention that one of the persons engaged in “the diggings” said that it was evident that children, as well as grown-up people, had been employed in carrying the sand, as some of the heaps were very small. This, I think, is not proven. As the heaps would not be thrown down regularly, it is evident that while some of them would be cut through the middle, and thus shew the largest section possible, others would be cut at the margin only, and thus seem much less than they really were.”

Thanks were given to the author of the paper, and to Mr. Maw for permitting the exploration.

A paper on “a Kjökken-mödding in the Island of Herm,” was then read:—

Notices of a Kjökken-Mödding in the Island of Herm.

By J. W. FLOWER, F.G.S.

In laying before the Society some account of a Kjökken-mödding, which I have lately explored in the Island of Herm, I do not apprehend that the particulars which I have to communicate will be found of great importance, yet I venture to hope that they will not be devoid of interest, inasmuch as they relate to a people which, so far as we know, left no other traces of its existence, and they also bring down the Kjökken-mödding period (or, at least, this particular kjökken-mödding), to a much later date than has hitherto been assigned to it in Europe, and it thus constitutes a link between historic and pre-historic times.

The Island of Herm is one of those known as the Channel Islands. It is situate between Guernsey and Sark, about three miles east of the former island. It is now the property of Mr. John Hyde, and it was by his permission that I examined the deposit in question in the summer of last year.

The kjökken-mödding is situate on the western coast of the island, opposite a rock known as Rat Island; it is about ten feet above high water mark, and at the base of a considerable hill; it now extends, in length about sixty feet, in depth from three to four feet; its breadth has not been accurately ascertained by reason of the great accumulation of earth which has fallen from the overhanging hill.

The result of several days' careful examination of this kjökken-mödding was the discovery of a very heterogeneous collection which it may be convenient to consider under the heads of natural and artificial objects.

The natural objects are,—marine shells, and bones of various animals and birds;—the artificial consist of cylindrical bricks, pottery, two spindle whorls, a small piece of glass, some stone implements of a peculiar form, a small bronze pin, and an iron implement or weapon, portions of two stone querns, or hand mills, and some tiles with turned up edges—“*Tuiles à rebords.*” No human bones of any kind were found, nor were there any needles or other implements of bone.

The bones comprise sheep, ox, horse, pig, goat, some few birds, and a very few fish vertebræ; none of them appear to have been gnawed by dogs, as is the case with like deposits in Denmark, nor, indeed, have any remains of the dog been found; the bones do not appear to have been subject to the action of fire, but, as in the Danish mounds, all those that contained marrow have been broken, probably to extract the marrow, and the jaw bones of the oxen and horses have also been broken. All the bones are of existing species except, perhaps, the ox, which, I believe, is the young of *Bos longifrons*, probably a small variety; and the horse teeth appear to have belonged to a small race of ponies, probably like the Shetland ponies.

The shells consist principally of limpets; there are also some shells of *Haliotis* or ormer, mussels, oysters, and one or two *Myas*. All of these are now found recent on the shore, and all are usually sold in Guernsey market for food. When found, the limpets were often seen packed neatly inside each other, twelve or fourteen in one packet, just as they are sometimes put together by children in play.

Thus far the contents of this *kjökken-mödding* appear to correspond as nearly as may be with those of similar deposits in Denmark, which have been so often described. In each we find the remains of shell fish, taken from the neighbouring sea shore, and bones of various domestic animals, all of species still existing.

The other objects, however, which were found here, indicate a very marked distinction, between the condition of those people and that of the ancient Danes.

The most characteristic, and probably the most interesting, of these objects are the circular or cylindrical bricks; these are of various lengths, but all of the same thickness, all have evidently been moulded by hand, on almost all is seen the impression of the workman's thumb or forefinger, sometimes both, and on several the impression of the cuticle is still plainly visible; an impression is found at the base of almost all the bricks, as if, when in a soft state, they had been placed on the edge of a flat stone or plank.

These bricks were mixed with the limpet shells and bones, and were found in such profusion, as to lead to the belief, that they must have been made on the spot.

It is difficult to surmise what particular purpose in the domestic economy of these *kjökken-mödding* people, they were intended to answer, certainly they were not adapted for any kind of building. Mr. Lukis informs me that similar things are now in use at Allahabad, where the Hindoo potters place them under the jars and vessels to support them before they are burnt; possibly these were used for the same purpose here, or they may have been used to support the pans or pipkins

of which so many fragments are found, while the limpets were in course of preparation for food.

Besides these cylindrical bricks, a large quantity of broken pottery was found. Some of this is very rude and coarse, and is evidently hand-made, while other fragments are clearly of Roman workmanship; one piece exactly corresponds in pattern with a vase which Mr. Lukis lately obtained from the Roman station at Alderney, and several pieces of undoubted Samian ware were also found.

The hand-mills, or querns, of which portions were buried in the heap, are made from a conglomerate which is found in Jersey and on the opposite coast of France. These have an important bearing upon the question of the people by whom these heaps were left, since it is clear from them that they were acquainted with agriculture, or, at least, were supplied with corn of some kind.

No flint flakes or scrapers were found in the heap, nor any polished celts, although they are occasionally met with on the surface of the island, and in the cromlechs. The only stone implements met with, were some of those rude mullers, or chisels, which are often found in the Channel Islands, and some rounded and other stones, evidently used as hammers. The implements in question are usually about two inches long by one broad, and have at one end, and, indeed, sometimes at both ends, two or three sharp edges or facets.

These implements exactly correspond with some which have been discovered by the Rev. F. W. Lukis, in the interior of cromlechs previously unexplored. They are also found occasionally on the surface, both in Herm and in Guernsey, and so far as I am aware, are almost peculiar to the Channel Islands; some, however, have been seen in Cornwall. It is difficult to conjecture to what use they could have been applied; possibly it was in connection with some small troughs or basins of stone, which are often found with them in the cromlechs, although none were found in this heap.

The other objects met with, comprise a small bronze pin, an iron weapon or tool of some kind, too much corroded to allow of our ascertaining its original form or use.

Such, then, is the most accurate description that I can give of the objects found in this deposit. It remains only shortly to consider what conclusions we may draw from it, as regards the people with whom it originated.

With regard to the Danish kjökken-möddings, some doubt exists as to whether they were cotemporary with, or anterior to, the date of those tumuli, in which so many highly polished stone weapons are found; in short, whether they belong to the palæolithic or neolithic age. A controversy on this subject has been carried on between Professors Worsaae and Steenstrup, the former holding that the kjökken-möddings preceded the polished stone periods; while Professor Steenstrup considers that they were cotemporary.

The case, as regards the Herm kjökken-mödding, is just the converse of the Danish; the question is not whether it is older than the cromlechs, but whether it is so old, and upon this there seems to be little or no doubt.

True, the same stone implements, and those of a peculiar type that are found in undisturbed cromlechs, are found in the kjökken-möddings, but they are found also on the surface, and the people who left the middens may have found them on the surface, or even have derived the art of making them from the men of the cromlech period.

On the other hand, the cromlechs of those islands which have been most carefully explored by Mr. Lukis and his sons, are invariably found to be destitute of any traces of Roman pottery, or metal, or glass, nor do they contain any implements, to indicate that the people had any knowledge of agriculture. The presence of these things, therefore, in this kjökken-mödding is a proof of comparatively great progress in the arts of life, and leads to the belief that the people who possessed them, lived at a far later period than those who had them not.

Upon a careful review of all the circumstances, I have arrived at the conclusion, that the kjökken-mödding in question was probably the work of a small community of settlers on the shore, perhaps as potters, for the purpose of working the clay which is found here, and that from an occasional intercourse with Roman traders, or traders bringing Roman wares, they became possessed of the pottery and mill stones, and iron and glass of which the traces are found. We know that there was a considerable Roman settlement in the island of Alderney, from which those things may have been brought, or they may, perhaps, be assigned to an earlier date, as having been derived from some such wandering merchants as are mentioned by Strabo, on the report of Pytheas, as visiting the islands of the Cassiterides, and bartering pottery and salt with the natives for hides and metals. To what people, or nation in particular, the colonists or settlers are to be ascribed we know not, and probably never shall know. They could hardly have been Romans, since there are no traces of any habitations, and those who had been used to Italian cities were not likely to camp *sub Jove frigido*. Neither could they have been of the same race which built, or were interred in the, cromlechs met with in these islands, since, for the reason above given, the cromlech builders must long previously have passed away.

Thanks were voted to the author of the paper.

Mr. KENNETH R. H. MACKENZIE said the old Keltic practice of burying bodies above-ground extended far more to the south and uttermost east than was commonly supposed, even to Cape Comorin. It had prevailed in Wendic lands such as Pomerania, and there was a chain of tumuli extending from Britain as an Ultima Thule through Northern Europe to Persia and to the remotest regions of India, Burmah, Arracan, and Siam. It was always a rule, by or according to the Aryan idea, Aryans being considered as mountain races, to so bury the remains of the bodies, in strict rite, previously incremated. It was a Buddhist practice to incremate, as did also the Romans and others, and bury in the form of high tumuli, sometimes called topes. Buddhistic rites might be traced to these islands. He (Mr. Mackenzie) thought so at least, and regarded the Cleveland grave mounds as an indication of the fact, though, perhaps, more recent than some persons might think.

Mr. LEWIS thought that anyone acquainted with the Welsh triads would perceive a connection between them and Buddhism, which might be a degraded form of a primæval worship, of which Druidism in its better days was a higher representative. He thought there could be no doubt that the desecrated graves mentioned in the paper had been desecrated intentionally.

Mr. DENDY said the black flints found in the mounds described had evidently been brought from some considerable distance, but why it was impossible to say. With regard to sepulture, the manner of burial practised in these gravehills was nothing like that of the Buddhists in India.

The Rev. DUNBAR HEATH said it appeared to him that the relics found in the Yorkshire grave-mounds were comparatively recent, for they belonged to a period when the surface of the country was the same as it is now, and they comprised earthenware and other articles, indicating some advance in civilisation.

Col. A. LANE FOX observed that the kitchen-midden could not in itself be regarded as an evidence of age. It was merely a refuse heap, and wherever there were kitchens there would be kitchen-middens. The age could only be determined by the relics contained in them. He had found kitchen-middens of the Roman age in the Isle of Thanet, in which were finger bricks similar to those described in the paper, mere lumps of clay squeezed in the hand, and shewing the impress of the fingers, associated with fragments of Roman pottery : they were probably used as supports in baking the pottery. He could not agree with some of the speakers in thinking that such subjects were not anthropological. If the science of anthropology was to be based upon facts, there was no source from which so much valuable evidence could be derived as to the origin and early history of man as from prehistoric archæology, archaic anthropology, or whatever it might be called ; the terminology was quite immaterial, but the evidence relating to it was of the utmost value, for by collecting facts such as were contained in the papers that had been read, by classifying and arranging them systematically, we should obtain an insight into the laws observable in the development of human culture.

Mr. LEWIS said it did not necessarily follow that the cromlech building people had passed away, even if they had ceased to build cromlechs. As to the rounded pieces of earthenware, such pieces were still used to support the earthenware vessels in the kiln when being burnt. He did not consider kitchen-middens to be always very ancient.

Mr. DENDY said the prehistoric age was not indicated by anything in the paper, for the kitchen-midden might have been formed by a people long after the prehistoric age had passed away. Herm was a mere barren island. People might have lived there perfectly isolated ; and might have been a rude people in consequence of the difficulty of communication with the main land. The cromlechs were different things from the kitchen-middens, and had nothing to do with the paper.

The meeting was then adjourned.

ORDINARY MEETING, FEBRUARY 16TH, 1869.

DR. BEDDOE, PRESIDENT, IN THE CHAIR.

THE minutes of the last meeting were read and confirmed.

The following new Fellows were announced :—Frederick J. Jeffery, Esq., Doolton Hall, Liverpool; John Macartney, Esq., Ramandrooz, Ballary, Madras; Isidore Asher, Esq., 9, Guildhall Chambers, E.C.; Dr. Ernst Juch, 93, London Wall.

Professor Ernst Hallier, of Jena, was elected a corresponding member.

The following presents to the Library and Museum had been received since the last meeting, viz :—

FOR THE MUSEUM.

From Dr. HUNT.—Barkow. Bemerkungen zur Pathologischen osteologie. Forty-two casts of skulls from Edinburgh Museum.

FOR THE LIBRARY.

From the AUTHORS.—Lloyd P. Smith, Esq.—Address to the Alumni Association, Philadelphia, 1869. F. Pruner Bey—Discours sur la Question Anthropologique. Scott Surtees. Julius Cæsar. Did he cross the Channel? Julius Cæsar. How he sailed from Zealand, and landed in Norfolk. Footprints of Roman occupation in the southern parts of Northumberland. Capt. R. F. Burton, Ex Pres. A.S.L.—The Highlands of the Brazil, 2 vols. Dr. J. Barnard Davis, V.P.A.S.L.—The Weight of the Brain in Different Races of Men.

From T. SQUIRE BARRETT, Esq., F.A.S.L.—Social Science Review, vol. i, and 34 Nos. vol. ii. National Reformer, various numbers; and Human Nature, Nos. 15 to 20; the Apocryphal New Testament; Satire; and other minor works.

From Dr. C. CARTER BLAKE, Hon. F.A.S.L.—Le Hon, L'Homme Fossile, 2nd edition; Barnard Davis, Thesaurus Craniorum; Journal of the Geological Society of London, and Geological Magazine, sundry Nos.

From the RESPECTIVE SOCIETIES.—Journal of the Asiatic Society of Bengal, Philol. and Nat. Hist., Part i, No. 4, Part ii, No. 2; Proceedings of the Asiatic Society of Bengal, Sept., Oct., Nov., 1868; Journal of the Royal United Service Institution, vol. xii, Nos. 50, 51, and index.

From Dr. GARBIGLIETTI.—Barnard Davis on the Brain of a Negro of Guinea; Note on the Antiquity of Man in Central Italy; Letters by.

Thanks were voted for the same, and specially to Dr. J. Hunt for his valuable present to the Museum.

The PRESIDENT exhibited a skull from the cave of Lombrive, in the Pyrenees. It was found under stalagmite, imbedded in calcareous tufa, and presented a dolichocephalic form, whereas other skulls found in the same locality were brachycephalic.

The PRESIDENT then said it was due to himself and to the Society, as it was the first occasion of his addressing them as their President,

to say that, though he felt very grateful for the honour they had done him, he had neither sought nor desired it. And that, not because he cared for the detractive comparisons to which he felt he must inevitably be subjected, when it was borne in mind that he had been preceded by one of the most distinguished of modern travellers and discoverers, who was also a man of great general accomplishment, and by a gentleman to whose zeal, energy, ability, and tact the Society owed its foundation, its progress, and its strength. But he did care about the progress of anthropological science; and, looking to its interests, he did not think the Society had chosen the best man for the office he held; nevertheless, he had on that, as on all occasions, bowed to the opinion of the majority. Living so far from town as he did, he would be unable to attend the meetings so often as he could wish, but he hoped the members would make allowance for that, and supply any deficiencies that might occur. The Society was as strong as ever; the work to be done was plentiful, though as yet the labourers were few. He trusted that the Society would increase and widen out; and, like Aaron's rod, swallow up every other rod.

Dr. BEDDOE then read a paper "On the Physical Characteristics of the People of Brittany." Dr. Beddoe's paper was founded on his personal observations during a short tour in Bretagne, and on those of MM. Broca, Boudin, Guibert, and Guiche; and the drift of it was to show that the Bretons were in general remarkable for shortness of stature, breadth of head, and darkness of hair and of eyes, and that these four characteristics, except perhaps the last, were almost invariably modified in the ratio of admixture of alien with purely Armorican blood. He found a great resemblance in person, as might be expected from the relations of the languages, between the Bretons and the Welsh and Cornish; and thought it probable that the comparative length of head, and the less frequency of black hair, in the people about Morlaix, might be due partly to the immigration of insular Britons in the fifth century.

On the motion of the DIRECTOR, seconded by Dr. J. HUNT, the thanks of the meeting were voted to Dr. Beddoe for his communication.

Dr. Charnock, F.S.A., F.R.G.S., V.P., read a paper on Locmariaker, of which the following is an—

Abstract.

To the north of Locmariaker, and on the route to Carnac, is a dolmen called Mané-Lud. It measures about twelve feet by ten, and you descend into it by a flight of stone steps. The slab which covers it is twenty-six feet by sixteen, and is broken into two pieces. Dr. Fouquet, who wrote on Dep. Morbihan, renders the name Mané-Lud, (B. Bret., *Mane-Ludu*), Montagne Cendre; and he says it was not named, as some assert, from being formed of ashes, but because it incloses a sepulchral grotto. Dr. Charnock thought that the name may simply mean the "stone of Lud" (*Méan-é Lud*), to whom the monument was perhaps erected. It could hardly be called a mountain. Not far from the Mané-Lud lies a fallen menhir, broken into two pieces, and measuring twenty-six feet in length. Near it is a dolmen

called Pierre de Rutual (Rituel?), The overlaying slab is of considerable size, and is broken in two. Next to it is another stone, supported by seven or eight more, and close by are three or four fragments of stone. The largest of these is twenty-three feet in length, the smallest rather more than seven feet. To the south-west of the Mané-Lud, half-buried in mud, is Le Pierre des Marchands, called also Table des Marchands and Table de César. It measures twenty feet and a-half in length by twelve in breadth, and overlays six stones, by only two of which it is supported. On the underside of the slab is a carving, which is said to represent a celt. Upon a stone at the base, some carvings are still visible, but they have been nearly effaced by time. Close by this dolmen is a menhir; and not far off is another large stone. Very near the Table des Marchands, a colossal menhir lies on the ground, broken into four pieces. The four blocks lay as shown in the rough plan drawn by the author of the paper. Dr. Fouquet thinks this menhir, when whole, may have cubed 250,000 kilogrammes. Dr. Charnock took the measure of each of the four blocks. The largest of the fragments was thirty-two feet and a-half by thirteen and a-half; the smallest, ten feet by six and a-half. When upright, this menhir must have been seventy-two and a-half feet in height. From the position of the fragments, he thought that one block must have been thrown down first, and the other three at a subsequent period. The Pierre de St. Pierre lies in a different direction to the Pierre de Rutual, and is quite a league from the bourg, near the village of St. Pierre or Loc Perec. The entrance is so narrow that there is scarcely room to creep into it. It is covered by two slabs. The dolmen called Pierres Plattes is about half an hour's walk from the Pierre de St. Pierre, in a different direction, and on the seacoast. It consists of three slabs (total length seventeen feet), resting on upright stones, some of which are now overgrown by weeds. The largest slab covers a grotto capable of holding several persons. There is also another dolmen about half a kilometre from Locmariaker, with a menhir broken into two pieces lying at its foot. It is called by the inhabitants "Mané-er-Hrouich," which has been rendered "Montagne de la Fée," but Dr. Charnock would rather translate it "stone of the fairy."

Thanks having been voted to Dr. Charnock, the following paper was read:—

3. "Reminiscences of a Visit to Locmariaker and Gavr Inis," by Mr. A. L. Lewis, F.A.S.L. The author stated that Locmariaker, or "Virgin Mary's Town", stands on the site of the ancient Dariorigum, the capital of the Veneti, on the Mer de Morbihan, Brittany, and is surrounded by innumerable remains of its ancient inhabitants, some of which he described. One of these was a dolmen, nearly seventy feet long, which the author believed to have been intended for sepulchral purposes. Gavr Inis, or "Goat's Island", is situated in the Morbihan sea, and is celebrated for its chambered tumulus, the chamber and gallery of which are together about fifty feet long, five feet high and three feet wide at the entrance, increasing gradually to a height and width of from six to eight feet.

The floor and roof are formed of large flat stones; the latter being supported by twenty-nine upright stones, nearly all of which are covered with incised ornamentations, composed chiefly of segments of concentric circles, interspersed with waved lines, and resembling somewhat the Northumbrian rock-inscriptions, and those of the tumulus at New Grange, Ireland.

Some rubbings of parts of these inscriptions were exhibited by Mr. Lewis, and some specimens of antique-looking vessels of pottery-ware, which he had purchased in the market-place at Reunes, and which, he said, varying in size according to requirement, were in common use in Brittany at the present day.

The thanks of the Society having been given to Mr. Lewis, the President called upon Dr. Hunt to read his paper, but suggested that he should read only such portions of it as related to the specimens and drawings before the meeting, as otherwise there would hardly be time to discuss all the papers.

Dr. HUNT said, as his paper would take some while to read, he would briefly describe the drawings exhibited; for it was only due to the Chairman that sufficient time should be left for the discussion of his (Dr. Beddoe's) paper.

Abstract.

4. "On Carnac, in Brittany," by Dr. James Hunt, F.S.A. The author explained the results of an investigation on the plan of this monument, and exhibited a series of drawings representing its present state. He controverted the statement of Sir John Lubbock, that Avebury and Stonehenge were the two largest monuments of their class in Europe; contending that Carnac was by far the largest monument of the kind in Europe, and that it differs in many respects from Stonehenge; and that there was no justification for the opinion advanced by Sir John Lubbock, that those monuments—allied to that of Carnac, like Avebury—belonged to the same period as that which produced Stonehenge.

The monument consisted of eleven rows of stones, of very different sizes, of which about 4,000 now remained, but which, in the opinion of many Archaic Anthropologists, had originally consisted of 10,000. It extended probably as far as Locmariaker; for on the other side of a small piece of water, where it appeared to terminate, similar cromlechs and remains had been traced. The stones travelled in a serpentine fashion, and cromlechs were found on both sides of them, and with such regularity that, in proceeding along the line of stones, it was a matter of certainty in which direction the next cromlech would be, and though not always clearly discernible, a little excavation would have rendered it so. The plan shown was based upon the admittedly imperfect one of Mr. Bathurst Deane's, made in 1832, which he had been able to improve and amplify. He hoped the Anthropological Society of Paris would take the matter up, but at the present moment Englishmen could boast of having the best ground plan of Carnac yet made. It was notable that Carnac consisted of eleven rows of stones; while all the English monuments of similar character were composed of only two such rows: and with the exception of

those in Devon, they all took a bend, which had given rise to the opinion, correct or incorrect, that they indicated serpent worship. When he considered the gigantic proportions of many of the stones at Carnac, the large tract of country over which they extended, and that the people who had placed them there, and who, by the very nature, extent, and difficulty of the work, evidently could not have been barbarians; he was struck with wonderment at the spectacle, it was so grand and so sublime. He hoped that, ere long, a correct ground-plan would be made; but in the meantime that those exhibited would be published; for the monument at Carnac was, in his opinion, far larger and more beautiful than any of the same character in any other part of the world.

The PRESIDENT thanked Dr. Hunt, in the name of the meeting, and remarked, that it was a strange thing that the French should have almost entirely neglected so grand an ancient monument. No such drawings of Carnac and Locmariaker, as those now exhibited by Dr. Hunt, had, he believed, been made before; and he called upon the members to discuss the papers which had been read on the subject.

Dr. HUNT said, as he had been in Brittany, he could testify to the value and correctness of the photographs of the people, one of which was exactly typical of the natives with whom he had associated during his investigations. While agreeing with the President on that point, he quite differed as to his estimate of the proportion of unsoundness among that people. He had found that disease of all sorts abounded, that deformity was very common, and that particularly about Carnac they were in a very unhealthy state. There appeared to be two distinct types of men living in Brittany; but he noticed a great many different types among those attending the fair at Vannes, which variety occurred, probably, from the large number of persons who came long distances on that occasion. The President's paper was of great value, as contributing to determine the race and types of man in that interesting district. They seemed to have a great horror of enlistment; and he should like to know if the President had remarked any want of sympathy, on the part of the population, towards the government of the nation that would account for that feeling, which was the more remarkable, as their immediate neighbours were so martial a people. At any rate, so strong a dislike to military service was an important characteristic.

Dr. NICHOLAS said, that as he had been several times in Brittany, and had studied the people and the country, he had no hesitation in saying that he knew no district, within easy reach, so deeply interesting, so new, and so overwhelming in the extent of its ancient monuments. The ecclesiastical monuments were particularly instructive from their elaborate nature and architectural peculiarities, and as records of the piety of the old Bretons. At the present day, in no part of France did the people display so much of the spirit of religion. On weekdays, you scarcely ever entered a church but you saw men as well as women at their devotions. On Sundays, they flocked in crowds to their places of worship with an enthusiasm that was quite remark-

able. Being a Welshman, he specially noticed their music, which, being mainly in the minor key, was similar to that of Wales, and the singing, instead of being cold and formal, was fervent and hearty. He entirely concurred in the President's description of the physical aspects of the people of Brittany; but he could not quite agree with Dr. Hunt's opinion of their lack of martial bravery. In fact, in no part of France had the people been so distinguished, in past ages, for their devotion and sacrifice to the royal cause, and their opposition to revolution and democracy. He need only mention the name of Du Guesclin and the Vendéans. He had often passed by Locmariaker, the interpretation of which he took to be, "the place of dear Mary" (*loc-maria-cêr*). The vast remains of that wonderful district, so fitly termed "a monument," extended across the whole undulating plain from Locmariaker to Carnac, and must have been built, he thought, through the course of many succeeding ages. Near Carnac, there were two great fields of Menhirs; one called Kemaon, which consisted of extremely large stones; and another, whose name he did not then remember, covered with smaller ones, in greater number. The whole of this mysterious accumulation of monuments extended over a space of about seven miles, at least. He sympathized in the feeling of reverence and wonderment Dr. Hunt had expressed; for no one could reflect upon the immense labour involved in bringing together so vast a collection, without being struck with the strong reverence for religion, or for the dead,—according as we view these erections as religious or sepulchral,—that must have existed among the unknown people who built them. There was no such feeling in Europe now,—no such love of ancestry,—no such love of the past,—no such permanent labour for religion. The great cathedrals, built so long ago, so numerous in Brittany, should suffice to kindle in us a kind of religious awe, if nothing else did. But these cromlechs and menhirs were still more wonderful and impressive. He observed that all the larger stones at Carnac displayed certain striæ, which were evidently not produced by friction of stone against stone in the glacial period, but had been wrought by the human hand; but the time of their execution and their purport were wholly unknown. As a guide to Brittany, he would recommend Mr. Jephson's interesting book, which was well written, and contained photographic views by Mr. Reeve, of some of the monuments referred to, and of many of the great churches, and other public buildings of Brittany. With regard to the intellectual productions of this country, it might not be amiss to say that it had given birth to Chateaubriand, to Le Sage the author of *Gil Blas*, to Descartes, to Abelard, and to many other thinkers and writers of celebrity.

Dr. CHARNOCK did not agree with Dr. Nicholas's etymology of the name Locmariaker. Villemarqué rendered *ker*, *kêar*, logis, maison, habitation, village, ville, cité, bourg. The vocable was found in a great many local names in Bretagne. It was another form of the Welsh *caer*, contracted from the Irish and Gaelic *cathair*. Those desirous of visiting Carnac should do so as soon as possible, inasmuch as the people were using the stones for the walls of the fields. The

name was properly spelt like Karnak in Egypt, a word of oriental origin. Some rendered Carnac "a burying-place," others, a "field of flesh," and it certainly might mean "field of flesh", from *carne*, flesh, *ach*, a field. The name however was more probably from the Bas Breton word *karn*, pl. *karnek*, *karnez*, a heap of stones; in Welsh *carn*, pl. *carneidd*; in Gaelic, *carn*, a cairn; *carnach*, abounding in cairns.

Sir DUNCAN GIBB said he was particularly struck with the chairman's description of the inhabitants of Brittany, it so nearly corresponded with that of the French Canadians, and he noticed as great a resemblance in the photographs exhibited. But that was not so much to be wondered at when it was remembered that Jacques Cartier, the discoverer of Canada, sailed from St. Malo, in 1534, and took many of his countrymen with him. In Canada, as in Brittany, wooden sabots were still in use by the country people, since their first introduction by the French emigrants, over three centuries ago. The characteristics of the French Canadian were extreme goodnature and simplicity. They were not, indeed, a martial people; but in 1812, at the battle of Chateauguay, there was a regiment of French Canadian Voltigeurs, who almost wholly contributed to the success of the day. In 1837, they had also turned out for military service, and would do so when necessary, like any other classes of people. The French Canadian varied according to the locality, the Brittany type being mostly in Nova Scotia and shores of the Gulf of St. Lawrence; the Norman and other types occurred in the lower province. Farther west, the inhabitants were descendants of the English race. But to return to the question, he thought Dr. Hunt's plan of Carnac would be of great assistance to future travellers there, were it published with his extremely interesting paper.

Dr. BEIGEL did not think the stones at Carnac were monuments at all; and until there was evidence adduced to show that human power and skill had been employed in erecting them, he would not alter his opinion, that they were similar in character to those existing in some parts of Silesia. Between the two villages of Adersbach and Weckelsdorf, which were six miles apart, there were nothing but huge stones, to which those of Carnac were mere dwarfs; these stones, being so arranged as to form streets, squares, etc., are known as the "stone town." By a freak of nature, there were stones in the shape of human busts, one of which went by the name of the "mayor of the town." There was another group of great stones in the shape of a large church; one stone, set on its apex, is known as the "sugar-loaf"; but geologists have never doubted that the Silesian town of stones was only a geological formation. And as to the supposed hieroglyphs upon two of the Carnac stones, he must confess that they have no resemblance to what he had ever seen of hieroglyphs. Was it not well known, from time immemorial, that every visitor to such a place would chisel his name or some sign upon the stones to immortalise his existence, or at least to leave some trace of his presence? Such markings will, perhaps, puzzle the anthropologists who made investigations a thousand years afterwards.

Up to that time, he could only see in Carnac a miniature of what existed on a large scale in Silesia, and is anxiously waiting for the evidence, in support of the opinion, that the stones at Carnac have been erected by human power.

The Rev. DUNBAR HEATH said that, in the exuberance of their feelings of strength at the discovery, no doubt, of the use of metal instruments, people, at very early times, pleased themselves by erecting gigantic piles of masonry. At Rome, there were miles of gigantic sewers and aqueducts; in Greece, the name of Cyclopean was given to a certain order of masonry built under Argos and Mycænæ; in Egypt, there were the pyramids; in India, also, great works of stone recently discovered; and in the account of the Hebrews, the traditional history of the Semitic races, there was the traditional Tower of Babel. All such great works were proofs of an energy and power with which those early peoples were hardly credited. Was it not becoming more evident that civilisation was not so modern a thing after all? The earliest army in the field, of which there was any account, consisted of thousands of men, who could not have been manoeuvred and provided for without a very considerable amount of civilisation; and yet that was done 2,000 or 3,000 years B.C. And then, as to colonisation, that was a gigantic operation, but was accomplished all over Europe and Asia. So great a work, successfully accomplished, must certainly enlarge one's ideas of the energy of prehistoric man. But to endeavour to find out the origin of those stones, so placed at Carnac,—it had been said, that great stones were left standing in that manner by the washing away of the loose material surrounding them; but that was not a satisfactory conclusion. He would try the exhaustive process of reasoning. The Cymri did not put up those stones because they did not do so now, and never in history had the British race done so; the Celts could, therefore, be put aside. The Turanian do not put up such monuments now; therefore, they also could not have done it. The difficulty, perhaps, is to discover what race first used bronze weapons; and if all the races were taken, it ought not to be difficult to find out by which such monuments must have been erected.

Mr. PIKE could not pretend to say whether the stones at Carnac, scattered over so wide a district, were all brought there by human agency or not; but he wished to make a few remarks on Dr. Beddoe's paper, which deserved a fuller discussion than it had received, or than it could receive at that hour of the evening. Dr. Beddoe had said, in reference to the present inhabitants of Brittany, that persons resembling them in darkness of hair, were to be found no nearer than in Italy, and there not farther north than in Naples. The Romans, however, spoke of the inhabitants of Gaul as a fair-haired people; but if the people of Brittany, stated to have very black hair, were like their ancestors, it became difficult to understand the accounts of Roman writers, and not less difficult to believe the story of colonisation from Great Britain. It was evidently untrue that there had been any such colonisation of any importance. The Bretons, it was stated, were short in stature and round in the head. How was it,

then, that the people of Cornwall, from whom, on the same common notion, they must have descended, were tall and long-headed? And, once more, as the people of Brittany were shorter than the French, and the French were shorter than the English, it would be very difficult to discover any proof of the colonisation of Brittany from Great Britain. Such an idea might be found, possibly, in many histories of no high repute; but there was no mention of it in any contemporary authors who could be trusted.

Mr. VILLIN confirmed Dr. Hunt's statement, of the strong dislike the people had to military service. The men had been known to cry for five hundred miles on their journey to the camp; and "to cry like a Breton" was a common phrase in the army, which had been originated by "Bretons" leaving home.

Dr. HUNT said that Dr. Beigel was not original in his suggestion, that Carnac was only a geological formation, and not correct in that notion, as there was evidence of design, which would bear examination in detail. He would not say that the work had been done by human beings; but at any rate it had been done with intelligence. The particular stone on which were the marks which Dr. Beigel had declared were not hieroglyphics, was found inside one of the cromlechs. It was, no doubt, a great thing to distinguish between natural and artificial formations, and the difference was not merely in the number of rows of the stones, but in their position, and other circumstances.

Mr. McGRIGOR ALLAN wondered that any one, looking at such drawings and diagrams, made by an able artist on the spot, could doubt the agency of man in the formation at Carnac. It was a town of rude obelisks; and that monument was a symbol of the male organ of generation, typical of the reproductive power of nature. This phase of religious worship was still preserved in the reverence paid to the lingam and the yoni (*vide* Dr. Inman's work on *Theological Philology*), and had been, Mr. Allan thought, at one period, general throughout Europe. Hence, the monuments at Stonehenge, Abury, Carnac, and other Druidical remains, testifying to the religious ideas of our ancestors, had a special interest for the theologian as well as the anthropologist.

Mr. CONWAY recognised a curious resemblance between some of the figures and those that were used by the old necromancer, Michael Scotus, as represented in a book of his preserved at Leipzig; and thought, if these figures were genuine, it might be interesting to compare them.

Mr. LEWIS remarked that though, as regarded size, it was absurd to speak of Stonehenge in the same breath as Avebury and Carnac, there was a resemblance in the plan of Stonehenge to that of Avebury, inasmuch as both were surrounded by trenches, and both had clearly marked avenues of approach, but in the former these approaches were not marked by lines of stones. With respect to human agency there was no doubt about it in the case of Avebury, though the stones there were much larger than any at Carnac or Stonehenge, one still in position which he had measured being 18 feet long, 15 feet high, and 6 feet thick. The reply to Mr. Dunbar Heath's objection

was that the building of these monuments was discontinued on the introduction of Christianity, which took place very early in Britain, even if they were not previously prohibited by the Romans, who took every opportunity of suppressing Druidism. A parallel instance occurred in the case of the war chariots which were used before the Roman occupation, but of which nothing was heard afterwards. It certainly did not follow that because people did not do a given thing at any given time it had never been done by their ancestors.

The PRESIDENT, in reply to the remarks which had been made upon his paper, said that Dr. Hunt had not convinced him of the unhealthiness of the people of Brittany. The military returns upon which he had based his opinion were taken from the conscripts, and he was still of opinion that, though a large number were rejected on account of size, the proportion of men fit for service out of those who were tall enough was very high. Nevertheless, he admitted that many might be unfit in other respects, as well as undersized, and those would not be included in the returns as to health. He considered the Bretons anything but cowards, and it was probably their strong attachment to their homes and country which made them so reluctant to be drawn for military service. In the middle ages they were remarkable for military prowess; they fought well under their own leaders; and, indeed, there was a time when the flower of the French armies were all either foreigners or Bretons. It was a common phrase that any great personage came attended by his Bretons, signifying his men at arms. It was quite true, however, that at the present day few of them entered military service of their own accord. He was glad to hear Sir Duncan Gibb remark the similarity existing between the French Canadians and the people of Brittany. That fact shewed the persistence of moral and physical peculiarities in spite of change of media and locality. Though there could be no doubt as to the human origin of the monument at Carnac, it was well to remember that there were many assemblages of huge stones in various parts of the world that were considered doubtful. Those at Moytura, near Lough Arrow, in Ireland, for example, had been supposed to be ancient monuments; but personal investigation had convinced him that they were not so. At Chemalu, in Asia Minor, and Brimham in Yorkshire, and elsewhere, there were other undetermined objects of similar character which he believed to be wholly natural productions. In reply to Mr. Pike, who had opened such large questions in his remarks upon the hair and general appearance of the people of Brittany, as contrasted with that of their neighbours across the Channel, he would mention that the hair of the people was not so dark in the south-east of France, or the north of Italy. He thought Mr. Pike had assumed rather too much when he spoke as if the Bretons of to-day were the descendants of the yellow-haired Gauls of the Romans. In his opinion (though he would not speak confidently) they were, as a race, more akin to the Iberians than to the true Gauls, who were probably a military caste, and did not form the bulk of the population. The objection as to the differences between them and the people of Cornwall presented some little difficulty; but on the Devon side of the river Tamar was a race of men

very much resembling both the Cornish and the people of Brittany, and, as an anthropological friend of his had expressed it, "they were little fellows, but they weighed like lead." The fact that the people of England were long-headed was very remarkable when viewed in connection with the recent investigations in Brittany.

The meeting then adjourned.

MARCH 2ND, 1869.

T. BENDYSHE, Esq., M.A., Vice-President, in the Chair.

THE minutes of the preceding meeting were read and confirmed.

The following gentlemen were announced as having been elected Fellows of the Society since the last meeting :—J. Wodderspoon, Esq., The Chesnuts, Walton-on-Thames ; J. Passmore Edwards, Esq., 31, Tavistock Street, W.C.

The following presents to the museum and library were announced, and thanks were voted for the same :—

FOR THE LIBRARY.

From the SOCIETY.—Proceedings of the Royal Society, vol. xvii, No. 108.

From the EDITOR.—The Medical Press and Circular to date.

From the AUTHOR.—The Languages and Races of Dardistan, vol. i, parts 1 and 2. By Dr. G. W. Leitner.

From the AUTHOR.—Genealogical Chart of the House of Bourbon. By F. J. Jeffery.

From HENRY PRIGG, Jun., Esq.—Quarterly Journal of the Suffolk Institute, No. 1.

From the SOCIETY.—Proceedings of the Royal Geographical Society, vol. viii, No. 1.

From F. G. H. PRICE, Esq.—The Paraná, or South American Recollections. By Consul J. T. Hutchinson.

FOR THE MUSEUM.

From TOM CRASTON, Esq.—Skeleton of Adult Male Gorilla.

From W. LATTA, Esq.—Boa Fan cap, Gaboon, West Africa ; set of ivory armbands ; one wooden spoon, Batanga, West Africa.

From R. B. N. WALKER, Esq.—Two War-caps from river Borea, West Africa ; one War-knife from river Camaroons, West Africa ; two Beheading-knives, Batanga, West Africa ; Skull of a Slave from Princes Islands, West Africa ; one Kilt made of a young palm leaf used in Fetiché dance village of Ashyaka, Iganas, river Ogowe, West Africa.

A special vote of thanks being given to Mr. Tom Craston for his present of the gorilla skeleton.

Mr. FREDERICK HOVENDEN then read the following paper :—

Man an Indestructible Atom.

[Abstract.]

This was a suggestive paper laying down the following hypothesis: It is conceivable that there may exist in the human skull an atom to which all the forces of sensation are directed, and from which flow all the motor forces, also that there may be superadded to it a superior organ—the brain, which receives the sensations, evolving thought and other complex phenomena. It was suggested that this atom might exist while the individuality existed, and that at death, by process of the chemical forces, it would be freed, until certain fixed external conditions of matter allowed it to be re-evolved. Thus the human being was, according to this author, reduced to an indestructible sensitive atom; when evolved, the visible parts, as the trunk and its viscera, the limbs, the brain, etc., being the instruments by which that atom received sensation, motion, and all the phenomena recognised in the human being. The hypothesis was enlarged to the whole organised creation, supposing this kingdom of matter to exist, as in the inorganic world atomically and indestructibly; while every atom would produce an individual when placed under proper external conditions, it will follow, that, tracing back geologically, those atoms which are capable alone of the lowest organisations, would be developed by direct means of the inorganic world, while the next higher order of atoms would be evolved into individuals by means of the next lower order, supposing, of course, the development of individuals to be subject to those slight variations described by Darwin and others. It would follow on this hypothesis that man was evolved—having existed always atomically,—by means of the next lower species, while the existence of the atom in the individual gives place to continuity of ideas. Mr. Hovenden supported his argument by bringing forward the evidence from chemical physics, comparative anatomy, and physiology.

The thanks of the meeting were given to Mr. Hovenden for his paper.

Mr. PIKE remarked that if (as the author of the paper had suggested) vitality was seated in an atom at the base of the brain, all sensations would converge to it by conducting nerves; but no such convergence of nerves was observable in any part of the brain. There were no doubt nerves from various parts of the body to the brain, and conductors from one part of the brain to another, but these had not been found to converge to a single point. The theory of an indestructible something in man, though vague, was not new, and he did not think that Mr. Hovenden had explained anything by his paper.

Dr. CHARNOCK said he could not conceive such a thing as a destructible atom.

Mr. A. L. LEWIS concurred in the opinion that the vital principle was located in the base of the brain, but considered the paper unsatisfactory in several respects.

Dr. CARTER BLAKE stated that he was at a loss to comprehend Mr. Hovenden's definition of life; of an atom; and of destructibility. He was unable to admit any other definition of a living thing than that which receives and assimilates external substances; and thought that

in such an important subject which affected the very foundation of anthropology, precise and accurate definitions should be given. He expressed his concurrence with Mr. Hovenden in his theory that heat was "matter," and not "force," but failed to understand his definition of an "individual." His definition might be good enough for man alone, but was not applicable to the lower forms of life. In them our ideas of individuality became complicated, and he adduced the tapeworm as an instance of numerous separate reproductive zoa on one scolex. With respect to the atoms spoken of by the author of the paper, Dr. Blake said it was difficult to understand what was meant by those atoms, whether or not he meant them to be reproductive germs, and the indistinctness on that part of the author's argument showed the importance of exact terminology, to the want of which the difficulty of understanding the author's ideas might, perhaps, be attributed. The subject of separate gemmules had been thoroughly worked out by Professor Owen and Mr. Herbert Spencer, and more recently by Mr. Darwin, in his theory of "Pangenesis." It was a theory, in fact, as old as science, and Mr. Hovenden scarcely threw fresh light on it. No cause had been assigned for fixing the locality of the assumed indestructible living atom in the head. There seemed to be no reason why it should not be seated much lower. The old Jewish Rabbis used to say that there was one part of the body which was indestructible (the bone Luz) and capable of reproducing the rest of the body at the day of judgment. The Jewish Rabbis, however, did not put that bone in the head, but in a very different part. In fact, it was the *os coccygis*.

Mr. DENDY said a great mistake appeared to have been made respecting Lamarck and Darwin, whose views were represented to be similar. Darwin's opinions and writings were often in opposition to the extreme doctrine of Lamarck. With regard to the terms atom and cell, there appeared to be some confusion. A monad might be atomic, a cell implies a globule vitalised; both were indestructible, they existed for ever in some form or other, for nothing that exists in nature ever dies. In that sense it might be said that man is indestructible.

Mr. BENDIR considered that the theory put forth by the author of the paper depended to a great extent upon Darwin's theory, and that the arguments adduced in support of it, so far as he could understand them, were derived from Darwin.

Dr. BEIGEL stated that the paper had been placed in the hands of the Society before similar opinions by Professors Tyndall and Huxley had been presented of the latter author, and remarked that it seemed curious that Professor Huxley constantly taught materialist doctrines, and constantly denied that he was a materialist. Though he was much pleased with the paper, there were several points in which he differed from the author. It was stated that organic atoms, as well as inorganic atoms, were indestructible; now he confessed he (Dr. Beigel) could not conceive that theory. An organic atom meant the first appearance of life; and life could be destroyed in any form in which it appeared; therefore, if an organic atom were the lowest form

of life it could be destroyed. But inorganic atoms could not be destroyed. It was true that some combinations of matter, chemically called atoms, might be decomposed, but, strictly speaking, they could not be recognised as atoms. Again was the author correct in asserting that there is in some part of the brain an indestructible vitalised atom? He was sorry to say that that was not so, though it was true that all the vital powers are concentrated at the base of the brain. That fact was sufficient to overthrow the theory of phrenology. With respect to the Darwinian theory, he did not agree with it, for reasons which he detailed.

Dr. CHARNOCK and Mr. GOULD AVERY also took part in the discussion.

Mr. HOVENDEN, in replying to the remarks on his paper, adverted to the objections that had been taken as to the want of definition of the term atom, and said that the ultimate particles of elementary substances must be atoms, for it could not be conceived otherwise than that by continued divisions they would come to an ultimate indivisible particle of matter, and that must be an atom. There had been a confusion introduced as regarded atoms and cells. He held that a cell was a very highly organised molecule—an aggregation of atoms, and developed from a germinal spot. He granted that it must be fructified, but it was not for him to consider what power aided to cause reproduction. With regard to Darwin's theory, he held that his position was not antagonistic to Darwin's, but agreed therewith. He was of opinion that new species were produced in succession, and that man, as we now saw him, was but a highly developed savage.

Dr. BEIGEL then made a communication respecting the *Siamese Twins*, whom he had had the opportunity of examining thoroughly. He said they were two separate beings connected together by prolongation of the hypertrophied ensiform cartilage which formed a ligament from the breast-bone of each. Such a connection, with full development of two individuals, was very rare, and had only once been described, and that was in the sixteenth century. The twins now exhibiting were from Siam. They were in every respect two different beings. They were different in feeling, different in opinions, and different in health, and the only thing common to them was that they had been accustomed for fifty-eight years to act as a single individual. They moved in the same direction without telling one another, exactly as a single individual would do. As to feeling, one was sometimes ill and the other not, one was hungry and the other was not so, one was sleepy and the other was not, and one had certain natural desires to satisfy which the other did not feel, which at times was troublesome and disagreeable. Their band of connection was merely an elongated cartilage from the bone of the chest, which passed from one to the other. It was solid, not hollow; was about seven inches long, and of the thickness of an arm. There was a difference in their pulse amounting at times to five or ten pulsations in a minute. There was no communication between the thorax of one and the other, but when one was coughing it seemed as if something were protruding into the connecting band. The two individuals could move their limbs separately with ease; and one of them plays the violin, the other the flute. The

separation might, he thought, be easily made without danger, but they would not allow it, and did not desire it. The opinion of Sir J. Simpson and of other eminent men had been taken on the subject, but the twins did not dream of being separated. They are married and have nine children, all grown up. From a medical point of view there was little of interest in the twins; the chief point of interest consisting in ascertaining the point in the connecting band where they feel separately, and where conjointly. For a space of about half-an-inch in the centre of the band both feel a prick, but beyond that space each one feels separately. If they were divided they would have great difficulty in acting separately; they would also have great difficulty in walking without their accustomed mutual support. If either of them were to die there would be time to separate them without injury to the living one. At present, however, they would strongly object to be separated; one reason for which was that the separation would take away their means of gaining money; it would take away their business. Dr. Beigel afterwards added, in reply to observations from Dr. Carter Blake and Mr. Dendy, that all the best medical authorities agreed that the band might be divided without danger.

The meeting was then adjourned.

MARCH 16TH, 1869.

DR. CHARNOCK, V.P., in the Chair.

THE minutes of the former meeting were read and confirmed.

The members of the Society elected since the last meeting were announced as follows:—

Fellows.—J. S. Thresh, Esq., B.A., Old Palace, Richmond, S.W.; Henry Hertz, Esq., 27, Fenchurch Street, E.C.

Local Secretary.—Frank W. Breach, Esq., for Sonora, Mexico.

The following presents were announced to have been made, and thanks were given to the donors:—

FOR THE LIBRARY.

From the AUTHOR.—*L'Homme Fossile en Europe, Histoire Complète de la grande éruption du Vesuve en 1681.*

From the ASSOCIATION.—Papers relating to the Geologists Association.

From the SOCIETY.—Transactions of the Ethnological Society of London.

From the AUTHOR.—*Wassergehalt des Gehirns.* By Dr. A. Weisbach.

From Dr. H. BEIGEL.—*Zur Lehre vom Milzbrand beim Menschen*, by Dr. Beigel; *Moderne Missionare*, by E. Hartenfels; *Memoranda der Specialen Physiologie des Menschen*, by J. Budge; *Platonis Opera*, 5 vols.—*Les Institutions Sanitaires pendant le conflit Austro-Prussien*, La Commission des Etats, *Essais d'hygiène thérapeutique*—T. W. Evans; *The Medical Quarterly Review*, 4 Nos.

From the AUTHORS.—*Materiaux d'Archéologie et d'Histoire.* By J. G. and S. L.

From the SECRETARY OF STATE FOR INDIA.—*The People of India*, 2 vols., 4to. By Watson and Kaye.

From the AUTHOR.—*Recherches sur la Synostose des Os du Crane.* By Dr. F. Pommerol.

Mr. Alfred Higgins exhibited a portrait of the late Professor Retzius.

Mr. PIKE then read the following paper :—

On the alleged Influence of Race upon Religion.—By

LUKE OWEN PIKE, M.A., V.P.A.S.L.

The discussion of religious subjects frequently excites passions which retard the progress of scientific truth ; and it is by no means improbable that I may be suspected, merely from the title of my paper, of a desire either to defend or to attack some particular form of religion existing in this country. I wish, therefore, to state, *in limine*, that I do not consider revelation to be within the province of scientific investigation, nor the meeting of a scientific society to be the fitting occasion for a confession of faith. Not only must bitter feelings be roused when the question is, whether a creed is true or false, but a fact of vital importance is forgotten—the fact that religious truth rests avowedly on *à priori* grounds, while scientific truth is unworthy of the name, unless it rests on *à posteriori* grounds. Religion is accepted, and must be accepted, with unquestioning faith, as by little children ; no scientific dictum can be adopted except as the result of observation and reason. To confuse one with the other, to call in one as an aid to the other, must, therefore, necessarily be detrimental to both. Science, built on revelation, is but “ the baseless fabric of a vision ; ” religion, built on science, has ceased altogether to be a mere revelation.

How then, it may be asked, can anthropology deal with any religious subjects in any of their aspects ? The answer to this question is simple enough, when a careful distinction is drawn between the revelation and the person accepting it : the former is beyond and above the enquiring eye of the man of science ; the latter may be studied in every phase of body and of mind. We can compare believer with believer in the expectation of discovering what is common to all believers alike ; but to speak of the absolute truth of a creed is, by the very form of the expression, to give up the appeal to the intellect, which can deal with nothing except what is relative.

It will be seen that the line which I have drawn allows very wide limits to the field of the anthropologist, and holds him back only at that point at which transgression would make enemies without any corresponding benefit. He loses nothing if he refrains from criticising the writings for which divine inspiration is claimed by the professors of any religion. He can still compare not only mind with mind, but class of mind with class of mind, nation with nation, race with race, in all the differences and all the resemblances which they exhibit in their faiths. And wherever no direct revelation is claimed, we may trace the growth of every superstition, discover its origin, and measure the intellectual capacity of those who believe in it, by the standard of

those who boast a higher origin for their creed. In short, the limit of good taste coincides exactly with the limit of utility.

In this paper, which I bring forward with great diffidence, as an introduction to one far more elaborate, "On the Psychical Elements of Religion," I have adduced evidence to show that differences of faith cannot be attributed to any single cause, even though it be as powerful as race. In that paper I shall endeavour to show that every human mind may pass through various religious phases, according to its capacity, and according to surrounding circumstances, but that the chief element of all religious beliefs is the same in kind if different in degree.

A careful inspection of facts leads irresistibly to the conclusion that difference of race is not the chief, nor even an important, cause of differences in religion. There are circumstances under which any race may profess any creed; and the race which displays the strongest tendency in one direction at one time may display an equally strong tendency in an opposite direction at another time. It is true that a real difference of race may be concealed under identity of language, and that identity of race may be concealed under diversity of language; but even after every allowance has been made for this most fruitful source of error, it can be clearly shown that religion is not an ethnic test.

If illustrations be drawn from Christianity in modern Europe, it will be at once manifest that a given religion is at least not co-extensive with a given language. Among the people speaking the various dialects of German, between the Baltic and the Danube, there are considerable diversities of faith. In the north Protestantism flourishes almost side by side with Catholicism; in the south, Catholicism has the field almost to itself; over the whole area the various forms of Protestantism are professed by a number inferior to that which professes Catholicism. And it must be remembered that although Catholicism is tolerably uniform, Protestantism is multiform; even in Northern Germany the Roman Catholics probably equal, if they do not outnumber, any other individual sect. Those Germans, therefore, who are Protestant, cannot be Protestant by reason of their Teutonism, if all are Teutons who speak the German language.

A discussion of the diversities of race which may subsist among the German-speaking peoples would be out of place in this paper. The subject is far too intricate to be treated incidentally. But an instance drawn from a district nearer to England will show that a form of faith is not only not co-extensive with a language, but not co-extensive with a race. Between Holland and Belgium there is no great natural barrier; the people in the south of Holland and the people in the north of Belgium speak closely allied dialects of the same language, and there is no reason, historical or anatomical, to suppose that they are of different blood. Yet the majority of Hollanders are firm supporters of Protestantism, and the Flemings no less firm supporters of Catholicism. A similar phenomenon may be observed in many of the Swiss valleys. There are many German cantons which are almost wholly Roman

Catholic,* and many others which are almost wholly Protestant,† and in many others, again, the numbers are not very unequally divided between the two creeds.‡ In the French canton of Vaud the Roman Catholics form but a small fraction of the population; in the partly French, partly German canton of Valais, Protestantism is hardly known; and in the French canton of Geneva there are about as many Protestants as Roman Catholics. In the canton of the Grisons, where the language is chiefly "Romansch," and where dark eyes and dark hair give evidence of Italian descent, the Protestants slightly, and but slightly, outnumber the Roman Catholics.

It has been supposed that the nations commonly called "Latin," have an innate love of Roman Catholicism. No real student of races can suppose, in the first place, that the French, the Italians, and the Spaniards, have any such community of blood as can distinguish them collectively from the rest of mankind. Each of the three peoples differs considerably from the two others; and if it were true that they all have a tendency to accept the same form of religion, the fact would only show that religion is influenced by causes of which the sum is far more powerful than the single cause of race. The truth, however, is that the preference of these three nations for Catholicism is only apparent, has been remarked only in recent times, and cannot be followed up the stream of history. It will not be forgotten that France produced the Huguenots; it is hardly so well remembered that the very hotbed of mediæval heresy was not England nor Germany, but the district which should, according to the "Latin" theory, have been most Catholic, the district lying between Vaud and Navarre, the district connecting the three "Latin" nations. There sprang up the Albigenes, Publicans, Paterines or Catari, the Waldenses, the heretics of Arragon, and the heretics of Navarre, all accursed of the Church in the twelfth century.§

Any theory, therefore, according to which the various phases of Christianity are forced to correspond with certain alleged ethnic distinctions, must be in direct contradiction not only to the facts of ethnology, but to the most indisputable historical evidence. Even the history of religion in the British isles strongly confirms the opinion that, although the tendency to accept a creed of some kind is apparent everywhere, the tendency to accept a particular form of faith is not the birthright of any nation. A stubborn resistance to the undue assumption of authority has characterised alike English, Welsh, Irish, and Scotch; and the creed which has in each nation shown the greatest vitality, is that which has been, for each nation, the badge of resistance. When Augustine landed in England, the Welsh, Irish, and Scotch Christians were found to differ from the orthodox Romanists, both in doctrine and in ritual. A furious controversy en-

* *E. g.*, Lucerne, Uri, Schwyz, Unterwalden, Zug.

† *E. g.*, Zürich, Bern, Glarus, Bâle, Schaffhausen.

‡ *E. g.*, St. Gallen, Aargau, Thurgau.

§ *Chron. Gervas.*, 1141. (*Ap. Decem Scriptores*) For the appearance of the Paterines, or Publicans, in England, see Will. Newburgh, ii, 13, and Walter Mapes, *De Nugis Curialium Distinct.*, i, c. 30.

sued ; and though the Archbishop of Canterbury, at length, was recognised as the Primate of the Britons, the church in England and Ireland soon assumed an attitude of determined opposition to papal domination. Quarrels were frequent until the time of the Reformation, when both Irish and Welsh, misled by differences of language, considered the English to be of wholly different blood from themselves. In Ireland, the spirit of antagonism gradually took the form of a bigoted attachment to the Roman creed ; in Wales, though the inhabitants were nearly akin to the Irish, the very same spirit gradually developed itself into the extreme of Calvinistic dissent. In the lowlands of Scotland, where there is more Teutonic blood than in any other part of Britain, the religion has assimilated itself to that of Wales, where Teutonic blood can hardly be found. In England, also, Calvinism is rapidly developing itself ; but as though to prove that no one creed is better adapted to the English character than another, there is a multitude of sects, each sustaining itself by conflict with its rivals ; and in America, the multitude of sects is greater than even in England.

It may, however, be thought that minor differences are of little importance in comparison with the existence of Christianity, in one form or other, throughout the whole of Europe, and that in order to discover whether religion is or is not coextensive with race, we must compare the professors of Christianity with the professors of other faiths. Before the connexion of race with religion could be established on this basis, it would be necessary to demonstrate that the difference between races professing Christianity, and those professing other religions, is greater than the difference between the various races professing Christianity itself. But no one who has given attention to this subject, in its anatomical bearings, would be prepared to maintain such a proposition. No one would maintain that a Jew differs more from an Englishman, than the Englishman differs from a Christian Negro ; or that a Mohammedan Turk differs more from a Jew, than a Christian giant of Galway differs from a Christian dwarf of Auvergne. The theory, once not unpopular, that races speaking Semitic languages, are monotheistic, and races speaking Aryan languages are polytheistic, is hardly worthy of serious refutation, when it is remembered that the latter races differ quite as much from one another, as any one of them differs from any one of the former class. The swarthy Hindoo has far less in common with the white-haired Swede than the Neapolitan with the Egyptian ; and the Spaniard is more like his Mohammedan conquerors from Africa, than his fellow Christians on the Rhine.

When we read how Buddha, who spoke one of the Aryan languages, and whose first converts were natives of India, has had the most important influence upon the religion of China ; when we see the faith of Mohammed rapidly accepted by Arabs, by the various tribes of Africa, by Turks, and even by Hindoos ; when history tells us how all the gods of the conquered provinces found not only altars and temples, but worshippers at Rome ; and when, in our own time, we teach Christianity to the savage, we may fairly wonder how the

theory could have arisen that Faith is connected with race. It might, however, reasonably have been expected, on *à priori* grounds, that such a connexion would have been discovered; and hitherto the expectation has been taken as equivalent to the fact. The strange, and, at first sight, inexplicable distribution of religions, which actually exists, may, perhaps, be rendered a little more intelligible by the following considerations.

Except in the case of our most intimate friends, we never know thoroughly even the religion of our contemporaries. The broad general outlines are commonly accepted by whole nations or numerous sects, but the details are filled in according to the disposition of the individual. Terrible religious wars are, it is true, frequently fought about mere words; but the words are always supposed to represent some very important difference of creed. Subtle, however, as the refinements of language may be, they are not so subtle as the refinements of the human mind, when there is a desire to reconcile interest with faith. The missionary cannot be certain that his proselyte accepts his doctrine in precisely the same sense in which he accepts it himself; and even persons who are in the habit of daily association with each other must always remain in ignorance each of the intricate workings of the other's thoughts. Even when there is no hypocrisy, a formula may be adopted by one person in one sense, by another in another; and a man may be possibly guiltless, even of self-deception, who adapts his religion to himself, rather than himself to his religion. When this imperfection of language, as an interpreter of thought, is borne in mind, it is no longer very difficult to understand why different races are apparently of the same religion, and why different sections of the same race are apparently of different religions.

The facility with which, as history tells us, new religions are accepted by vast masses of mankind, though it may cause us to despair of ever isolating and examining by themselves the race-elements of faiths, affords great encouragement to the hope of discovering what is common to all faiths alike. There must be some mental faculty or faculties shared by all, or nearly all, human races, which must dispose them to accept not any particular creed, but a creed of some kind or other. To follow all the twists and turns of a convert's mind, would be, in the present state of science, and probably in any state of science, impossible. It is hardly possible to conceive such an advance towards the perfection, at once, of language, of psychology, and of honesty, as would enable any one human being to know precisely the state of consciousness of another. All that we can hope to do is to agree upon some definition of elementary mental phenomena. When certain divisions of psychical manifestations are admitted, it will be possible to arrive at a definite conclusion upon two points:—firstly, whether any, and which psychical elements are necessary to the development of religion; secondly, whether religion is a necessary function of the human mind in a healthy condition. Upon these two points, however, I do not as yet invite discussion. My object, in the present paper, is to clear off certain prejudices which appear to lie in the way of truth. I found it impossible both to do this and to lay

down more positive principles within the limits of a single lecture ; and I have, therefore, to apologise for dividing my subject into two parts.

In these preliminary remarks, which might have been extended indefinitely, I have endeavoured to be as brief as possible, because it seems to me that I have adduced sufficient instances to invalidate any supposed law, according to which race models religion. No set of instances pointing in an opposite direction, can, I think, establish such a law in the face of these glaring contradictions ; and I am, therefore, content for the present to let my opinion rest on the evidence which I have adduced. But, as I am aware that views opposed to my own are entertained by very distinguished anthropologists both here and abroad, I am most anxious to hear all that can be said against the following position :—

That although there may probably exist certain race-elements in the religion of every people, they are of minor importance, and cannot be defined in the present condition of language and psychology.

Dr. CARTER BLAKE, whilst complimenting Mr. Pike on the great forensic ability and rhetorical skill with which he had advocated his theory, dissented strongly from the general conclusions drawn by the author, and from the particular instances from which they had been derived. As regarded Europe, there was a broad distinction in religion between the Teutonic natives of the north and the Celto-Romanic natives of the south [in illustration of that opinion, the speaker exhibited a rough sketch-map of Europe, coloured to correspond with the religious creeds of the majority in each nation]. There was a great amount of agreement between the distribution of the Celtic race and the Roman Catholic religion, between the Teutonic nations and the various sects of Protestantism, and between the Slavonians and the Greek church. In fact, there was a considerable number of what Lord Bacon called *instantiæ comitatus* between geographical distribution and religious faith. He would take, for more particular illustration, five distinct instances: viz., the Belgians, the people in the north of France, Switzerland, the Welsh, and the inhabitants of the highlands of Scotland. Mr. Pike asserted that the people of the south of Holland and of the north of Belgium were the same race, and yet their religions differed. But the facts were not so, as had been shown by Dr. Lubach. The people of the south of Holland and of northern Belgium were not of the same race. The Hollanders themselves were not of one race. There were, indeed, great differences of race among the people of Holland, and also among those of Belgium. In Holland, there were Frisians, Low Germans, a mixture more or less of the two, and also a mixture with the Wallons. [The map from Dr. Lubach's *Natuurlijke Historie van Nederland* was here exhibited.] The Flamand population were Gothic, Frisian, Franks,—perhaps a portion of Celtic blood,—and their cranial indices differed. The Wallons were composed of Celts mixed with the ancient Belgæ and with the French. The religion of the Belgians was now ultramontane, which nucleated in the Wallon district. The Dutch of Southern Holland, in the days of their ancient civilisation,

were generally Catholics, but now a large proportion of them were Protestants; and the numbers of the two agreed precisely with the difference in the character of the population and their ethnography. Secondly, in the south of France, in Languedoc, the heretical sect of Albigenses arose; and in the canton de Vaud Waldenses sprung up, where the French blood was most mixed with the outlying elements of the old Ligurian natives, which stretched from the Pyrenees to the Alps. In that district, occupied by a short-headed people, the heretic sects abounded; not, let us remember, in a purely Celtic or "Latin" area, but where the Celtic blood was most mixed. Thirdly, with regard to the Swiss, if they were of mixed blood, they could be of no value in support of Mr. Pike's argument, and if they were of pure blood, they told against him. The *crux* of this dilemma must prove destructive to his argument. But, in point of fact, Rüttimeyer and His had described four distinct races in prehistoric times, which had since received importations from French, Germans, and Italians, making seven distinct elements in all. So much for the purity of that Chauvinism which culminated in Geneva. Fourthly, as to Wales, it was stated in the paper to be the focus of Protestant dissent, and if it were attempted to prove that the Welsh were a pure Celtic type, that might be of value; but though the Welsh were a Celtic people originally, there were several types in Wales, as Mr. Pike, in his own work, "On the Origin of the English," had admitted. Fifthly, as to the highlands of Scotland, the Presbyterian sect prevailed, there was no doubt; but in the Island of Skye, which was a nucleus of pure-blooded Celts, the Roman Catholic faith was generally held until a comparatively late period; and it was only among the population of Scandinavian origin that Protestantism was predominant. Such clans as McGregor and McIvor were examples of those who had clung to the ancient faith. The Celts remained pure Roman Catholics for a long time; but the Scandinavians came in at a later period, and introduced and maintained Protestantism among them. So far from agreeing with the paper, it was his express belief that the whole question of race and religion was closely allied. The race produced religion, which is an integral part of the whole man, and the form of religion adopted was a character of the individual race. Religion, he contended, was as much an integral part of man as the form of his skull, the colour of his hair or eyes, his style of dress and music, his propensity to inductive or deductive ideas, or his mode of combat, and was inseparable from his existence. In conclusion, Dr. Blake remarked that, of all days in the year, the eve of St. Patrick's day was the most inappropriate on which to read a paper affirming that there was no connection between race and religion.

The Rev. DUNBAR HEATH, while complimenting Mr. Pike for his paper, as being well written and closely argued, said he was more inclined to agree with Dr. Carter Blake, but he would take a broader view of the subject by not limiting religion to Christianity. They should have gone farther than Europe, for the Christian religion was itself derived from three racial sources—Persian, Hebrew, and Alexandrine Greek. If they extended their views to the east it would

be found that there was something in difference of race corresponding with difference in religion. The Semitic races had an idea of the Deity different from that of the Aryan races, and the difference between those ideas corresponded with the difference in their characters. To certain Asiatic races the idea of a Deity was that of an inactive being. They conceived him to be like a king surrounded with slaves who ministered to him on his throne ; that notion being their highest idea of a monarch, they conceived the Deity to be similar. But the Aryan races had the idea of an active and working Deity, and the difference between them in character was founded on those different ideas. The Christians had both elements in their religion when it was transplanted into Europe, and one element might prevail in one place and the other elsewhere.

Mr. AVERY said, in regarding religion as a matter of scientific investigation, we must go deeper than the peculiarities of creeds, or the teachings of real or pretended revelations. The derivation of the word defines its philosophical meaning (*re ligo*) ; religion is that which binds man to the unseen, the eternal, the Divine, and is thus the basis of moral obligation. Regarded in this light, man may be defined as a religious animal, for he everywhere and always has something that confesses his recognition of the unseen. In speaking of the influence of race on religion, I will confine myself to two nations among whom the racial characteristics are marked and distinct, the Irish and the Welsh. The old Irish are Celts, with a small Iberian element ; the modern Irish, the descendants of English and other immigrants, being generally Teutons. The ancient Welsh, too, are a Celtic race, with a numerous Teutonic population. But in both these countries there is, so far as I have ascertained, little intermingling of the races, and, in Ireland especially, the distinction is palpably preserved. The Teuton race is everywhere remarkable for self-reliance and independence of thought and action. In politics he adopts a constitutional system, which is, in effect, self-government ; in local and municipal matters, he dislikes government interference, and in all his affairs he will not allow that to be done for him which he can do for himself. The Celt, on the contrary, prefers a vigorous personal government ; he traces his prosperity or otherwise, to the action of his rulers, and in his general affairs he likes that to be done for him which the Teuton will do for himself. Turning to the other branch of the subject, religion, as it exists on these islands, presents two general characteristics, that of those who believe in a human mediation between them and the Deity, and those who reject such a mediation. The Catholic receives his creed from the Church : he makes his confession to a priest ; he offers his prayers through the Virgin or the saints ; and his priest is everything to him in matters of religion. The Protestant, on the contrary, draws his creed from what he believes to be a Divine revelation : he worships God in spirit ; he offers his confession and prayers himself to God alone ; and he attaches very little importance to human authority in matters of faith. Now, the Irish Celts are uniformly Catholics ; and the Celts of Wales, though Protestant Dissenters, pay a deference, and attach an importance to their ministers far greater than do the English.

The Teutons in both countries are Protestants of the English type ; and while I see in these conspicuous instances the racial characteristics and the forms of religious belief thus remarkably harmonise, I cannot but believe that race has a great deal to do with religion.

Mr. GEORGE CAMPBELL disagreed from Mr. Heath respecting the preference of the Semitic peoples for a passive Deity, and he adduced the Arabs as an opposite example. The Deity whom they worshipped was conceived to be active in a very great degree, for all Mahomedans referred to God as regulating the actions of everyday life. The natives who worshipped a passive God were very different ; whence they derived that notion was not determined. He was inclined to think that it proceeded from a feeling akin to Darwinism—in a negation of God, and a belief in nature as the regenerative and elevating power, by means of successive births and transmigrations. That feeling prevailed, to a certain extent, among the early Dravidians, and, through them, among the Turanians. As to the Aryans, the distinction was to be observed among them, that one class was more imaginative than another, and had a tendency to a belief in the existence of a host of deities, who came down from Heaven to earth, and took part in the affairs of men. That belief prevailed among modern Europeans of the Roman Catholic faith, as well as among the earlier Hindoos. So among the modern natives of India might be traced a distinction between those who affected an imaginative form of religion, accompanied with great deference to rajahs, priests, and people in authority ; and another class more nearly allied to Northern Europeans in religion, who rejected the excessive authority of priests, and whose religious forms were more dry and less imaginative.

The Rev. DUNBAR HEATH asked Dr. Campbell if the Arabs were not fatalists, and whether, though their God might be assumed to interfere in the affairs of life, they did not suppose all events to be fixed by Kismet, or fate, and, so far, he was therefore passive ? Was there anything in the religion of the Arabs like the idea of a God coming down to earth and working for the benefit of mankind, and even suffering death on the cross ?

Mr. CAMPBELL replied that the belief in fatalism among the Arabs amounted to exactly the same thing as the belief in predestination among Calvinists. The Arabs attributed all events to the immediate action of God in the affairs of this world, and he could not undertake to reconcile that view with predestination, as respects either Calvinists or Mahomedans.

Mr. LEWIS made a few remarks, pointing out some general differences in religious character between the Celtic and Teutonic races.

Dr. NICHOLAS said that so far as he understood the paper, it was admitted that race had something to do with religion. When it was stated that race was not the chief cause of differences in religion, it seemed to be intimated that race, if there was such a thing as race, might at times have some influence at least on the forms of religion, though it was not the main cause in determining the religion of a people. The question was, in the main, an historical one ; and the

fact was, that the same race, or division of mankind, in different parts of their history, had adopted different forms of religion. It was clear that all races agreed in this—they had all a tendency to religion in one or other of its forms. The old definition of religion in the abstract need not be improved upon, as a force binding the minds of men to the supernatural and to moral duty. When they spoke of Protestant and Catholic in the Christian religion, and of different kinds of Deity among the different religions of the world, they only referred to the different concrete forms assumed by the same essential thing. All nations, he thought, were capable of adapting themselves to every kind of religion; and Christianity, especially in its simple Scriptural form, was capable of being assimilated to the minds of all the nations of the earth. Nor should it be forgotten that Protestantism and Roman Catholicism in the Christian religion arose from principles in human nature which had their developments in all the other great religions of the world. Protestantism was nothing else than the assertion of personal liberty to think, believe, and worship. Roman Catholicism was nothing less than priestly government curbing and over-riding that liberty. Those manifestations of human tendencies towards personal freedom on the one hand, and priestly assumption on the other, were found, under different names, in all religions and among all nations, and that was proof, as he thought, that race had little or nothing to do with determining whether a nation should be Protestant or Catholic.

Mr. BREWER said that he had been travelling in Germany during the greatest portion of the last ten years, and he was astounded to hear that night Germany described as a "Protestant country," for the Roman Catholics formed a large majority of the people, in the proportion of three to two, the relative numbers being 18,000,000 Roman Catholics and 12,000,000 Protestants. In Holland, the Roman Catholics formed one-third of the population, numbering 1,200,000, out of the entire population of 3,416,521. Mr. Brewer then proceeded to defend the German "Prince Bishops" against some grave charges made by Mr. Lewis; he pointed to the superior condition of the inhabitants of the districts over which they ruled when compared to the neighbouring states, as a proof that their government was beneficial and enlightened. (Mr. Bendir here rose to order, pointing out that the subject was irrelevant, and Mr. Brewer sat down.)

Mr. McGRIGOR ALLAN dissented from the main principle laid down by Mr. Pike, for it would be difficult to account for the many religions in different parts of the earth, unless the fact were attributed to differences of race. If race had no influence on religion, how was it that England had not been able to make the Irish Protestants? He agreed with Mr. Heath respecting the causes of the distinctive characters of the Semitics and Aryans. Although there had been a great change in religion in Europe since the introduction of Christianity, Paganism had not altogether died out, the relics of which were still to be seen in the Roman Catholic religion. He entirely agreed with Mr. Avery in regarding man as a religious animal, and he

considered that was the only fundamental characteristic distinguishing man from the lower animal, for no animal was religious but man. To ignore this distinctive feature of man was to stultify anthropological science.

On the motion of the Rev. Dr. KERNAHAN, seconded by Mr. M. D. CONWAY, the discussion was then adjourned to the next meeting, on the 6th of April.

APRIL 6TH, 1869.

T. BENDYSHE, Esq., V.P., in the Chair.

The minutes of the previous meeting were read and confirmed.

New Fellow.—Geo. Atkinson, Esq., Cottimore, Walton-on-Thames.

The following list of presents was announced, and thanks were voted to the donors:—

FOR THE MUSEUM.

From Dr. DUNCAN.—Twenty-nine Photographs of Imbecile and Idiots.

From TOM CRASTON, Esq.—Skull of Chimpanzee.

FOR THE LIBRARY.

From the SOCIETY.—Proceedings of the Royal Society, No. 109.

From M. A. QUETELET.—Mémoires de l'Académie Royale de Belgique, f. 37, 1869; Annales Météorologiques de l'Observatoire Royal de Bruxelles, 1868; Observations des Phénomènes, 1865-6; Bulletins de l'Académie Royale de Belgique, 1869.

From Dr. DOWN.—Progress and Prospects at Earlswood Asylum, by Rev. E. Sidney.

From the ACADEMIE.—Bulletins de l'Académie Impériale des Sciences de St. Petersburg, tom. xiii, f. 1, 2, 3.

From the U.S. GOVERNMENT.—Catalogue of the United States Army Medical Museum; Circulars ditto, No. 6, 1865; Nos. 5 and 7, 1867; and No. 1, 1868.

From the AUTHORS.—Sketches in the Isles of Scilly, by W. C. Dendy; Antediluvian History, by Rev. E. D. Rendell.

From Dr. PAUL BROCA.—Mémoires sur les Caractères physiques de l'homme préhistorique.

From GEORGE TATE, Esq.—Proceedings of the Berwickshire Naturalists' Club, 1868.

From J. BONOMI, Esq.—Catalogue of Egyptian Antiquities of the late Robert Hay.

From M. le Comte SAGE STROGONOFF.—Compte Rendu of the Commission Impériale Archéologique, with Atlas.

The adjourned discussion on Mr. Pike's paper, "On the Influence of Race on Religion," was then commenced by

The Rev. Dr. KERNAHAN, who thanked Mr. Pike for bringing this important subject before the Society in his valuable paper. He admired the paper more for its suggestiveness than its conclusions. He felt it only due to the gentlemen who had taken part in the discussion of the last meeting to say that he considered it highly creditable for the

ability and fairness displayed on both sides. The question was not as to the origin or nature of the religious feeling in man, but rather as to the cause or causes which determine the particular form of faith and worship professed by a nation. Undoubtedly there must be some deep and powerful cause, for, as Mr. Bright had said in the House of Commons on the Irish Church question, there is no subject on which a nation is so sensitive as that of its religion; and the comparative failure of the great missionary societies shows how difficult it is to induce a people to change their religion. Now a careful study of history had led him (Dr. Kernahan) to the conclusion that the main causes of different faiths in the world are geographical situation and racial peculiarities. He could easily imagine how, under certain conditions, men would feel disposed to worship the heavenly bodies; he could also understand that where nature is stern and awful similar attributes would be ascribed to God, and that, on the contrary, where nature is mild and beautiful the Deity would be viewed in the same light. He could understand that where the climate makes rest desirable God should be represented in a state of perfect quiescence; and, on the contrary, where activity is demanded, the Deity should appear as an Almighty Worker. But he believed that the chief cause of religious peculiarities is to be sought in racial characteristics; for, even where a people have changed their religion, either through conquest or proselytism, the racial characteristics still disclose themselves—a fact to be seen all over Christendom, for Christianity owes its distinct colouring in different lands to the underground realities of race. The peculiar forms of faith in the world seem to have originated in common notions; but each people has had its great teacher, its dominant mind, who, absorbing in himself the scattered ideas around him, reproduced them in a definite creed and worship. As ages rolled on, people became acquainted with each other, and borrowed religious ideas; and it seemed to him that Christianity is fitted to be a religion for the world, in that it is vitally related on some side to every known form of faith and possesses the primary elements of all religions. In support of his view, Dr. Kernahan referred to Buddha, Menu, Confucius, Zoroaster, Moses, and, on the side of the historical development of Christianity, to Jesus and his Apostles. He quoted the late Rev. F. Robertson, of Brighton, to show that Divine Providence appears to have committed to each nation the propagation of some particular truth and the discipline of some special part of humanity, and hence that all religions were included in the Divine education of the world, and all contributed their share towards the solution of the great problems of human life and destiny. He felt thankful for the light of anthropological science, and hoped the day was at hand when statesmen, philanthropists, and Christian ministers would be guided by the facts of science. If they, as a society, were only faithful to truth he felt certain a great future lay before them. He renewed his thanks to Mr. Pike for his able paper, although differing from his conclusions.

Mr. BENDIR said that hitherto all competent anthropologists had been of opinion that race influenced very materially every perceptible expression of the human mind, and in their descriptions of the charac-

teristics of races all men of science were in the habit of including the various manifestations of mind. Religion was generally considered to be one of those manifestations, and a very important one too; if Mr. Pike objected to a doctrine accepted by all his learned *confrères*, he ought to have proved, either that race could be traced in external characteristics only, or that religion was not the expression of the human mind. Dr. Beigel had attributed religion to two causes: fancy and habit; he (Mr. Bendir) ventured to add one additional cause: ignorance; and the history of religion could be divided into three periods, in each of which one of those causes was in operation. The first period, the stone-age of the human mind, was one in which, from want of knowledge of nature and her laws, a kind of religion prevailed which was based upon fear and hope, the former overbalancing the latter. Then the mind, uninformed by science, was prone to worship sun, moon, and stars; everything, in fact, that was beyond the grasp of the hand excited apprehension and wonder, so it became an object of veneration, or a Deity. Ignorance must, therefore, be called the first cause of religion, *i.e.* the religion of the savage. The second period would be the mythological one, in which fancy, as Dr. Beigel termed it, played so important a part. Mythology, in its beginning, had a local character; its priests and sages would try to extend their influence beyond their locality, and ethical or moral teaching might appear to them a useful addition when they had to deal with communities already advanced in the scale of civilisation. Thus a religion would spring up, partly mythological, partly ethical, and capable of being propagated. If dying out in its original abode, it may live and flourish in other lands and amongst other nations. In course of time they would add to and take away from it according to their racial capabilities and requirements; they would reform one doctrine, protest against another; some rites would be abolished, or sink into oblivion; others would assume a prominence never dreamt of by the original inventors; and by and bye the original religion and its alien offspring would be the same only in name. Some cherished old records, some symbols (say a crescent or cross) would be found in both, but in essentials the difference between them would be as wide as the racial difference that separated one nation from another. Fancy—hardly a precise term—having once been used by Dr. Beigel, it could not now be discarded; but what were fancy, what imagination, what taste, if not manifestations of the mind of man, and subject to the laws of psychology. In art, fancy, or taste, produced according to racial endowments, here a Greek statue which we admired; there an Aztec imagery which we abhorred. Languages, literature, music, were manifestations of the human mind, and, as such, the influence of race was in constant operation on them; why should religion be treated differently? Mr. Pike said that it should because we saw the same nations adopting one form of religion at one another at a subsequent period: he noticed races differing widely *inter se* accepting and nominally professing the same religion; he felt, therefore, a difficulty in tracing the alleged influence of race on religion. This difficulty appeared to him (Mr. Bendir) capable of removal. Mr. Pike

had omitted to look at his subject from a point of view which was indispensable for its illustration. Was there no difference between originating and professing a religion? was there no difference in composing an oratorio and attending at its performance, or even singing in the chorus? was there no difference in originating a system of law and practising it? was the corpus juris not the creation of the Roman mind, because it formed the basis of all law in Europe during and since the middle ages? was the Latin language valueless as a test of race, because it was the common source of four or five idioms which now differ from each other? He maintained that if anthropology taught anything, it taught us that language in its origin depended, to a large extent, upon race and racial endowments; a language may be displaced, but modifications and alterations took place in the adopted or acquired tongue, which were again the result of race. Mr. Pike, being an accomplished linguist, there was no need to give him details in proof of that assertion; but if anybody doubted it the differences existing at present between the languages spoken in Italy, France, and Spain could be adduced as proofs of the action of race; the religions of those countries, too, were the same in name, but in reality not identical. How could that be explained unless it were done by the theory which Mr. Pike dissented from? Was Calvinism the same in Edinburgh and in Geneva? Did not Buddhism vary on the plains of the Indus and in the mountains of Tibet? All these questions could only be satisfactorily answered by admitting the influence of race on religion; but there was still some merit in Mr. Pike's paper, because it held out a warning to us not to ascribe everything to race, and to try to explain too much. The invention and birth of a religion (theologically called revelation) may be, nay it must be, due to race, although not necessarily to race alone; but many inventions and original thoughts became common property of humanity, and often were applied and used without reference to their origin; that may be the case with religious and philosophical systems without the well founded and generally accepted law as to race being invalidated. How could it otherwise be accounted for, that both religions which had been, for a time, eminently successful in their aims at universality, were of Semitic origin? Christianity, the offspring of the Israelite, and Mahommedanism, the offspring of the Arab mind, were they not both the children of race, bearing their parental image engraven on their faces? And the perversions or imitations of these creeds had sufficed for Western Asia and Europe, and all their colonies, where the creative element of religious thought appeared since to have been extinguished; but every race had only retained of those religions what it could understand and use, had altered what was unsuitable, and there were as many religions as racial differences existing now. Dr. Beigel's "fancy-and-habit-theory" did not explain these facts, nor did Mr. Pike's denial of the law of race in religion; still *habit* explained something; we were in that third period now, in which habit could properly be called one cause of religion; there were reasons which led him to think that people very often did neither fully nor sincerely believe in the doctrines of the creed they professed; they did not change it publicly, because

other creeds appeared equally or more objectionable, they remained what they were by force of habit. By such circumstances, witnessed every day in England, France, Germany, and elsewhere, the influence of race on religion became rather obscured amongst highly civilised communities consisting of thoroughly mixed races, always a dangerous element of anthropological calculations; and sometimes erroneous conclusions, like Mr. Pike's, resulted from observations confined to the nations of modern Europe.

Mr. CONWAY thought the consideration of comparative mythology had an important bearing on the question of ethnical religions. All religions had undergone the influence of change, and were liable to be modified, like varieties of species, by natural selection and the struggle for existence. Like the races among which they have existed, they survive or pass away: some are allowed to live and propagate themselves, and fulfil their possible modifications; others are reduced, mixed, or exterminated; and all the great religions in the world were probably formed and developed in that way. If they looked back to the foundation of any new religion it would be perceived that every founder of a new religion retained much of the forms of the religion that was supplanted, and that nearly all religions were costumed in a legendary dress of singular uniformity. There was a kind of stock set of fables and ideas which reappeared in the origin of most of them. However, though they were thus sheathed similarly at first, they blossomed out into different forms of religion, strictly according to the peculiarities of the race with which either of them existed. Thus the Persian religion opens with the same story as the Hebrew. There was in both the finding of a wonderful baby that grew up, narrowly escaping a hostile king in infancy, to perform wonderful deeds, and bring laws from a flaming mountain-top. Yet the Hebrews, out of their legends, evolved a rigid moral law, and the Persians, out of the same set of legends, founded their more cheerful system, in which, though the devotional element was preponderant, there was no asceticism nor sabbatarian law. It was not possible among some races to establish a sombre religion. This difference of sombreness, or cheerfulness, in religions, followed racial distinctions; thus in the southern countries of Europe, where Roman Catholicism prevailed, it took a cheerful form. Though doctrinally they believed in hell, nearly all persons who died were supposed to go to purgatory, and very few indeed supposed to be condemned to hell; while in other religions the mitigated tortures were excluded, and the doctrine of eternal punishment for evil-doers of all degrees prevailed. Certain features of the same religion become all-important with one race, but are reduced to incidental importance with others. The greatest difficulty is to decide whether racial differences, or geographical circumstances, are most influential in these things. In countries where serpents abounded, for example, those reptiles played an important part in the systems of religion; while in other countries, where there are no serpents, they scarcely appeared in the religious creeds. Though there was a great resemblance in the religions of all people which might be traced to a few common ideas, yet in their diffusion through the world they had been adapted to characters and

dispositions of the people, influenced by the country they inhabited. The same causes, he considered, which had produced differences of race had produced differences of religious belief.

Dr. HUNT said he was much pleased with the discussion on the paper, which he considered did much credit to the Society. The consideration of the subject had not, however, been brought forward in a manner favourable for discussion, and he hoped it would be stated more fully on some future occasion. The paper did not state what religion is; and when next the subject was brought forward he hoped they should be able to discuss it in all its details.

Dr. CHARNOCK said, the term "race" implied the unity of mankind, the common origin of mankind; race therefore must influence religion. The radix must influence the stem, the stem the branches, &c.; but the author of the paper no doubt used the term "race" in the common acceptation of the word, and the discussion had degenerated into the "Influence of Religion upon Race," which ought to have been the title of the paper. Mr. Pike's papers were usually confined to Europe; in the present instance he had patronised the Hindoos. Dr. Charnock thought that in the East other examples might have been given. For instance, in the Philippine Islands there were two millions of Roman Catholics, and in Ceylon six hundred thousand; then there were the Thibetans, a so-called Turanian people, who were Buddhists, and the Brahmins and Buddhists who formerly dwelt side by side in India, and were without doubt of the same race. There were Arab Christians, and Christians that had gone over to Islam; some of the Kurds were Mohammedans, others were Christians, and some worshipped the devil. Let us now look at Europe. In Transylvania there were Roman Catholics, Lutherans, and Unitarians; and of the two million Slovaks in Hungary, one half were either Lutherans or Calvinists, whilst the other moiety were Catholics. Mr. Pike stated that in Southern Germany the people were Catholics, and that in the north Protestants and Catholics were living side by side. Now the Southern Germans were mixed with Slaves and Celts; the Bavarians were derived from the *Boii*, a Gallic tribe. In Northern Germany the so-called Protestants were partly Pantheists, partly Gallios. What Dr. Carter Blake had observed with reference to the Swiss, the Languedocians, and the peoples of Belgium and Holland was quite correct; the Swiss were made up of Germans and Celts, the Languedocians of Celts, Goths, and Spaniards. There was a great difference between the Flemish and the Dutch; no doubt both peoples were compounded of Frisians, Batavians, and Franks. The Flemish were however largely mixed with Wallons, and perhaps also with the ancient Belgæ. Some of the Belgæ passed over to the south of England; others to Ireland, where they were called the *Fir Bolg*; but it was not likely that all of them left their native country. They were probably a Gotho-Celtic people; Belgus or Bolgius was the name of a leader of the Gallic army that invaded Macedonia and Illyria in the third century B.C. As Mr. Brewer had very properly remarked, one-third of the people of Holland were Roman Catholics. Most of the Limburgers were Catholics and Wallons. The author of the paper had said that the Flemish spoke the same

language as the Dutch. At the present day however the Flemish peasants found as much difficulty in understanding the Dutch as they did the French language. Mr. Pike said that now-a-days we succeed in converting savages to Christianity. Dr. Charnock did not believe in the conversion of savages ; it was the same with the gypsies, who were of the religion of the peoples among whom they chanced to be located. Mr. Pike assumed that Buddha spoke one of the Aryan languages ; the term "Aryan" was only a little less absurd than "Turanian ;" the only district that could be properly called *Aria* was the country round Herat. No doubt Buddha spoke Sanskrit, a language which formed the base of nearly all the European languages. The author of the paper might have referred to the trivial causes which had induced peoples to change their religion. In the first decade of the sixth century the Thibetans became Buddhists, and remained so until the beginning of the tenth century, when Dharma ascended the throne, and changed the religion to that of Islam. That monarch reigned about twenty-five years, and having been slain by some patriotic priest, the people returned to Buddhism ; and, at the present day, Tibet, in the language of the books, is "the stronghold of Buddhism."

Dr. DONOVAN wished that Mr. Pike had clearly defined the sense in which he had used the term religion. All persons who believe in a God are, so far, of one religion—are Theists ; all Christians, no matter of what denomination, are of one religion. But systems of theology are very numerous ; and of these it is possible that as some creeds call for more submissive faith than others, one creed may be less acceptable to the Saxon than to the Celt. Mr. Pike, in denying this, seemed to fight with a hypothesis of his own making, not combating any one's averment. The question is very intricate and delicate, and he, Dr. Donovan, doubted the expediency of bringing forward such a topic for discussion in this Society. One probably good effect might however result from the paper, namely, the settling of a question that had arisen as to the religious opinions of some of our leading members. For we have heard one of our Vice-Presidents, Dr. Beigel, declare that he does not know what religion is, and then defined it to be "a thing of incantations, and such like matters of no account ;" whilst another Member, Mr. Bendir, declared religion to have originated in ignorance. It must be obvious that such declarations amount to no less than direct atheism. For if religion be what Dr. Beigel and Mr. Bendir define it to be, the idea of a God is at once discarded. Such is not his, Dr. Donovan's, estimate of religion and of God. Mr. Avery's definition of religion left Dr. Donovan little to add. He, Dr. Donovan, deemed religion to be to society what the sun is to our planetary system, that without which there can be neither light nor warmth ; to be the keystone of the moral arch, which would else have no stability nor security. Religion results from inborn principles of the human mind, which principles emanate from original sources operating proximately through the organisation of the brain.

Mr. VICAT COLE observed that religion is always changing, and is not identified with any particular race, while race remained always the same ; and that being the case, it could not be said that religion identi-

fies itself with race. All religions, he said, were, more or less, true ; and that religion was true which adapted itself to what is within a man. It was an error to imagine that one form of religion could adapt itself to all conditions of men, and what they are able to understand ; and it was therefore a bad thing for missionaries to change partially the religion of the Caffres and Bushmen.

Mr. HAMILTON said he had lived for two years in Southern Africa, and he had seen a great deal of missionary work ; and the result of his observations was that there was a strong feeling among the savages against the missionaries, who kept up a kind of aggravation among them, and prevented them from being reconciled ; when they were left alone they carried out the beautiful character of religion—hospitality, that was their religion. The Caffres were shrewd and intelligent, and possessed great natural talent, and knew a great deal better than the Missionary Society what thorough humbugs are generally sent as missionaries to Africa. They would not feed with the natives, but required a special cook to be sent for to cook their provisions, and were generally quarrelsome. He thought Bishop Colenso was the proper kind of man for the Caffres, for he accommodated his language to their modes of thought. Mr. Hamilton proceeded to mention several instances of ill-judged efforts of the missionaries, and concluded by remarking that, unless proper men are sent out, it would do no good to attempt to convert the Caffres.

Mr. PIKE replied to the remarks on his paper. He particularly noticed the objections of Dr. Blake, who asserted that long heads are Roman Catholic and short heads Protestant. He pointed out that the German Roman Catholics of the south have almost the shortest heads in Europe, and that the Italians and French have shorter heads than the English. He observed also that nothing had been said to explain the contradiction presented by the fact that the south of Scotland, where the inhabitants were most Teutonic, and Wales, where they were least Teutonic, were the two great seats of extreme Protestant dissent. As to the distinction drawn by Mr. Heath between eastern and northern nations in the passive and active character of the deity they worshipped, he thought the unsoundness of that theory has been fully exposed by Mr. Campbell. As to the observation of Mr. Bendir, that ignorance was one source of religion, Mr. Pike said he did not deny it, but knowledge also was another source of religion ; and religion of one kind or another existed with both. He did not deny, either, that religion is a function of the human mind, but he had shown in his paper how different forms of religion were propagated from one race to another, and that in the same race the forms of religion differed. With regard to Dr. Donovan's assertion that religion springs up naturally in the human mind, he had no doubt it was so ; the general diffusion of religion was sufficient proof of the fact. He denied, however that religion is innate, and he contended that, on the contrary, children are in the habit of asking questions of a very sceptical tendency. Mr. Pike expressed surprise that during the discussion very little had been said about Ireland, and that nothing had been offered in explanation of the generally admitted fact that the Irish are bigoted

Roman Catholics, while the English are Protestants. That fact might have been adduced as an argument against his proposition, but in reality it was not so, for in early times the united British and Irish made a violent opposition to the introduction of the Roman customs and ceremonies by St. Augustine. No one had said that the Welsh, Scotch, and English, had changed their race, and yet they had all changed their religion; the Irish had been taught to believe that they were a different race from the English, and that they were an oppressed race, but he maintained that there was no more difference between Irish of the low class and English of the same class, than there is between similar classes of Englishmen in London and in Manchester. If the Irish were taught that they do not differ racially from the English it would do away with much of the ill-feeling that now exists and produce a great deal of good. He said, in conclusion, that after all the remarks that had been made on his paper, he retained the same opinions he had expressed in it.

Thanks were given to Mr. Pike for his paper, and the meeting adjourned to the 20th inst.

APRIL 20TH, 1869.

DR. CHARNOCK, V.-P., IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

The Members elected since the last Meeting were announced as under:—

Fellows—Arthur Johnson, Esq., Church House, Oatlands, Surrey; Captain R. Pope, Royal Artillery, Madras; Charles Hamilton, Esq., Kelvedon, Essex; James Holmes Morrison, Esq., M.D., L.R.C.P.E., Lewes, Sussex; Samuel John Cooke, Esq., 57, Camden Square, N.W.; John Alfred Lush, Esq., M.D., M.P., Salisbury.

Corresponding Member—Dr. A. Weisbach, Austrian Hospital, Constantinople.

The following presents were announced:—

FOR THE LIBRARY.

From the AUTHOR—*Reliquiæ Aquitanicæ*. Part VIII. By Lartet and Christy.

From the AUTHOR—*Man and the Mammoth*. Henry Woodward.

From the SOCIETY—*Proceedings of the Royal Society*, No. 110.

From the SOCIETY—*Proceedings of the Royal Asiatic Society of Bengal*, December, 1868, January, 1869. *Journal ditto*. Part I, No. 1, 1869.

From the AUTHOR—*Discoveries in Science by the Medical Philosopher*. By Sir Duncan Gibb, Bart., M.D.

From the SOCIETY—*Bulletin de la Société Impériale des Naturalistes de Moscou*, tom. xli., 1868, No. 2.

From the AUTHOR—Examination of the Hill-forts of Sussex. By Colonel A. H. Lane Fox.

From Dr. C. C. BLAKE—Pre-Historic Times. By Sir John Lubbock, Bart.

FOR THE MUSEUM.

From Mrs. BURTON—Stones from Kitchen-Midden in Santos.

From the Rev. J. G. WOOD, M.A.—Flyflap from Society Islands, and Spear from Western Equatorial Africa.

From W. BOLLAERT, Esq.—Cranium from Chimborazo, two Specimens of Hair of Canelos Indians, Ecuador; Poisonous fruit used by the Canelos for destroying insects.

The DIRECTOR announced that a course of six lectures on the Geological Evidences of the Antiquity of Man, would be delivered by Dr. P. Martin Duncan, F.R.S., F.A.S.L., at King's College, commencing on the 9th of May. He also announced that Dr. Carter Blake was about to deliver a course of lectures on comparative anatomy and zoology at the Westminster Hospital, the last of which would relate especially to anthropology.

Dr. HOLDEN described a calvarium from Glenarm, presented to the Society by the Earl of Antrim.

On a dolichocephalic Cranium from Glenarm, County Antrim. By J. Sinclair Holden, M.D., F.A.S.L.

This cranium I obtained from a small museum belonging to the Earl of Antrim at Glenarm, who has given me permission to present it to the Anthropological Society, in hopes that it may be of some interest.

I regret much being unable to unravel its past history; all I can ascertain is, that it probably came from the vicinity of an old abbey, the foundations of which still exist, near Glenarm.

Its condition shows considerable age, being white and chalky, its consistence brittle, and absence of all organic matter. Bones rather thin.

Measurements. Dr. Carter Blake has kindly assisted me in the following measurements and description:—

	Millimetres.
Greatest length from glabella to prominent part of superoccipital bone	200
Greatest breadth (approximate)	126
Cranial index (ditto)	63
Arc from glabella to edge of lambdoid suture	259
Least frontal breadth, below temporal ridges	92
Frontal arc, nasal to coronal suture	132
Length of sagittal suture	141
Breadth between external angular processes	113

Sutures show almost complete synostosis, especially in the sagittal, a few deep denticulations visible on left side of coronal. The lambdoidal partially obliterated.

The frontal bone perfect except a small portion in right temporal fossa. Superciliary ridges very projecting, with greatest prominence above the internal corner of orbits; the mesial space between orbits, though prominent, shows a hollow space, which depression extends on both sides above the projecting brow ridges. The frontal sinuses are

deep and bicamrate, with not very great lateral extension. The orbital roof is vaulted.

Parietal bones, both deficient from above protuberances rendering the transverse measurement to be only approximate. *Occipital* is wanting from just below the superior curved line.

Curve of Skull. Above the superciliaries the forehead is bombate, without markedly retrocedent slope to a point about 35 mm. in advance of coronal suture. The line from thence to a point about 55 mm. in a backward direction along the sagittal suture is nearly horizontal, giving a flat appearance to crown of head. The fall from thence to the lambdoid is gentle, and the upper half of superoccipital bone does not seem to have been more prominent than the occipital spine.

In comparison with other Celtic crania I have seen, this skull shows more prominence of the brow ridges, but much less retrocedence in the frontal region.

It differs much from the Neanderthal type, though approaching it in the projection of its superciliaries; they have not the same ponderous character; while the bombate forehead and horizontal keel-like roof, mark a wide difference.

Mr. TATE expressed the hope that the skull might be found to be connected with the flint flakes which were numerous in the neighbourhood where the skull came from.

Dr. DUNCAN made some remarks on the substance of the skull, which he said was larger than the skulls usually found in the district. He did not think it could in any manner be connected with the flint flakes.

The thanks of the meeting were given to Dr. Holden, also to the Earl of Antrim for presenting the skull to the Society's museum.

The following communication from Mr. Bollaert was then read:—

I have the pleasure to present to the Anthropological Society, the following objects sent to me by our Local Secretary for Ecuador, James S. Wilson, Esq.

1. *Cranium* from Chimborazo. Mr. Wilson tells me in his letter "I might have brought down others that were put up by the roadside. On examination they appeared to be of cross-breeds (Mestizoes). The cranium was brought from an elevation of 15,000 feet—most probably of muleteers who had died on the road from the effects of yellow fever, which severely visited the country in 1867."

2. Red hair of an Indian woman of Canelos. Canelos is far to the south-east of the city of Quito, the centre of which region is in 1 deg. 30 min. S., 77 deg. 30 min. W. The Pastaza river rises here, descending to the River Amazon. The tribe from which the hair was obtained was probably the Yumbos.*

Mr. Wilson says, "I send you the hair of an Indian woman of Canelos, to demonstrate that all Indians have not black hair.

"Having seen the question mooted by Mr. Blake in examining a skull, with hair attached, from an Indian tomb in Peru, I have forwarded two samples of hair from Canelos to show that the colour of the hair of the Indians is by no means invariably black, nor always coarse."

3. Hair of an Indian of Canelos.

4. Specimen of the poison used by the Indians of Canelos, to put on the points of their arrows.

5. A poisonous fruit used by the Indians of Canelos, to prevent the bite of flies.

Mr. Wilson also tells me that he is preparing a paper for the Anthropological Society on the Antiquities of Santa Elena, near Guayaquil; as well as one on the Indians of Canelos.

In a previous communication Mr. Wilson informs me "My journey into Canelos gave me the opportunity of examining the heads of eight Indians of rather impure breed, who carried my baggage down to that country. On my return I obtained thirteen of the Canelos Indians to accompany me up, and had intended examining their skulls, in particular, on arriving at the first white settlement, but they ran away. I have made a bargain with a trader to get me some of the small heads of the Jivaros, from the Indians of Canelos, who are their enemies."

Dr. CARTER BLAKE said that the skull was of a most interesting character. The squamosal suture had been obliterated early in life, and the triquetral severance of the upper half of the superoccipital bone was very large. The skull was certainly of great interest whether it came from Chimborazo or not.

The following paper on the character of the negro, contributed by the late Dr. John Davy, F.R.S., was then read:—

On the Character of the Negro,—Chiefly in Relation to Industrial Habits. By JOHN DAVY, M.D., F.R.S.

In using the term negro, I wish it to be understood as applicable to the African races whatever their tint of colour,—that infinitely varying from the lightest brown to almost black.

As the title of my paper indicates, it is my intention to speak chiefly of these races as regards their fitness for work and their propensities for, or against labour.

As commonly described,—they are represented as slothful,—to whom labour is absolutely distasteful. Thus an author, who has written so well recently of the people of the United States—Mr. Dicey—in his *Six Months in the Federal States*, speaking of the negroes, contrasting the whites and the blacks as to industrial tendency, says of the latter: "As a matter of fact one cannot doubt that a people, to whom work is naturally distasteful, cannot stand a chance on the same soil and under the same conditions with a race—the whites—which works for the sake of work, as well as for gain. Now supposing emancipation to take place—he wrote before its realisation—the stigma to be removed from labour, and free white labourers to pour, as they would, into the Slave States, black labour would not, I think, stand the competition, and would gradually be driven out of the field"—adding, "It seems as though, by some inscrutable law of nature, the white man and the black man cannot live and work together on equal terms on the same soil. Where the white man comes, the black man has disappeared hitherto, and I fear that America is not likely to prove an exception to the rule."

Now is it true that there is this marked distinction of races? Is it true that the nature of the white man and of the black is essentially different, and that *ab origine* the negro is doomed to remain a degraded being, but little raised above the brute?

I think it is not true. I remember in reading the last work—may it not be his last!—of the eminent African explorer Dr. Livingstone, being much impressed by the following passage:—"It is rather"—he says—"a minute thing to mention and it will only be understood by those who have children of their own, but the cries of the little ones, in their infant sorrows, are the same in tone, at different ages, here, as all over the world. We have been perpetually reminded of home and family by the wailings which were once familiar to our parental ears and hearts,—and felt thankful that to the sorrows of childhood, our children would never have superadded the heart-rending woes of the slave-trade."

As is the child, so, I believe, is the man as to all natural proclivities. What our great dramatist makes Shylock say of the Jew, comparing him with the Christian, is it not applicable to the negro compared with the white? Allow me to read the passage,—substituting *negro* for *Jew*, and *white* for *Christian*: "I am a negro: hath not a negro eyes? Hath not a negro hands, organs, dimensions, senses, affections, passions? fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer, as a white man is? If you prick us do we not bleed? If you tickle us, do we not laugh? If you poison us, do we not die?" I will proceed with the quotation no further,—from the belief that the negro is far less revengeful than the Jew is described to be.

But quitting these generalities, let us consider the two,—the white man and the black in relation to bodily structure. Is the organisation of the negro in any particular such as to render him inferior to the white man for labour, commencing with bodily labour? Certainly not; the average negro having muscles as well developed as any European. Indeed, I hardly need remind you that it was on account of the superior strength and power of endurance, that the African at the recommendation of the humane missionary Las Casas—a recommendation he lived grievously to lament—was first brought into the Spanish colonies; but too late, alas! to save the lives of the feebler natives and the extinction of a race unable to bear the toil exacted by their cruel employers.

Now, what an animal is fitted for by natural organisation, that he commonly delights in doing. According very much with their muscular structure are the native propensities of animals. We do not expect that greyhound, or stag, or race horse, so admirably adapted for speed, would be otherwise than swift: by a parity of reasoning ought we *à priori* to expect, that the negro with organs as well adapted for work as the most industrious races, should be inferior to them in capacity for work.

In the West Indies I have looked on when boys and lads have been at play; and I could not fail to admire the zest with which they en-

gaged in their sports and the cheerful alacrity and activity they displayed when so occupied. Nor have I been less struck with the persevering labour and diligence I have had occasion to witness in the instance of the negro, when occupied on a bit of land of his own, which he had bought, and was cultivating on his own account.

To show that I am not peculiar in the opinion I have formed of the capacity of the negro, I shall take the liberty of reading two or three extracts from the works of men, whose authority cannot be questioned. I will first quote Dr. Livingstone; and again from his last work: speaking of the Manganja people, far in the interior, and exempt from the curse of slavery, he remarks, "They are an industrious race; and, in addition to working in iron, cotton, and basket-making, they cultivate the soil extensively. All the people of a village turn out to labour in the fields. It is not an uncommon thing to see men, women, and children hard at work, with the baby lying close by, beneath a shady bush. When a new piece of woodland is to be cleared, they proceed exactly as farmers do in America. The trees are cut down with their little axes of soft iron; trunks and branches are piled up and burnt, and the ashes spread on the soil. The cane is planted amongst the standing stumps, which are left to rot. If grass land is to be brought under culture, as much tall grass as the labourer can conveniently lay hold of, is collected together and tied into a knot. He then strikes his hoe round the tufts to sever the roots, and leaving all standing, proceeds until the whole ground assumes the appearance of a field covered with little shocks of corn in harvest. A short time before the rains begin, these grass shocks are collected in small heaps, covered with earth and burnt,—the ashes and burnt soil being used to fertilise the ground." He further states—"Iron ore is dug out of the hills, and its manufacture is the staple trade of the southern highlands. Each village has its smelting house, its charcoal burners and blacksmiths. They make good axes, spears, needles, arrow heads, bracelets, and anklets."*

The next author I shall quote, is another distinguished African traveller, Sir Samuel Baker, who, at the meeting of the British Association at Nottingham, in his observations on the African character, contrasted tribes in two different localities: one unfavourable to progress of any kind; the other more auspiciously situated. The first, who inhabited this vast region of morasses extending on either side of the White Nile between 10 deg. and 15 deg. N. lat. "Naked savages, of emaciated forms, the lowest type of negroes, physically and morally." "There," he remarks, "no iron is found, and therefore no iron manufactured. This, the manufacture of iron, one of the causes of the superior condition of the tribes more favourably situated, such as those who inhabit the higher land between 4 deg. N. and the equator—a cooler, drier, healthier climate, and where the art of making iron is every where practised, and instruments of great beauty are made. The Unyora people, he remarked, have invented a kind of hoe that might be copied to advantage by Europeans." Now, surely the smelter's art and the blacksmith's art are not arts suitable to the indolent. The

* *Expedition to the Zambesi and its Tributaries.*

same traveller found the natives of Ungoroo within two degrees of the line "decently clad," who "considered the indecency of nakedness in the same light as among Europeans." These are his words, and I might quote other passages to the same effect from his book. Thus, in one place, he says "It was a delightful change to find ourselves in comparative civilisation: this was evinced not only by decency of clothing, but also in the manufactures of the country," and he specially mentions "a fine quality of jet-black earthenware."

The next authority I shall refer to, was a man who may be said to have sacrificed his life in the cause of humanity—good Bishop Mackenzie. He, on arrival in the Manganja country, then in company with Dr. Livingstone,—seeing how that hilly region was cultivated, remarked to his companion: "When telling the people of England what were my objects in going out to Africa, I stated that, among other things, I meant to teach these people agriculture,—but now I see that they know more about it than I do." And, this you perceive, accords with the quotation before given from Dr. Livingstone, showing the manner in which land was cleared and brought into cultivation.

Anonymous authorities may commonly be objected to, but when I mention the well known signature of *Jacob Omnium*, I trust I may bring forward his evidence with the certainty that it will be received as trustworthy. The words that I shall quote are from a letter of his that appeared in the *Evening Mail* of the 21st of September, 1866, in reply to some remarks on the negro of the most disparaging kind. He observes: "I see no proof that the negro requires a greater stimulus to work than the white man:" adding, "Some of the first sailors I have seen have been pure negroes, and the Kroomen of the coast of Africa, are well known to all who have frequented the coast, for their intelligence, fidelity, and energy as gangsmen, both by sea and land." And, he further remarks, in proof of the inaccuracy of the opinion of the mental powers of the negro becoming stagnant at an early age—about that of puberty, "That he had in his employ between twenty and thirty years a black engineer, born and bred on his estate who had during that time entire charge of a powerful steam-engine and sugar mills; and a black boat captain, also born and bred on his estate, who during that time had entire charge of a schooner of sixty tons manned by negroes, and constantly plying backwards and forwards between the capital of the colony—George Town, British Guiana—and the coast, on a stormy and open sea-board, without any harbour of refuge in bad weather, and on no one occasion had I reason to suppose I could have been better served by white men." This opinion of Jacob Omnium that "The negro requires no greater stimulus to work than the white man," is confirmed by Dr. Livingstone most fully, where he says: "When it is for *their interest*, blacks work very hard."

Allow me to submit to you one more quotation. It is from a very interesting narrative of a tour through the island of Jamaica, with remarks on the social and industrial condition of the people,—the emancipated negroes, by Thomas Harvey and William Brown. The passage I select, is descriptive of what they witnessed on a well ordered estate. "We next drove to the Arcadia estate, the residence

of a gentleman who as proprietor of several estates and attorney for others, exercises an influence which is beneficially felt throughout the parish. On these estates work proceeds with the same regularity as in a well ordered English establishment. The secret consists in the punctual and weekly payment of wages, the firm but kindly handling of the people, and the discouragement of all harsh language and improper conduct on the part of the overseers or book-keepers. During our call the weekly returns of work on two of the estates were brought in, from which we were allowed to copy the following items of wages actually earned in one week :—head boiler man 15s. 4d. ; boiler-men and stokers, each 11s. 8d. ; still-man, 9s. 9d. ; engine-driver, 15s. ; cane-carriers, 11s. 6d. ; carpenters, 2s. 3d. and 2s. per day ; mason, 2s. per day. The earnings of the rank and file were of course on a smaller scale.”

“*Manchester*,” they further remark, “is probably at present the most advanced and prosperous parish in the island. Coffee is its great staple. The value of this crop, for the whole island, we heard computed at £300,000, of which two-thirds is grown by the smaller settlers. Some of the people are fairly rising into a middle class. We found one black freeholder, once a slave, living in a house, which with its out-buildings, coffee-floor, &c., must have cost several hundred pounds, and what was better still, was comfortably and even elegantly furnished with books on the table, and framed prints on the walls.”

I trust I need hardly observe that I should not have brought forward the evidence afforded in these quotations, were I not, from what I knew myself of the people to whom they relate, satisfied of their accuracy. During three years spent in the West Indies, and I visited all our colonies with the exception of Jamaica, I had tolerable opportunities of becoming acquainted with the coloured races ; and from my own knowledge, I might state particulars all in accordance with the statements already submitted to you, to show that the negro as regards industry, does not deserve the stigma of inferiority to the white man, so far as his aptitude for labour and his inclination to labour are concerned. My belief is that under similar circumstances, with like motives to industry, or the absence of such motives, little difference would be appreciable as regards labour in the two races.

It seems to me somewhat idle to say that the white man has an innate love of labour, or, as Mr. Dicey expresses it, “works for the sake of work.” Activity, a certain vital energy, whether of muscle or of brain, may be said to be innate,—but as germs for development and growth, according to the circumstances, in some measure, which may be favourable, or the contrary, to their direction and perfection.

In Barbadoes an opportunity offers of comparing the two races, placed not precisely in the same circumstances, but as nearly so, probably, as possible, at the present time ; viz., the emancipated negroes and their descendants, and the poor whites, the descendants of the original colonists. Whilst the former were made to work during slavery,... the latter were free to work or not, according to inclination, and the men, these very whites, constituting the island militia, and having an

allowance of pay and a portion of land accordingly, and often a slave or two, considered field labour beneath them, and grew up in habits of idleness, spending much of their time in cock fighting, drinking and other amusements. The habits thus acquired have adhered to them. Under less favourable conditions since emancipation and the loss of their militia allowances, they have fallen lower and lower, and are in every way a degraded race; mostly weakly and unhealthy, and often depending more on the industry of their wives than their own—these Whites also—but who resisted the temptations to which the men were exposed, and never lost their habits of domestic thrift and industry, which they inherited from their English parentage. The negroes, the reverse of these poor Whites, on emancipation, with their acquired habit of labour, when free, found labour easy and comparatively pleasant, having no longer the terror of the whip urging them to over exertion, but the stimulus of wages, with the comforts and enjoyments which such wages would procure them.

During slavery, in its worst time, the black population was constantly on the decrease, owing to the undue mortality occasioned by hard labour and ill-treatment. No sooner was the slave trade abolished, and it became the interest of the planter to mitigate the condition of their labourers, than the tide began to turn, and the births exceeded the deaths; and so continuing after emancipation, there is now such an increase, as to meet all the wants of the estates and the demands of the planter,—with an excess permitting of emigration. And what is remarkable, the produce of Barbadoes has increased in somewhat the same ratio, and is greatly more than during the period of slavery. And it is remarkable too, that even amongst the planters a general contentment prevails, they finding themselves in a far happier state, working their properties with willing labour, instead of with forced labour. I have heard a proprietor say that during the olden time he never put his head on his pillow without dread of something that might occur during the night—such as a corn field on fire, or rising of slaves. Then every island had its place of refuge; and a white militia was constantly ready to act. Further details on this subject might tire your patience; but knowing how strong is the persuasion that the negro is an idle being, I will ask your indulgence, whilst relating the experience of one of the planters of Barbadoes at a critical time, arising out of a panic in the money market. He had been peculiarly successful, and this mainly owing to the system he followed with his labourers, paying them daily, and with strict justice, when on task-work, according to the amount of work done; thus, with a kind manner towards them, gaining their confidence and regard. During this crisis, he continued their daily payments as long as possible; at length when his means were exhausted, he called the labourers together and acquainted them fully of his inability to pay them for the present, any longer. To a man they volunteered to keep two of his estates, those on which they had been employed, in order, waiting for a better time for remuneration. The same gentleman had recently purchased a third estate,—the labourers on which were in a manner strangers to him. These men all struck work. The others hearing of this, a

second time came forward and offered to keep this property also under culture on the same condition as the two before mentioned—an offer that was gratefully accepted. What should we say of farm labourers in our own country, or in any other European country, who so tried, would have acted in the same manner? Would they not deserve the highest eulogy? And, these negroes, many of whom may have been slaves and have felt the lash of the driver, do they not merit highest praise.

I should be wandering from my theme were I to digress on the great subject of the unity of the human race: yet I am tempted to say a few words about it, for which I must again ask your indulgence.

As regards differences of bodily structure, I believe I may confidently say, that comparing the two races, the whites and the negroes, they are trivial, and not more remarkable than the variations observable in the several coloured races, whether Chinese or Malays, Hindoos or Australians; and less remarkable than those which are witnessed in any species of our domestic animals. Dr. Livingstone remarked that he had “never seen a perfectly black African,” the colour being different shades of bronze,—and in the highlands especially, where not much exposed to the sun’s rays, light chestnut; nor, as he states, does he hold to any one form of other presumed peculiarities, whether “of nose, or lip, or calf or heel.” And it is well to keep in mind that of the peculiarities assigned to the negro, some of the most marked, as the colour of the skin, the crisp and close set black hair, and head and black eyes, may better fit them for their native tropical climate; a climate as fatal to the white races, as that of our northern regions is to the African,—justifying I believe, the proposition that the white man and the black cannot live together on the same terms, *i.e.*, substituting *climate* for *soil*; and of this we have already tolerable proof in our West Indian colonies, where, since the abolition of slavery, the negro population has been rapidly increasing and prospering and the white population has been decreasing,—and not merely since emancipation, but before. Picture to yourselves a white man labouring, as I have seen him at labour, with a hoe in hand, an umbrella over his head, and a white face cloth over his face, and you will comprehend how unfit he is for field labour under a tropical sun, and the folly, and indeed cruelty, of importing, as has been too often done, English labourers into our West Indian colonies. The proportionally great mortality of white troops in all tropical climates, proves to demonstration, its unfitness for white races. Next, as regards mental qualities,—the same remarks seem hardly less applicable. Even amongst our own people, what an infinite variety of intelligence is observable; and as regards classes, surely very much in proportion to educational means employed in aid of the development of the intellect. I once asked a very intelligent physician and planter of Antigua, who had taken his degree in Edinburgh, what he thought of the intellectual capacity of the negro? His reply was that he considered it quite equal to that of the European. One of the most interesting sights that came under my notice whilst I was in the West Indies was a school for negro children of various ages, under the superintendence of the

learned Principal of Codrington College. I happened to be present during an examination, and I was truly surprised at the mental activity and intelligence and acquired knowledge which these young scholars displayed ; and the same gentleman has expressed his opinion, both as regards the activity of the young mind of the negro, and its capability of further advancements with continued education,—an opinion of more value as founded on his knowledge of the progress made by coloured students in training at the college for holy orders. Professor Tiedeman, I need hardly remind you, has given many instances of negroes who had made a certain progress in the liberal arts and sciences and distinguished themselves as clergymen, philosophers, mathematicians, philologists, historians, advocates, medical men, poets, and musicians, and that many also had earned reputation by their talents in military tactics and politics. After careful inquiry, the results of which he gave to the Royal Society in a paper “On the brain of the Negro, compared with that of the European and the Ourang-outang,” his final conclusion was, that there is no innate difference in the intellectual faculties of these two varieties of the human race,—he maintaining that the apparent inferiority of the negro is altogether the result of the demoralising influence of slavery. And, now reflecting on the innumerable and terrible evils which slavery has produced,—evils which, Nemesis like, have not spared their masters, blinding their moral sense and degrading their character, may we not well congratulate the present generation on the prospects, now at last opening, of total abolition of slavery in America and its islands ; and that, with an arrested demand for African slaves for exportation, may not a ground of hope be entertained that the dreadful curse may ultimately be removed from the entire of Africa, and that once abolished the African races may then have, what hitherto they have only partially possessed, a fair field for exertion ; and the fact that those tribes which have been the least oppressed by slavery, and have had the advantage of a good climate and of a soil not ungrateful, as in the highlands of Central Africa,—have made fair progress, comparable perhaps to that of the ancient Gauls and Britons, may it not at least warrant the hope, that they too, like them, may under favouring circumstances, run the like course and attain the same height of civilisation : or, a mode of civilisation of their own, distinguished for greater geniality,—a stronger display of the natural affections, and an absence of that stern severity, that iron resolution which have left their stamp on the character of most European nations in times of utmost trial—of whom the Spaniards and French are the most striking examples in their wars of religion, and our countrymen, including the *perferendi Scoti* in all our wars, especially the most recent. This hypothesis of a milder type of civilisation, which the negroes may inaugurate, was brought forward by a well known writer in the *Edinburgh Review* when criticising the *Introductory Lectures on Modern History* by the late Dr. Arnold, and his opinion “That modern history appears to be not only a step in advance of ancient history, but the last step,—as if there would be no future history beyond it,”—the fulness of time having been reached. The opinion—this opinion of the critic—that this stability of history is

not proved,—that a new era may open, viewed merely as a possibility, may be deserving of thought. It is not one that I can advocate—believing, as I do, that the several races of mankind are not essentially different. However, there are traits in the history of the coloured races which might be brought forward in support of the speculation. In giving the quotations from Shakespeare, I broke off without finishing the speech of Shylock, assigning as a reason, my belief that the negro is less revengeful than the Jew is represented. Now it is very remarkable how little of the revengeful passion the black races have shown under oppression. Even during the worst times of slavery the murder of a white man in our colonies was a rare occurrence; and, on the great event of emancipation, the freed negroes seemed to have had but one strong feeling, that of gratitude associated with the religious sentiments of adoration to the Supreme Being, for this great boon conferred on them. The day was marked by crowded congregations at places of worship; and so it is kept, in commemoration, annually, to the present time. Whatever the future history of the human race may be,—surely it becomes us to keep in mind, that those varieties of it—those nations which are now distinguished for their advances in the sciences and the arts, were once rude and what are commonly called barbarous, and that, to adopt the words of Dr. Arnold in the Lectures referred to, “Even the ancestors of the Athenians were to be no otherwise distinguished from their barbarian neighbours than by some finer taste in the decorations of their arms, and something of a loftier spirit in the songs which told of the exploits of their warriors.” Keeping this well in mind let us not treat with contempt,—often ending in cruelty,—existing races, still, as it were, in their infantile state,—but view them with kindness, giving them credit for capabilities for improvement, needing only culture and sustained education to bring them forward and into the pale of civilisation. Of all existing races, the natives of Tasmania and Australia are commonly considered of lowest type. The former have been supposed ignorant even of the method of kindling fire—they are a solitary example—and under the necessity of preserving it with all the care and after the manner of the vestal virgins. This is not the case, as I have been assured by a gentleman—Mr. Robinson, their appointed official protector,—who, after careful study, formed a high opinion of their capacity, teachability, and of a certain innate goodness of character.

Mr. DENDY said he felt in a delicate position with regard to the paper; for it was a maxim *de mortuis nil nisi bonum*, nevertheless there were many of the author's remarks to which he must decidedly object. In the first place, they expressed the erroneous ideas that were broached twenty years ago. It was asserted that the Jew and the Negro might be assimilated, and a speech of Shylock's was quoted, and the sentiment expressed was applied to the Negroes. He (Mr. Dendy) could not accept it as a truth that the Jews and Negroes were so approximate; because the Jews were of the Caucasian race, and the Negroes were not; neither could he, nor any anthropologist, admit their similarity when looking at their respective organizations. Nor in the assumed similarity of their characters was there any real

resemblance ; for the general character of the Jews was not to be taken as justly represented in the character of Shylock.—there were Shevas as well as Shylocks. Looking at the question anatomically, it would be found that a great difference existed between the Caucasian and the Æthiop. The muscular system of the latter was not so highly developed ; and Mr. Dendy referred, in confirmation of that opinion, to the recent cricket matches, at Kennington Oval, between Englishmen and Australians. The latter batted well, but they lost every game because they could not run. The Negro, in fact, could not run ; he lifted his legs high as an Andalusian horse does in his *amble*, and went at a slow pace. Then the working propensities of the Negro could not be affirmed at the present day. In the Southern States of North America they could not get the free Negro to work regularly, pay him whatever they would. The Negro was drunken and idle, when not compelled to work by necessity. Next, as to mental capacity, the Negro, with few exceptions, could not be educated beyond a certain point. After boyhood, their mental development seemed to be arrested. It was the same with apes : when young, they exhibited a gleam of intelligence, bearing some comparison to that of children, but when they approach the adult period, they were very different from human. As to the assertion that the anatomical differences between the Negro and the European were trivial, it was only requisite to compare the skulls on the table to demonstrate their comparative development. The paper seemed to have been written rather in a party spirit, favouring the question of direct Negro emancipation, and was very much in the style of *Uncle Tom's Cabin*. He felt assured that his opinions respecting the Negro would be borne out by most Americans, and he thought the paper was calculated to mislead ignorant persons, and to produce false impressions. The treatment of the Negro should be that of a wayward child,—kindly, yet very firmly.

Mr. RALPH TATE, speaking from his experience of the Negroes within the last two years, said he considered them to entertain an exaggerated opinion of their own importance ; that they were saucy and idle, and would not work when they had obtained enough to supply their present wants. He had seen some of them turn out tolerably good work ; but they had no taste, and required direction. The inferiority of their muscular system, compared with Europeans, was to be seen in their legs. He never saw a Negro run. The influence of climate on the Negroes, he thought, was much the same as on white men, and they were more susceptible to diseases. In the mining districts of Guiana they were almost always ill ; but that might in part be attributed to their imprudent mode of living. They made good miners, while the natives of the country were useless for the purpose ; they also undergo fatigue better than any other men who could be introduced from other countries. They worked from seven o'clock in the morning until four in the afternoon, with a cessation of an hour at midday, and they worked indefatigably during the time. They earned as much as from 10s. to £1, and, in some cases, £3 a-day ; they spent their money very freely, and were thus led into danger. By judicious management, they would

do the work set them. With regard to their intellectual capacity, he thought the Negroes were capable of attaining a limited amount of education.

Dr. HUNT expressed his regret at being obliged to speak against the character of the paper, which he was surprised should have been offered to a scientific society by a man so eminent as Dr. Davy, the brother of Sir Humphry Davy, although any communication from him was entitled to attention. He had, indeed, put the case in favour of the Negro in a forcible manner; but he had not advanced anything new. In the discussions on the subject some years ago, distinctions were made between the different Negroes in Africa; but the author of the paper did not recognise any distinction between them, and considered the Negroes in all parts of Africa as the same. He attempted also to controvert the opinion that, in the colonies, the white man and the black cannot work on equal terms; that was, however, a matter that depended on climate, and in some respects therefore, in a hot climate, they would work better than Europeans. Again, the author drew the inference of equality from the fact that the cries of children were the same in all parts of the world. He might have said the same of the cries of the young of most mammalia. Dr. Hunt then proceeded to comment on the authorities quoted in the paper, noticing the reference to Jacob Omnium, and to the evidence of two gentlemen sent out to Jamaica by the Society of Friends. With respect to the latter, he remarked, that the members of the Society of Friends generally saw what no other European could see in the Negroes,—that they were all peace, quietness, amiability, and goodness,—and could not see what was in their characters as seen by other people. With regard to their capacity for labour, it had been shown in a paper, written by Dr. J. C. Nott, that the Negroes had great repugnance to agricultural labour; that in America they were becoming worse and worse every year, and were dying out by disease. As an anthropologist, he admitted he was delighted to find the Negro in the present state in America; for it afforded an opportunity of seeing the Negro problem worked out in that country. He was frequently receiving letters to the effect that the views of some of the Fellows of the Anthropological Society were being verified, and that the attempts to educate the Negro were forcing him to his ruin. Dr. Davy spoke of his experience, which was thirty years old. He agreed with Mr. Dendy, that the Negro could be educated to a certain point, but only so far, and beyond that point his progress would stop. But the question then arose as to the amount of good to be done by it. A gentleman who had been in America, who previously conceived the Negro to be capable of a certain amount of intellectual advancement, now stated that he had changed his opinion, as most persons who have been in America did. All the facts he had read in the papers, the statements of scientific men, and the correspondence he had received, agreed in representing the present state of the Negroes in America to be worse than ever. In certain climates, no doubt, the Negroes were very useful, and he hoped they would become useful to the rest of humanity; but in their present state they

were fast dying out in America, owing to the attempt to force them into an unnatural position. Experience had shown that the worst fears respecting the Negro had been verified, and he could only say he wished that such had not been the case.

Mr. CONWAY said it was of the utmost importance that the subject should be treated without prejudice, and he regretted that anything had been introduced in the paper to give rise to a feeling of that kind. The question of emancipation was not involved in the character of the Negro, for nearly all the Negroes in America were mixed with European blood, it being very rare to see there a Negro of pure blood. He had been born and brought up among those people. His father was a slave-owner, and he had taken great pains to observe the characters of the slaves among those who were most unmixed in blood. So far as his experience extended, he must say that the Negroes had the advantage of the Whites in point of activity; for the southern poor white was about the laziest man in existence. With respect to the opinion of Mr. Higgins,—better known as Jacob Omnium,—quoted by the author of the paper, he attached more importance to it than Dr. Hunt seemed to do; for Mr. Higgins was a man of perfect truth, and had himself employed Negroes extensively in the West Indies. If he had not profited by their industry, he would not have said so. As to the assertion of their repugnance to agricultural labour, he called attention to the fact, in contradiction to that assertion, that lately in all the elections in the Southern States, the Negroes were threatened by their masters that they would not give them work if they voted for the republican candidates; the threat of withholding work from them showing that, in their masters' estimation, the Negroes were anxious to work. It was a matter of fact that, since Savings' Banks had been established in the Southern States, the Negroes had deposited in them four or five millions of dollars. That fact showed that the liberated population were working industriously. As to their being worse off than they were before emancipation, he believed that, to a great extent, they were so; for there was a hope entertained by the southern planters that there would be a return to slavery; and hating as they did, from principle and connexion, the present state of things, they had reason to make him uncomfortable, and, he was consequently maltreated and was badly off. But when there was seen to be no possibility of a return to slavery, their condition would be altered. It was the fault of the planters that the Negro was not better off, and it could not fairly be attributed to the character of the Negro. This complaint against the Negro that he was worse off than before, reminded him of the Frenchman who, when convicted of the murder of both his parents, appealed to the court for mercy, because he was an orphan. The Southerners looked on emancipation as a great wrong; and the present state of things in America was artificial, and had no bearing on the character of the Negro, or to the position he would normally occupy. As to his capability for education, Mr. Conway did not consider the difference between the European and the Negro furnished a warrant for saying that his intellect is inferior to that of other un-

developed races. In his physical characteristics there seemed, no doubt, to be something peculiar; but similar differences were observed in different other races.

Mr. BURNS thought that in reviewing the position of the negro his circumstances ought to be taken into consideration—organic, parental, educational and social, as these were the conditions which regulated all men. The tendency of his organisation was towards the nutritive, sensuous, and emotional. His parentage bequeathed to him no hereditary mental qualities of a high order. Their minds, as a race, were devoid of educational influences, and their social position was that of the slave or savage. Where circumstances had enabled a favourable change to take place in the conditions of the negro, he had displayed highly commendable qualities in various phases of active life. The speaker pointed out that the same have obtained amongst our own countrymen. A vast improvement could be noticed in three generations of culture, and there was a great difference observable between the Dorsetshire labourer and the Lothian ploughman; the deuzen of the east end, the city, or the west end of London. The people of Great Britain had a very different conformation of cranium from what they had a few centuries ago, as was indisputably evidenced by the skulls dug up in old abbeys, &c. Culture and improved conditions had effected this desirable change, raising the British from a state of barbarism to the highest point of present civilisation, and he thought similar treatment would have a like effect upon the negro.

Dr. HOLDEN made some observations respecting the alleged equality between negro and European children. He said he had for nearly two years assisted some young ladies in the management of a negro Sunday school near New York, and had no doubt of the children being very different from those in any White school. They were everlastingly restless and fidgety; attention could only be caught by appeals to the eye or ear, as with pictures or singing, and then but for a moment. The total absence of the slightest effort at reflection and the constant animal restlessness, marked a wide difference between black and white children.

Dr. NICHOLAS said he had listened to the paper with great interest, and he thought the testimony brought forward in favour of the negro was very satisfactory. Being himself free from prejudice on the subject, and belonging to no "school," he had listened with respect to the sentiments of those who had lived among the negroes; and he thought that some of the accusations that night brought forward against them were of little value. It had been said, for instance, that the negro would only work when it was to his advantage to do so. Now, we were all, he thought, about the same in that respect, and we should not blame the black man for possessing one of the chief traits of Englishmen. The fact that the negro was much employed in labour was itself proof of his strong muscular power. He regarded the negro, with all his defects, as a hopeful part of humanity, fitted, as proved by experience, to undergo culture. It had required centuries of culture to convert the savage Saxons into the Englishmen of the present day, and even now there remained much to accomplish. On com-

paring the Dorsetshire and Wiltshire labourers, and many of the dwellers in the eastern part of London with the negro, he doubted whether there was much advantage on the side of the former.

Mr. HAMILTON observed that when anyone attempts to teach negroes anything he cannot fail to observe the great restlessness of their characters. The work to be done must be placed before them, and it must be made clear to them that they must do it. There was, indeed, a place for the negro, which was in his own country; and he should not be interfered with. Speaking of the negroes in southern Africa, he said that they cultivate the soil when it is their own, but even then the men won't do it, but leave it to the women. The men marry early and have a wedding once a year, getting their wives to do the farming work. They are perfectly happy in that state, and our missionaries have no business to interfere with them. The coolies who had been introduced into the country were much inferior to the Zoolu Africans, for savage people were always best in their own country.

The meeting was then adjourned to the 4th of May.

MAY 4TH, 1869.

DR. BEIGEL, VICE-PRESIDENT, IN THE CHAIR.

THE minutes of the previous meeting were read and confirmed.

The presents received since the last meeting were announced as follows:—

FOR THE LIBRARY.

From the INSTITUTE.—Journal of the Royal United Service Institute, No. lii, 1868.

From the SOCIETY.—Transactions of the Geological Society of Glasgow, Vol. iii, Part i.

From the SOCIETY.—Proceedings of the Royal Geographical Society, Vol. xiii, No. ii.

From A. L. LEWIS, Esq.—One Chinese Anatomical Diagram.

From the SOCIETY.—Royal Society of Tasmania, formerly Royal Society of Van Diemen's Land: its Reports from 1848-66; Catalogues of Plants, 1857, 1865; Monthly Notices, 1863-1867; Abbt's Meteorological Observations.

The CHAIRMAN said he was sorry to have to announce that the Society were about to lose one of their most valued officers, for the Director, Mr. Brabrook, had tendered his resignation, a government office having been offered to him which he had accepted. The Chairman bore his testimony to the valuable work Mr. Brabrook had done for the Society; and he said he did not know how the want could be supplied which his resignation would occasion. It was only the presence of Mr. Brabrook which prevented him (the Chairman) from stating more fully the valuable services he had rendered to the Society.

He had been always ready and among the foremost to undertake anything that was to be done to promote their interests. The least they could do was to render him their ardent thanks for the kindness, the ability, and the zeal he had shown in his work ; he had made it a work of love, being convinced that the objects of the Society, and the principles on which it was founded, would ultimately gain the victory. The Chairman, in conclusion, called on the meeting to render their most sincere thanks to Mr. Brabrook on his resignation.

Mr. DENDY expressed the thanks of the Society to the Director for the valuable services he had rendered in its management. There was, in addition to his other qualifications, one quality which, above all others, made him valuable in council and discussion, which was his clear and exact mode of reading, so that everything he read was perfectly understood ; and he (Mr. Dendy) had often listened with admiration to his reading. Having been specially associated with Mr. Brabrook, occasionally, he had the opportunity of observing and admiring his great tact and management. In conclusion, Mr. Dendy expressed his best wishes that, under whatever circumstances Mr. Brabrook might be placed, they would tend to his happiness and welfare.

The motion having been passed with unanimous expressions of approval,

Mr. BRABROOK said, it was impossible to conceal the emotion he felt at the flattering remarks of the gentleman who had proposed the vote of thanks, and the cordial reception of it by the meeting. Such services as he had rendered the Society had been outweighed by the honour of holding the office he had filled, as successor to the founder of the Society, Dr. Hunt. He trusted that in transferring it to whoever might be appointed in his place its honour and dignity were undiminished. The success of the Society itself was assured, and depended in a very slight degree upon whoever might happen to be its executive officer. His earnest desire had been to discharge his duties with sympathy and good feeling, and he retired from office with no sentiment but one of gratitude to all with whom he had been concerned.

The CHAIRMAN called attention to a number of photographs, which were exhibited by Mr. Pedroletti, of natives of Africa, China, India, and other people taken in the Sailors' Home. He then read a letter from Professor Broca of Paris, on the promotion of an Anthropological laboratory, which he said afforded the opportunity of acquiring valuable instruction ; and he expressed a hope that the Anthropological Society of London would even have such a laboratory.

The thanks of the meeting were given to Professor Broca for his communication.

Dr. CHARNOCK then read a paper, of which the following is a short abstract, on "The Peoples of Transylvania"—

The races embrace Hungarians, Szeklers, Flemish, Saxons, Germans, Wallachs, Armenians, Bulgarians, Servians, Russians, Italians, Greeks, Jews, and Czigány or Gypsies. The Saxons have still the manners of the fatherland. There are few marriages of affection. Divorce may be had on the smallest pretence. The language is Low

German. The Ugri or Hungarians have been confounded with the Turkish tribe, called Uighurs. Ugorien probably means "high land," from Ostiak, *ugor*, "high." The Magyars are of the Asiatic type; the eye is large and flashing, eyebrows large and bushy, moustache thick, teeth large and white, complexion often tanned with the sun. They are strong and well-proportioned. Some of the finest men are found among the lower orders. They are more polished than the Szeklers, are patriotic, hospitable, benevolent, possess much national pride, and take little interest in industrial pursuits, but are great politicians. The women age quickly. The Szeklers occupied the province as early as the eleventh century. Their identity with the Huns is doubtful. The name is from Magyar, *szék*, "seat," *hely*, "place". They are of medium stature, and more closely knit than the Magyar. The cranium is flat, face mostly oval, nose small and curved, mouth small, lips slightly raised, chin rounded, eyes fine and flashing, complexion somewhat tawny, hair usually black, but in the highlands sometimes fair. They are energetic, and enduring, and make good soldiers. They are of a sanguine temper, independent, sober, thrifty, hospitable, unostentatious, and more enthusiastic than the Magyar. They are neat and cleanly in their persons and home. Beggary is a rarity. The lower orders are somewhat sensual, obstinate, and ambitious. The people speak Hungarian, but have a broader accent than the Magyars. They seldom speak German; but are generally acquainted with the Wallachian. They are either Calvinists or Unitarians. More than half the peoples of Transylvania are Wallachs. They are most numerous in the central and western districts. The race is brachycephalic, and approaches the Vendic type. The cranium is greater than that of any of the Austrian races, except the Slavonians, Magyars, and Czigány. Most of the Wallachs are dark; but some are fair. They are great horse and cattle dealers, and are engaged in agriculture, and as drivers of the public conveyances. Their dwellings often swarm with vermin. They are superstitious, idle, and improvident, have little regard for law or authority, are great thieves and cowards, have a mania for incendiarism, and are prolific; they all wear woollen trousers and sandals. About Naszod they are of the better sort, well dressed, and the women are pretty. They are of the Greek or united Greek Church. The base of their language is Latin; it contains many words from Greek, Slavonic, Turkish, and German; it is now the fashion to disuse words not derived from Latin, and to introduce others from French, Italian, and Spanish, which the peasants do not understand. Some Wallachs speak German. There are three Armenian towns. Great part of the trade is in the hands of Armenians and Greeks. The Armenians first came from Moldavia into Transylvania in 1672; others arrived at a later period. They are of middle size, some are rather stout; the eyes, hair, etc., are dark; the ladies are handsome, and make good housewives. The Armenians are a quiet, civil, hospitable people, scarcely troubling themselves about anything but trade. Though sharp in business, they are honest, and are much liked by the Magyars, with whom they often intermarry, but

not with the Saxons. They speak both Magyar and German. At Számos Ujvar, where they have a church, they converse in Armenian. Their dress, manners, habits are the same as those of the Hungarians; they were originally of the Greek church, but are now nearly all Roman Catholics. According to some, the Jews arrived in Transylvania towards the end of the first century; there was a later influx at the taking of Constantinople. They dwell in and near market towns, and in villages among the Wallachs, are of the Rabbinite sect, and now enjoy full political rights and religious liberty. In external appearance the race peculiarity is unchanged; there have been no inter-marriages. They acquire the Magyar, and when speaking it, it is scarcely possible to detect any difference between their pronunciation and that of the Magyars; it is otherwise when speaking German. The Czigány entered Transylvania in 1420, and probably had their name from the Persian *zangi*, an Egyptian, Ethiopian, Moor, Negro. They are very dark and of middle stature, but there are many fine men; they are capable of enduring any amount of cold or heat, and live to an advanced age. The most common diseases are measles, smallpox, and weakness of the eyes, occasioned by the smoke of their dwellings. They are fond of carrion, and are very dirty. They are found in all the markets. Some are carpenters, turners, pan-makers, or horse-dealers; others wash gold from the rivers. Their most usual occupation is working in iron; they are skilful farriers and blacksmiths, and better field labourers than the Wallachs. In no part of Europe is the gypsy language better preserved; here it maintains its grammatical peculiarities; this is accounted for by the fact that here they have not been persecuted, but have been allowed to herd together. It has many words from the Turkish, Wallachian, Magyar, Slavonic, German, Latin, and Greek; its vocabulary differs much from other gypsy dialects. Many gypsies also speak the Wallachian, and they are generally acquainted with the language, and conform to the religion of the district; their real religion is a mixture of fatalism and fetishism. In government returns they are set down as Christians. The located gypsies are generally honest, and the females virtuous. Some are skilled in music: they place a violin in their children's hands at an early age, and keep them in constant practice; they do not play from notes, nor perform many tunes, but execute with great perfection, and are generally led by a Hungarian. The musicians are looked upon as the gypsy nobility. The gypsies sometimes intermarry with the Wallachs. They have a sort of regular government, rather nominal than real; their chiefs are distinguished by the Slavonian title, Voyvode. Measurements and description of a Rumáni skull in the collection of the Anthropological Society, by Dr. Carter Blake, were appended.

Thanks were given to Dr. Charnock for his paper.

The following remarks on Dr. Charnock's paper, communicated by the President of the Society, Dr. BEDDOE, were then read.

"I regret very much that I have not the opportunity of hearing Dr. Charnock's paper. Probably the few remarks I have to make upon its subject may have been anticipated therein; nevertheless I submit

them, on the chance that they may aid in promoting discussion. They concern the Transylvanian Saxons almost exclusively.

“Firstly, I wish to call the attention of the Society, supposing Dr. Charnock not to have done so, to the remarkable fact that the Saxon population is, or was till lately, rapidly decreasing in number. This is not to be accounted for by any of the causes that would most readily suggest themselves in a similar case. The country is fertile, and has a fairly good climate: it has not, for a century, suffered very severely from the ravages of war; no extensive emigration, that I am aware of, has taken place. One author speaks of ‘family pride’ as the cause of the decrease, but does not further explain his meaning. There must be something in the habits and customs of the people either adverse to marriage and propagation, or prejudicial to infant life; whatever it be, the resulting phenomena are greatly to be regretted, the Saxons being, as reported, a fine race, physically and morally, thriving, industrious, and well-conducted, and much superior to the Roumans or Wallachs, who are multiplying so rapidly that they threaten at no distant period to swamp the Magyars, Szeklers, and Saxons.* I might add a good deal respecting the tendency to dwindle in numbers of certain highly endowed castes, breeds, or types of mankind; and the subject would be interesting and important, as the popular idea that the superior race always gains on the inferior seems to be too readily taken for granted; but I forbear, as the connection of all this with Dr. Charnock’s paper may be too remote.

“I wish also, however, to draw attention to the fact that the settlement of Germans in Transylvania, who may have been among the ancestors of the present Transylvanian Saxons, dates far beyond the period usually assigned. When the Gepidæ were overwhelmed by the Avars, with the assistance of the Longobards, they were not extirpated; long afterwards, in the course of an invasion of Hungary, or rather of the Avar country, by an army from the Eastern Empire, the ravagers came upon and pillaged three communities of Gepidæ, who seem to have been living quietly as subjects of the Avars, and taking no part in the war. Wave after wave of conquerors, or devastators, subsequently rolled over the country, but just as the remains of some other of the early occupants seem to have escaped destruction by amalgamation with the Slavonic tribes, and to have left their race types among these, in the hilly regions of northern Hungary, for example; so it seems to me likely enough that fragments of the once formidable Gepidæ may have endured, as subject agricultural communities, in some remote Transylvanian valleys, till the advent of a people so near akin to them as the Saxons from Westphalia and the Lower Rhine, with whom they may easily have amalgamated.

“JOHN BEDDOE.”

Mr. LEWIS observed, in reference to that part of the paper which stated that divorces are more common among the Saxons than the Magyars, that it showed a greater want of chastity among the former than the latter. This was in accordance with statistics which he had

* See Boner’s *Transylvania* on this point.

seen relating to illegitimate births, but did not support the views of the admirers of the Teutons, who claimed chastity as a specially Teutonic virtue.

Mr. PIKE hoped that some one would have added to the information in the paper about Transylvania, which seemed to be a place where much interesting information might be got, for many different nations were located there, and it might be regarded as a great battle-field of anthropology. Mr. Pike proceeded to criticise the paper, which he described as containing too little definite information, and as quoting authorities of doubtful credibility, and he characterised it generally as being "inaccurately statistical." One thing, however, he said was to be gathered from the paper: that Dr. Charnock had altered his opinion on one important point. He used to say that language was everything in distinguishing different races, but in this paper he quoted opinions about the forms of the skull, from which it appeared that he now thought that there was something besides language to be taken into consideration in anthropology. He congratulated Dr. Charnock on having made that distinct advance in anthropological science.

Dr. NICHOLAS thought the paper had given much information on an interesting subject. The reason why the Saxons of Transylvania spoke Low German was that they had emigrated into that country in large numbers from the region between the Rhine and the Elbe, taking of course their language with them.

Dr. CHARNOCK thanked Dr. Carter Blake for his remarks on the two Transylvanian crania in the Society's collection. The decrease of the Transylvanian Saxons, referred to by Dr. Beddoe, was a curious fact, because it was an actual decrease; but it was first necessary to get at a proper return. According to Boner (quoting, no doubt, Bilz) in 1787 the Saxons numbered 302,204, and in 1850 192,482; whilst another author made it 237,000 in the latter year. Again, Malte-Brun put down the Saxons at 483,000, but the date of the return was doubtful. Dr. Charnock had only glanced at Mr. Boner's work, but if he remembered rightly, the causes for such decrease, given by the author, were over-work, deficiency of food, early marriages, and inter-marrying. Dr. Beddoe seemed to be of opinion that the Saxons of Transylvania were not of modern importation, but were descended from the ancient Gepidæ. These Saxons, however, had their traditions and history. The Gepidæ were, as a nation, almost destroyed in the sixth century, some of them being carried into Italy; others joining the Lombards; whilst the remainder became slaves to the Avars of Hungary. It was quite possible that some of the present races of Transylvania were descended from the Gepidæ. The Saxons, however, did not accord with the Gepidæ of Procopius and Salvianus, who described them as *gens inhumana*, whilst they did, to a great extent, agree with the Germans of the present day. The chief difference between the Transylvanian Saxon skull on the table and the typical Teuton was that the latter was usually orthognathous, whilst the present specimen was prognathous; they were both, however, brachycephalic. Mr. Pike asked for authorities for certain statements in the paper. Most of

the facts were vouched for; nearly fifty authorities would be found cited.

A communication was then made, contributed by Lieut. EARDLEY WILMOT, "On the Hair of the Hovas of Madagascar," accompanied with specimens; and Dr. Beigel read a report of a microscopic examination which he had made of the hair.

The meeting adjourned, after a short discussion, till the 18th inst.

MAY 18TH, 1869.

L. OWEN PIKE, Esq., Vice-President, in the Chair.

THE Minutes of the previous meeting were read and confirmed.

The following list of presents was announced, and thanks were voted to the donors.

FOR THE LIBRARY.

From J. W. JACKSON, Esq.—The Argument, *à priori*, for the Moral Attributes of God (two copies). The necessary Existence of God (two copies), W. H. Gillespie.

From J. FRASER, Esq.—Gathering from Grave Yards, by A. Walker. The Narrative of Captain David Woodard.

From Dr. DELGADO JUGO.—Discursos leídos en la Sesión inaugural de la Sociedad Antropológica Española, 21 Feb., 1869, Don Francisco F. Gonzalez and Dr. Delgado Jugo.

From Dr. JAMES HUNT.—M. Edouard Filhol, Dr. F. Garrigou. De la Femme dans l'état social de son Travail et de sa Remuneration; M. B. de Perthes; Congrès Medical International de Paris. Köhlerglaube und Wissenschaft, Dr. Carl Vogt. Natur Wissenschaft und Bibel, A. Wagner.

From the SOCIETY.—Reports of the Royal Society of Northern Antiquaries.

From the SOCIETY.—Proceedings of the Royal Society.

The CHAIRMAN directed attention to the skeleton of a gorilla which was standing on the table. He said it had been presented to the Society by T. Craston, Esq., and had been contributed and set up by private subscription among the Fellows, as such an object was not considered to be strictly one to which the general funds of the Anthropological Society could be appropriated. It was pronounced to be one of the most perfect skeletons in this country.

The following paper, contributed by Mr. HODDER M. WESTROPP, was then read.

On the Mythic Age.

There is no greater evidence of the intellectual unity of the human race, than the similar and almost identical myths evolved in different and remote countries. The human mind pursues the same path among all races in its struggle to emerge from darkness into the light of civilisation. The same phases of mind follow in orderly sequence. One of the most remarkable of these phases is the evolution of the mythic period in the progressive development of nations, correspond-

ing to the youth or imaginative or fable-loving age of the individual man.

The various myths, legends, fables and other products of the imaginative phase of man's mind in different countries, presenting a marked analogy, prove the spontaneous tendencies of human thought and imagination are similar in all countries, at a certain stage of their progress. They are phenomena of the human mind, developing themselves in accordance with laws peculiar to the mind of man in the youthful stage of his development. They are rude attempts in an uncivilised and unphilosophical age to solve the unintelligible phenomena of nature, those ever recurring phenomena suggesting like and analogous ideas to all races. As all the manifestations of nature are connected with each other by the common principle of being, and as all exercise of reason must give birth to somewhat similar results, so also the mythic offspring of the mind must bear a kindred relationship and likeness to each other. The uniformity of the operations of mind and instinct among all races will necessarily produce these similarities.

In the life of every nation or community left to its own natural career, there is *necessarily* a primitive mythic or mythopœic age during which all men express themselves by means of concrete fictions, created according to their momentary impulses; and these fictions aggregating themselves, are formed by degrees into a mass of mythical substance; in the life of the individual man also, there is invariably a youthful period, in which the tone of fiction and the poetic and imaginative elements predominate. It can be shown that in every nation, as in each individual, the same stage has been gone through, each passing through the same phase and subsequently advancing out of it, for every evolution or phenomenon of the human mind has its allotted period in the sequence of the stages of its development.

As Dr. Draper remarks, "There is a progress for races of men as well marked as the progress of one man. There are thoughts and actions appertaining to specific periods in the one case as in the other. Without difficulty we affirm of a given act that it appertains to a given period. We recognise the noisy sports of boyhood, the business application of maturity, the feeble garrulity of old age. We express our surprise when we witness actions unsuitable to the epoch of life. As it is in this respect in the individual so it is in the nation. The march of individual existence shadows forth the march of race existence, being, indeed, its representative on a little scale." The mythic period is thus the invariable and necessary evolution of the youthful phase of man's development, as well in the individual as in the aggregate.

Man being endowed in all races with the same instincts, capacities and faculties, works out similar conceptions and ideas, according to the stage of his development, for the mode of action of human organisation is uniform in all climes. In the early stage, like the child, he extends his personality to all he sees, he transfers his human attributes, his feelings, passions, vitality to all external and material things, he invests the trees, the winds, the rocks, the rivers with consciousness and will, he seeks to bring all nature into harmony with his human

nature, he attributes life and intelligence to all parts of creation, he identifies the elements, the stars with superior beings; he thus receives impressions which produce analogous ideas and feelings in different countries, which he embodies, gives a concrete shape to and combines in the form of a fiction. Prichard (*History of Man*, p. 505) confirms this view in the following passage, "So many curious traits occur in the description of this infernal goddess and her abode, which recall the Proserpine of classical mythology, and the Pattala of the Hindoos, and the subterranean scenes of enchantment among the Arabs, that we might well be inclined to derive these fables from a common source, if the resemblance between them was not better accounted for by referring it to the common laws of the human mind, and to the tendency of the imagination to create similar fictions with reference to particular subjects, and under the influence of corresponding feelings and impressions. But this brings out so much the stronger the proof that the mind is the same in different countries and in different races of men." The vivifying sun becomes a beneficent and all-powerful being; the all-producing earth, a bounteous and kind mother: night, darkness, the storm, the thunder cloud, and lightning, being injurious to him, he conceives as adverse and antagonistic beings. The sun, which animates all nature, which causes the seasons, which bestows on the earth that active heat, the cause of all productiveness, becomes thus the hero of many a tale and myth.

"To that tendency for personification," we again quote Dr. Draper, "which marks the early life of man, are due many of the mythological conceptions. It was thus the hours, the dawn, and night, with her black mantle bespangled with stars, received their forms. Many of the most beautiful legends were thus of a personified astronomical origin, many were derived from physical nature. The clouds were thus made to be animated things; a moving spirit was given to the storm, the dew, the wind. The sun setting in the glowing clouds of the west becomes Hercules in the fiery pile; the morning dawn extinguished by the rising sun, is embodied in the story of Orpheus and Eurydice. These legends still survive in India." To this origin we may attribute the numerous myths of the sun under the name of Ra, Surya, Helios, Mithra, Adonis, Apollo, Odin.

The personification and worship of the physical sun under the name of Ra, appears to have been universal in Egypt. He was usually represented as a man with a hawk's head surmounted by a globe or disk of the sun. The form of a hawk was given to him when he set behind the western mountains of Thebes, and was received into the arms of Athor, who presided over that part of the universe and represented night.

The Indian makes Surya the personification of the sun. He is pictured of a deep golden complexion with his head encircled by golden rays of glory. He has sometimes four, and at others two, arms; holding a lotus in one of his hands and sometimes the chakra or wheel in another; standing or sitting on a lotus pedestal, or seated in his splendid car with one wheel, drawn by a seven-headed horse of an emerald colour.

“But oh, what pencil of a living star
 Could paint that gorgeous car,
 In which, as in an ark supremely bright,
 The lord of boundless light
 Ascending, calm o'er the empyrean sails,
 And with ten thousand beams his awful beauty veils.”

Sir W. Jones's *Hymn to Surya*.

With the Greeks Helios was the sun. He was the son of Hyperion and Thea, and a brother of Selene and Eos. By Homer he is described as giving light both to gods and men. Rising in the east from Oceanus and traversing the heavens, he descends in the evening into the darkness of the west. This simple notion was greatly embellished by later facts. In the Homeric hymn on Helios he is given a chariot and horses. At a later period, Apollo was identified with Helios, but the identification cannot be carried out. The myth of Apollo was one of those beautiful figments, the pure and unmixed products of the Greek poetic mind. He was the embodiment of the refined intellect and physical beauty of the Greek himself.

With the Peruvian, isolated from every other nation and far removed from any Asiatic or European influence, the sun was the beneficent father of his dynasty of kings, and the Incas were his children. “Our northern natures can hardly comprehend how the sun, the moon, the stars, were imaged on the heart of a Peruvian, and dwelt there; how the changes in these luminaries were combined with all his feelings and his fortunes; how the dawn was hope to him, how the fiery midday brightness was power to him; how the declining sun was death to him; and how the new morning was a resurrection to him; nay more, how the sun, and the moon, and the stars, were his personal friends, as well as his deities; how he held communion with them, and thought that they regarded every act and word; how, in his solitude, he fondly imagined that they sympathised with him, and how, with outstretched arms, he appealed to them against their own unkindness, or against the injustice of his fellow man.”*

In the rude conceptions of the Scandinavian, Odin, “the one eyed,” “the fire eyed,” who sits on Air-throne, the watch-tower of Asgard, was the sun, who moves in the firmament or air, and oversees all things.

Many, however, of the mythic products of the imaginative age cannot be resolved to a solar origin or be reduced to any single system; for they are the natural offspring of the wild and impetuous feelings and emotions peculiar to that phase.

All tends to prove the indigenous and independent growth of these myths, each race evolving them, according to its peculiar genius and temperament, as the natural and spontaneous offspring of the imaginative mind in its youthful phase.

The Egyptian mind produced stern and gloomy figures; the Hindoo, hideous and fantastic shapes; the Greek, forms of grace and beauty; the Scandinavian terrible and bloodthirsty impersonifications. Thus, the stern and rigid Ra, the fantastic-shaped Surya, the beautiful and

* Helps's *Spanish Conquest in America*.

graceful Helios and Apollo, the terrible Odin, were personifications of the same physical sun.

Egypt was an isolated country, shut out from all contact with other nations; its civilisation was strictly self-developed; for we have no record that Egypt learnt anything from any other nation. Egypt was the earliest of nations; for to it we may attribute with every certainty the first steps in civilisation. Egypt had a mythic age, a religious system; Egypt had developed a language and the arts and sciences requisite for the conception and execution of the stupendous monuments and works of art still extant, for many thousand years, when many of the surrounding countries were in a primitive and pastoral state.

In India we see the course of independent development as strongly exemplified; for India, locked in by Indus and the Himalaya, lying far away and apart, where even the faintest echoes of Greece or Europe could never reach her, ran through its solitary cycle, and worked out its development alone. India has a literature of poetry and philosophy, which reaches back to the earliest times, older than Troy and the Iliad, older than the Pentateuch; there were Indian poets before Homer lisped his first song; there were Indian thinkers and philosophers before Thales called water the *αρχη* of all things.

"The literature of Greece," as Colonel Mure observes, "was, in all its branches, a plant of indigenous growth, indebted to no foreign aid for its nurture or improvement." Grecian myths are evidently the pure and undiluted secretions of the Greek mind, and have consequently no connexion with Indian or Egyptian myths; they evince their Hellenic origin, being founded on genuine Hellenic feelings and principles. The beautiful and poetic legends of Greece have nothing in common with the coarse and monstrous fables of India. Lord Lytton confirms this view:—"Grecian mythology cannot be moulded into any of the capricious and fantastic systems of erudite ingenuity: as a whole, no mythology can be considered more strikingly original, because its foundations appear indigenous, and based upon the character and impressions of the people; and because at no one period from the earliest even to the latest date, whatever occasional resemblances may exist, can any identity be established between its most popular and essential creations and those of any other faith."*

As to Peru, its remoteness and total disconnexion from the rest of the world are sufficient to induce a belief in the certainty of the independent and indigenous growth of its mythology. Humboldt, when remarking on American fictions analogous to those which occur in Europe, observes:—"Thus, in every region of the earth, a resemblance may be traced in the early fictions of nations—those especially which relate to two principles governing the world, the abode of souls after death, the happiness of the virtuous, and the punishment of the guilty. The most different and most barbarous languages present a certain number of images, which are the same, because they have their source in the nature of our intelligence and our sensations. Darkness is everywhere connected with the idea of

* *Athens: its Rise and Fall.*

death. The Grotto of Caripe is the Tartarus of the Greeks; and the guacharos which hover over the rivulet, uttering plaintive cries, remind us of the Stygian birds."

Attributing the origin of myths to etymology, to Sanscrit roots, and to a phase of language, is absurd. Language is but the tool of the imaginative and mythopœic mind; we may as well attribute the wild fancies of the poet to his pen, the life-like forms of the painter to his brush, or the living marble of the sculptor to his chisel. The real originator is the mind in the poetic phase. It has been said that the origin of mythological phraseology is language forgetting itself. Language may forget itself a hundred times, but can never produce anything, unless the imaginative mind impregnates it.

As an instance of the etymological solution, we may give the following:—"It is said by the poet Hesiod, that Uranus (the sky) covers everything; and that when he brings the night, he is stretched out everywhere, embracing the earth. This sounds almost as if the Greek myth had still preserved a recollection of the etymological power of Uranus; for Uranos is the Sanskrit Varuna,* and this is derived from a root *var*, to cover."† Can we conceive that Hesiod had a recollection of the etymological power of Uranos when he gave utterance to this natural poetical expression, flowing from an imaginative mind? And again, "Daphne is young and beautiful,—Apollo loves her,—she flies before him, and dies as he embraces her with his brilliant rays;" or, as a poet of the Veda expresses it, "the Dawn comes near to him (the sun); she expires as soon as he begins to breathe; the mighty one irradiates the sky;" but surely the same eyes to see, the same heart to feel with nature, and the same mind to give expression to his thoughts, were common to the Greek poet as to the imaginative Hindoo; it was the same simple story of nature which inspired the early poet, whether Greek or Hindoo. Why ascribe the origin of these solar myths to India? Let us hear what common sense suggests in reply, in the beautiful language of Lord Lytton, "the effects of the sun upon human labour and human enjoyment are so sensible to the simplest understanding, that we cannot wonder to find that glorious luminary among the most popular deities of ancient nations. Why search through the east to account for its worship in Greece? More easy to suppose that the inhabitants of a land, whom the sun so especially favoured, saw and blest it, for it was good, than, amidst innumerable contradictions and extravagant assumptions, to decide upon that remoter shore, whence was transplanted a deity, whose effects were so benignant, whose worship so natural to the Greeks. And in the more plain belief, we are also borne out by the more sound inductions of learning. For it is noticeable that neither the moon nor the stars—favourite divinities with those who enjoyed the serene nights, or inhabited the broad plains of the east—were honoured with that intense and reverent worship which attended them in Asia and in Egypt. What the stars were to

* Varuna is the god of the waters, the Indian Neptune, and thus cannot be in any way connected with Uranos (heaven).

† Muller, *Comparative Mythology*.

the east, their own beautiful aurora, awaking them to the delight of their genial and temperate climate, was to the early Greeks.”*

The crucial test of the Sanscrit etymological system is the mythology of Mexico, Peru, and Central America, into which, however deeply we may dig, we cannot unearth a Sanscrit root, for it was worked out independently, and far removed from Asiatic influence. This system contains many analogous myths with those of India and Greece; yet it is impossible to attribute their origin to Sanscrit roots or the Veda. To what Sanscrit roots shall we trace the Huitzilopotchi, the war-god, who, like the Buddha of the Hindoos, was born of a virgin, and like the Minerva of the Greeks, came into the world all armed; the Quetzalcoatl, the god of air, who, like the Manu of the Hindoos, was the first legislator, and instructed the natives in the arts of government, of the Mexicans; the Pachacamac and Viricocha, names of the deity Chasca (the planet Venus), the youth with the long and flowing locks, the page of the sun; Illapa, thunder and lightning, the sun's dread ministers of the Peruvians; the Fama-gostād and Zapaltonal, like the Ouranos and Ge of the Greeks, the heaven and earth of the inhabitants of Central America? With what figment of the Veda shall we connect the Polynesian solar myth of Mani catching the sun in a noose, that he might compel him to move more slowly, in order that mankind may have long days to labour and to procure subsistence for themselves? or are we to attribute it to an Egyptian origin, as we find the Egyptian name Ra in the Polynesian name for the sun, Tama-mu-te-Ra? To what Sanscrit phraseology are we to assign the exquisite and lovely Polynesian myth, in which “Heaven still remains separated from his spouse, the Earth,—yet their mutual love still continues; the soft warm sighs of her loving bosom still ever rise up to him, ascending from the woody mountains and valleys,—and men call these mists; and the vast Heaven, as he mourns through the long nights his separation from his beloved, drops frequent tears upon her bosom,—and men, seeing them, term them dew-drops?” Are we to attribute this to some dim recollection of the etymological power of the Sanscrit root, *prush*, which means “dew”; or rather, as common sense would suggest, to the natural poetical conceptions common to the human mind, and consequently equally evolved by the remote Polynesians?

Ballad poetry, which is an embodiment in verse of myths floating through the popular mind, is also an invariable growth of that stage in the progress of society, which corresponds with the youthful period of the individual man; as Macaulay observes, “it is a species of composition which scarcely ever fails to spring up and flourish in every society at a certain point in the progress towards refinement.” It belongs to the common store of human nature, the outpourings of which, in forms varying according to time and place, are sure to be found in all corners of the world. “All human beings, not utterly savage, long for some information about past times, and are delighted by narratives which present pictures to the eye of the mind.” In the recital of these tales, the language naturally falls into metre and

* *Athens: its Rise and Fall.*

rhythm. Hence the ballad measure in which they are frequently found. "Tacitus informs us that songs were the only memorials of the past which the ancient Germans possessed. We learn from Lucan and from Ammianus Marcellinus that the brave actions of the ancient Gauls were commemorated in the verses of the bards. During many ages, and through many revolutions, minstrelsy retained its influence over both the Teutonic and Celtic races. The vengeance exacted by the spouse of Attila for the murder of Siegfried was celebrated in rhymes, of which Germany is still justly proud. The exploits of Athelstane were commemorated by the Anglo-Saxons, and those of Canute by the Danes, in rude poems, of which a few fragments have come down to us. The chants of the Welsh harpers preserved, through ages of darkness, a faint and doubtful memory of Arthur. In the Highlands of Scotland may still be gleaned some relics of the old songs about Cuthullin and Fingal. The long struggle of the Suevians against the Ottoman power was recorded in lays full of martial spirit. We learn from Herrera that, when a Peruvian Inca died, men of skill were appointed to celebrate him in verses, which all the people learned by heart, and sang in public on days of festival. The feats of Kurroglou, the great freebooter of Turkistan, recounted in ballads composed by himself, are known in every village of northern Persia. Captain Beecher heard the bards of the Sandwich Islands recite the heroic achievements of Tamehameha, the most illustrious of their kings. Mungo Park found in the heart of Africa a class of singing men, the only annalists of their rude tribes, and heard them tell the story of the victory which Damel, the negro prince of the Jaloffs, won over Abdul Kader, the Mussulman tyrant of Foota Torra."* Ireland had also her bards, who sung the heroic deeds of her native chiefs, her Conloch, her Cuchullin, and her Fin Mac Cool. In Mexico, the traditions of the country were embodied in the songs and hymns which were carefully taught in the public schools. These were various, embracing the mythic legends of a heroic age, the warlike achievements of their own, or the softer tales of love and pleasure. A New Zealand priest thus terminates his legend of Mani:—"This is narrative about the generations of the ancestors of the inhabitants of New Zealand, and therefore we preserve closely these traditions of old times, as a thing to be taught to the generations that come after us; so we repeat them in our prayers, and whenever we relate the deeds of the ancestors from whom each family is descended, and upon similar occasions." These analogies and coincidences in the songs, ballads, narratives, and other fictions, in countries so unconnected and far apart, all tend to show that they were independent inventions peculiar to that phase of the social infancy of man, corresponding with the boyhood, or story-loving age, in the individual man. As heroes and heroines, ogres and giants, were the offspring our youthful imagination, so Arthur and Fingal, Romulus and Remus, Achilles and Ulysses, Conloch and Cuchullin, were products of the imaginative phase of the national mind.

Mr. Grote's observation with regard to the mythic period in Greece,

* Macaulay, *Lays of Ancient Rome*.

“The curious and imaginative Greek, whenever he did not find a recorded past, was uneasy till he had created one,” may be applied to many nations. To this same source we may attribute the fabulous annals and legends of the past in China, Hindostan, Egypt, Greece, Rome, England, Ireland, Peru, and Mexico.

China had her Fohi, who is said to have invented the art of music and numbers, and to have taught his subjects to live in a civilised state, her Yaou, her Shun, and her Yu the Great. India, her Manu, the father of the human race, and the patriarchal ruler and legislator; her kings, who were denominated children of the sun and moon. Egypt her Menes, the founder of Memphis, and her kings, also styled sons of the sun, Sera, son of Ra. Greece, her Pelasgus and the Pelasgi, who introduced agriculture and possessed a considerable knowledge of the useful arts; her Helen, the mythical ancestor of all the Hellenes; her Cadmus and his Phœnicians, who introduced an alphabet, and a higher civilisation.* Rome her Æneas and his Trojans; her Romulus, and her lawgiver Numa. England her Brutus, a great grandson of Æneas, who founded a dynasty of kings, among whom were Bladud, Lear, Cymbeline. Ireland her Nuad and her Tuatha de Danaans, of superior knowledge and intelligence, and skilled in magic and necromancy; and her Ollam Fodla, her first lawgiver. Mexico her Quetzalcoatl, her great benefactor, who instructed the natives in the use of metals, in agriculture, and in the arts of government. Peru her Manco Capac, and her Mama Oello, who gathered the natives into communities, and taught them the arts of civilised life, and her Incas, the children of the sun, their descendants.

These figments, we repeat again, were all the products of a mythopœic age transferred to a past which never existed, and, at a later period, looked upon as historical. They sprung up independently as offspring of the mythic or imaginative phase of mind, incident to all nations at a certain stage of their development; for we may say with every certainty that five of these nations, China, India, Egypt, Peru, and Mexico, passed through almost identical phases of civilisation, without any mutual influence in these early periods; for there is not a shadow of a fact to prove that there ever was any connexion between these nations in that remote age.

In the earlier middle ages—for the ninth century seems to have been a fallow interval between two cycles of civilisation, marking the close of one cycle and the beginning of another—we find a similar phase of the European mind when it returned to something like the simple faith of primitive times. It accordingly gave birth to a profusion of legends of saints and knights. The same stage of civilisation produced the counterpart of the tales of Heracles and Theseus, of the wanderings of Ulysses, and the Argonautic expedition, in the shape of romances of chivalry. Like the Homeric poems, the romances announced themselves as true narratives, and were, down

* These civilisers evidently represent a step in the progress of civilisation personified, as Dædalus, in the history of sculpture, represents a phase in its progress.

to the fourteenth century, popularly believed as such. The majority relate to personages probably altogether fictitious; Amadis and Lancelot we are in nowise called on to believe; and of King Arthur, as of King Agamemnon, we have no means of ascertaining if he ever really existed or not.

The thanks of the meeting were given to Mr. Westropp.

The Rev. DUNBAR HEATH conceived that the principal idea in the paper was that a myth was identical with personification. Many personifications were mentioned, in which mere abstractions were turned into active agents, who performed various things, and names were given to them. In his opinion a myth was not necessarily connected with personification; it meant that something was said to have been done which was not, and that kind of myth was not peculiar to any period, nor to any nation. There was a second principle enunciated in the paper, that myths are only to be found at a certain period in the lives of individuals and of nations. Now, in opposition to that idea, examples might be adduced of the existence of myths in times by no means obscure. Several of such myths were to be found in the records of the latest events in history. For instance, he believed it to be untrue that, at the battle of Waterloo, the two celebrated expressions were used, "La garde meurt, mais ne se rend pas," and "Up, Guards, and at 'em!" Both these alleged expressions he believed to be myths. He believed it to be equally mythical that when a French ship was sunk during a certain battle, the men refused to be saved from drowning. There were many myths of that sort even in the records of very modern events. There were, for example, two great battles a few years ago, both of which the French were generally supposed to have won,—the battle of Magenta and the battle of Solferino. The fact, however, was that in the latter the French were driven back four miles during the fight, though the enemy retreated afterwards for political reasons. Again, the story of William Tell was a myth, and it is now doubted whether Joan of Arc was burnt. There were many known myths of that kind in modern times; and as to mythical personification, that existed extensively at the present day, and was to be found even in many of the sciences. It was not uncommon to consider abstractions as entities and powers, though not in the shape of human beings. In medicine and in theology that practice was especially observable. The principle of vitality, for instance, was credited with certain actions, and that attribute might be considered as much a personification as if it were called Hercules. It was the same with "contractility", to which certain powers were supposed to be attached. So again, in theology, the abstraction "faith" was said to do a great many things; and it would be found that in the present state and life of nations, myths and personifications existed as in former times. When there was no literature, the pretty myths only were remembered from generation to generation, while the others were forgotten.

Dr. CARTER BLAKE, referring to what had been stated in the paper respecting the myths of Central America, said, that the same myth, varied according to circumstances, was widely diffused in that part of

the American continent. He thought that if they extended their views to the origin of these and of other myths, it might lead to some practical results. In Central America, the sun-god, Helios, Phœbus, or Ra, was the principal deity; but his attributes were very different among different tribes, and appeared under three aspects. Among the tribes commonly known as Aztecs, the sun-god was supposed to be endowed with certain attributes, which differed from those attributed to him by the tribes who occupied the country that extended eastward to the Atlantic; and the natives of New Granada, again, supposed the sun-god to be different from either; nevertheless, they had the same idea that the sun-god was more powerful than any other. He was worshipped by each of those different people three times a-day, at the same hour. By the Chontales Indians he was regarded as a destructive deity, and human sacrifices had, in past times, been offered to him. A hundred miles away, on the other side of Nicaragua, the Aztecs, Diris, and Nagrandans had a sun-god with entirely different attributes. With them he was associated with the generative powers of nature, of which the egg and the serpent were symbols (not, however, the ox, as that was only introduced into America in the sixteenth century). In the south, as, *e. g.*, amongst the Muyscas, there was the same sun-god; but so far from being destructive and generative, he was associated with physical forces. Among other actions attributed to him, he was supposed to be the cause of earthquakes, which were imagined by the people to be produced by shifting the pillars that supported the earth from one side to the other. It would thus be seen that there existed in three places, at considerable distances apart, a belief in the same deity, to whom entirely different attributes were supposed to belong; the powers he was conceived to possess being variously associated with the products and circumstances of the country in different parts of Central America. As to India, it was a remarkable fact that the oldest myth of Buddha represented him as a deity different in appearance from any Indian tribes. He was represented as a pure Negro, with crisp curly hair, prognathous muzzle, and with all the other characters of the Negro, though there was no evidence of any Negro race having existed in India. There were Negroids of several varieties, but so far as is known, the true Negro race never did exist in India; yet the old Indian myth pointed to the Negro type as having there existed. In the extreme west of the Old World, the traditional inhabitants were often identified with the devil. The Nutfons, who crept into caves to dwell, who were of diminutive stature, and whose characters differed from those of the Aryan races, were supposed to be a kind of devils. The remains of that race were found in the bone-caves of Belgium, and the myth associated with them was that they were supernatural beings. It would appear, therefore, that in Central America the myths were governed by the geographical conditions of the country; and that in the east they were associated with the primitive inhabitants of the soil.

The CHAIRMAN said that Mr. Westropp, in his paper, appeared to consider that the uniformity of mythical belief in different parts of

the world showed the intellectual identity of the human species, and he was inclined to think that he had made out a good case, and had thrown considerable light on anthropology. The author of the paper had carried the inquiry beyond the so-called Aryan field into distant nations, and even to America. He had thus raised an important question. He had shown that comparative mythology was founded on wider principles than those for which Max Müller, Adalbert Kuhn, and Mr. G. W. Cox, contended; viz., on the identity of man's intellect in all parts of the world, and to a great extent he had made out his case. But they ought not, at the same time, to forget the debt they owed to the philologists; for their investigations had led the way to those more extended generalisations. The philologists had shown that the Hindoo, the Greek, the Latin, and the Persian mythologies were allied, and they had found it out by the identity of language. Mr. Westropp, on the other hand, showed a more extended affinity, and said that the identity of the mythology of distant nations could not be connected with language; for when there was no affinity in the language of distant nations, they agreed in their mythology. There could be no doubt that the worship of natural objects prevailed in all nations speaking Aryan languages; and there could also be no doubt that the study of the languages had led to the discovery. The chairman then pointed out several affinities in the Aryan languages from which the origin of many myths had been discovered, and that discovery he considered the most important which philologists had made. He believed, however, that the author of the paper was correct in stating that the same mythological ideas had sprung up, independently, in different nations; and though philologists had shown the connection of different myths by language, they had not developed the science of mythology to its full extent. He said he was much pleased with the remarks of Mr. Heath as to the modern prevalence of the tendency to personification, which he considered to be fraught with the greatest danger to scientific inquiry. As regards the identity of mythology of different nations, he thought great light had been thrown on the subject by Dr. Blake, in his observations respecting the different ways in which the same phenomena are regarded in different parts of the world. He thought that Mr. Westropp had done great service by bringing before the Society the facts mentioned in his paper; and he had shown that they ought not to take the researches of the philologists as final.

The chairman then said he was glad to have to tell the meeting that they had among them that evening the distinguished Secretary of the Anthropological Society of Spain, Dr. Delgado Jugo, who had come to hear their proceedings. No doubt many of the Fellows were acquainted with his introductory address to the Anthropological Society at Madrid, for the presentation of some copies of which they had already voted their thanks that evening. That Society had been in existence some time; and the anthropology of Spain possessed especial interest in this country, as it was thought by many that the original people of some of the Spanish provinces were connected with the first inhabitants of Britain. The Spanish anthropologists were

getting on very well ; and, in the introductory address of Dr. Delgado Jugo, much had already been done towards discovering the ancestry of the races that now exist in Spain. The chairman, addressing Dr. Delgado Jugo in French, welcomed him, in the name of the Society, communicated to him their satisfaction at the honour of a visit from him, and informed him of the vote of thanks which had already been given for the copies of the Introductory Address presented by him.

Dr. DELGADO JUGO then briefly addressed the meeting, speaking in French. He expressed the desire of the Anthropological Society of Spain to do all they could to promote the science in conjunction with the Anthropological Societies of England and France. He said that there were great differences in the races that inhabit different provinces in Spain, and it was one of the principal objects of the Anthropological Society of Madrid to ascertain, in conjunction with the Anthropological Societies of England and France, which was the first race who peopled Spain ; that question had a bearing also on the question of the origin of the people of this island. He stated that the Madrid Society had recently sent a collection of Basque skulls to the Anthropological Society of Paris, and they were forming a similar collection to be sent to the Society in London.

The following paper on "Aboriginal Ovens," contributed by Peter Beveridge, Esq., and communicated by Sir Charles Nicholson, Bart., F.A.S.L., was then read :—

After the author had stated the results of his experience in Australia, and especially said that he had seen blackfellows' ovens in every stage of progression, from the moment of the first "yam-stick" being dug into the earth, up to the largest and most complete one extant, he proceeded : My observations of this subject extend over a period of twenty-eight years, and having always taken great interest in things aboriginal, I have not any hesitation in saying (even although it may savour of egotism) that the following description is correct in every particular.

Blackfellows' ovens are not by any means misnomers, as the mounds so called are essentially "cooking places", and they are formed in the following manner :—A family, or (as the case may be) several families, who have taken up their quarters where food chances to be plentiful, have something to cook,—for example, I will say an emu ; a hole is therefore dug, about three feet in diameter, and about eight or ten inches in depth ; this work is always performed by "Lubras", and their only implements are "yam-sticks." If there are not any stones in the vicinity, the most tenacious pieces of earth found during the excavation are carefully put aside. When the hole has attained the desired depth, it is filled with firewood, upon which the selected pieces of earth are placed, the wood is then ignited, and, by the time it is all consumed, the earth nodules have become baked into the consistency of brick, and as a matter of course are red hot. When this result has been achieved, the hot clay is removed by a pair of "aboriginal tongs", after which the hole is carefully swept out, and a layer of damp grass placed over the bottom and round the sides ; the dismembered emu is then packed carefully on the grass, when it is covered over with more moist grass ; the red hot clay is then spread

equally over the grass, and the whole is then covered over with the finer earth that had been taken from the hole; but should the earth covering be too thin to keep the steam from escaping, it is supplemented by earth dug in close proximity. Ashes are never used as an oven-lid, because, being fine, they would run through the interstices of the red-hot clay, and grass as well, and so spoil the food. Before the caloric has time to become exhausted from the clay nodules and the hole itself, the food is as perfectly cooked as if it had been done in the most improved kitchen range. When the cooking has been completed, the covering is scraped off, and this *débris* (calcined clay, ashes, and earth) becomes the nucleus of a blackfellow's oven. This process being continually repeated for many years, perhaps centuries, results in the heaps which are actually blackfellows' ovens, although often improperly designated tumuli.

As a general rule, the blacks do not use their cooking mounds to build their camps upon; an exception to this exists, however, on the large inundated reedy plains of the Lower Murray, where blackfellows' ovens are more numerous and larger than any I have seen in any other portion of Australia. There, where the snow-waters cover the plains for miles on each side of the river, the ovens stand up out of the flood, perfect little islands, looking green and refreshing to the eye, because of the great growth of the succulent saltbush with which their crests are clothed. These island-mounds the blacks, during flood-time, make their camps upon, conveying their firewood in canoes, oftentimes a distance of four or five miles. Sometimes the blacks will remain as long as a month at a time on one of these tiny islands, living upon the enormous and oily Murray cod, supplemented by eggs of nearly every kind of aquatic bird, and the birds themselves; besides they have the young and succulent kumpung (broad-leaved flag), which shoots up through the water, by way of vegetable. Thus, every article of consumption, even to the material for constructing their camps, has to be brought to the spot, and, of course, the daily refuse adds materially to the growth of the mound. So long as the game and fish continue plentiful, the blacks never think of changing their quarters,—that is to say, until the spot becomes too offensive for even aboriginal olfactories, then, however, they shift to another mound, and leave natural agencies to purify the abandoned spot, which will have regained its pristine appearance ere it is again visited.

Skeletons of aboriginal natives are frequently found in the ovens, hence the prevalent idea of their being tumuli; but this fact is easily accounted for. Supposing an old Lubra dies when there happens to be only a small section of the tribe to which she belongs present, the easiest method of covering the body up out of sight is adopted, and that is done by scraping a hole with their "yam sticks" in the loose, friable soil of an oven, in which the body is placed, covered up, and forgotten in a very short time. The blacks do not possess any digging implements other than "yam sticks"; therefore, loose soil is a great consideration to them when they have a grave to dig.

I once had occasion to remove the whole of a blackfellows' oven to make a roadway; it contained 8,700 cubic feet. During its removal,

I found twenty-eight human skeletons. This great number surprised me, but upon making inquiry, I found that they were the remains of those who had fallen victims to the smallpox whilst that epidemic ravaged the aboriginal tribes; but notwithstanding the friable nature of the chosen burial-ground, the deaths were so frequent that many of the bodies were left unburied for the wild dogs and birds of prey.

Thanks were given to the author of the paper, and the meeting then adjourned to the 1st of June.

JUNE 1st, 1869.

DR. BEDDOE, PRESIDENT, IN THE CHAIR.

The Minutes of the previous Meeting were read and confirmed.

Frederick King Green, Esq., M.R.C.S., Burford, was elected a Fellow.

M. Emile de Cartailhac was elected Local Secretary for Toulouse.

Mr. PARK HARRISON exhibited some sketches of Easter Island, taken by Lieut. Harrison, representing some of the gigantic monoliths in that island, supposed to be the works of an earlier race of inhabitants, and also some of their huts. One was a drawing of an immense figure, which had been left in the quarry where the stone was excavated. It was similar to those which were standing on some Cyclopean walls in Captain Cook's time, but which are now thrown down. There was also a range of huts on the highest part of what had been the crater of a large volcano. When Cook visited the island he remarked that the people presented great affinity to those of the Society Islands, nearly two thousand miles west; some of the people were then clothed in fine cloth garments "of red and white colours, made of a stuff which was soft to the touch like silk", but now they are almost nude. There was a remarkable concurrence of evidence in many respects to show that the people came from the west; and if so, the island must be regarded as a stepping stone from the Old World. In Peru, which is two thousand miles from Easter Island, there were many things to indicate similarity of origin. Mr. Harrison also exhibited two ornamental woollen bags, which had been associated with flint arrowheads, and were exposed on the surface after the earthquake at Arica, in 1868.

The thanks of the meeting were given to Mr. Harrison, for exhibiting the drawings, and for his description.

GEORGE HARRIS, Esq., F.S.A., Barrister at Law, President of the Anthropological Society of Manchester, then read the following paper, "On the Distinctions, mental and moral, occasioned by the Difference of Sex":—

The inquiry here proposed is interesting in itself, viewed not only in regard to man, but in respect to animal and vegetable creation throughout, the phenomena of which are calculated to throw much and important light not merely on the material, but also on the moral

and mental constitution of man as well ; and it is also, in several respects, a subject of great practical value.

If we proceed in the investigation of this matter to the highest point connected with the being of man, it would appear, as far as we are able to reason on the subject, that in the case of immaterial beings, in that of spirits and of souls not united to material frames, no difference in sex exists, each being probably perfect in itself, neither male nor female, but of an order comprising both, and limited to neither. The difference of sex is consequently one of an entirely material nature, wholly unconnected with the immaterial or spiritual being, and resulting solely from its alliance to a material frame, out of the nature, constitution, and formation of which material frame it originates, and in and through which alone it exists. The material difference occasioned by sex exists moreover not only in the actual structure and formation of the frame, but also as regards its texture and temperament ; each of which peculiarities however, as I shall proceed to point out, have an important influence on the moral and mental qualities possessed by the immaterial being united to the material frame.

There are three distinct modes in which all living creatures have originated : Firstly, immediate creation, as must have been the case with all beings originally ; as was the case with Adam, and which still takes place in what is ordinarily termed spontaneous generation. Secondly, by emanation from some being already created, as in the case of Eve, and as is still experienced in the propagation of certain of the lower animals, and of plants. Thirdly, by generation, effected by those of the same species, which is the ordinary course both among mankind and animals, and also plants. This last mode of propagation only necessitates the existence of different sexes.

The object which nature had in view, if we may so speak, in the separation of sex in different persons, that is, of having one or other of the two sexes constituted in two different individuals, instead of both sexes being united in one and the same person, as we find to be the case in certain vegetables and in some animals, and which might therefore have been effected in man, as also in the animal creation generally ; appears in the main to be twofold. First, that by this means a constant variety may be produced in the propagation of the species, consequent upon, and corresponding with, the variety existent in the two different parents ; but which would not, and could not be the result if the offspring proceeded from one parent only, as is the case in polypes, constituted by severing a part from the body of one of these creatures, and in young plants produced by cuttings from trees, who would each be in all respects exactly like the single parent from which they sprang. The second object appears to be that, in consequence of the two sexes being vested in two different persons, the most intimate relation between certain individuals of the same species may be created, and which we see most perfectly effected in the union of those of different sex for the purpose of propagation, as in the case of marriage among mankind, and of pairing among birds.

If, however, generally, although not universally, throughout creation, a difference in sex is to exist in different members of the same species,

each member having its sole and distinct sex, it must also follow that a difference in the character of the individuals, who are of different sexes, must also exist as a consequence of this difference; that those of one sex must be stronger, those of the other weaker; that those of the one sex must be more active, those of the other more inert; and as a consequence of this difference, as a whole, those of one sex must assume the general superiority over those of the other.

Nature, indeed, every where, as though with a jealous care, maintains this difference in regard to superiority, through all orders of beings where difference of sex exists. We may observe it, without exception, in all races of man, savage as well as civilised, where the superiority of the male to the female is universally seen. Among animals, too, a corresponding distinction is preserved, and it is marked throughout. Nevertheless, the development of sexes is of great variety. In some instances the two sexes are united in the same individual, which is able by itself alone to propagate its species. This is the case both with certain animals and plants. In others each individual possesses both sexes, but it requires to have intercourse with another in order to continue its kind, which is the case with several species of worms. Some worms, and also several plants, and the greater part of the animal creation, are divided into the male and female sex, each possessing only one of these.*

In the case of birds of prey, the males are about a third less, and much weaker than the females; although in other birds the male is much the larger of the two. But not only among birds of prey are the females of the greatest size, but they are also of finer plumage, more perfect form, and also stronger, and more fierce than the males. It has been suggested that this departure from the order of nature is necessary in the case of birds of prey, on account of its being incumbent on the female to provide not only for herself but for her young ones also.† But surely the same care of their offspring devolves upon other birds, and also on beasts of prey, among whom, nevertheless, this peculiarity does not exist. Among some insects, also, particularly in the case of spiders, the female is considerably larger and more powerful than the male.

As regards the main distinctions, mental and moral, occasioned by difference of sex in the case of man, Aristotle somewhat ungallantly considers woman to be an imperfect man, an ill-formed and imbecile individual. On the other hand, some persons in our day appear to be endeavouring to reduce the difference between individuals of the opposite sex to a *minimum* beyond what any natural facts that we can adduce fairly warrant. These differences, arising mainly, if not entirely, from a difference in texture and temperament, are probably not so much in quality as in degree. Those of both sexes have the same faculties and the same dispositions, but they are induced to exert them differently. Those of different sex assimilate most in infancy and extreme old age, when the material differences and influences appear to be the smallest,—a strong corroboration of the assumption that among immaterial beings

* Rees *Cyclop.*, art. "Generation."

† Buffon.

there is no variety of sex. And there is little doubt but that persons of the same sex, and even of the same family, differ more essentially one from another owing to a difference in age, education, natural capacity, health, and general bodily constitution, than they do from persons of different sex, but who assimilate to them nearly in the above respects. The same person also undergoes changes in his own character according to the different circumstances alluded to, by which he may be on various occasions affected, so that he appears at different times to be essentially a different being.

With regard to the essential difference in mental capacity between persons of different sexes, this can only be satisfactorily tested by reference to what has actually been accomplished by individuals belonging to each sex. But before arriving at this part of our inquiry we may premise that among those of both sexes the powers of sensation appear to be pretty equal, though possibly the senses of the male are more powerful, those of the female more refined, corresponding with their difference in texture and temperament. Refinement and taste appear to be more exquisite with females than among men; and their quickness is greater, and their observation more alert. And if their sensations are more refined and delicate than those of the males, it may be inferred that the emotions and other feelings originating in and dependent upon sensation, will be also characterised in a corresponding manner. The mental capacity of those of both sexes, originating entirely in the immaterial part of our being, are probably the same as regards their quality, though differing as regards their activity, vigour, and mode of operation, according to the nature and quality of the material frame to which they are united, and in which alone, as I have already observed, the distinction of sex originates and exists. The main characteristic difference between the two sexes I should infer to be this—the male has the most energy, the female the most sensitiveness; and this distinction will, I believe, be found to rule the leading operations effected by those of each sex.

Among animals the greatest feats of instinct appear to have been performed by females; but probably the reason of this is that the care of their young, which is peculiarly calculated both to develope and to call forth this endowment, devolves especially upon the females. Among singing birds the males are, in nearly all cases, not only superior to the females, but alone possess the power of song.

Come we then to the consideration of the achievements actually effected by those of the two sexes, and by which alone their relative capacities may satisfactorily be determined. With regard to their opportunity of literary achievements, in certain branches of knowledge women have been as fully instructed as men have been, and no restraint or limit has been placed upon their education or attainments; while, on the other hand, females have in general far more leisure to devote to literary pursuits than men can possess, who are engaged in professional or commercial undertakings which engross all their time and attention, leaving but very little either for the cultivation of the mind, or for bringing forth those results to which mental cultivation ought to give birth. In these very important respects (and perhaps

hardly any difference of circumstances could be more advantageous to the fair sex as regards the opportunity for literary distinction), it must be admitted that they have very greatly the advantage of the men.

Nevertheless, if we take a comprehensive survey of the general and the principal achievements which have been effected in the walks of literature, very little has really been accomplished by the female sex in comparison with what the males have done. In philosophy how few female works are there, and how limited are the discoveries which have been made by women, in comparison with those which the men have accomplished! In poetry, too, which falls far more within the province of the female mind both to study and to produce, nearly the same result follows from a survey of the works in this department effected by those of different sexes. No Homers, no Miltons, no Shakespeares, no Dantes, have sprung up among the women, although it cannot be denied that several very exquisite performances have proceeded from female pens, distinguished by all that refinement, and grace, and exquisite feeling, peculiarly characteristic of the female mind. In the sister art of painting, although no Raphaels, no Michael Angelos, no Leonardo da Vincis, no Rembrandts, no Claudes, have appeared in the female ranks, yet in portrait, and landscape especially, some performances have been produced by women. In architecture but few efforts appear to have been made by the ladies, even those of refinement and cultivation, who have successfully followed the other arts. In costume, where there is scope for the fullest exercise of taste and ingenuity, females have greatly excelled, and here they appear to have, in our day at least, far outstripped the efforts of the other sex. In music, however, for which, as well as for painting and other refined arts, the ladies in general have more leisure both for studying and producing works, they have failed to originate any great compositions. But, although we have no Handels, no Beethovens, no Mendelssohns, among our female musical composers, yet it cannot be denied that among our musical performers, especially our vocalists, the highest class of all, women have reached the foremost rank, and their efforts have been remarkable alike for the sweetness and delicacy of their tones, and the exquisite taste with which they have given effect to every part of the composition. It would seem, indeed, to constitute a characteristic in the female mind, corresponding possibly to the subordinate and secondary part which nature intended that women should play on the great stage of human life,—that women are less fitted generally to design than to execute, to originate than to carry out great and important undertakings, either in art or science. So, although we have no great tragic writers among our authoresses, yet we have had actresses whose performances have rivalled any efforts of those of the opposite sex; and whose powerful and exquisite delineation of character and passion has served not only to throw a charm upon the whole scene, but, to a great extent, also to purify and elevate the entire art itself.

If we turn to the historical department of literature, we do not find that women have taken a very active or a very leading part in the production of grand performances. To our historical records but little

of importance has been contributed by women ; nor even in biography, with two or three striking exceptions, has any thing been effected by female efforts at all corresponding with what man has produced in this line. Among our naturalists, too, the ladies have failed to perform their share in contributing to our knowledge, peculiarly gifted as they are with those powers of attention and acute and patient observation which especially contribute to qualify for performances in this line. In works of fiction some very successful productions have emanated from the ladies, remarkable for the vivid display of character and feeling ; but even here their performances, as a whole, will hardly be allowed to equal those of their male competitors. On the other hand, in one department of literature where the special mental qualifications which I have attributed to them, combined with certain moral endowments which may essentially aid here, in the art of letter writing, ladies have attained a degree of excellence, combining in their efforts, wit, elegance, and feeling, which few, if any, of the harder sex have attempted to rival.

If we turn to the moral qualities which seem to shine most brightly in the female sex, affection and constancy appear to be to a large extent exhibited. Possibly, as I observed with regard to the more extensive development of instinct among the females of animals, the care of their offspring, which peculiarly devolves upon women, is especially calculated to call forth their characteristic endowments. But I must do them the justice to acknowledge, and to point out, that it is not only in the care of their children that these noble qualities are evinced, and in the most marked manner. For although possessed of weaker frames than men, deeds of genuine courage and of matchless heroism have been performed by women, which not only profane but sacred history alike record and attest.

As regards the respective qualifications for particular occupations of persons of different sex, in the consideration of which it is very essential that moral as well as mental endowments should be regarded, some truly great characters have existed among female sovereigns, which indisputably prove that the softer sex is well qualified to exercise rule and to be trusted with political privileges, to the advantage not only of her own sex but also of the nation which confides to her these important rights. Few will doubt of the spirit, the courage, or the patriotism of good Queen Bess, however they may disagree about her moral qualities. Boadicea, unless the rude history of those times flatters her greatly, must also have been a noble and most brave sovereign. Of the political sagacity and ability of Catherine of Russia there can be no question. And considering the many and peculiar difficulties in which she is placed, and the noble manner in which she has throughout her reign discharged her perplexing duties, I believe that we hardly do ample justice to the virtue, the energy, the penetration, and the patriotism of our present sovereign.

As regards the professions which women are well adapted to follow, either solely or in common with men, there can be no doubt that for some callings they are as peculiarly, if not exclusively, fitted as men are for certain others. In the care and instruction of the young of both

sexes, nature herself points out the female as the fitter of the two to undertake this charge; for the same reason the care of the sick and infirm may be most properly entrusted to her. As a consequence of this it seems almost to follow that certain departments of the medical profession may be advantageously practised by females, either in common with, or in preference to the males. In many branches of literature already alluded to, they are in all respects as well qualified to engage as are those of the opposite sex. In certain professions, such as the legal, we can hardly wish to see the fair sex occupied, not from any doubt of their qualifications for success here,—where, when occasion has compelled them to come forward, it must be admitted that they have acquitted themselves with the highest credit,—but on account of the unseemly contentions which such a pursuit necessarily entails. In many business matters, the keeping of accounts, and the conduct of commercial transactions, women appear to be quite as well qualified to act, and are as successful as are the men.

Nevertheless, the result of the whole inquiry proposed as the subject of the present paper must be to convince us that there is, after all, an essential and extensive difference and inequality between persons of different sexes,—not by any means however one of uniform superiority on either side,—mental and moral as well as material, arising from a difference in material structure, in texture and temperament as well as organic, which no similarity of education can ever remove, no identity of circumstances can ever serve to annihilate. Indeed, any attempts of this kind, by bringing the two into immediate juxtaposition, only suffice to exhibit the more clearly, and to contrast more forcibly, the great and decided distinction, both mental and moral, which exists between them. Any efforts to obliterate this difference, or to assimilate the nature of the two, by engaging either in pursuits proper only for the other, are but attempts to violate nature, and as such can never be successful, except to prove the folly and the futility of all such exertions. Against undertakings of this kind the voice of nature, the experience of all time, and in all nations, savage as well as civilised, raise their decided protest. Change their pursuits, their studies, their style of education, as you may, male and female, in all their characteristics, in their dispositions and their capacities, will still exhibit the same peculiarities throughout, marked and distinct as ever. The current may be diverted, but its course will be still always downward. The laws of nature are too strong by far to allow of any vain efforts of ours either to diminish their power, or to elude their grasp.

The thanks of the meeting having been given to Mr. Harris, the following paper was then read—

On the Real Differences in the Minds of Men and Women. By
J. McGRIGOR ALLAN, Esq., F.A.S.L.

“In the normal condition of things, woman’s mission is not merely to bring forth children and to suckle them, but to attend to their early education; whilst the father must provide for the subsistence of the family. Everything that affects this normal order necessarily induces a perturbation in the evolution of races; and hence it follows that the condition of women in society must be carefully studied by the anthropologist.”—Broca on “Anthropology.”—*Anthrop. Review*, Jan. 1868.

Is woman intellectually the equal of man? Are there no natural mental distinctions between the sexes? Are the obvious differences in thought and action, observable between men and women, produced solely by education, or founded on nature? Is woman susceptible of the same mental training as man, and could a similar process of instruction remove all mental distinctions between the sexes, and enable woman to compete successfully with man in all kinds of intellectual labour? These questions, interesting in themselves, and profoundly important in the practical results depending on their solution, I propose to discuss in this limited paper. The subject is not only strictly anthropological, but eminently practical and popular. Few, if any, topics can prefer a prior claim on students of man-science, than this of the *status* of woman. All attempts to ascertain man's proper place in nature involve consideration of both sexes. The assertions and claims put forward under the term "Woman's Rights", are a challenge to anthropologists to consider the scientific question of woman's mental, moral, and physical qualities, her nature and normal condition relative to man. Nowhere, then, can the question be more appropriately and profitably discussed than in the Anthropological Society.

Fifteen years ago, my attention was directed to the Woman-question. I was then inclined to believe there was no radical distinction in mind between the sexes. In 1860, I published a small volume, *The Intellectual Severance of Men and Women*, in which I endeavoured to trace the faults of both sexes to a bad system of education. Greater experience and anthropological study enable me to see the error I made in regarding woman's position, socially and conventionally, without sufficiently attending to the scientific and physiological aspect of the question. "Woman's Rights" advocates are now preaching the equality of the sexes. Smart American ladies have "gone a-head" of equality; and adduce as a proof of the superiority of woman, "the greater complexity of woman's physical organisation." Chaste phrase! The British Transcendental School rests content with begging the whole question, by asserting as the basis of a total revolution in the sexual relations, the equality of man and woman.

To prevent misunderstanding, let us define our terms. What is meant by the glib assertion, that woman is the equal of man? Is she equal in size? No. In physical strength? No. In intellect? Yes, replies the advocate; and if she received the same training as man, she would demonstrate her intellectual equality and her moral superiority to her masculine tyrant. I deny this assertion; and proceed to show why woman is incapable of receiving a training similar to that of man. My position is, that *there must be radical, natural, permanent distinctions in the mental and moral conformation, corresponding with those in the physical organisation of the sexes*. Examine male and female skeletons; study men and women physiologically, pathologically, in health and disease; observe philosophically their respective pursuits, functions, pleasures, tastes, aspirations; recall the part which each sex has played in history; listen to the conversation of men and women in society; compare the sculptured forms of the antique, and the portraits of the two sexes; study and contrast

them artistically in the life-school ; observe men and women as they mingle in the daily scenes of the world ; and we shall find it difficult to accede to platform paradoxes,—that there is no sex in mind, and that the intellectual diversity of the sexes is due to education alone !

Man is an animal ; woman is the female of man. Although in some respects—such as grace, delicacy, beauty of form, complexion, etc.—woman appears to recede more from, in other respects she approaches more closely than man does, to the animal type ! Physically, for example, in the menstrual discharge,—if it be true that this is also a characteristic of female anthropoid apes, and of other mammalia. Mentally, the approach to the animal is more decided, and is seen in the superior instinct of woman compared with man. In reflective power, woman is utterly unable to compete with man ; but she possesses a compensating gift in her marvellous faculty of intuition. A woman will (by a power similar to that sort of semi-reason by which animals avoid what is hurtful, and seek what is necessary to their existence) arrive instantaneously at a correct opinion on a subject to which a man cannot attain, save by a long and complicated process of reasoning, and some error in that process entails a wrong conclusion. Place a profound philosopher and a simple woman in the same society : the woman, by some intuitive, and by her inexplicable power, will at once form a tolerably correct opinion of those present ; while our philosopher, after much reflection, and with all the aids of phrenology, physiognomy, and logic, will form an opinion quite as likely to be wrong as right. But educate a woman to the utmost of her capacity, and let her try conclusions with an uneducated man : place before them a problem in Euclid, the mechanism of a steam-engine, or any other study requiring reason ; the man's views will be more profound, broad, and luminous than those of the woman. You have deadened or destroyed by systematic training the woman's instinct of perceptivity, without being able to bestow, as an equivalent, the reasoning power of the man.

It is asserted with truth that, up to the age of puberty, there is little perceptible difference in male and female minds ; that the advantage, if any, is on the side of the girl. I deduce from this fact a conclusion quite opposed to that of mental equality of the sexes. In the animal and vegetable kingdoms we find this invariable law—rapidity of growth inversely proportionate to the degree of perfection at maturity. The higher the animal or plant in the scale of being, the more slowly does it reach its utmost capacity of development. Girls are physically and mentally more precocious than boys. The human female arrives sooner than the male at maturity, and furnishes one of the strongest arguments against the alleged equality of the sexes. The quicker appreciation of girls is the instinct, or intuitive faculty in operation ; while the slower boy is an example of the latent reasoning power not yet developed. Compare them in after-life, when the boy has become a young man full of intelligence, and the girl has been educated into a young lady reading novels, working crochet, and going into hysterics at sight of a mouse or a spider.

Sydney Smith endeavoured to explain the difference in the under-

standings of men and women, without referring to any conjectural differences of original mental conformation:—"As long as boys and girls run about in the dirt, and trundle hoops together, they are precisely alike. If you catch up one-half and train them to a particular set of actions, and the other half to a perfectly opposite set, their understandings will differ" accordingly. He thinks "there is no occasion to go into deeper or more abstract reasoning to explain so simple a phenomenon." This superficial view entirely ignores the influence of sexual organisation in the early determination of character, which explains *why* we catch up one-half and train them differently from the other half. It is not true that girls and boys are exactly alike in mind. The pursuits and games of boys differ materially from those of girls. That they have amusements in common is natural, and applies to adults as well. Yet even in childhood, sex has its characteristic tastes. Boys love activity, bustle, noise, drums, guns, swords, tops, balls, horses, carriages, etc. To play at horses, soldiers, hide-and-seek, hare and hounds, and other games in imitation of masculine cruelty, is their delight. Even at this tender age, we discover the combative and destructive propensities, whose future development will convert them into heroes and filibusters.

Girls love best playthings connected with personal appearance—looking-glasses, necklaces, earrings, ribbons, lace, etc.; above all, dolls. The doll is the special amusement of girls. In thus playing at maternity by anticipation, nature affords a strong and unerring intimation of the ultimate destiny of woman. Observe street-children assembled round an organ-grinder. We do not see boys and girls dancing indiscriminately in equal numbers. For one boy dancing, we may count fifty or a hundred girls—another strong natural bent of the female character exhibited in childhood.

For male and female there is no serious difference of opinion or object until the age of puberty. Then, how great the difference! The boy, springing into manhood, is at once and for ever developed, and, so far as sex is concerned, completed. Whereas the woman, for a period varying from twenty to thirty years, is an admirably constructed apparatus for the most mysterious and sublime of nature's mysteries—the reproductive process. The young man starts free; his sexual development once completed, all is accomplished: the young virgin is adapted for becoming a matrix, in which a process, involving her whole physique, may occur eighteen or twenty times within thirty years. Whether the menstrual discharge be peculiar to woman, or common to woman and other mammalia, it characterises women of all races in a normal state. Although the duration of the menstrual period differs greatly according to race, temperament, and health, it will be within the mark to state that women are unwell, from this cause, on the average two days in the month, or say one month in the year. At such times, women are unfit for any great mental or physical labour. They suffer under a languor and depression which disqualify them for thought or action, and render it extremely doubtful how far they can be considered responsible beings while the crisis lasts. Much of the inconsequent conduct of women, their pet-

ulance, caprice, and irritability, may be traced directly to this cause. It is not improbable that instances of feminine cruelty (which startle us as so inconsistent with the normal gentleness of the sex) are attributable to mental excitement caused by this periodical illness. The greater number of capricious acts of tyranny and blood, ordered, or personally committed by women possessed of despotic power, might be thus explained, and testify to the folly of trusting any woman with arbitrary authority. Imagine a woman, at such a time, having it in her power to sign the death-warrant of a rival or a faithless lover!

Delicate nervous women suffer, I think, longer than is generally supposed. Michelet defines woman as an invalid. Such she emphatically is, as compared with man. Woman is doubly entitled to man's protection; not only as smaller and weaker than himself, but as being, on account of her sex, more or less always unwell. Who does woman the greater service—he who ignores, or he who remembers this important physiological distinction between the sexes? This distinction is never mentioned on platforms, where men and women bray about the equality of the sexes; yet every medical man knows it underlies the whole question. This periodical illness of women is always ignored by theorists, whose object apparently is to produce an anti-scientific, superficial declamation to tickle the ears of groundlings; but it cannot be practically ignored with impunity. Outraged nature exacts a terrible retribution. Here, then, is to be sought the true cause of that predominance of the male intellect, ascribed by feminine frothy lecturers of both sexes to the tyrannical usurpation of man. Our sex, it is said, has used its only superior faculty, muscular strength, to trample upon woman,—to deprive her of her rights,—to treat her as a slave. This is the sort of stuff that goes down with mixed audiences, even in so-called semi-scientific societies. If government depend solely on superiority in physical strength, why is man the lord of creation? Why are we not ruled by lions, tigers, bulls, bears, elephants, and whales? Why does the gorilla still lurk in the forests of equatorial Africa, and not put in his claim to settle the affairs of Spain, or sit in Mr. Gladstone's cabinet?

Even if woman possessed a brain equal to man's—if her intellectual powers were equal to his—the eternal distinction in the physical organisation of the sexes would make the average man in the long run, the mental superior of the average woman. In intellectual labour, man has surpassed, does now, and always will surpass woman, for the obvious reason that nature does not periodically interrupt his thought and application. Where the constitution is sound, man is a powerful thinking machine, free to study daily, all the year round, during a long lifetime. Some men have died, literally of old age, without experiencing one day's illness, incredible as it may seem, without the aid of physicians; thereby showing an indifference for the faculty bordering on contempt. Still, facts are stubborn things; and there are, even in our highly civilised country, truly rural districts where doctors cannot make a living, owing to the bad habit persisted in by the natives, of never dying of any disease but that which terminated the life of Methuselah.



No analogous instance could be truthfully recorded of any woman. No woman ever passed through life without being ill. She suffers from "the custom of women", or she does not. In either case she is normally or abnormally ill. Thus every woman is, according to temperament and other circumstances, always more or less an invalid. Therefore, no woman can pursue uninterrupted physical or mental labour. Nature disables the whole sex, single as well as married, from competing on equal terms with man. Has woman powers of mind and body equally free and untrammelled with those of man? Will she voluntarily devote herself to abstract study and profound thought? or will she be more likely to have her ideas, wishes, and motives centred more immediately and naturally on what directly concerns herself physiologically, in relation to her important share in the grand function of reproduction? Great physical and mental exertion cannot go on at the same time in the same organism. Profound thinkers and philosophers are notoriously unprolific; and with very rare exceptions, their offspring are of inferior power. Can we imagine a woman, in an interesting situation, dividing her time between morning sickness and Malthus on Population,—between the not uncommon craving for old leather, indigestible fruit, or other disgusting aliment, and Liebig on the *Chemistry of Food*; shaping or sewing baby-linen, and meditating on a motive power to supersede steam; suffering all those flutterings, palpitations, whims, and fancies, frequent in the impregnated state, and plunging absorbedly into Kant's *Critique of Pure Reason*, Buckle's *Civilisation*, or Colenso on the *Pentateuch*?

Every physiologist knows that the health of an expectant mother imperatively demands rest, quiet, freedom from harassing cares, from bodily and mental toil. Women are already too prone to neglect the powerful hints of nature, that during the period of gestation, retirement is not only decorous, but a duty which they owe to themselves and their unborn children. It is superfluous to dwell on the importance of the maternal duties. The normal condition of woman being evidently marriage and maternity, it follows that women who fulfil this condition, and discharge thoroughly their conjugal and maternal duties, have neither time nor inclination to try to convert themselves into poor and imperfect copies of men. The functions of wife and mother are so essential, not only to the welfare but to the existence of the species,—so high and holy, that they cannot be abnegated or insufficiently discharged, without entailing the most disastrous consequences. Such abnegation, or failure, to quote Dr. Broca's words, "induces a perturbation in the evolution of races." We have an illustration of this in America, where, in the great cities on the Atlantic seaboard, the old American stock is actually dying out, in consequence of the disinclination of women to become mothers.* I cannot agree with the American authoress who attempts to base the asserted intellectual superiority of woman on the fact, that she has so much more to undergo in developing the child. The premises are correct; the conclusion drawn from them is absurd. On the contrary, in this important

* Hepworth Dixon's *New America*, vol. ii, ch. xxv, p. 265.

difference of sexual organisation, we see the true reason why man's realm is the intellect—woman's the affections.

Consider the all-important claims of maternal functions. The expectant mother is possessed by the most conflicting feelings—fear, hope, pleasure, pain ; natural personal apprehensions as to the results of the severe ordeal awaiting her, which may terminate in death to her, her child, or both ; or in a new and double life. The actual mother remembers no more her travail, for joy that she has given a man to the world. She is, or ought to be, employed in nourishing the helpless infant. To suppose that a woman, in either of these conditions, is able to unsex herself and change places with her husband, to undergo great physical and mental toil, or to undertake any task of which man is capable, from chopping wood to chopping logic, is a puerile conceit, which would not be worth serious refutation, were there not unfortunately men and women to teach, and audiences foolish enough to believe, the doctrine of sexual equality. Woman's instinct and wishes do not lead her in the purely intellectual direction. Her pleasures and duties are widely distinct from those of man. She is content, in most instances, to let others think for her, and trusts to that faculty, where she is really superior—her intuition—to discover the most proper person to do so. Nature has declared, in language which cannot deceive, that woman's chief mission is maternity. Woman craves to be a mother, knowing that she is an imperfect undeveloped being, until she has borne a child. There is a grand physiological truth expressed in the pathetic words of Rachel to Jacob : " Give me children, or else I die." The intrigues, displays, and piscatorial performances of manœuvring, match-making mammas and marriageable misses, are the results of such an instinct in our highly artificial social structure, where, unhappily, owing to the prejudice of British Philistines in favour of the large family system (which is simply a monopoly of love, marriage, and parentage), enforced celibacy is on the increase. Every normal woman desires to be married, and yearns for children, although, from a sublime deceit (also characteristic of feminine nature) she professes indifference and unwillingness to fulfil the great end of her existence. A feigned disinclination to celebrate the nuptial rites, and a simulated repulse, which increases the desires of the male, is common to almost all females of the higher mammalia, and constitutes another very remarkable point of resemblance between the human species and other animals.

Any attempt to fix woman's condition in society, without taking into account the peculiarities of her physical conformation, must be worthless ; and it is exactly woman's physical conformation which is utterly ignored by the advocates of sexual equality. To the transcendental school we may bequeath Fuseli's witty saying, " Damn Nature, she puts me out." The transcendentalist speaks of men and women as ideal beings, passing over as trivial the most important distinctions of sex. But we happen to possess bodies ; and so, after listening to the most vague rhapsodies of what woman will be in the future, the women of the present contentedly go on with their

crochet, and confine the exaltation of the sex to the elevation of their chignons. Any encroachment of one sex on the physical and mental characteristics of the other, is unnatural and repulsive to all well-constituted minds of men and women. A woman with a masculine mind, is as anomalous a creature, as a woman with a man's breasts, a man's pelvis, a man's muscular leg, or a man's beard.

Everyone perceives at a glance the remarkable distinctions in size and form of the sexes. Man is formed for strength; woman for grace and elegance. Man is taller and more robust; in woman, the muscular system is less than man's, and is concealed by a remarkable development of cellular tissue. Man's shoulders are considerably wider than his haunches; in woman, there is not much difference in the width of these parts. The proportions vary considerably according to race and individual. In well-formed women, the shoulders slightly exceed the pelvis in breadth. In some they are equal; while in women of Dutch build, and in some Negro women, the pelvis is considerably wider than the shoulders. In respect to narrowness of the pelvis, man is nearer the animal than woman. Although nature, in her normal productions, demarcates the sexes plainly to the most superficial observation, occasionally there are human hermaphrodites, in whom both sexes are so impartially mingled, that it is difficult to conclude whether male or female predominates, and under which gender to rank the individual. Without dwelling on such extreme cases, there are common instances of masculine women and feminine men, whether we judge such abnormal beings by a mental, moral, or physical standard. As women, in whom the uterus and ovaries remain inert during life, approximate in form and habits to men; so we might, by analogy, conclude that some effeminate men make a reciprocal approach in their form, habits, and modes of thinking to women. Some might be disposed to attribute to Miss Lydia Becker a deep and subtle irony in the very title of her celebrated paper "On the supposed Differences in the Minds of the two Sexes of Man." The physiologist might agree with a critic in the *Saturday Review*, that there are indisputably two sexes of man, who may be recognised by their appearance, and their normal or abnormal relations to women.

Thus, the cooperation and *entente cordiale* between masculine women and feminine men, as advocates of sexual equality, are natural and intelligible facts, and in no way contradict the axiom, that in friendship and in love, individuals seek their opposites and contrasts, not their copies. For example, an eminently masculine man,—a big, rough, hairy, he-creature, brave as a lion, strong as a horse, with the digestion of an ostrich, and a beard like a bull-buffalo's,—almost invariably selects as a mate some soft, gentle, yielding, thoroughly feminine woman; while a masculine woman, who preaches on a platform the doctrine of sexual equality, practically endorses her views by marrying some poor, insignificant, nondescript creature, who will never dispute the supremacy of his liege lady, whether she wishes to stand in her husband's shoes or his unmentionables. How, otherwise, do we account for the fact, that intellectual ladies either remain single, or else own hen-pecked

husbands? I fear we must answer in the affirmative Byron's polite inquiry,—

“But, O ye lords of ladies intellectual,
Inform us truly, have they not hen-pecked you all?”

Scott has made, I think, a remarkable anthropological error, in marrying Count Robert of Paris to a virago, an imperfect copy and outrageous caricature of her husband.*

Mr. Alexander Walker tells us, “The vital system is peculiarly that of woman: any great employment of the locomotive or mental organs, deranges the peculiar functions of woman, and destroys the characteristics of her sex. Women who greatly occupy the locomotive organs, acquire a coarse and masculine appearance: so well is this incompatibility of power in the use of locomotive organs, with the exercise of vital ones, known to the best female dancers, that, during their engagements, they generally live apart from their husbands. As to intellectual ladies, they seldom become mothers, or they become intellectual when they cease to be mothers. These few facts are worth a thousand hypotheses and dreams, however amiable they may be.”† As a supplement to Walker's observation, the incompatibility of intellectual pursuits with the laborious profession of a dancer, is illustrated in the French proverb: “*Bête comme une danseuse.*”

In comparing the organic structure, the relative size and conformation of the crania and brains of the sexes, must necessarily be considered. Walker says that though in woman the whole head is proportionately less than in man, yet the organs of sense are proportionably larger. Upon this proportional development, he thinks, depend that increased sensibility and quickness of observation essential to the female character. This is another analogy between woman and the animal, in which the organs of sense, as compared with the brain proper, are much larger than in the human species.‡ Here, possibly we may have the true physiological cause of the daily experienced observation, that man is a being of the intellect—woman of instinct; that man reasons—woman feels. Walker concludes that women are less guided by intellect, and are more biassed by feeling and emotion, to fulfil which all their movements are more easy and prompt, though less sustained, increased by ready obedience of muscular action and relative shortness of stature. This easier and less forcible action is conformable physically with the small and elongated cerebel, or organ

* This novel was written after repeated shocks of paralysis and apoplexy, and almost the last, if not the last, work of the author. We may thus account for the oversight of a genius so signally correct in his delineations of human nature, that he deserves the title of *The Anthropologist of Fiction.*

† *Analysis of Beauty*, p. 214.

‡ Ratio of mass of brain to bulk of nerves arising from it: *vide* Lawrence, *Lectures*, p. 178. “Dividing the brain into two parts: that immediately connected with the sensorial extremities of the nerves, which receive their impressions, and is therefore devoted to wants and purposes common to us and animals. The other division may be considered the seat of mental phenomena, or brain proper. In the proportional development of this latter and more noble part, man is decidedly pre-eminent. Though in his senses and common animal properties, he holds only a middle rank, here he surpasses all other animals hitherto investigated: he is the first of living beings.”

of will, and morally with woman's part in life, and her desire to please; while man's is to protect and defend. Agreeably to her form and size of brain, woman's disposition to sustain exertion, mental or bodily, is much less; hence the character "*varium et mutabile semper fœmina*." Woman's prompt and easily affected sensibility, not her understanding or force of mind, renders her eminently fit to be interested in infancy, enables her to surmount maternal pains through affection and pity, and interests her in the cares and details of house-keeping. It is this that sometimes renders nothing too irksome or too powerful for a mother, wife, or mistress, to endure. Hence, woman's constitution is perfectly adapted to those functions; her existence is more sedentary than man's; she has more gentleness of character, and is less acquainted with great crimes.*

Carl Vogt gives the following proportions of the female skull:— "Assuming the male = 100 throughout,—circumference = 96.6, capacity = 89.7, weight of brain = 89.9. Outlines of female head are rounder, facial portion of skull, especially jaws and base of skull, smaller, the latter being especially narrower in posterior section. The base more extended, sella-angle larger; and there is developed in the female a striking tendency to prognathism and to dolichocephaly. The type of the female skull approaches in many respects that of the infant, and still more that of the lower races; with this is connected the remarkable circumstance, that the difference between the sexes, as regards cranial cavity, increases with the development of race, so that the male European excels much more the female than the negro the negress, &c. Among peoples progressing in civilisation men are in advance of women; among those retrograding, the contrary is the case. As in morals, woman is the conservator of old customs, usages, traditions, legends, and religions; so in the material world, she preserves primitive forms which slowly yield to the influences of civilisation. It is easier to overthrow a government by revolution than alter the arrangements in the kitchen, though their absurdity be abundantly proved. Woman preserves in the formation of the head, the earlier stage from which the race or tribe has been developed, or into which it has relapsed; hence is partly explained the fact, that inequality of the sexes increases with the progress of civilisation."†

Professor Ecker thinks:—"With reference to the proportion of the skull to the rest of the skeleton, in both sexes, we possess but few data by anatomists. Scæmmering says, in the male body, the head in proportion to the rest of the skeleton, is in weight = 1 : 8 or 10, in the female = 1 : 6, and that it is, therefore, relatively larger in the female. Accurate measurements are yet wanting, but the statements of artists confirm it, and the entire habitus of the female agrees with it."‡

Artists generally divide the male figure into eight heads, and the female into seven heads and a half. In woman the infantile type of head is apparent in the smallness of the features relatively to the skull, and in the predominance of the cranial roof over the cranial base, or

* *Analysis*, p. 240.

† Vogt's *Lectures on Man*, p. 81.

‡ Ecker "On the Form of the Female Skull," *Anthrop. Rev.*, Oct. 1868.

perpendicular forehead. Another characteristic of the female skull is its less height in comparison with the male skull. Ancient Greek sculptors* perfectly understood this distinction in the cranial contour of the sexes, and never gave to women generally the lofty, massive, angular brows so lavishly bestowed on the statues of statesmen, philosophers, poets, historians, heroes, and gods. A perpendicular frontal profile (orthomètopy) must not be confounded with a perpendicular facial profile (orthognathism). By the courtesy of Dr. Carter Blake, I verified the fact that a skull may possess a beautiful frontal profile, and yet exhibit most decided prognathism. Thus the two statements of Welcker, that woman displays the infantile type in perpendicularity of forehead, and that she displays a decided tendency to prognathism, are quite consistent; although I am under the impression that a retreating forehead and projecting jaws generally go together, and *vice-versa*, that orthomètopy is generally accompanied by orthognathism. We must not confound a prominent forehead with a lofty or wide forehead: the former characterises the child and the woman, the latter characterises man. Camper's facial angle is a very uncertain measure of intelligence; according to it alone, the child would stand higher than the man, and perhaps it would be a fair question to ask phrenologists, why the child (whose brain is, relatively to its body, so much larger than that of the adult,) does not surpass man in intellect? "If," says Welcker, "skulls are ranged according to Camper's angle, the skull of the infant, contrasted with that of any animal, occupies a higher place than the skull of the adult; but if the skulls are ranged according to the increasing angle of the sella the series stands.—man, woman, child, animal."†

In man, we are so accustomed to associate frontal development of skull with intellectual power, that we hardly ever complain of exaggeration or disproportion caused by a brow very lofty or wide. In the female head we cannot dispense with symmetry and proportion, and consequently female features, otherwise handsome, are only affected less injuriously by a forehead very high and wide, than by a forehead "villainously low." The human head and face, as seen in front, are tolerably well defined in outline by the form of an egg: the big end represents the skull, the little end the chin; the short diameter of the egg will give the position for the eyes. In man, if the part above the eyes be greater than that below, we see nothing objectionable, because we associate this excess of coronal elevation with intellectual or

* Not Greek sculptors only, but the Romans as well. Horace says of Lycoris, "Insignem tenui fronte"; Petronius of Circe, "frons minima". The Roman ladies used to hide a portion of their foreheads under narrow bands (or ribbons) called "nimbas", so generally was a narrow forehead considered the perfection of feminine beauty.—(E. V.) Mr. A. thanks the writer of this note. *Nimbatus*, "wearing false hair to make the female forehead seem smaller." Alluding to this custom, Plautus writes: "Quam magis adspecto, tam magis est nimbata."

† Vogt's *Lectures*, p. 44. The *sella turcica*, "Turkish saddle," is formed by a depression in the sphenoid bone. The sellar angle is determined by three points—the root of nose at junction of nasal and frontal bone, the anterior margin of occipital foramen, and the pommel of the saddle (olivary process), p. 42. Consult diagrams.

moral qualities, especially characteristic of the masculine nature. But in woman's head this excess in the superior region would immediately strike the judicious observer, or practical physiognomist, as a fault in beauty, for which the corresponding masculine qualities could not compensate. A study of antique sculpture and careful observation of the heads of men and women, will, I think, enable anthropologists to verify these remarks. Alluding to the Venus de Medici, Mr. Walker observes,* "The size of the head is sufficiently small to leave that predominance to the vital organs in the chest, which makes the nutritive system peculiarly that of woman. This is the first and most striking proof of the profound knowledge of the artist, the principles of whose art taught him that the vast head, on the contrary, was the characteristic of a very different female personage. Phrenologists have told us that the head of this Venus is too small; they might as well have said that the head of the Minerva, or of the Jupiter, is too large, or a hundred other ignorant inapplicabilities and ridiculous pedantries. To set aside ideal forms, sex makes a vast difference in the head, and a woman with a small head often produces a son with a large one."

Whether woman's brain be larger or heavier relatively to her body than man's, I have endeavoured to show why, in intellectual power, woman will always fall far short of man, owing to the important distinction in physical organisation between the sexes. In man we have a being formed expressly for undergoing long-sustained mental and physical labour. In woman, nature has produced a being whose principal functions are evidently intended to be love, leading to gestation, parturition, and nutrition. The whole form of woman, carefully and judiciously considered, testifies to the grand purpose of her existence. Her exquisitely perfect organisation is fashioned to aid directly and indirectly, the function of reproduction; nature seems to have combined in perfection, utility and attractiveness in woman. The beauty so liberally lavished on the female form (while it results directly from the adaptation of her structure to her special sexual functions,) is manifestly intended to charm and allure man so as to bring these functions into operation. Her indescribable graces, and the accomplishments of which her sex is exclusively susceptible, take captive her fierce conqueror, neutralising the otherwise disastrous consequences which might result from the weakness of woman, and the mere brutal strength of man. While woman yields in appearance, she disarms her would-be tyrant, and the weaker establishes a real and permanent supremacy over the stronger sex; not less real and permanent that it is continually and effectually disguised! Thus does nature obtain her object—the perpetuation of the species, for in spite of all the nonsense uttered and written on the subject, woman's mission is *maternity*.

Woman's beauty counterbalances the direct advantage of man's physical and intellectual superiority; inspires poet, painter, sculptor; robs sexual passion of its purely animal aspect; warms the imagination of the philosopher, while physiologist and anthropologist acknowledge its important agency in perpetuating the human species. Knox says: "In woman's form I see the perfection of nature's works, the

* Walker's *Analysis of Beauty*, p. 340.

absolutely perfect, the beautiful, the highest manifestation of abstract life, clothed in a physical form, adapted to the corresponding wants of her race and species.* Hercules at the feet of Omphale, Samson succumbing to Delilah, Antony losing the world for Cleopatra; the British vestryman subsiding into marital insignificance at his own fireside; the typical Englishmen, while boasting that his house is his castle, standing in undisguised awe of his wife; the burly "navvy" letting his little wife beat him, and saying, "It pleases her and it don't hurt me," are a few of the illustrations which might be multiplied to show the folly of the platform cant about the tyranny of man, and the slavery of woman. Police reports certainly state that some husbands occasionally kick and beat their wives, but such brutality is exceptional. Amongst the humbler classes the "missis" is a very formidable personage, and frequently rules the husband despotically, often, it must be admitted, for his own good.

I proceed briefly to examine the assertion that women are beginning to rival men successfully in the fields of intellectual labour, put forward as a triumphant reply to the opponents of sexual equality. The practical proofs of woman's mental power, are exactly in kind and degree, in quality and quantity, in accordance with the foregoing analysis of her intellectual capacity. In the lighter departments of literature women are diligent workers; as a general rule, natural sterility is accompanied with literary fertility. Single women are the best writers. As novelists, so far as popularity is a test of merit, women are running our sex very hard. But popularity is not the best test of merit;† I cannot admit that even in fiction, where women excel, that the best female novelists are to be compared with the masters of the craft. Women are not first-rate novelists; amongst lady novelists we look in vain for names to be compared with those of Cervantes, Le Sage, Sterne, Fielding, Richardson, Scott, Dickens, Thackeray, Balzac, Bulwer Lytton, Cooper, Marryat, and many more. A female novel can generally be detected by the failure in the attempt to draw masculine character, and describe the conversation of men among themselves; their heroes are often mere lay-figures, dressed-up portraits, with about as much flesh and blood as might be found in one of Madame Tussaud's wax figures—mere caricatures of real living men. It requires the highest order of genius to depict successfully a character of the other sex. As there are a thousand men of genius for one woman of genius, men are more successful in delineating women than women are in delineating men. There never was a woman who could look into the heart of man as Shakespeare has looked into the female heart. There is not a woman who could give us studies of men and women, such as have been bequeathed to the comprehensive anthropologist, in the novels of Scott, Balzac, and Thackeray. We can count our good female novelists on our fingers. As to the "ruck" of female fiction-writers, they may be divided broadly into two classes—authors of "goody" novels, which are beneath criticism; and naughty novels, which are only not contemptible, because

* *Races of Man*, p. 38.

† The novel which has had the largest circulation, within the last twenty years, is *Uncle Tom's Cabin*.

of their excessive immorality. Talk of *Don Juan* indeed! An ordinary fashionable "she" novel circulates a moral poison, more practically pernicious and destructive of all purity of principle in the rising generation which batten on such garbage, than the open obscenity of Holywell Street which comes under Lord Campbell's Act. After excepting women of genius and talent, who write good novels and excel in other departments of literature, we might say that for every woman thus legitimately and usefully employed, there are at least fifty women writing nonsense and worse than nonsense, puffed up with the flattery of complacent critics, and imbued with the idea that they are very clever, who would act wisely and profitably for themselves, their families, and their readers, by exchanging the pen for the needle, the writing-desk for the piano, or sewing-machine. Let those women who attribute this opinion to masculine envy and fear of female rivalry, ponder the advice to an intending female author in Mrs. Barrett Browning's *Aurora Leigh* (pp. 48, 52). The generality of those esteemed wonderfully clever women impose on none but fools; the acute critic soon detects in the second-hand vamped-up style of her books, the masculine authority who guides the female author's pen, the discreet man of the world who furnishes her with the details of club-life, or the man of letters who secretly dictates her oracles, and manufactures to order her *impromptu bons mots* and happy thoughts.

There are some very good female artists. Mlle. Rosa Bonheur is for France what Sir Edwin Landseer is for England, the Raphael of animals; but in the highest branches of painting woman does not rival man. Music is the most popular and universal of female accomplishments, and here, so far as the creative power is concerned, the deficiency of women is a remarkable and significant fact. Where are the great female composers to be named with Handel, Mozart, Haydn, Beethoven, Mendelssohn, Rossini, Verdi, and a host of other immortal names? Music as an art, both vocal and instrumental, constitutes, very properly, the principal accomplishment of young ladies. To play and sing will always form important parts of a young lady's education, and contribute greatly to the charms of home; although, even here, it is to be regretted that parents consult only the fashion, without considering individual inclination and capacity. Time and money are wasted in the futile attempt to make many girls proficient in music, while some valuable faculty is lying dormant and undeveloped.

With regard to public professions, the stage perhaps offers the most legitimate field for the display of female energy and talent, whatever moralists may say to the contrary. We have ample evidence that women excel as singers, dancers, and actresses; in all these departments of executive art, woman follows her natural vocation, and gratifies her passion for exhibiting herself, and attracting the admiration of the other sex of man. She does the same when she displays her charms and her accomplishments, and a good deal of her person, in a ball-room; there, also, business and pleasure are united; the ultimate object being marriage, in which wealth and position are more coveted than a congenial mind. Female triumphs of the play, the opera, the ballet, do not in any way interfere with those of male performers,

since there can be no rivalry where there can be no exchange of *métier*. As a dancer woman far surpasses man, not only in the natural grace and elegance of her attitudes and movements, but also in lightness and activity. This is accounted for by the fact that, though generally man's muscular system is better developed than woman's, in some parts the muscles are more developed in woman than in man. Mr. Walker observes that, "the muscles of the thighs in woman, having larger origins from the pelvis and being less compressed by contact, have more liberty to extend themselves. Their thighs are consequently remarkable for voluptuous fulness, softness of outline, and exquisite polish; from this results much of the delicacy of the female form, ease, suppleness, and grace in its movements."*

As already observed, woman shows in girlhood an aptitude for dancing which man does not possess. But the profession of all others for which woman seems specially adapted is that of an actress! For this pursuit woman is qualified by natural instinct, and by that second nature, habit. Subjected all her life to a being mentally and physically stronger than herself, whose taste she must consult and whom she must study to please, striving continually to attain her ends by indirect means; to have her own way when she appears most willing to yield; to govern him whom she has solemnly sworn to obey, woman becomes gradually an adept in dissimulation. All women are more or less actresses! Shakespeare has, indeed, told us that we are all, men and women, players on the great stage of the world. It must be confessed that if we regard acting in this universal sense, man is here surpassed by woman. I admit that in the art of disguising her sentiments, passively appearing to be what she is not, and of actively personating the very opposite of what she really is, woman is far superior to man! Take lying, for instance: the worst of men often falters at telling a deliberate untruth; if he does lie, he does it in such a clumsy way as to show that he is ashamed of the unmanly vice, and he is easily detected. I have heard a lady urge as a proof of men's stupidity, that they did not know how to dissimulate like women. I give this as evidence that the generality of women are perfectly aware, and derive a secret satisfaction from the conviction, that they circumvent men by cunning and deception, although they strenuously deny the fact. Their superiority in this respect is well expressed by Byron:—

"Now what I love in woman is, they won't
Or can't do otherwise than lie, but do it
So well, the very truth seems falsehood to it."

With respect to the stage, as it is impossible for one sex to trespass on the *rôle* of the other, we enjoy the gratification of witnessing a well acted play, or hearing a well-executed opera, with the agreeable assurance that the rivalry of sex is not of an invidious character. Hamlet cannot change parts with Ophelia; nor can tenor and bass covet the applause bestowed on soprano and contralto. Language cannot describe the powerful influence exerted by a fine female voice in singing. Woman, then, is most legitimately employed as dancer, vocalist, and actress.

* *Analysis*, by Walker.

In the highest realms of literature and science, man reigns supreme. The inventing, discovering, creating, cogitating mind is pre-eminently masculine; the history of humanity is conclusive as to the mental supremacy of the male sex. Men carry on the business of the world in the two great departments—*thought* and *action*; the ideas on which depend all the marvellous acts of human intelligence, the discoveries in physical science, which have raised man from a savage to a civilised being; the jurisprudence, political, civil, military, and religious institutions which maintain the social structure, are all produced and elaborated by men. In the domain of pure intellect it is doubtful if women have contributed one profound original idea of the slightest permanent value to the world! Not only as thinkers, but as workers, are men pre-eminent. Men legislate, govern, invent, colonise, make religions, fight, build, and dig. So little demand is there for the direct assistance of women in the mental departments which are the special province of man, that could all the male intellect in the world be suddenly paralysed or annihilated, there is not sufficient development of the abstract principles of justice, morality, truth, or of causality and inventive power in the female sex, to hold the mechanism of society together for one week. Truly does Mr. Charles Reade write: "In matters intellectual and moral, the long strain it is that beats them dead. Do not look for a Bacon, a Newton, a Handell, a Victoria Huga. Some American ladies tell us education has stopped the growth of these. No! Mesdames, these are not in nature. They can bubble letters in ten minutes, which you could no more deliver than a river can play like a fountain. They can sparkle gems of stories, they can flash little diamonds of poems. The entire sex has never produced one opera or one epic that mankind could tolerate for a minute, and why? These come by long high-strung labour."

Our opponents assert that woman is intellectually *equal*, while morally *superior* to man; I think, with Warburton, that "the sum of virtue in the female world does, from many accidental causes, far exceed the sum of virtue in the male;" but I cannot admit that woman is morally better than man. A little child is, in one sense, more innocent than his father, because too young to be tainted with sin, but the child does not know what morality means. Woman preserves the infantile type in plumpness, smoothness of skin, and proportions of the head and face. Physically, mentally and morally, woman is a kind of adult child. This is quite consistent with the highest respect for those qualities in which woman transcends man; for, as a wise pagan has said: "The greatest reverence is due to a child." Man is the head of creation. The highest examples of physical, mental, and moral excellence are found in man. Miss Muloch admits that, "A truly good man, from the higher capacities of the male nature, both for virtue and vice, is, in one sense, more good than any good woman."

There never was, and there never will be, a period or a people, where the morality of one sex will be in marked contrast to that of the other. Men and women are too intimately connected by nature and intercourse; they act and react far too powerfully on each other, to present any such miraculous phenomenon. One sex may be a little better

than the other, but it is probable that if one sex seem a great deal better, it is in reality a great deal worse than the other, by adding consummate hypocrisy to other sins! Neither sex can be isolated in good or evil. If woman be not all that good men wish her to be; if she affords some scope for the satirical remark, that "she is a good idea spoiled"; it is because she faithfully reflects masculine failings, foibles, virtues, and vices. Woman takes man as her exemplar, and it must be confessed she does not always get the best possible example. Though woman, in *theory*, stoutly proclaims her independence of man as an exemplar, this is but superficial seeming. Calling herself (in obedience to the new lights) man's intellectual equal, and moral superior, woman practically copies man slavishly, directly and indirectly consulting his tastes and wishes, or what she imagines them to be; for she is utterly at a loss to fathom the depth of man's character in the abstract; hence her charming inconsistency in the attempt to be consistent. Woman has, indeed, no method of knowing right from wrong, but by implicitly receiving man's dogmatic *dicta* on every question of religion, morals, and the practical conduct of life. She is as utterly incapable of giving a reason for her belief, or the principles which regulate her life, as of inventing a system of morals, or writing books like the *Iliad*, Newton's *Principia*, or Locke's *Essay on the Human Understanding*.

Women are utterly deficient in the highest quality of the human mind—*Justice!* They never see two sides of a question: a woman makes a firm friend, an unrelenting enemy. In a lawsuit I should like for my advocate "a sweet girl-graduate with golden hair," who might gain my cause by making an impression on an intelligent British jury. But imagine a strong-minded female on the bench, summing up in a case of divorce, or in any case where the rights of the sexes were at variance! Law would, indeed, have new terrors—but I shall not pursue a subject which is too serious for a jest.

The natural and eternal subordination of woman to man, is strikingly exemplified in her exaggerated admiration for the masculine prerogatives—strength and intellect. To the magical influence of the latter power woman has ever been more abjectly subject than man. Were intellectual equality of the sexes not a mere idle dream, it would long ago have produced practical results; the strong-minded female would ere this have made good her pretensions. Woman's freedom, individuality, and independent action in matters of importance, are far more apparent than real in civilised countries. Savage life shows a much nearer approach to sexual equality, physical, mental, and moral. In Europe and America, almost every woman is steered through life by the reflecting brain, the strong will, and protecting arm of a husband, a father, a brother, or a son. If a woman have no male relative, she has her spiritual director, whether Catholic or Protestant, her father confessor or her favourite preacher, who keeps her conscience and whom she regards as a demi-god. If there be one woman without such a director, she is guided by man-made public opinion, supplemented by oracles uttered by men in past ages. Woman never escapes from masculine control, direct or indirect, personal or impersonal;

she is always ruled by some man or men, either living or governing from the grave. However superior in the estimation of her own sex, however strong-minded and intellectually independent a woman may really be, she embodies her ideal of masculine superiority in some man, to whose teachings—oral, written, or printed—delivered from arm-chair, pulpit, or platform, she listens with implicit reverence, making him, to all intents and purposes, an infallible pope from whose dictation there is no appeal. The adoration of the devotee being sometimes misplaced, does not invalidate the significance of the fact, of which I leave the advocates of sexual equality to make the best they can. Mentally and morally, the female is prostrate before the male sex, although the meek idolator often adores a brazen god!

To those who ask, What is woman's mission? Nature prompts a reply in one word—Maternity! It is woman's great function, and it should be her proud privilege, that she can bear and rear children to be men. Is it not a glorious mission to be a wife and mother? In solacing their husbands, giving them healthy children, and superintending their education, do not women discharge to the utmost their share of duties? Is there any possible way by which women in general could fulfil their vocation better, or more effectually aid in advancing human happiness, racial and national progress? To the advocates of equality I say, that the women who discharge the conjugal and maternal functions properly—those woman who are old-fashioned enough to find their happiness in promoting the happiness of their husbands and families, are not only the finest specimens of their sex in every point of view, but are working far more directly and efficiently for the physical, mental, and moral progress of the human species, than the superficial, flat-chested, thin-voiced Amazons, who are pouring forth sickening prate about the tyranny of man and the slavery of woman! In fulfilling her natural and normal functions, woman does everything; so long as she acts this, she is indeed a pure, beautiful, high, holy being. The future of every man-child mainly depends on the straightness of his legs, the robustness of his body, the strength of his constitution, the bias given to his mind by early maternal training. Thus the career of the man is not only to a great extent determined by the mother's care, but may be said to be influenced for good or ill by the mother's conduct, before the child sees the light!

Compare the true woman, who recognises the value and importance of the natural functions in their influence on future generations, with the little creature who "shunts" the conjugal and maternal duties; who rebels against the very instincts of Nature; who is, forsooth, ashamed of being a woman, and in aping man, becomes a nondescript—a monster more horrible than that created by Frankenstein. Is it possible to conceive a more contemptible and deplorable spectacle than that of the female (I will not profane the beautiful name of *woman*) who, having undertaken, and having appointed to her, by nature, those functions, in the proper fulfilment of which consist the charm and glory of the sex, deliberately neglects and abdicates the sacred duties and privileges of wife and mother, to make herself ridiculous by meddling in and muddling men's work? Let the being who has thus

morally, mentally, and physically, as far as possible, unsexed herself, be consistent, and imitate the example of American ladies, who, in laying aside womanly grace and modesty, have also laid aside the garb of woman.

The old schoolmaster in Adam Bede said, "There is only one thing women can do, that men cannot—bear children—and that they do in a poor makeshift sort of a way. Better it had been left to the men!" Advocates of sexual equality seem to make light of, or utterly ignore, woman's mission of maternity. In order that the new doctrines may become practical, some important revolutions in the existing functions of the sexes must occur. Either, sex must be abolished altogether, and some more delicate way of perpetuating the human species invented; or men and women must be constituted so that men can take their share in the labours of gestation, parturition, and nutrition, now devolved solely on woman by the tyranny of man! If a man and his wife could take turn and turn about in bearing children, the large family system would be rapidly abolished, and we should rarely see a family consisting of more than three children. Nature seems to think that she has advanced in the scale of being when she separates the sexes; but this does not appear to accord with the views of the transcendental school, whose principle of sexual equality cannot be reduced to practice, so long as maternity remains the exclusive function of one sex. I beg to draw the attention of medical women to this difficulty, which Nature, with true feminine obstinacy, persists in throwing in the way of the reformers who ascribe all woman's disabilities to the injustice of man! We live in an age of progress, especially our Yankee cousins! What might not steam effect in destroying the present unjust and onerous division of labour, especially if some smart American lady in man's costume would turn her attention to the delicate subject. Anthropologists of the future might hear some lady physician—in reference to the present faulty arrangement which confines child-bearing to women—say, in the immortal words of Molière's "Mock Doctor," "*Nous avons changé tout cela.*"

Common sense disposes of intellectual equality of the sexes. We cannot accept the *dicta* of strong-minded women, who either mistake their own restless wishes and caprices for the deliberate views of women in general, or who are determined to achieve notoriety at any price! We dare not ignore all lessons of experience, because some unhappy wives, and discontented virgins tell us, that all past generations have utterly misconceived woman's nature and capacities! Thousands of years have amply demonstrated the mental supremacy of man, and any attempt to revolutionise the education and *status* of woman on the assumption of an imaginary sexual equality, would be at variance with the normal order of things, and, as Dr. Broca says, induce "a perturbation in the evolution of races." I have endeavoured to trace the true, irrevocable, everlasting, natural source of the practical and beneficial division of duties between men and women. I have tried to show that there must be radical, natural, permanent, distinctions in the mental and moral conformation, corresponding with those in the physical organisation of the sexes. Out upon this selfish

whimpering of masculine women and feminine men, who, in ignorance or wilful blindness, ascribe the obvious results of physical distinctions, the eternal fiat of Nature, to the tyranny of man! As if man had been for forty centuries deliberately bent upon injuring woman—his sister, daughter, wife, mother! charging on our masculine ancestors a moral obtuseness, a short-sighted selfish policy, with no other object but to break and cow the spirit of woman. Whether we regard the respect shown to women by the ancient Germans, the deification of the sex in pagan religions, or the courtesy received by women in the days of chivalry, and still insisted on among all well-bred people, history utterly refutes such a fatal and distorted assumption.

As for some androgynists raving about woman's mission, intellectual equality, and moral superiority of woman, etc., it is quite evident that under the battle-cry of mental equality of the sexes, they are contending really for empire for themselves. They do not want to be treated on an equality with man. They desire the masculine in addition to the feminine privileges—a man's liberty added to a woman's non-responsibility! They demand the rights of a citizen, knowing they cannot be called on to discharge a citizen's duties. They claim every privilege of man, while refusing to surrender a single privilege conceded to them as women! At the very instant that such a logical female declares herself the equal of man, she would resent as ungentlemanly, unmanly, cowardly, the attempt of any man to take her at her word, and treat her in every respect like one of his own sex? She is a stickler for all the courtesies and conventional amenities, which the stronger observes towards the weaker sex as a matter of course, and which depend solely on the inequality of the sexes, thus screaming in the same breath—equality and inferiority! The masculine woman, when she thinks anything is to be got, cries out, "I am man's equal!" "There is no distinction between the sexes!" Indeed! then turn out from the chimney-corner, lounge no longer on sofa or ottoman, but away into the world, and take your share, lady, in the rough work of men without fear or favour. Hear a lady, sheltered from cradle to grave, from all the storms which beat on the bare heads of millions of both sexes; housed, fed, clothed in luxury, zealously guarded from any unpleasant contact with the stern realities of life; hear such a lady regretting that she does not enjoy man's privileges! Let her disguise herself in man's apparel and learn what these privileges are. How glad she would be to return to her own costume! The masculine woman takes good care to entrench herself in all the feminine outworks of propriety, civility, attention, gallantry, deference, and those still more solid exactions demanded by the sex in right of its weakness, and cheerfully paid by all gentlemen to all gentlewomen, who know how to make their sex respected. The nondescript androgynous creatures illustrate the fable of the jackdaw in peacock's feathers. They want to usurp our sexual advantages without surrendering their own, and necessarily fail to achieve such an impossible combination. They want to be both men and women, and they are consequently neither the one nor the other.*

* A female entered a railway carriage in America, and looked about for a seat, evidently expecting some chivalrous Yankee to vacate in her favour.

As for platform orators of both sexes—"Let them rave!" If the masculine women, now lecturing and writing books to demonstrate that there is no sex in mind, do not adorn a tale, they certainly point the moral of Pope's lines.

"Men, some to quiet, some to public strife,
But every lady would be queen for life."

No distinction in the minds of men and women! Nature flatly contradicts the absurd assertion, and warns against encouraging this foolish and mischievous flattery of women. All attempts to ignore natural well-defined distinctions between the sexes, recoil on both; and, if persisted in, would inflict serious injury on the race. As it is, these doctrines have a most baneful effect in unsettling society. A singular mode of elevating woman truly! To begin by teaching her to despise and shirk all the feminine functions, which constitute the special vocation, pride, joy, and glory of the sex, and woman's natural title to man's love and protection: and all for what? that the pretty dears may play at being men; taking as their models childless disappointed wives and virgins, who undertake to teach mothers!—the strong-minded, or rather weak-minded Gorgons, who declare that man is "played out," and, like them, while forfeiting the real rights and highest privileges of womanhood, become miserable and ridiculous caricatures of men.

Thanks were voted to the author of the paper.

Dr. CHARLES R. DRYSDALE said that though he agreed with much in the papers, he on the whole disagreed more. Mr. Harris had alluded to Adam and Eve; but all such allusions could scarcely be considered as arguments in that Society, many of whose members doubted whether such persons as Adam and Eve ever existed, not that he was of the number. Then it was said that the females of our species were more emotional than the males, while the latter were more muscular. But that was not an universal rule; for in parts of Africa, it was said, the males were weaker than the females, because the latter did all the work. As to mental qualities, it must be admitted that women had not often been philosophers; but it should be borne in mind that they had received no education fitting them to become so, for less money was expended in the education of females. It was not necessary for his argument to say that females are as intellectual as men; but in the papers the authors under-estimated the point at which the intellect of women may arrive, and he thought that they might go much farther in intellectual progress than the authors supposed. As to the assertion that women possess a greater amount of intuition than men, he did not think it was correct. If by intuition it were meant that they came to a conclusion sooner, it might be so; but on the whole he thought the intuition argument went for nothing. Then, there was the professional argument; and

At length she fixed her eye upon a sturdy Quaker, when the following colloquy took place: "Be you one of the Woman's Rights Convention, who think men and women equal?" "I be." "Dost thou think there should be no difference in the treatment of the sexes?" "I do." "Very well, then, stand," was the Quaker's logical reply.

several reasons were adduced why women should not be educated for professions. One of these reasons was that women were ill once a month. That he considered a weak argument, for many women were not periodically ill, in the sense of disease or incapacity; and it was an authorised fact that women generally lived longer than men. As to the alleged loss of time in childbirth, he thought that argument ought not to have been used by Mr. Allan, who was known to be a Malthusian, and an advocate for small families; and if that doctrine were practically applied, there would not be much time lost in child-bearing. With respect to the size of the brain of women, he apprehended that, compared with the size of the body, the brain of a woman was quite equal to, if not greater, than that of a man. All the other arguments opposed to the intellectual equality of women were not of much importance. It should be borne in mind that women had hitherto been kept in great subjection to man. As it was correctly stated in Mr. Mill's book, they could not judge of the intellectual capacity of women by past history, because circumstances had prevented them from being properly developed; and it might be expected that with improved opportunities they would take a more important part in human affairs. The medical and the legal professions, he thought, were both well fitted for women, and as advocates, they were adapted to make a great impression on stupid juries. Neither did he see why they should not enter the church. Even if they could not write sermons, they might buy them, as he knew several clergymen did. He thought that altogether the papers showed too much *animus* against the ladies.

Dr. LANGDON DOWN thought that it might be fairly deduced from the two papers that man and woman were distinct creatures, as they were stated to be in the Mosaic account of the creation. They were not alike, and never would be; and the arguments in the papers proved that nature did not intend them to be alike, but differentiated beings, the one the complement of the other.

Mr. DENDY said that the two papers were somewhat difficult to discuss, because there was in neither of them any point to take hold of. Mr. Harris's paper was a correct moral essay, replete with truisms. If, in criticising Mr. Allan's paper he might observe, his brain seemed so replete with ideas, that he had found it difficult to compress them, and it was consequently too diffuse for discussion. But the great point in both papers seemed to be, that women possess more instinct, and men more intellect: that was true. The constitution of woman was different from that of man. The sympathies of woman were more acute, and she expressed herself accordingly. She was better able than man to judge of character, and her sympathies were more fully called into action. Most of the distinctions in the characters of women might be traced to the influence of the uterus; to the condition of which were to be attributed hysteria, and other affections peculiar to woman. Women felt more acutely than men; but it should be considered that the occupations of man were so various that he could not concentrate his feelings; while women sat at home brooding, perhaps, over some sensational novel, and had

their sympathies more strongly excited. Thus, they were unable to attain a stable state of mind, and went into extremes instead of concentrating their thoughts. Referring to the remarks of Dr. Drysdale, there were certain circumstances with regard to women that made them constantly, even morbidly, susceptible. The processes of nature produced a sensitive diathesis, which prevented them from having the power of mental decision. Periodical menstruation was peculiar to woman, and did not occur in the females of other animals, because it was not required; for they had not the sexual feeling throughout the year, as woman naturally possessed, but only at peculiar seasons. He was inclined to agree with the authors of both papers; but he wished they had said something more on which to found an argument.

Mr. LEWIS observed, with regard to the alleged difference between man and woman being attributed to education, that in the Elizabethan era women learnt as much as men; but since that period men had made immense advances in mechanical and scientific discovery of all kinds, while women had not done anything. As to the general difference between man and woman, he thought it had been well expressed by Mr. Pike in a paper previously read, that woman is intellectually neither superior nor inferior, but is the complement of man.

Dr. HUNT said, in referring to the remarks of Dr. Drysdale on himself, etc., that he would reserve any expression of his views on this subject until some future occasion.

Mr. HIGGINS, who had been alluded to by Dr. Hunt as having paid some attention to the subject, said it appeared to him that, in discussing the asserted natural equality of the sexes, it was necessary to leave out of consideration the reproductive function and the structures directly related thereto. As regards the sexual organs, the course of development is, from an early period of intrauterine life, entirely different in the two sexes, and we have no standard by which to determine relative inferiority or superiority. He believed, however, that in other respects the question of equality might be decided by carefully ascertaining, in the first instance, the differences of form and structure between the average adult man of each race, and the average adult woman, and by thus referring to the special characteristics, the child as standard of comparison. This has already been accomplished to a considerable extent, and the result appears to show that in those respects, in which the adult female differs from the adult male, she approaches the child; in other words, woman appears to hold an intermediate position between the man and the child. As to the inferiority in the size of the female brain, he thought that Dr. Hunt need not have apologised for want of gallantry in alluding to it; for we must not take the absolute brain-weight, but should compare it with the size of the body, and so considered, the brain of woman was larger than that of man. He (Mr. Higgins) was, however, bound to add, that in this respect, also, women resembled children. It had been said that women were distinguished from men by having larger organs of the senses; but he thought that only applied to the eyes, and in that respect, likewise, they approached the child. With regard to the alleged superior intuition of woman, he should like to have

more precise evidence of it. As to the several mental characteristics of women, the subject was, no doubt, a very difficult one; but it seemed worthy of remark that Mr. Harris asserted that there was no distinction of sex in the mind, while Mr. Allan said that there was; and yet these gentlemen appeared to have arrived ultimately at the same conclusion.

Dr. CHARNOCK had only one observation to make on Mr. Harris's paper. The latter made a distinction between plants and the genus *homo*, that in the former both sexes are sometimes found in the same plant. Now, it had never been proved that the human spermatozoon was of any gender, and the gender of the ovum depended upon the time of fecundation; *i. e.*, upon chance. Dr. Charnock spoke on the authority of Pouchet, Hofacker, Lucas, Huber, and others.

Dr. CARTER BLAKE said he could not comprehend what Mr. Allan meant by "intuition." The word was very vague, and was, as Mr. Allan had used it, in short, nonsense; but by substituting for it "induction," he would remove the difficulty. He objected that no authorities of any weight had been advanced by Mr. Allan to show that women have deductive minds, and men inductive minds. The principal authority on the subject was Mr. Henry T. Buckle's paper, entitled "The Influence of Women on the Progress of Knowledge," March 19, 1858, in the *Royal Institution Proceedings*, vol. ii, p. 504, which was properly expressed in the language of metaphysics, but Mr. Buckle was not quoted; and if it appeared that Mr. Allan had not read the chief work on the subject that was worth reading, then Mr. Allan's paper, when compared with that of Mr. Buckle, showed many marks of a coincidence which could scarcely be said to be accidental.

Mr. G. HARRIS, in reply, observed, that the difference pursued in the education of women was quite insufficient to account for the difference in their mental condition. As regards literature and the arts, they had as ample education as the men, and far greater leisure. With respect to what had been said about the few great female sovereigns, it should be recollected how rarely women were permitted to ascend the throne; but he did think it an unreasonable anomaly that women should be allowed to rule over nations, and yet be debarred the exercise of common political privileges. He repeated, as he had laid down in his paper, that in mind itself there was no difference in sex,—it was a difference arising entirely out of material organisation, and was not uniformly of either mental or moral superiority on either side.

Mr. J. McGRIGOR ALLAN, in his reply, especially noticed the speech of Dr. Drysdale, a visitor, and thanked that gentleman for his courteous opposition to his views. He was not exactly liable to the rebuke of Mr. Dendy, as he had admitted that it was doubtful if menstruation was a characteristic of female apes and other mammalia. With women, especially in our artificial state of existence, and among those who lived luxuriously, he believed menstruation occupied much longer than the average of two days in the month. The various sexual diseases to which women are liable, rendered it utterly impossible for them, especially for those who fulfilled conjugal and maternal func-

tions, to rival men in arduous professional duties. Even if women had the time, they had not the constitution or temperament which made such duties congenial. As to the law, women were notably deficient in the ability to see two sides of a question, in the cool judgment and impartiality requisite in a judge. With regard to Mr. Lewis's observations, he quite agreed there was no question of absolute superiority in sex. If Mr. Allan had been permitted to finish his paper, he would have told them that the women who find their happiness at home, in promoting the welfare of their husbands and their families, are not only the finest specimens of their sex in every point of view, but are advancing, far more directly and efficiently, the physical, mental, and moral progress of the human species, than those Amazons who prate about the tyranny of man and slavery of women. In reference to the remarks of Mr. Higgins, Mr. A. agreed with that gentleman in describing woman as a kind of adult child. He had drawn attention to Walker's statement, that the organs of sense (not the external organs, but the nerves proceeding to them from the brain), are proportionally larger than in man. Here we might have the true physiological cause of a daily-experienced fact, that man represents intellect, woman instinct,—man reasons, woman feels. Probably Mr. Higgins would yet discover that women are greater adepts than men in dissimulation. Byron, who knew a good deal about the sex, had written—

"Now, what I love in woman is, they won't
Or can't do otherwise than lie, but do it
So well, the very truth seems falsehood to it."

As he had courteously acknowledged some anatomical information received from Dr. Carter Blake, Mr. Allan regretted that gentleman had not criticised his paper in a more courteous manner. He had depreciated several excellent authorities quoted, because they were novelists. We might learn far more of the characteristic distinctions of the female mind from novelists like Balzac, Thackeray, Charles Reade, etc., than from measuring skulls. Where could we find a more scientific contrast of the characters of Celt and Saxon, than in Scott's novels? Mr. Allan had not read that work of Mr. Buckle referred to, therefore he was not guilty of plagiarism; and as he had been studying the Woman Question for fifteen years, and had frequently published his views thereon, he was quite competent to form an opinion independent of that able writer. Mr. Allan regretted that owing to the manner in which his paper had been brought before the meeting, the discussion on an important anthropological question, then attracting so much attention, should have been of such an unsatisfactory and nugatory character.

JUNE 15TH, 1869.

JOHN BEDDOE, Esq., M.D., President, in the Chair.

THE minutes of the previous meeting were read and confirmed.

The following new Fellows were announced to have been elected :

—John Cleghorn, Esq., The Mount, York; William Davies, Esq., County Asylum, Shrewsbury; Captain William Edwin Price, M.P., Tibberton Court, Gloucestershire; The Rev. Robert Jones, M.A., All Saints' Vicarage, Rotherhithe; Richard Stephen Taylor, Jun., Esq., 22, Lloyd Square; James Bonwick, Esq., F.R.G.S., 13, Alfred Road, Acton. Dr. Swaving, M.D., Batavia, Island of Java, was elected a Corresponding Member.

The following contributions were announced, and thanks were voted to the donors:—

FOR THE LIBRARY.

From the AUTHORS.—*Reliquiæ Aquitanicæ*, part ix. By Lartet and Christy.

From the AUTHOR.—The History of Alnwick, vol. ii, pt. 2. By Geo. Tate, Esq.

From the INSTITUTE.—The Canadian Journal of Science, Literature, and History, vol. xii, No. 2.

From the EDITOR.—Scientific Opinion.

From the COLONIAL GOVERNMENT.—Statistics of New Zealand for 1867.

From the ASSOCIATION.—Journal of the East India Association, vol. iii, No. 2.

From the HOSPITAL.—Statistical Report of St. Thomas's Hospital, 1869.

From the AUTHOR.—*Reise der Fregatte Novara um du erde; Anthropologischer Theil*, 1857-58-59. Dr. F. Müller.

From the INSTITUTE.—Journal of the Royal United Service Institution, 1869, No. 53.

From the SOCIETY.—Proceedings of the Asiatic Society of Bengal, No. 4, 1869; Journal ditto, ditto, part i, No. 1, 1869.

From the INSTITUTE OF PALERMO.—*Giornale de Scienze Naturali ed Economiche*.

From the AUTHOR.—Contributions to the History of Development in Animals. Professor W. Macdonald.

The PRESIDENT mentioned that the office of Director of the Society having become vacant by the resignation of Mr. Brabrook, Mr. Bendyshe had consented temporarily to take it until the Society were able to make further arrangements.

A paper, on "The Stature and Bulk of Men in the British Islands," was then read by the President, the chair being in the meantime taken by Dr. Hunt.

The paper will appear in full in the third volume of *Memoirs*.

Dr. HUNT observed that the whole of the paper, of which only the introductory portion had been read, would be included in the next volume of the Society's *Memoirs*. He considered it a most valuable paper, and one of the most important that had been published in this country on anthropological science. They had yet to learn the alphabet of anthropology, and they should feel much obliged to their President for the information he had given respecting the rudiments of their science. His assertion that no two men agreed in the measurements of the head and the chest showed clearly how young their science was.

With respect to the failure noticed in the paper of obtaining the results of many observations, he thought it might be attributed in a great degree to the attempt to ascertain the weights, for the requirement of a weighing machine was a great difficulty, and he thought it would be desirable to leave out the weight in such investigations on account of that difficulty. He moved the thanks of the meeting to Dr. Beddoe for the paper, which was warmly accorded.

Mr. KENNETH R. H. MACKENZIE, referring to that portion of Dr. Beddoe's paper which stated that the Welsh manifested alarm at being measured and weighed, mentioned that a Fellow of the Society, Mr. Williams, now in Nicaragua, when in Flintshire, had some of Dr. Beddoe's excellent forms. He found much difficulty in convincing the men that he was not a detective employed in investigating the Fenian business. The independence of mountainous races was a fact as well known and as easily to be accounted for; and in a certain way, perhaps, it might be a test of racial purity, and thus account for the objection felt by the Welsh to be measured. Welshmen were very difficult to deal with—they required adulation; but they were to be pitied, for in these islands they had been more oppressed than the Irish, and had submitted, after a gallant struggle, and become good citizens.

Sir DUNCAN GIBB said it occurred to him that the vital energies of a people had a great deal to do with the state of the body, and that the capacity of the chest should count for something very considerable, as an indication of national power. He thought that the British people as a race were superior to most other people in consequence of the vigour they possessed in that respect.

Mr. MACGRIGOR ALLAN inquired whether the measurements taken applied to men only, to the exclusion of women?

Dr. BEDDOE said they applied only to men. In reply to the remarks of Sir Duncan Gibb, he said that the point referred to was considered in the paper. The measurement of the chest he had been very desirous to obtain, but he had found it was of no use to attempt it. There was much greater difficulty in getting accurate measurements than might be supposed; and some men, who were well and respectably known as naturalists, nevertheless returned such statements as to the size of the heads they measured, that they were valueless. He had tried to get the length of the arm, but he had found it was useless.

Dr. HUNT then resigned the chair to the President, and Mr. Avery read the following paper:—

Civilisation; with especial reference to the so-called Celtic Inhabitants of Ireland. By J. GOULD AVERY, Esq., F.A.S.L.

I wish to preface the remarks which I have to offer on the subject of this paper, by a frank confession of my conscious inability to do justice to it. So far as the range of my own reading has extended, I shall have to occupy new ground, and many of my positions may be questioned, and perhaps justly, by the learned persons whom I have the honour to address. I can only say, that I approach the subject not in the

spirit of a dogmatist, but that of a learner and inquirer ; and where I fail to hit the truth, I shall rejoice to be corrected by those who are better informed. It had been better had the matter been in abler hands, but as an anthropologist, a politician, and a patriot, I am persuaded that the importance of the subject can scarcely be overrated, and that it must receive a vast amount of attention more than it has yet done, before that some of the most important questions of the age can approach a satisfactory solution.

For the purposes of this paper, civilisation may be defined as *the aggregate of those conditions of mental and social existence in which man differs from the brute*. All the qualities of the brute are found to exist, dormant or active, in the constitution of man, and in this respect he may be regarded as an epitome or microcosm of animal nature. High cultivation, total neglect, example, association, superstition, passion, poverty, hunger, extreme cold, disease, drunkenness, insanity, and many other external influences frequently develop unsuspected tendencies, and prove that man shares and aggregates all the qualities of the brute. These qualities are distributed among various races of mankind in various degrees and proportions, and are mixed, blended, and compensated by one another, and existing as they always do in man, in combination with higher and nobler endowments which are the distinctive glory of humanity, they form the characteristics of each particular race, and assign to it its due place in the scale of social existence.

By the phrase, "these qualities are sometimes *mixed*," I mean that heterogeneous qualities are sometimes found in active development in the same nature, whereas in others, different qualities blend together, or counterpoise each other, producing a more harmonious character, and assigning to the latter a higher, to the former a lower position among the races of men. Animals again, are distinguished as domesticated, semi-domesticated, and wild ; gregarious and solitary ; attached to a particular habitat or otherwise, and some flourish only in the neighbourhood of man. Neither of these will willingly adopt other conditions of existence, nor will the one interbreed with the other, and although it is possible, by artificial means, to alter the treatment and conditions of individuals, they will rarely thrive or multiply their kind, and will when external restraints are removed, relapse again into their original state. These characteristics are distinctly traceable among the races of mankind. No evidence whatever can be adduced of a civilised, a semi-civilised, a so-called savage race, altering or interchanging its condition, or of two of such races blending their blood. Historians speak of our barbarian ancestors, and we are told of a time—

"When wild in woods the noble savage ran,"

but the ignorance of anthropological science displayed by historians is only less sublime than that of modern legislators. Under unfavourable circumstances a civilised race might doubtless sink into a condition of great misery, while, by careful and elaborate training, a barbarous race could be greatly improved, but all experience shows that the result of the attempt will be to induce a chronic state of war-

fare as in South Africa ; or as in New Zealand, the Sandwich Islands, Van Diemen's Land, and many other instances, to occasion the destruction of the race ; you may cure the disease, but you will kill the patient. Some races, again, exhibit strong family, clannish, and national attachments, and a passionate and exclusive love to their birthplace ; while others are more cosmopolitan in their affections and preferences ; and in almost all countries are found people like the gipsies, who, not highly civilised themselves, yet love to loiter and live in the neighbourhood of civilised industry.

These and other qualities of animal nature, then, are exhibited in man, variously mingled in different races, and describing for each a distinct position in the scale of civilisation. To adopt the language of the breeders of horses, different strains of breed exist, and in some of these excellent qualities are combined with obvious faults, and the qualities of the fiercest animals will co-exist with many of the elements of a superior civilisation.

The habits and usages of a race must, of course, depend on the country which they inhabit, and upon surrounding circumstances. To live underground, and to feed upon blubber and train-oil, may be good sense in an Esquimaux ; and to wear little more than the vestments of Paradise, for a central African ; while to introduce to the former of these countries the refinements of a French restaurant, or to the latter the fashions of Bond Street, would be, not civilisation, but real barbarism. Climate, food, and the elements of external bodily comfort, cannot but have a great effect in modifying civilisation. There is a curious coincidence between the character of the animals of any particular country and of its human inhabitants. Man is an omnivorous animal, and the native originally, probably, of a warm temperate climate, and where he does not receive a supply of animal food, and a damp climate, or inadequate clothing, or great poverty affect him, it is common to find that the lower and more violent qualities of his nature become more than usually active.

It is not the business of science to speak of moral praise or blame, or to regard the subjects of one form of civilisation as therefore, and on that account, better or worse than another. Each, doubtless, is adapted to the circumstances in which it is found, and fitted to fulfil its office in the ultimate history of mankind. To say that because of certain qualities, one is a bad race and another a good, or to be jealous on behalf of any particular race of the scientific features discoverable in it, is equally contrary to sound philosophy and reverence for a Creator. In the language of Pope we say,—

“ Cease, then, nor order imperfection name ;
Our proper bliss depends on what we blame.
Know thy own point ; this kind, this due degree
Of blindness, weakness, Heaven bestows on thee.
Submit in this, or any other sphere,
Secure to be as blest as thou canst bear.”

The mental and social characteristics of every particular race are found associated with a corresponding peculiarity of physical conformation, and the two classes of phenomena, doubtless, are related to

and act and react upon each other. What are to the casual observer very slight and unnoticeable differences of structural organisation, often in fact, reach through the entire system, and are an essential element of the man. (I may refer, in illustration of this remark, to a most able and interesting paper read by Sir Duncan Gibb before this Society "On the Organs of the Human Voice.") These peculiarities of structure mould the character of the race, and assign to it its place in the scale of civilisation. The characteristic, therefore, of each particular race, and of each particular civilisation, are ineradicable. Education, freedom, laws, government, literature, commercial intercourse, wealth, religion, all doubtless may and do exert their influence for good; but they can no more alter a racial character, than they can turn long heads into round ones, or change a snub into a Roman nose. Civilised nations, who advance in civilisation, do not on that account, or by that means, even tend to lose their national characteristics. They advance, it is true, but it is along their own groove. The Jew of to-day is, it may be, more enlightened, better informed, more civilised, but he is to all intents and purposes the same type of man as when Jacob and his sons went down into Egypt. The Englishman of Chaucer and of Shakspeare is the Englishman of the nineteenth century; and the Chinese, educated and cultivated as he is, has been unchanged for at least two thousand years. Nor can it reasonably be otherwise.

But while the fiercer and baser qualities in man's nature can neither be ignored nor eradicated, they may and ought to be gradually controlled, subdued, and kept at rest. But this is a personal matter. By each individual placing and keeping before his view a high example of moral excellence, by a resolute practice of self-government, by fearing God and loving his neighbour as himself, man would become the friend and loving associate of man. In this way a healthy and virtuous public opinion would be formed, and would check individual excess, different forms of civilisation would work out each its own wise and good result, and "men would brothers be, and form one family, the wide world over."

But until this happy consummation is attained, man can only be treated wisely and well, by regarding him just as he is. If you will work with him, negotiate with him, trade with him, or govern him, you must treat him as he is, and not as you are, or as you would like him to be, or as you think he ought to be. Legislation must respect racial distinctions and characteristics, or it will be a disastrous and mischievous failure. To govern different races of men, you must study their peculiar racial characteristics and tendencies, and treat them accordingly. Until that be done, all other measures are vain.

I come now to make some remarks upon the so-called Celtic inhabitants of Ireland,—I say the so-called Celtic, because I do not now propose to discuss the question of the origin of the Irish people, but to define my present intention, which is, to make reference, not to the various English, Scotch, and Welsh peoples who, emigrating to Ireland at different periods, and settling there, are Irish only by birth and property, but do not belong to the previous inhabitants. To these my remarks will not apply, and, for the purposes of my paper,

I do not consider them Irish at all. By their names, by their religion, by their loyalty to the government, by their enterprise and success, they show the characteristics of the races to which they belong.

If you take a ride through London on the outside of an omnibus, and amuse yourself by noticing the names over the handsome and busy shops by which you pass, you will hardly fail to observe numberless familiar English names, many Welsh, Scotch, French, Italian, German, and many others, but no Irish,—almost, literally, none at all. A visit to the provincial towns of England will lead to a similar remark. If you examine a London or Provincial Directory, and look for the names of great manufacturers, merchants, shipowners, mine proprietors, or any other of the leading industrial activities of our country, how small a number of the names is Irish. In any town in England, if you ask for the Scotch quarter, the Welsh, or any other, people stare with astonishment, and ask what you mean; but from the metropolis down to the fourth- or fifth-rate towns, and even lower still, if you ask for the Irish quarter, you are understood at once, and conducted in every case to the most filthy, squalid, wretched rookery in the place. In all great contract works, building operations, etc., if you inquire, you will find very many Irish are employed, but not as foremen, skilled mechanics, superior persons, but always and ever as hod-carriers, labourers, “hewers of wood and drawers of water,” with here and there an exceptional case of a man working himself a step or two higher. In reading the police reports, if you chance to miss the name of the party incriminated, but see a case of savage violence and unmerciful brutality, you at once think it is an Irishman, and glance to the first line and are convinced; or if you see an Irish name at the heading, you naturally expect the offence to be of this nature. If a mutiny break out among the girls at an union-house, or the paupers at the casual-ward, you ever look for Irish names among the leaders of the affray.

If you read the *History of Ireland* from the earliest times (and a history which I possess commences ages before the Flood), it consists of an unintermitting series of internecine wars, turbulence, treason, violence, and blood, down to the period of the English Conquest, and long after, up to comparatively a few years ago; insomuch that it has been contended that but for the interference of the English, the native people would have utterly destroyed each other long ago, and depopulated the land. Within the memory of men by no means old, in fact, just before the potato famine, faction fights on every holyday, or other public festival, were universal. I have been informed by an Irish magistrate, that shortly before that time rival factions, of a thousand each, would frequently meet and fight in the streets of his town with stones and bludgeons, and that lives were sometimes lost on those occasions. In fact, the dignitaries of the Roman Catholic church have been compelled to lessen the number of holydays and festival occasions in order to prevent these mischiefs.

I have adduced first of all these particular facts, because with them the English government can have nothing to do. The gregarious tendencies, the squalid habits, the low commercial and social

position, and the brutal violence of the Irish people in London and elsewhere, cannot arise from political causes. The Irishman in England has as free room for his enterprise and industry as any other, and the difference of his condition must be traced, therefore, to himself alone. I may add on this part of the subject, that from the most reliable information I have been able to obtain, the condition of the Irish in New York, and other cities of America, corresponds to their condition in England.

Ireland is a conquered country; so is England; so is France; so is every other country in Europe. It would be difficult to find a land of which there is reasonable evidence that it is now inhabited by its aboriginal possessors. The Celtic Irish themselves were not the aborigines of that island, as their own chronicles proudly relate. But in every other country, the conquered race have at length accepted the fact and submitted, and, retaining the incomparable advantages of previous settlement, have fraternised with the intruding race, and thus become themselves more than conquerors. This the Irish have resolutely refused to do. Without ever having been able, through their own intestine divisions, to offer a decent semblance of resistance to the English, with the fact patent to their eyes, that if not subdued by England they would inevitably become the prey of some other European state; and that the very national existence of England herself would be imperilled by her allowing an island so rich in harbours to be in the possession of a foreign power; with the most palpable evidence that Ireland, of all the nations of Europe, has given the least evidence of her capacity for self government, and that she never had, or could, or can have, the remotest chance of acquiring her independence by force of arms; with all these, and many other considerations staring them in the face, the Irish have doggedly rejected the invincible logic of common sense, have kept up a chronic state of disloyalty and sedition, and have expressed their dissatisfaction by windy clamour, by malignant threatenings, and by repeated conspiracies, the scarcely concealed object of which was wholesale outrage, murder, and blood. Attempts to carry out these designs in 1641 and 1798, attended with circumstances of the most horrible nature, led the English government to measures of reprisal of more or less severity, and have been followed by bitter complaints of its bad government of Ireland, the real causes of which are never spoken of. The English administration of Ireland was probably far from faultless, for that of England was at least equally bad; but the readers of history need not be informed that the few years prior to 1641 and to 1798 were not times of peculiar severity to Ireland, and that for the last thirty years, at least, a policy of conciliation and even-handed justice has been attended with a growing bitterness in the spirit of Ireland toward England. A couplet which Daniel O'Connell was in the habit of quoting contained a profounder truth than, probably, he himself apprehended:—

“Hereditary bondsmen! know ye not
Who would be free, themselves must strike the blow?”

Most true! the nation which is fit for freedom, must prove their fit-

ness by themselves winning it. Various attempts to liberate and give national independence to subordinate peoples have been witnessed, during this century, in South America, Greece, and elsewhere, and the results serve to prove the soundness of the aphorism I have quoted. Many races of mankind are fit only for political subordination; and those which are otherwise, will assuredly assert their right to a different condition by winning it for themselves. But I am not dealing with political questions, and my only object is to show that the position of the Irish people in relation to England, and the alleged severity and badness of English government, arise from and illustrate the racial characteristics of the Irish themselves.

During a period of seven hundred years, the Irish have lived side by side with the English people, and have, like them, had access to, and a certain amount of intercourse with, the most civilised nations of Western Europe. That period has witnessed all over Europe, and not least remarkably in England, a wonderful advance in the arts and sciences. Architecture, painting, sculpture, and every other branch of knowledge and of human cultivation have advanced with marvellous rapidity and power. Painters, sculptors, and men of practical science, equal to, and perhaps exceeding what the world has ever seen, have produced their immortal achievements, and in architecture especially, the works of poetry in stone, which charm the eye and thrill the soul, in the cathedrals, abbeys, and other magnificent erections in England, will live to testify of the genius of those who produced them to generations yet unborn. The Irish people have witnessed all this, and the religious fervour which nerved the English to these marvellous achievements, has burned in their hearts with at least equal strength. But although possessing building materials of the very best description, stone, various kinds of marble, lime, and timber in measureless abundance, they have failed to produce one solitary structure worthy of lofty genius. Their Round Towers, the probable memorials of a Phallic superstition more ancient than the period now in question, and as ugly as they are imperishable; their castles, mostly consisting of square towers, with walls of enormous thickness, but frequently without chimneys, and a number of cathedral churches and abbeys, now mostly in ruins,—not one of them all exhibits superior conception, correct taste, or real grandeur, and while all Europe, passing through the throes of political convulsion, conquered, enslaved, oppressed, or liberated, has been still toiling up the steep of science, and marking, by the immortal works of its children, its proud advance in all the arts which dignify and adorn our existence,—the Irish people have lagged behind, and shown as marked deficiency in those mental qualities which conduct to artistic excellence.

The same remark applies to manufactures. The manufacture of silk, of cotton, and of flax, have been established in various parts of Ireland, as in England, but they have nowhere taken root among the Celtic Irish. The flax and linen trades do, it is admitted, flourish, but only in the north, and among the Scottish immigrants, with whom this paper has nothing to do. But the fact that it does flourish among these proves, that the reason why it does not equally succeed

among the Celtic Irish must be looked for in the racial peculiarities of the people.

Within the memory of man, in every part of Great Britain, several branches of industry formerly and for many generations successfully carried on in local and provincial districts, have, from a variety of causes, but chiefly through the introduction of steam machinery, utterly failed and died out as local industries, and have been absorbed and monopolised in great manufacturing centres. Such are candle and soap making, hat making, tanning, currying, glove making, the manufacture of coarse serges and woollens, and some others. The vestiges of these extinct branches of industry are found in every town and village of England, and many of the old inhabitants tell, with a sigh, of the good old times when they were in full activity; but they have gone, and the people have gone after them to localities where they can be more prosperously conducted, or evincing that fertility of resource, which is one of the remarkable features of the English character, have remained at home, and found remunerative employment of other kinds. In Ireland, too, these industries have perished, but the Irish have found no substitute, but, sinking into hungry idleness, have contented themselves by blaming the English government as the cause of all their misfortunes. This infertility of resources, this want of power to turn his hand to any thing, is a not unimportant feature of the Irish character.

An English farmer, if he have several sons, brings one only of them to his own business, and the rest, at the age of thirteen or fourteen, leave home to follow some commercial or handicraft pursuit, according to his father's means and position, and thus launched upon the world ceases at an early age to become any longer a burden at home. But the Irish farmer, however numerous his family, as a general rule, brings them all up on the farm. He has a dislike to trade, and a sort of contempt for handicraft, and the family is all at home until they marry, emigrate, or otherwise start for life. The family cannot possibly earn much, and as they must live, they get accustomed to the cheapest and commonest kind of food, usually potatoes and buttermilk; they have an easy, idle kind of life, and are content with it. To repair a hedge, to thatch a leaking roof, to hang a door, to stone the pathway to the cottage, to plant or cultivate a garden, or any other of those gratuitous activities in which the English labourer delights, never occurs to them, or if it does, they do not do it; they do not read, or apparently yearn after any intellectual pleasures; but to sleep, to smoke, to sit under the hedge or by the fire, and to drink whiskey when they can get it, are the favourite employments of those hours in which the English labourer adorns his humble dwelling, cultivates his garden, reads some cheap but instructive publication, or pursues those numberless little useful handicrafts by which he enhances so much the comfort of his existence. What is it that impels the Englishman to these gratuitous activities, and not the Irishman, if it be not a difference in racial qualities? The result is that handicraft in Ireland is usually rude and poor; it is difficult to get tradesmen of this kind at all. The young Irishman, when he starts for England or America, becomes a mere labourer and nothing

more, and settle where he may, he of necessity takes the lowest kind of useful employment. It will occur to many now present, that of the tradesmen who work for them, some may be Scotchmen, some Welshmen, but not one probably is an Irishman. But if the young Irish farmer remains at home, he wants a farm, and from the number of such arises that keen competition for the land which is the cause of so much unhappiness. If land cannot be obtained, he thinks himself exceedingly ill used, and blames the government; if he be thwarted in his endeavours to obtain a farm, he thinks no revenge too dire and too heavy; and as a few acres only will produce potatoes enough for his subsistence he will readily settle upon such a plot, and so drag out an ignoble existence. The Irish farmer with several sons, is always disposed to promote such a state of things by dividing his holding among them all, and if he had the power to do this it would undoubtedly be done again and again, until, as it was prior to the potatoe famine, the country was filled with hordes of paupers. The resistance afforded to this by the landlord is now attempted to be overcome by legislative interference, giving the tenant a fixed and permanent tenure; and one leading politician even proposes that the state shall buy the freehold and enable the farmer to become possessed of it. The sure and inevitable result of such an attempt would be to give free scope to tendencies in the Irish character, which past experiences has proved to be fatal to general well being. Of all imaginable proposals, that which would acquire the possession of the land, or of the railways by the government, thus concentrating upon the English nation all the odium now shared by the landlords and by the Board of Railway Directors, is, to those who have studied the Irish character, the most suicidal, and the most unwise.

That when man increases and multiplies he should replenish the earth is his Creator's command; and emigration from an overpopulous to a less populated land, is the complement and consequence of human advancement. The Englishman, when he finds no sufficient scope at home departs to another country, not that he does not love his own land, but that he thinks that he can do better elsewhere. He therefore emigrates, cheerfully, lovingly, hopefully, accepting the necessity of his own position, and bequeathing nothing but good will to those he leaves behind. But the Irishman's love to his country entirely differs from this. It is a blind, passionate instinct. He knows that there is no scope for him, that nothing but poverty and misery await him at home, and that comfort, prosperity, and wealth may be obtained abroad. No matter. He hates the necessity of emigration. The very suggestion is to him an outrage and an injury. In consenting to it, he thinks he suffers a cruel injustice. He is taught to regard the English government as in some way guilty of compelling it, and of driving him from his own home and land; and he leaves Ireland with the most intense and deadly hatred of England, and with loudly expressed hopes and threatenings of revenge. This intense, unreasoning, and unreasonable clinging to a native place, is, I venture to submit, not a sentiment, not a principle, but an instinct and a racial peculiarity which political science cannot account for, and anthropology cannot overlook.

The unreflecting recklessness of the Irish character is proverbial. His rage admits of no restraint ; his revenge of no moderation. For an offence for which an Englishman, a Scotchman, or a Welshman would scarcely lift his hand against his fellow man, an Irishman will take his blood. Cruel murders and diabolical outrages are, no doubt, committed in England as well as in Ireland, and perhaps more frequently. But the English murderer shrinks from the contemplation of the enormity of his own crime, and shudders at the blood he has shed. The Irish murderer, on the contrary, revels in it, and kindles at the sight. Among the cruel assassinations recorded within the past few weeks, in one case, after the murderer had slain his victim, he had brutally kicked and otherwise maltreated the body ; in another case, after the body had been riddled with balls, the head of the murdered man was beaten to pieces with a great stone ; in an Irish town, some few years ago, a most worthy respectable man was murdered, in broad daylight, at his own door, and having been interred in the churchyard, and a tomb erected over his remains, within a week of its erection the tomb was found to have been beaten to pieces with a sledge hammer. In the history of the Rebellion of 1798, when the rebels had got possession of Wexford, and had filled the prisons with the Protestant inhabitants, a military commission was held by the rebel leaders, and the prisoners were ordered to be led out for execution. They were taken out in companies of ten and twenty to the new bridge, and a few were then shot ; but generally two rebels stood before and two behind each victim, into whom, having thrust their pikes, they held him suspended in the air, writhing with torture till he expired, the crowd expressing their joy with loud huzzas. Many such instances may be adduced, and prove that this fierce and ferocious brutality cannot be lost sight of in estimating the racial character of the Irish people.

In England, the murderer has no pity, no sympathy, no protection. Every door is closed against him, every heart steeled, every hand hastens to bring him to justice. In Ireland, the case is just the opposite. However unprovoked the crime, or innocent or excellent the victim, the feelings and efforts of the people are all enlisted on the side of the assassin, and none but will aid to shield him from the pursuit of justice. Hostility to the law is a marked and uniform feature of the Irish character ; and public opinion, as expressed by the popular newspapers, endorses to the full the practice of the lower classes.

The Irish people have been, for many centuries, the subjects of Christian teaching, and, professedly at least, a Christian people ; they have been in intercourse with the English and Scotch, and other races of advanced civilisation ; they have had the advantage of a firm and settled government, if not always a judicious one ; they have enjoyed a large amount of political freedom ; they have, for thirty years at least, had an excellent system of popular education ; they have attained a state of wealth and prosperity never equalled before in the history of the island ; but the national characteristics remain wholly unchanged. What they were in the days of Shan O'Neil, of the re-

bellion of 1641, of the later rebellion of 1798, that they are at this moment ; and he who hopes, in the face of all this, to witness a change, is certainly bound, in the name of science and of all humanity, to render a reason for his hope.

The object of this paper is to show that the peculiarities of the Irish character are not due to political causes, to educational neglect, to the force of circumstances, or to any other external influence whatever, but that they are racial, hereditary, and ineradicable. In my opening remarks, I attempted to show that all the qualities of the inferior animals exist in man, mixed, blended, and compensated, and in every case associated with higher and nobler powers, in greater or less degree. The activity or dormancy of these animal qualities, as exhibited, some in one race, and some in another, form the characteristics of the race, and of the civilisation which it possesses, and these characteristics are associated with a corresponding physical conformation, and are persistent and indelible. Whether this be a clue which will conduct to a right estimate of the Irish, or any other race, I will not venture to say ; but of this I am sure, that the subject of the Irish people especially, must be approached in a different direction to any yet adopted by politicians or philosophers before it will be understood, and if I shall only set more able minds than my own to work on this subject, my effort will not be vain.

The thanks of the meeting having been given to the author of the paper,

The PRESIDENT expressed the opinion that it was one-sided in its views, and that the facts were too highly coloured. If there were many walks of life in which the Irish did not excel, it must be admitted that they had produced some eloquent orators, and that they were good soldiers. It was true they had produced no grand buildings, but had they had the chance of doing so? Wealth and peace were needful for such achievements. Before the English arrived in Ireland, the people were never in a state of peace, according to the author's own showing. In that respect, indeed, they had not been much better off since ; and it was questionable whether the English were not largely responsible for it. He thought the Irish contributed fairly to the ranks of artists ; and the difference between English and Irish workmen had been well explained by Mr. Woodward, when noticing the distinction in the workmanship of some carvings at Trinity College, Dublin, on which both English and Irish were employed. The English carvers got through most work in a routine manner ; but the best work was that of the Irishmen, and it was produced in a different way. While the English continued steadily at work, without talking about it, the Irishman was glad to talk about his work, and to take hints from lookers on. The quantity of their work was small, and it was less uniform, but it was more often of the first quality.

Mr. BENDIR did not object to the tone in which Mr. Avery had treated the subject, nor would he dispute his "principles"; but many of his "facts" he could not accept as such. Old Irish history, for instance, did not materially differ from the history of other European races when they were first heard of. Cæsar and Tacitus gave accounts

of the nations of Germany, Gaul, and Britain, very similar to all we read about the Irish some centuries after. Among half-civilised races internecine warfare was a common feature, and necessarily preceded the formation of an organised state. From his own experience, Mr. Bendir instanced some branches of trade in London in which the Irish kept their ground fairly against English and foreigners. In America, too, they were not, as Mr. Avery had asserted, "mere hewers of wood and drawers of water", quite the reverse; they were, also, landowners, merchants, employers of labour, competitors in every profitable business and in every honourable profession; often distinguished as speakers in the senate, in the pulpit, and at the bar. How was it that the Irish did so well abroad, whilst in their native country they did not prosper? Race could not account for that, certainly. Amongst the eminent men in the military services of Austria, France, and Spain, Irish names, of undoubted Celtic origin, were now, and for centuries had been, conspicuous. Of all the Austrian generals one only was something like a match for Frederick the Great; he was an Irishman named Loudon, and well worthy the attention of Mr. Avery. Amongst the heroes of the first empire, the name of Macdonald occurred. Amongst the present French Marshals, less than a dozen in number, there were to be found Macmahon and Niel (originally O'Neil). The Spaniards entrusted the command of their army in Africa, when matters became serious, to O'Donnell, the inferiority of extraction having an irresistible charm to everybody, except to an Englishman of pure breed. The talent of the Celts for conspiracy had been dwelt upon by the author of the paper; but he (Mr. Bendir) begged to refer him to the preface of the fourth volume of Thomas Moore,* where he could find a very interesting account of some facts connected with the conspiracy of 1798; there it was stated that almost all the leaders were Protestants, and scarcely a single Catholic took part in it. Now, as the Irish Protestants, as a body, were immigrants from England, and not of true Irish descent, the conclusion was obvious, that the "talent for conspiracy" was not confined to one race. Mr. Avery had tried to make capital out of the fact that by authority of the priesthood the number of holydays had been lessened in Ireland, with a view to avoid the dreadful scenes of drunkenness and debauchery which were said to take place on such occasions. It so happened that the very same thing had been done of late in other countries; Bohemia and Russian Poland, for instance, both largely inhabited by Catholics. This century was eminently a century of work, too frequent interruptions of which were a nuisance, and against the spirit of the times; even the priesthood had come to find that out, and the diminution of the number of holydays was the natural consequence everywhere, Ireland forming by no means an exception. Now, as to the curious "fact" of Mr. Avery's, that old Irish architecture was very poor; one might feel disposed to retort, and ask whether modern English architecture did not show plenty of egregious failures. But to take a larger view, he maintained that in matters of

* Longman's edition, 1847, vol. iv, p. xix, *footnote*.

taste, art, and literature, the Irish were not behind the English. Everybody knew to how large an extent Irish pens supplied London newspapers; everybody knew how indebted even this Society was to an Irish anthropologist (Dr. Carter Blake), whose accomplishments, whose energy, and whose services in the cause of science were equal to those of any English Fellow. Mr. Avery had found fault with the Irish for their alleged disposition to live on the produce of a "few acres" of land rather than seek more profitable employment abroad; although the exodus from Ireland had been enormous for a quarter of a century, and consequently the foundation for Mr. Avery's generalisation, but slender, he (Mr. Bendir) could not help remembering those charming lines in which an English poet had celebrated the good old times in this country:—

"When every rood of ground maintained its man."

Why not live contentedly on, and cultivate "a few acres" of Irish soil, if a "rood" of English will keep a "swain", and constitute the economic Eldorado of Goldsmithian happiness? Whoever had studied the Celtic character, or had come in contact with the Irish peasantry, could not but feel astonished at Mr. Avery reproaching the Irish for their ingratitude. Mr. Avery had contrasted the Englishman who, in distant lands cherished, and almost kept sacred, everything English, with the Irishman who hated and loathed all that belonged to England. Well, the Irishman's affection was concentrated on Ireland; and whoever knew and remembered the history of the last three centuries, would scarcely be at a loss to account for the difference in the sentiments of English and Irish emigrants: to taunt the latter with "want of gratitude and affection" was simply unjust. Mr. Avery had also alluded to a scheme by a well-known statesman, having for its object a settlement of the Irish land question. That statesman was used to hear every proposition of his described as something dreadful, dangerous, and revolutionary when it was started, often by the very men who afterwards carried out his plans almost to the letter. Perhaps the time was at hand when it would again be acknowledged that the right honourable gentleman, whose name had been wisely omitted, had once more hit upon the proper remedy which would effect the object we all had at heart,—a better understanding, a firmer union, a more brotherly feeling between the two kindred people who constituted the British empire.

Mr. PIKE thought the tone of the paper was one to be deprecated, because it would have the effect of increasing the enmity between Irish and English. The premises, from which conclusions had been drawn, were not anthropological facts, such as physical characteristics, or even mental characteristics reduced to a system, and many of the statements were opposed to history, as contained in contemporaneous records. The attempt to draw a distinction, on the grounds given by the author of the paper, between English and Irish characters, he considered to be unintentionally mischievous. As for the outrages, murders, and concealments of murder, laid to the charge of the Irish, they were exactly similar to the outrages, murders, and concealments

of murder for which the English Hundreds were made responsible during many reigns after the Norman Conquest. The English people, when conquered by the Normans, did what the people of Ireland do at the present time, and did it to so great an extent, that the fines paid by the hundreds formed a considerable item in the revenue. So far as the facts adduced were true, and so far as they proved anything, they would go to prove that the Irish were of the same race as the English; and it was cruel that the Irish should be accused of having invented un-English crimes. Similar circumstances had produced exactly similar crimes in England and in Ireland. They had heard a great deal about the Irish not being able to do various things which required intellect; but had the author of the paper forgotten Grattan, Burke, and Curran? They had been told something about the Irish in America; but the fact was, that if the Americans recognised a difference, they considered the English worse "citizens" than the Irish. The paper was, he considered, rather a lecture which might rouse angry feelings, than a strictly anthropological disquisition. And as the time was one of some popular excitement, he hoped the author of the paper would excuse him when he spoke somewhat strongly on the side of conciliation. The only effect of drawing distinctions, such as had that night been drawn, would be to irritate; and one of the surest engines of conciliation was the truth, which was that the differences pointed out were not differences of race. Whatever racial differences might exist between the English and the Irish, they had certainly not been pointed out to the meeting; and though he would not go so far as to say that no such difference existed, he had recently had occasion to show that there were some psychical resemblances. The two peoples alike refused to submit to domination in religion. The British and the Irish had at one time the same form of faith, and they made the same resistance to Popish domination when it was opposed to their wishes. Later, in the time of Henry VIII, the English having thrown off the domination of the Pope, wanted to impose Protestantism on the Irish, and the result was a different form of faith, but the principle which actuated them was the same. Mr. Pike thought that the race question of Ireland, though very interesting was very difficult, and received no light from such invectives as sometimes appeared in some of the newspapers.

Sir DUNCAN GIBB spoke from his own observation of the Irish settlers in Canada, many of whom were comfortably situated and were doing well, and had been so for two or three generations. Many of the most eloquent orators in America, he said, were Irish; and taking the Irish in America on the whole, a large proportion of the second generation were doing well.

Dr. CHARNOCK disagreed with the assertion that no Irish names were to be seen over shop windows in London. Whilst the paper was being read, he had made out the following list of Irish names:—Boyle, Brian, Brain, Byrne, Concanen, Callaghan, Conner, Coyne, Donovan, Doyle, Duggin, Dunn, Flynn, Gammon, Geoghogan, Hennessey, Hanratty, Kelly, Keeley, Lane, Leahy, Meagher, Monaghan, Moou, Murphy, Reilly, Ryan, Sullivan, Sheridan, Sheill, Tagart. Dr.

Charnock thought, also, that a hundred more Irish names might be found.

Dr. DUNCAN considered that those portions of the paper which referred to the differences in the racial characteristics of the Irish of the south-west of Ireland and the English, were well worthy of careful examination. He dissented from the manner in which many of the alleged facts had been applied in the argument. There was a very great difference between the agricultural class of the south-west of Ireland and the labouring class of (for instance, of the eastern counties) England, and the distinction was evidently not produced by external circumstances alone. There was an amount of poverty, discomfort, and misery amongst the people of the south-west of Ireland that would be unbearable by a labourer of the eastern counties. But it was borne with an amazing amount of light-heartedness and apparent contentment by the Celts. It might be said that the Celts had not the same surroundings as the English peasantry, and that there was not the civilisation of an upper class to regulate their tastes and to lead them out of their squalor by appealing to their ambition. In the south-west of Ireland, the absence of the so-called middle class of English villages and little towns is evident. It might be said that there was an inherent love of the land in the Celt; that he looked upon the patch that had supported his parents and himself with an amount of affection that was not possible in an English labourer, who had no ideas about this relation of the soil to its tillers. He could not agree with Mr. Avery's picture of the habits of the English agricultural labourer, and he was afraid that the author drew his pictures of the class after Morland. As a matter of fact, few of the labourers of the eastern counties indulge in embellishing their cottages, they prefer the beershop; and as they rarely read and write, their amusements are as degraded as those of the Celts of the south-west of Ireland; but the Celt has a power of fun in him, and intrinsically he is not so dull as his English compeer. There was not much to be said on either side about the love of revenge and the method of murder. He would remind the Society of the cold-blooded, predetermined series of murders called the Massacre of Glencoe; this abominable deed was unsurpassed. He would remind them, also, that however cruelly the Irish might occasionally use their dead foes, the English occasionally boiled theirs; and, in fact, the brutality of the English murder surpassed that of the Irish. He considered that the racial mental characteristics of the Celts of the south-west of Ireland were not to be overlooked in these questions, and that they accounted for the differences between the Irish and English labourers, due regard being paid to influence of example and external circumstances. He thought that now-a-days there might be some philosophy in politics that we, as an English race, might have learned by this time, that all men did not think alike, and that different races could not be made to think alike. It was absurd to legislate, upon the same principles, for the Celts of the south-west of Ireland and our own lower classes. A parental government would suit the Celt, or a form of rule which would attach him by personal affection: you cau-

not lead him as we are led. You can no more instil English political economy into south-west Ireland than you can transform an enthusiastic hot-blooded Italian or Spaniard into a cold, sedate, Scottish Presbyterian.

Mr. DENDY suggested that the discussion of the paper should be adjourned to the next session, if such a proceeding were not out of order; but on the remark of the President, that a better opportunity would be afforded of resuming the discussion of the subject at the meeting of the British Association, he acquiesced.

Captain BEDFORD PIM, R.N., warmly expressed his thanks to Mr. Gould Avery for the paper just read. In his opinion it was not only characterised by great ability and thought, but displayed a moral courage not too common now-a-days; and he only hoped it would open the eyes of those in authority to the true state of things in Ireland. The Irish question was simply a race question, and, in truth, religious equality or land-laws had but little to do with it: the Celt was a different being from the Saxon; in fact, there was even a distinction between the inhabitants of the north and south of Ireland. The so-called wrongs of Ireland were a delusion, a useful cry, no doubt, for party purposes, and therefore kept up, but for no other reason. He did not mean to say that the Celt was not unfortunate; the religion which had been forced upon him was a dire misfortune; for most certainly being a Papist did not make the Celtic Irishman less brutal, less of a cowardly assassin, or less unfriendly to law, order, or the best interests of the United Kingdom. Mr. Gould Avery would have done good service if his paper, in ever so small a degree, opened the eyes of the authorities to the true state of the case, but he feared there was not much hope of this; those gentlemen were not anthropologists; indeed, as Mr. Cobden used to say, they knew all about the history of Greece or Rome, but were sadly ignorant of what was passing under their very noses. As regards the unqualified meed of praise for bravery, which one gentleman had given the Irish, he could not agree with him; it was quite true as regarded the northern Irish, — a mixed Protestant people, of whom it was impossible to speak too highly; but the Celtic Irish Papist, in his opinion, and he spoke from practical experience, was all very well with a stick in his hand in a street row, but a very different being with bullets whistling around and death staring him in the face. Under such circumstances, he had seen any amount of pluck shown in the one case, and the utmost poltroonery in the other, and he had heard that this had been remarked in many instances, and was especially noticeable in the Russian war. In short, the debate on the paper went strongly to show how little was really known of the Celt; and he repeated, that if only those in authority would but take the trouble to make themselves acquainted with certain race distinctions, — in fact, become anthropologists, — there would be fewer political mistakes than ruled at present; and less pandering to Negroes, the working classes, and the Celtic Irish, with party clap-trap, there would be really then some hope of seeing sound patriotic projects adopted and carried out.

Professor MACDONALD observed that the Celtic populations of Scot-

land and Ireland were very much the same while they remained in the country, but most of the former emigrated. The numbers of the Celtic Irish were much greater, and having smaller means, they fell into a lower state of poverty and want. The Celtic population in Ireland were miserably in rags; but they seemed to prefer their rags and beggary to exerting themselves for their own support. He considered it of advantage to distinguish the racial characters of the population, in the manner pointed out in the paper; but he did not think the Celtic Irish were so bad as they had been described, and that when favourable opportunities offered, they might be induced to enter into trade, instead of continuing hodmen and labourers, as there were many successful instances, on the wharves of Liverpool and other seaports, of the rise of Celtic Irishmen from old clothesmen and hawkers becoming extensive outfitters and furnishing storekeepers. There is always a marked improvement wherever Paddy is transplanted to an improving locality, which should be encouraged.

Mr. AVERY, in a few remarks in reply, said, that he had read the paper in the most honest spirit of science. His principles had not been disputed; and he felt assured that the facts were not exaggerated, and that they represented accurately the Irish character. Then, would the principles serve to illustrate and explain the facts? He had shown that there was a great difference between the two peoples, and he had accounted for the difference by the difference of race. He had attempted to indicate the solution of the problem, and if he had not succeeded, then let those who objected offer a better solution.

The PRESIDENT, in adjourning the meeting, said it was the last evening of the session, but he hoped they would muster strongly at the meeting of the British Association at Exeter, and send in many anthropological papers to be read there.

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