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THE MANCHESTER ANTHROPOLOGICAL SOCIETY.

To those who have watched the gradual rise and progress of anthropology in Europe, and especially in England, the opening of a new Society devoted to this special object is an event of much interest. The Society, whose birth we now have to record, is, however, not so much a new Society as a development of the London one which has itself only arrived at the tender age of four years. The Manchester Anthropological Society comes before the world, avowedly and actually as a branch of its parent Society in London. We believe there are many anthropologists in this country who look with no expectation of good results from local branches of the London Society. There are some, too, who would equally object to the formation of entirely independent societies in the different large cities throughout the British dominions; but we think that the great majority of British anthropologists are most anxious that local branches of the London Society should exist, and hope most sincerely that they may prosper. Time alone can determine whether these societies have the necessary conditions of successful existence. We have examined very carefully the plan of union, and think that it is satisfactory to the branch as well as to the parent Society. The terms of union afford to the branch Society considerable encouragement; but, if branch societies are to be successful as working scientific societies, and to help forward the study and development of anthropology in this country, it must be by a few really earnest and zealous men in each Society who are really conscious of the grandeur of the science they espouse. We shall not now dwell on the question whether the necessary conditions exist at Manchester for a flourishing local society devoted to anthropology. We shall be content to study the actions of the anthropologists of Manchester before we venture on any opinion. There is only

one thing, however, which we feel sure, can ruin the Manchester or any other anthropological society, and that is solely want of enthusiasm and zeal in the study of their science. On this point we may say that the present constitution of the Society offers grounds for hope. The President and Vice-President of the Society are both doing their work well, while the Honorary Secretary is working at his duties as all men both must and should do who wish, or which is better still, are determined, to succeed. These officers are supported by a Council, which, although at present rather small, yet will be able to render very valuable advice to their colleagues.

We shall now give an account of the first meeting of the Society, and at a future time we hope to be able to keep our readers informed of the result of the experiment of establishing branches of the Anthropological Society of London. The meeting was held in the large Lecture Hall of the Mechanics' Institution, David Street. There was a large and fashionable audience, including many ladies; the walls were covered with sketches and diagrams. Two tables the length of the room were well covered with specimens illustrative of the early history of man and of savage tribes.

The Chair was taken at half-past seven by George Harris, Esq. F.S.A., President. On the platform were, George Harris, Esq., F.S.A., President; C. W. Devis, Esq., B.A., F.Z.S., Vice-President; F. R. Fairbank, Esq., M.D., Loc. Sec. A.S.L., Secretary; John Plant, Esq., F.G.S., Curator, Peel Park Museum, and a deputation from the London Society, consisting of James Hunt, Esq., President A.S.L.; Rev. D. I. Heath, M.A., F.A.S.L., Treasurer; John Beddoe, Esq., M.D., B.A., F.A.S.L.; J. W. Grattan, Esq., F.A.S.L. A large series of casts of heads, illustrative of descriptive anthropology, which comprised among others, the following :—a large collection of prehistoric remains, including specimens of worked flints from Abbeville, Dordogne, etc., and objects from the Swiss lake dwellings (John Plant, Esq., F.G.S.); a collection of weapons and implements, a present, used by savage tribes, many of them illustrative of the use of those of prehistoric times (John Plant, Esq., F.G.S., R. W. Fairbank, Esq., F.A.S.L.); casts of the Neanderthal and Engis crania, and remains from Belgian bone caves, Anth. Soc. Lond.; casts of the two extreme forms of human crania described at Nottingham by Professor Huxley (Dr. Fairbank); a large and beautiful collection of worked flints and carved bones from Dordogne and of worked flints from Abbeville (Dr. Hunt and the Anthropological Society of London); a new craniometer, by which entire outlines of the skull may be taken in any direction (by John Grattan, Esq., F.A.S.L). The walls were covered with drawings and diagrams, including a large sketch of Carnac in Brittany by Dr.

Hunt, and a series of sketches illustrative of the works of art, dwellings, and sepultures of prehistoric man (John Plant, Esq., F.G.S., George Harris, Esq., F.S.A., President, etc., etc.) Tea and coffee were provided, and a selection of music performed.

Besides these gentlemen we noticed in the room the Local Secretary of the Anthropological Society of London for Liverpool, and three Fellows of that Society from this city, and it was reported that they had attended to watch and learn something which might become useful ere long at the opening of a contemplated branch in that great and important town.

The President called on the Secretary, who read several communications, including a letter expressive of good wishes from the Secretary of the Paris Anthropological Society, and letters of apology for non-attendance from M. P. B. Du Chaillu and Dr. Barnard Davis.

The Secretary then read a Report on the Proceedings of the Anthropological Department at the late meeting of "The British Association for the Advancement of Science," by F. R. Fairbank, Esq., M.D., F.A.S.L.

"The Anthropological Society of Manchester being entitled to send three delegates to the meeting of the British Association, the following gentlemen attended, and were recognised in that capacity: Rev. R. S. Scott, M.A., Treasurer; David Morris, Esq., Loc. Sec. A.S.L., Member of the Council; F. R. Fairbank, M.D., Loc. Sec. Esq., A.S.L., Secretary.

"The meeting this year was particularly interesting to anthropologists, because, for the first time, their science was recognised as one worthy of a special department of its own. It is well known to you that great efforts have been made for several years past to obtain recognition for the science; and though the concession has not been made in the most graceful manner possible, yet a standpoint has been gained, and it remains to be seen what use will be made of it. At this meeting the department was fully occupied with papers, both interesting and valuable, and earned a popularity which it retained to the end. The new order of things has in great measure been brought about by the influence of Professor Huxley with the Council. Section D, over which he was elected to preside, hitherto styled zoology and botany, on this occasion appeared as biology, with two departments, physiology and anthropology. This arrangement was very distasteful to the physiologists, who would rather have been formed into a distinct section to themselves. So great was the discontent among them, that Professor Huxley considered it necessary to justify publicly the division which he had made. With the malcontents the anthropologists had little sympathy, and left the debate with those more or less personally interested. It was explained that the arrangements made were for this meeting only, and that it by no means followed that they would be the same next year unless they proved satisfactory. The anthropologists would have been glad to have been presided over

at this their first meeting by their recognised and indefatigable leader, Dr. James Hunt; but, for private reasons, Mr. Wallace, the traveller, was elected to that duty.

"The proceedings of the department were commenced by a brief address from the President, setting forth, in a modest sort of way, the objects of the science, and the mode in which its researches should be carried out.

"An immense number of papers followed of more or less interest. Among the most important were the following, 'On a supposed Human Jaw from the Belgian Bone Caves.' C. C. Blake.

"Mr. Blake recently spent some time in exploring the bone caves of Dinant. Among the remains found was the jaw, the subject of this communication; while most other finds of a similar description have been open to questions as to their authenticity, this was entirely free from such objections. It presented characters essentially different from those of any race at present inhabiting Europe, and approaching the Simian type more closely than any jaw previously known.

"Mr. E. B. Tylor read a paper 'On the Phenomena of Higher Civilisation traceable to a Rudimental Origin among Savage Tribes.'

"Dr. Hunt read two papers, the first, 'On the Cranial Measurements and Personal Attributes of Ninety-eight Examples of Norwegians;' the second, 'On the use which some of Mr. Darwin's Disciples have made of the Theory of Natural Selection.' This last was one of the most important of all the communications read in the department. Dr. Hunt pointed out that the application of the theory of natural selection to the human race, as made by some of Mr. Darwin's followers, is illogical, and disproved by facts. That so far from the theory accounting for existing differences and expected coming unity of type, if there be a word of truth in it, however much the inferior types may be driven off the face of the earth, the tendency to deviation from original type constantly acting would unceasingly cause new varieties, though perhaps of an increasingly superior quality. Dr. Hunt was strongly of opinion, that as yet we are not in a position to theorise as to man's origin, and the unity or diversity of the human family.

"A lively discussion followed; many of the speakers, however, evidently misunderstood the writer's argument.

"A very important communication was made by Professor Huxley, entitled, 'Remarks on two extreme forms of Human Crania,' the object of which was to show that synostosis could not be relied upon as the cause of abnormal developments of crania. One of the skulls exhibited, that of a Tartar, was an instance of extreme brachycephaly, with ossification of the sagittal suture. The other, that of a New Zealander (supposed), was an example of extreme dolichocephaly not associated with synostosis. The professor wished to impress on the audience, first, that the period at which synostosis took place cannot be positively ascertained; secondly, that early synostosis may occur without producing alteration in shape; thirdly, that extreme alteration may occur without synostosis. The importance of making a section through crania before expressing an opinion upon them was

also pointed out and illustrated. The angle of the basi-cranial axis may be the same, but the adjacent parts may be so arranged as to produce very different outlines. An interesting and important discussion followed.

"A large number of other papers were read, which may be divided under the heads Archaic, Historical, Descriptive and Comparative Anthropology.

"An important announcement was made in another section that it is proposed to hold an Anthropological Congress in Calcutta, on the occasion of the Exhibition of Arts and Manufactures in 1869, when living examples of the various tribes of India, and the various races of Asia, Polynesia, and Australasia will be collected. Delegates from the various learned societies of Europe will be invited to examine, compare, and photograph this curious assemblage.

"It is perhaps not surprising, though matter for regret, that on this occasion papers, which ought to have been read in the department in which we are most interested, were allowed to wander into others and be read there. It is to be hoped that when our science has become more firmly established in its new home these irregularities will not occur. Professor Huxley very properly on one such occasion when called upon to address the audience, declined doing so, as by that he would be sanctioning what he highly disapproved of.

"The Manchester Society was not prepared with much in the way of papers. One by Mr. Plant was taken and read. I earnestly hope that, should I have the honour to represent you at the next meeting, I shall be able to take several contributions. In conclusion, I beg to congratulate the Anthropological Society of London on the great success which attended its labours at Nottingham, and to express a hope that they may be equally successful in future" (cheers.)

Inaugural Address delivered at the opening of the Manchester Anthropological Society, November 1, 1866, by the President, George Harris, Esq., F.S.A., F.A.S.L., Barrister-at-law of the Middle Temple, Foundation Fellow of the Anthropological Society of London, Fellow of the Genealogical and Historical Society of Great Britain, and author of "Civilisation Considered as a Science", etc., etc.

Gentlemen,—We are met together this evening upon an occasion which is both interesting and important. Our intention in assembling is to inaugurate an Anthropological Society in Manchester, the first institution of this kind which has been established in this country out of London. Considering the objects which we have in view, and the great sucess which has attended the formation of the parent Society in London—success alike extraordinary and unprecedented, whether we regard the names and the number of those who have joined us, or the efforts which the Society has already made—I regard the event which we are here to celebrate as one of no mean consequence.

It was remarked at the last general meeting of the Anthropological Society of London, in connection with the establishment of the present Society, that as the people of Manchester are so eminently practical in their character, it is most fitting that in this great and important city should be established the first local society for the promotion of

a science which is of all others the most directly practical, and which is moreover adapted for the study of every individual. For myself I can claim but a very small share of credit in this good work, for which we are mainly indebted to the active and judicious exertions of our two able and excellent Local Secretaries, Dr. Fairbank and Mr. Morris (hear). I must, however, take this opportunity of thanking you, which I do most sincerely, for the high honour which you have conferred upon me by electing me as your President. In the studies which form the object of the Society I have long taken a deep interest, and I can assure you that there is no distinction to which I might aspire that I could prize more highly than this, which you have spontaneously, and in so kind a manner, conferred upon me. To fill such an office as it deserves to be filled, and as I could wish, no exertions on my part shall ever be wanting.

That

"The proper study of mankind is Man"*

is a truth which, although some time ago proclaimed by one of our greatest poets, appears not to have been so directly recognised in this country as on the continent, so far as regards making it avowedly a distinct pursuit, and establishing a society exclusively devoted to its promotion. And yet some of our most distinguished writers, whose works have commanded the deepest attention, have been devoted to subjects which, if comprehensively and correctly considered, were in every sense strictly anthropological. Sir Matthew Hale's great work on *The Primitive Origination of Mankind, Considered and Examined according to the Light of Nature*, is peculiarly of this character; as is also Hobbes's *Treatise on Human Nature*, by many considered his ablest work. Much that Bacon wrote is strictly applicable to anthropology; and in Burton's *Anatomy of Melancholy* every student of anthropology will find much valuable matter, and original and deep thought. Locke, too, above all others, we are entitled to claim as an anthropological writer; and his immortal *Essay Concerning Human Understanding*, as also his work on the *Conduct of the Understanding*, are invaluable contributions to the science of man. It has always, moreover, appeared to me that nearly everything of value which has been advanced by subsequent metaphysicians, was anticipated in the pages of Locke. I might mention several other writers as well, whose productions will be found extremely valuable in the prosecution of the science we are established to promote. The names of Des Cartes and Malebranche will at once occur to every one who has been in the habit of following studies of this nature. Much valuable thought and reasoning will be found in the pages of the former. A translation of his *Meditations*, and of parts of his *Principia*, was published at Edinburgh a few years ago. There is an old translation of *The Search after Truth* of the latter. It will amply repay a perusal.

But by far the most remarkable, if not the most valuable, of the works of this class, is the famous treatise by the great German Teutonic philosopher, Jacob Boehme, of which there is an English trans-

* Pope, *Essay on Man.*

lation, and which is at any rate well worthy of the attention of every one who wishes to dive deep into investigations of this kind. Speculative writers of this order, and of the originality of Boehme, occasionally serve as pioneers on whose bold researches solid discoveries are based. Sir Isaac Newton is supposed to have consulted Boehme's work much.

Another class of books which is of great value to anthropologists, consists of voyages and travels, especially those of an early period, when the narrations concerned in them were more original and less artificial and exaggerated than they are apt to be in later times. Cook's voyages I hold to be models of what we want in this respect. Locke and other great writers on the science of man, made frequent acknowledgments of their obligations to works of this class, as do the anthropological writers of Germany. I hope ere long to see many of these books of each kind in the library of our local Society, for which the Anthropological Society of London have kindly promised us a set of their own very valuable and interesting publications. The greatest writers of antiquity, particularly Aristotle, and Plato, and Cicero, treat extensively and profoundly on subjects connected with anthropology.

Advantageous, however, as is the study of anthropology to all persons and classes alike, yet the science has been attacked and the Society itself denounced in terms of the utmost virulence. Indeed, I should say that the opposition to it has only been exceeded by the triumphant success which has crowned the efforts of its supporters. It reminds us of the opposition with which all new discoveries, however beneficial, and with which all new sciences, however valuable, have ever been met, and which they must ever expect to encounter. Vaccination on its first introduction was denounced in every possible way, and one German writer actually endeavoured to prove that by this was meant Anti-christ. Bacon was ridiculed for his profound speculations, so far beyond the age in which he lived. And every person conversant with the subject who was contemporary with the author, appears to have exerted his pen to denounce Locke's *Essay on the Understanding*. So bitter was the hostility against Newton, that he was even led on one occasion to regret to a friend that he had made known to the world some of his immortal discoveries,* the value of which is now admitted and appreciated by all. Anthropology has fared no better. Writers of opposite creeds and opposite politics have united to crush anthropology; and, forgetting their wide differences on every other subject, have made common cause to exterminate what they all alike denounce as a deadly heresy. The *Record* and the *Guardian* have embraced on this occasion, and the *Standard* and the *Star* fraternise whenever they meet the common foe, anthropology. In a paragraph the other day in one of these papers, "infidels, anthropologists, and heretics," were placed together in the same sentence, in the same way as Cobbett placed in juxtaposition the words "mob, House of Commons, den of thieves"

* *Life*. By Sir D. Brewster.

(laughter). From the terms in which some of our assailants have spoken of us, I am led to imagine that from an imperfect acquaintance with the Greek language they have mistaken the term "anthropology," or the science of man, for that of "anthropophagi," or man-eaters (hear). One elderly lady objected in very decided terms to the gambling tendencies of the Society, as she heard that we devoted so much attention to the subject of "races" (laughter.)

Without wishing here to trench on the province of theology—questions connected with which it is desirable, on many accounts, on the present occasion to avoid—I must, however, in justice to this Society and to ourselves, allude to one or two leading points of attack that have been urged against anthropology. The first of these is, that we have advanced theories which are at variance with the facts narrated in the Bible, and that we have endeavoured to explain those facts in a way contrary to the recognised interpretation which has been put upon them. On this point I shall beg leave to quote the words, not of a member of the Anthropological Society, but of a distinguished living prelate, who, from his position as well as from his talents and learning, is entitled to speak with the highest authority upon such a subject, and whose sentiments coincide, I think, very nearly with the principle of interpretation which has on certain occasions been adopted by certain members of the Anthropological Society of London in regard to some of the historical portions of the Bible. Dr. Tait, the present Bishop of London, in his address to the Philosophical Institution of Edinburgh, in 1864, remarked as follows:—"We must be very cautious not to confound mere traditional expositions of what is contained in Scripture with the Scripture itself. It is astonishing how many statements, historical or scientific, are commonly believed to be in Scripture, which when we examine for ourselves we find are not really there." Now, it is precisely the error alluded to by the Bishop of London into which some of the very vehement, but not very judicious, assailants of the Anthropological Society, on theological grounds, have fallen. These men, instead of interpreting Scripture fairly, and according to its literal meaning, are ever intent on making it accord with their own previously conceived opinions and notions. They will admit of no construction of it whatever which does not coincide with their owu peculiar, narrow, and erroneous tenets. Scripture and science they constantly force into collision, merely because they will not admit that the facts narrated in Scripture can possibly be regarded in any other light than that in which they have always been accustomed to view them. This is exactly the case of the persecutors of Galileo. Theologians of these narrow views and strong prejudices do more to undermine belief in revelation than the deadliest designed foes by whom religion has ever been assailed. Affording, as it does, so true, so deep, and so varied an insight into human nature, anthropology owes the Bible a debt of gratitude which it would be impossible to over-estimate; and it is my belief that anthropology best does her part towards discharging that debt, by the sound, and enlarged, and correct principles for the interpretation of the Bible which she inculcates. While there is nothing in the

Bible hostile to anthropology, so there is nothing in anthropology hostile to the Bible. It is only by the misinterpretation or misrepresentation of either, that they can be brought into hostile collision.

A good deal has been also said about certain attacks which have been made at some of the meetings of the Anthropological Society of London upon missionary enterprise; and attacks have in consequence been made upon the Society in return. If rightly and fairly considered, however, anthropology may gain a great deal from the labours of our missionaries; and our missionaries, I am sure, may gain quite as much from anthropology in return (hear). The opportunities afforded to missionaries for the observation of human nature under all its varied phases, are such as few other men possess; and of almost incalculable value to us might be the information which they would afford. I wish that we had a few more Livingstones among them. On the other hand, anthropology would be of no less service to missionaries, in enabling them to deal successfully with the various characters and races of people with whom they came in contact. Due allowance, I must admit, ought to be made on our part for any errors in men whose enthusiastic zeal in the promotion of the highest good to their fellow creatures may have occasionally led them to exaggerate, or even to mistake facts, but which is surely more commendable than apathy or indolence. And, on the other hand, equal allowances ought to be made for men who are sincere and anxious in their search after truth, if they express themselves strongly and with sincerity whenever they find, or believe that they find, that truth has been perverted. In the great and good cause of civilisation, at any rate, both anthropologists and missionaries are earnest workers; and of civilisation itself I am convinced that Christianity forms the highest type.

The systematic and scientific study of anthropology forms, indeed, the best guide to the promotion of civilisation, and to the pursuit of it as a science. The true theory, which has been much debated of late, as regards the adaptation of different races for civilisation, I hold to be this, and to be what anthropology establishes:—Not that any people or any races are actually or by any means naturally inadapted for civilisation, but that for each particular race and people that particular kind of civilisation, and that alone, is peculiarly, and indeed alone completely adapted which is suited to their individual and peculiar character and circumstances. All races are capable of civilisation, but each race differs as to the mode in which this should be applied. Anthropology, above all things, should teach us to be tolerant of the opinions of others. It should lead us to respect man from a consideration of his power, while it should induce us no less to make allowances for him out of a regard to his weakness. Our knowledge of his goodness should urge us to admire him, while our experience of his frailty may compel us to distrust him. At any rate, the more we know of human nature the more tolerant shall we become; and the more deeply we study anthropology the better acquainted shall we be with human nature. Our own unfair treatment by others should be our warning; our own fair treatment of

them should be their example. Nevertheless, hard and deadly as are the blows which the members of divers sects and parties have for a long period, by common consent, been relentlessly inflicting upon us unhappy, if not unfeeling, anthropologists, they have only been exceeded in their heartiness and their ferocity by those which, with very few and short intermissions, they are in the habit of dealing out against each other (loud laughter).

To the clergy as well as to the missionaries—to those who have the instruction of youth—to all the success of whose enterprises is promoted by the knowledge of human nature—and this, I believe, applies more or less to every member of a social community—the study of anthropology cannot but be highly advantageous. The investigation of languages, indeed, forms an important branch of this science, as does also that of history.

In the other professions, too, its pursuit will not be found less profitable. Take the law, for instance. What a varied and complete insight into human nature is afforded by the trials which take place in our courts of justice. On the other hand, what an acquaintance with human nature does anthropology afford to the lawyer, enabling him to deal successfully with the different characters with whom he is constantly brought in contact, more especially as regards the sifting of evidence, and the examination and cross-examination of witnesses. Thus the lawyers owe a debt to anthropology; and I hope that they will in return afford us some of the fruits of their wary and searching observation. Some law treatises of very high reputation are of great value from the anthropological matter which they contain. I may here refer to Puffendorf's great work on *The Law of Nature and Nations*, Burlamaqui's *Natural Law*, and above all, Montesquieu's *Spirit of Laws*, in which he discusses fully, and in the most comprehensive manner, many of the most important points connected with anthropology. It is, indeed, to the fact of their being founded on the study and observation of man, that these works mainly owe their permanent and high reputation. Anthropology is constantly peculiarly adapted for and serviceable as a study to all members of the legal profession.

To those who practise medicine, a knowledge of anthropology is almost, if not absolutely, essential. This is, indeed, too obvious to render it necessary for me to enlarge upon it. The medical profession, in return, have conferred important benefit upon anthropology by the numerous valuable treatises bearing upon the subject, and on its various branches, which have from time to time emanated from that body. Locke himself, to whose great work on what I should term the highest branch of anthropology I have already alluded, was a member of this profession. The works of some of the older writers, particularly of Sir Thomas Browne, will be perused with interest; as also that of Harvey, termed his *Anatomical Exercises concerning the Motion of the Heart and Blood*, developing his famous theory—long since indisputably established, although strenuously opposed at the time—of the circulation of the blood. John Hunter's lectures, and those of Mr. Lawrence, on the subject of man, may also be referred to as valuable

works to the anthropologist. The ingenious dissertation of Dr. Willis, a physician, who flourished in the beginning of the last century, *De Animâ Brutorum*, of which there is a quaint but vigorous translation by Pordage, is most interesting as tracing the analogy between human and animal intelligence.

But to the poet and the artist as well, an acquaintance with anthropology will be found no less serviceable; and the finest and most popular both of poets and painters of all ages, have evinced how much they owed to the study of human nature. Homer is especially distinguished for his truthful and forcible delineation of character, and for the fine development of passion which he affords. The poet, however, whose skill in this respect is paramount, and which is, I believe, the real secret of his being so generally appreciated and so universally read, is our own immortal Shakspeare, whom I might almost claim to call "our anthropological poet." Nor in the sister art of painting is the success attendant on the study of human nature, or an acquaintance with anthropology, less remarkable. The "divine" Raphael, who is regarded as the brightest genius in this branch of art, was peculiarly distinguished by the correct and forcible expression which he gave to the characters he represented. Indeed, to such an extent did his works excel in this respect, that writers both on physiognomy and phrenology have appealed to his productions in illustration of the principles which they have propounded. Rembrandt was also very remarkable for the vigorous manner in which he represented characters and feeling of various kinds, sometimes, as is seen in his etchings, by merely a few lines. Our own Hogarth was a master in the art of displaying character of every variety in his performances, as each one who has seen them can bear testimony. But to the merchant and the man of business, no less than to the poet and the painter, is a deep and practical acquaintance with human nature essential if he desires to attain success in his dealings with mankind. To the soldier also, especially if he aspires to high command in his profession, or to important enterprise in his exploits, is a practical knowledge of the operations of human nature all important.

Various conjectures have been raised as to what were the leading qualities in the mind of the first Napoleon, and what were the points in his character, to which he owed his extraordinary and unrivalled success. Some have asserted that it was his knowledge of geography that mainly aided him; others have thought that his extraordinary coolness and self-command were his most serviceable qualities. On the whole, however, from a careful study of his character and career, I am convinced that he was mainly indebted to his deep and varied knowledge of human nature, for his prodigious and unprecedented rise from a humble adventurer to be the ruler of half of Europe. It was this that enabled him to deal so successfully as he did with every variety of character with which he came in contact. It was this that gave him such an extraordinary ascendancy over the minds of all around him, whether friends or foes. It was this that enabled him so successfully to calculate on the measures that his adversaries on great emergencies would adopt. And what was perhaps most important and

most marked of all, it was this which enabled him to acquire such an extraordinary ascendancy and even absolute control over the minds of his soldiers, so as to render them not only his followers, but his adorers and devotees.

Having said thus much as to the advantages of the study of anthropology generally, I will now proceed to offer a few remarks with respect to the particular inducements to follow it in this town, and the desirableness of establishing an Anthropological Society in Manchester. Some who have read the attacks upon anthropology, to which I have adverted, may perhaps be dismayed at the proposal, and may exclaim, like the Jews of Thessalonica, "These that have turned the world upside down are come hither also"* (laughter). Manchester men, however, are not apt to be frightened by shadows, and are more inclined to listen to reason than to mere invective. In many and important respects Manchester appears peculiarly adapted for the establishment of a society of this description (hear). Its extensive connection with the colonies will afford us many opportunities of obtaining information respecting the people of other lands, as also for procuring specimens of various kinds from thence connected with anthropology to enrich our museum. A peculiar turn has long been evinced by the people of this great city for natural history, which is an essential aid, and a most useful accompaniment to that of anthropology. Botany, too, is followed with avidity by many among us, and some very interesting and important researches have been made by local students into this science. A very valuable paper, bearing on the subject of the connection between anthropology and botany was, some years ago, read at the Manchester Philosophical Society, by Dr. Percival, containing an investigation into the perceptive powers of vegetables; as also another by Mr. Charles White, on *The Regular Gradations of Man, and in different animals and vegetables.* Other works, too, of an important character, bearing on anthropology, have emanated from Manchester. Among them I may mention Mr Leo H. Grindon's very able and excellent treatise on *Life*, which will be an essential addition to our own library, and which I some time ago read with intense interest. The facts that I have just stated induce something more than a hope that we shall have a succession of valuable papers supplied to us at the meetings of our society, bearing not only on anthropology directly, but on the various subjects connected with it, and the discussion of which conduce in an important manner to aid its advancement, and to promote the thorough investigation of different points, and to present them in various aspects. The subjects of these papers I will not presume now to anticipate; but as regards the general operations and achievements of the society, I will only venture here to remark that in all institutions of this nature a generous rivalry, or rather emulation, may, I think, fairly be allowed between the parent and branch societies, as in the case of the mother country and the colonies—the one taking the lead in the general advancement of the science, and the other, while following in his track,

* Acts xvii, 6.

endeavouring to excel, more particularly in the pursuit of those special branches which the peculiar genius of the people of that district, their leading occupations, or other causes, have stimulated them to cultivate.

In an intellectual point, Lancashire at the present period occupies a very peculiar, and a very proud position. The Prime Minister of this country—a man not only of great eloquence and high eminence as a politician, but of extensive literary acquirements and tastes as well—is, as we all know, a native of Lancashire; so also is the Minister who fills that most important post at the present critical juncture, of Foreign Secretary, and who is the son of the Premier, a man of wonderful energy and of active interest in all that concerns the welfare of his countrymen. That highly-gifted and most eloquent statesman, the late Chancellor of the Exchequer, a man, too, of varied acquirements, profound scholarship, and refined literary tastes, is a native of Lancashire as well. There is also another very able and most eloquent statesman, the leader of the extreme Liberal party in the House of Commons, and whose great talents, untiring energy, and immense courage, all persons cannot fail to admire, to whatever party in politics they may belong, who was born in this county. That late eminent and distinguished philosopher and scholar, Dr. Whewell, was a native of Lancaster; so that it is not only in politics that Lancashire talent is pre-eminent. Other names of note will suggest themselves to you. I hope that, in the selection of subjects for papers to be read before our Society, Lancashire talent and characteristics will not be overlooked.

I have already adverted to the advantages to be derived in the case of men engaged in commercial enterprise, of which Manchester is the metropolis, from the study of anthropology, on account of the insight which they may by this means acquire into the characters and dispositions of those with whom they have to deal, as also from a correct measure of their own capacities. This can, of course, only be accomplished by an acquaintance with our mental as well as our material mechanism, a branch of anthropology which has not hitherto been so fully cultivated as I could wish, but to which the other departments of the science supply the best preliminary, and for which they afford the surest and most suitable foundation. The attainment of this, the most important of all knowledge, is the ultimate aim and the noblest end of anthropology, and indeed of all science. Of the material world around us, and of the material frame which we inhabit, we know but little; of our immaterial being, which is our essential self, we know next to nothing. Fortunate would it be for the interests of science and for the welfare of mankind, if, through the researches and the operations of the Anthropological Society, a Newton should arise, whose comprehensive genius and piercing ken would arrange, and reduce to order, and render intelligible the mental system, as he did the material universe. And most honourable for this Society, and for Manchester too, would it be if in this great centre of material pursuits, and midst the din of machinery, and the hum of busy voices engaged in commercial undertakings, the science of mind could be at length

successfully unravelled, and the laws which regulate the mighty operations of the human soul be made intelligible to us all. It is in such localities that the study of philosophy and of the polite arts is most needed to correct those sordid tendencies which the ardent pursuit of wealth engenders; and it is here that in certain instances it has been most successfully cultivated. Through the science of anthropology, which should combine and should unite the consideration and the study of both mind and matter, and the study of them together, have we the fullest assurance that a real knowledge of the nature of mind will be eventually obtained, and that the information most valuable to man may at length be acquired by man. Anthropology teaches us, indeed, to study in the way that Newton did the universe of nature, the universe of man, and, we may hope, with corresponding success. Sublime as was the subject of Newton's researches, those of the anthropologist and mental philosopher are no less exalted, and no less celestial. While the one brings heaven nearer to man, the other exalts man to heaven. As in the case of Newton, the immensity of the system does not render it too vast for our comprehension, nor its dazzling splendour too bright for our gaze. As Newton conjectured the attractive power of the sun from the fall of an apple, so the humblest incidents in daily action may often afford suggestions as to the mightiest operations of the soul. While from planet to planet, through interminable distances, the great astronomer pursued his sublime researches, we have only our own nature to look into, but whose depths have hitherto proved as unfathomable as the remotest regions of space. Astronomy reveals to us the wondrous structure and motions of the celestial system, worlds rolling through their spheres, and which, through the aid of the telescope, are exhibited to our gaze. Anthropology unfolds to our mental vision the no less splendid and no less wondrous system of the intellectual universe, and teaches us that most important and most essential, though perhaps most neglected branch of all knowledge—the most remote from our grasp, although the subject is of all others the most within our province—the knowledge of our own selves (cheers).

A vote of thanks having been passed by acclamation to Mr. Harris for his address, he called on Dr. Hunt, the President of the Parent Society, to address the Meeting.

Dr. HUNT, who was received with loud applause, said that, in the interesting address which they had just heard, there was an allusion to a remark which he had made in London, respecting the benefits likely to arise from the formation of an Anthropological Society in the great city of Manchester, on account of the business character of its inhabitants. He presumed it was for this reason that the zealous secretary of their society—Dr. Fairbank—had placed in his hands a resolution, to the effect that the scientific interest and practical value of anthropology recommended the study to all interested in the welfare of mankind. He remarked that he did not propose the resolution simply on account of the scientific interest and the practical value of anthropology, but also because knowledge was good, and it

was the duty of all to increase their knowledge, whether it was useful and interesting or not. We had, unfortunately, different ways of showing our interest in mankind. There was a large and influential party in this country, who desired that the world should be governed on philanthropical principles. Another party, unfortunately not quite so large, would like the world to be governed on scientific principles. It was for the public generally to decide which was the correct view. It would be easy for him to show that the chief disputes which were at present going on in the world were simply questions of race, or, as they were now generally termed, questions of nationality. He then gave a sketch of the history of the formation of anthropological societies in Paris, London, Madrid, Moscow, and to the establishment of periodicals specially devoted to the science in Germany and Italy. What was the meaning of this sudden rise and development of anthropology during the last five or six years? What had induced the most prominent scientific men of Europe to combine together and to work together? The explanation, he believed, might be found in the fact, that the majority of men of science had only during the last few years been thoroughly aroused to the fact that our former speculation on man's past history was based, not on scientific facts, but simply and nearly solely on fiction, which had gradually been handed down by tradition, and then given forth to the world in the garb of science. He did not allude to the Biblical account of the creation and dispersion of mankind, but to the fictions which were involved in the use of such terms as Caucasian, Aryan, or Anglo-Saxon. Some six or seven years ago, the past history of man was attempted to be based on historical and comparative philology, a branch of science which Dr. Prichard and his followers termed Ethnology. This science owed its origin to the late Cardinal Wiseman. In France and America it survived but a very few years; and in England, if it is not dead, it is very near its end. Dr. Latham and Mr. Crawfurd were its only two surviving prophets (laughter). Notwithstanding giving offence to those gentlemen, in this country it was found necessary to follow the example of French men of science, to term all books which based the natural history of man on ethnology, as more correctly historical and comparative philology. They had to commence their labours at the point where it was left by Blumenbach. There had during the last fifty years been many individual workers, who had kept to a right path; but, until the last few years, they had never combined together in order to assist each other, and the course of truth and science generally. The people of Manchester ought to share both the odium and the honour of being connected with anthropology, for it was in that city there was first brought to light the remarkable work, *On the Regular Gradation in Man and Animals*, by Mr. Charles White (hear). In that work, the doctrine of continuity applied to mankind is stated with admirable scientific candour. The republication of this work would assist to prove that there has been little or no progression on this subject in England since the year when the facts in that work were first brought before a scientific audience in Manchester, in the year 1795. He thought there was more

real science and true philosophy in that work, than in the recent work of one of England's best modern anatomists, but, unfortunately, one of her most illogical and unphilosophical reasoners. He knew of no greater compliment that he could pay to this great city, than to republish that work; and he should be prepared to state in the preface that, if Mr. Charles White is a fair specimen of what you can produce in the way of an anthropologist, Manchester was in true philosophical anthropology seventy years in advance of London (cheers). The science of anthropology was divided into four portions. First, they took the past history of mankind, as deduced from his works. They went back to the earliest remains of man to be found, some of which might be seen on the table. They endeavoured to collect all these facts, and compare them together; how much they differed, what were their resemblances, how they compared with the lower animals; and by this process they hoped, at some future time, to be able to throw some little light upon the pre-historic man. For their chronology they were entirely indebted to the geologists. He believed no one could tell us what had been the past history of man. We knew nothing at all of the subject. The Society had in Manchester an excellent and thoroughly competent member, Mr. Plant, who could tell them, without speculation or assumption, what was the present state of the science. The next branch was historical anthropology. Besides all those records which early man had left, he had left a variety of creeds, superstitions, language, and mythology. It was the object of historical anthropology to collect all these, to find resemblances and connections, and see what light the traditions of one race would throw upon others; to compare the languages, and trace the connections and migrations of races by language. The third branch was descriptive anthropology, in which he hoped the Manchester Society would be able very much to assist, because Manchester was in communication with all parts of the world, and he hoped the Manchester correspondents of the Society would be able to furnish accounts as authentic as those of Captain Cook and all those early travellers who had written without any preconceived opinions. Our published descriptions of the different races at present were unsatisfactory, and, instead of being original, were too often mere copies of what were current long ago. The fourth branch, the most difficult, and the one which exposed the science to the most abuse, was comparative anthropology. Its duty was to compare the different races of men, to compare them from previously ascertained facts, and detect their differences and resemblances. The first great portion of this subject was to compare man with the lower animals; the second to compare the different species, races, and varieties of man; then, comparing tribes with one another, to explain how and why one tribe differed from another, and why persons of the same race differed so widely as they do. To investigate and study comparative anthropology required extensive caution and the spirit of true science, for here was the point on which we met differences of opinion. To investigate this question there must be liberty of spirit and opinion. It was the comparison of man with animals on which so many men differed; it was in the comparison

we had to make with the different species of men that the difficulty arose. Some men would say there was very little difference between the lower races of men and the higher apes; some would say there was very little difference between the lower and higher races of man. It was, therefore, necessary to be thoroughly loyal to fact (hear). It was impossible for him to say what would be the ultimate conclusions of the science, or any branch of it. The man who chose not to acknowledge any fact, whether it was on his own side or against him, was a dishonest man (hear). There was unfortunately existing in this country a disease, said to be quite incurable, produced by systematically ignoring facts. It was wonderful, and at the same time melancholy to see the eccentricities, absurdities, and irrationalities, by which men are led when they refuse to accept a well-established fact. When persons are once afflicted with this disease, you can no longer reason with them. Facts they treat with utter contempt. He did not allude to those like himself who condemned cruelty to any race, but to those unfortunate persons who suffer from a disease which was termed negromania (loud laughter). Persons suffering from it treated with the utmost contempt all who differed from them. Sir Samuel and Lady Baker might spend great time in Africa, go through wonderful adventures, and tell what existed in Africa, but these men did not believe a word of it. Even scientific men were sometimes afflicted with the disorder. He heard, only on passing through London, that a very eminent anatomist had had another attack, and actually gone and joined the Jamaica committee (laughter). This was Professor Huxley; and it was said that he intended to propose that they should prosecute M. du Chaillu for shooting gorillas (laughter). Were there distinct races of men now existing? How could each of these races have the greatest amount of mental and physical happiness? Mr. Bright, who was well known, and, he hoped, respected in Manchester, said two nights ago he believed whatever might be defective in the Irish people came not from race, but from the conditions to which they had been subjected. He (Dr. Hunt) put it to those who had studied anthropology, to those who had studied the races of men in this country, who had studied the characteristics, physical and mental, of the Irish, to say whether this was the fact. He saw present a gentleman (Dr. Beddoe) who had spent a great portion of his time in examining the Irish people, and he hoped that gentleman would say a few words on the subject. That was Mr. Bright's doctrine, started by Jeremy Bentham, and although based on a groundless and unwarrantable assumption it was supported by such eminent political economists as S. Mill, Herbert Spencer, and Goldwin Smith. Against these closet philosophers we have experience on the other side, and the testimony of every traveller, from Herodotus to Baker. He differed from one of the views of the president. He did not think we had any evidence to prove that all races were capable of civilisation properly so called. Take only one instance. Up to this time there was no evidence that the Australian aborigines could be civilised. The question was—is there race? The same argument that Mr. Bright would apply to the Irish Mr. Mill applies to the Negro, or any other race. Hence it has became

the bounden duty of all persons interested in the welfare of mankind to study anthropology. What made this subject of great consequence and moment was, that the people of England were being taught an erroneous system of political economy—a system, he believed, which was neither based on nor supported by facts. This is why it behoved the people of Manchester to assist in the great work now going on in other parts of the civilised world, and to endeavour to have a system of political economy on a more correct and satisfactory basis. The labours of the Manchester Society would be watched with interest not merely by the parent Society in London, but by the scientific men of the world. He looked upon the union of the Manchester Society with its parent Society in London as likely to be of mutual benefit. The facts collected by the members of the Manchester Society would be disseminated through the medium of the parent Society to every part of the habitable globe. He was quite prepared, and indeed anxious, to see the rivalry of the Manchester branch against the parent Society. He was not, however, at all frightened at the allusion which the President of the Manchester Society had made to the possibility of the branch following the example of some of the former colonial possessions of this country. Before they took such a step as this he would advise them to study well what had been the fate of colonies, both ancient and modern, when separated from their mother country; and he thought that they would perhaps find that the sort of independence they would acquire would not be an unmixed benefit (laughter). In conclusion, he addressed a few remarks to the Members of the Society present, urging them to do all they could to correct erroneous statements, and to be on their guard against them, and to eschew all hasty induction. The world was not made yesterday, nor would it be likely to end for a few days yet. The work done by the London Society they had as some guide, but he would not advise them to blindly follow in their track, but simply to imitate all that was good. True success was the result of good honest work, and such work they must do if they were to succeed in the noble enterprise in which they were engaged. The more difficulties and obstacles they met the greater would be their success if they conquered them. Abuse, too, they would, no doubt, receive, but he could give his assurance, from personal experience, that it would do them no harm. The more their Society was abused the more immediate would be its success. He believed that the proud and powerful position now held by the London Society was in a great measure to be attributed to the hearty manner in which they had been abused. He, therefore, hoped for a liberal share of wholesome abuse for them. But above all things he cautioned them not to let either the fear or favour of any man or any set of men make them turn to the right or the left, but steadily pursue the object which they have before them, the acquisition of truth—first for its own sake, and secondly for the benefit to mankind at large. Those who had not yet joined the Manchester Society, he advised to do so without delay. It behoved all lovers of truth in Manchester to join the Society; and he hoped that the Society might reflect credit and renown on this great city. There might be some who believe themselves to be lovers

of truth who decline to join the Society; but he trusted that there would be few persons in Manchester who would be afflicted with a great and terrible disease, which had been found to be at least concomitant with the formation of an anthropological society in another place. Those afflicted with this disease sometimes made the most absurd charges against persons which they could not prove, and which were incapable of proof. It was a very terrible disease, and consequently a very long word had to be invented in order to give some slight idea of its awful character. This disease was called ANTHROPOLOGICOPHOBIA (laughter). Some persons suffering from it, whenever they see the word anthropology, give a very loud bark, others a suppressed growl, while if they see a live anthropologist, they not only bark and growl, but sometimes attempt to bite (laughter). He hoped that not many persons would be afflicted with this disease in Manchester, for he could assure them that anthropologists were very dangerous, some thought very wicked animals, for when they were attacked they defended themselves (laughter and loud cheers).

Dr. BEDDOE, in seconding the resolution which has been proposed by his friend Dr. Hunt, said he would endeavour briefly to indicate some of the advantages that would flow from the cultivation of anthropological studies, and that in only a limited department of human affairs. It was now fifty years since the Congress of Vienna sat to determine the limits of the states of Europe. Fifty years ago anthropology was very little studied or understood; but had the case been otherwise, and had the plain teachings of anthropology any weight at that congress, great calamities might have been avoided, calamities that more or less affect Europe to the present day. Passing over other blunders then committed, such as the giving of Posen to Prussia, a gift which an enlightened Prussian would rather have been without, he touched on the assignment of Lombardy and Venetia to Austria. That wrong has been at last set right, to the satisfaction of all or almost all; but it has taken fifty years to do it; and in the meantime, how much misery has been endured, what bloody wars have been fought, how many lives have been lost on the field, in the dungeon, on the scaffold! All this time Austria and Italy might have been good friends (as we trust they may be henceforward), had their boundary line been drawn in accordance with the plain dictates of anthropological science, and with the divisions of blood, language and character. If they looked a little further eastward, they would see a people, the Roumans or Wallachs, now for the first time permitted fairly to develope their nationality. In reference to the neighbouring region, the ignorance still prevailing in this country is amazing, even among the newspaper writers who profess to give instruction in such matters. Thus the *Spectator*, in some other departments not a bad authority, has lately been just called to account by a contemporary for a series of blunders as to the races of Turkey that deserved whipping (laughter). He supposed most Englishmen were not less ignorant on this subject than the *Spectator*. Yet these blunders were not in mere matters of theory, but were of the most intense practical importance involving millions of men, and bearing directly on the solution of the

Great Eastern question. But perhaps you will say, "What is all this to us? we have ceased to be a European power; nobody on the continent cares a button for our opinion: let us involve ourselves in our virtue and our wealth, and let not only Savoy, but all Europe perish, for aught we care." Even if it be so, there remains to us the entire field of India and the colonies. Think of India with he knew not how many races, differing in every conceivable respect from the Aryan Brahmin, with a brain as good as the European, and an intellect yet more subtle; the Brahmin, heir of an ancient civilisation, fantastic indeed in some respects, but well deserving to be studied, down to the wretched Veddah that wanders naked and houseless in the forests of Ceylon. If we, or at least those of us who have to do with the government of our Indian empire, remain in wilful ignorance on such subjects, what sort of account can they render of their stewardship. Look again a little further, to New Zealand, where an anthropological problem of the intensest interest and importance has to be worked out, no less a one than this, whether that noble race of barbarians, the Maori, can be raised to the level of our civilisation, or whether they are destined utterly to perish. Similar or analogous problems confront us in several other of our colonies. But, to come nearer home, let me say a few words respecting Ireland and the Irish. My friend, Dr. Hunt, has, indeed, attributed to me an acquaintance with this subject greater than I can flatter myself I possess. I have, indeed, devoted some time and study to Irish anthropology; but I must confess that, partly perhaps because I have too much of the Saxon in me, I don't quite understand the Irish. This much, however, I do know, that if you take an Irishman of tolerably pure blood, and compare him with any ordinary or typical Englishman, you will find them to differ in frame of body, in form of skull and brain, in colour of skin and hair; and the moral and mental correspond to the physical differences* (hear). He did not mean to say that the Irish are an inferior race to ourselves, because he did not think so; but they differ from us extremely; and we English having attempted to manage and govern a people whose nature and feelings we could not understand, the results have been deplorable. Again, from the steeples of your sister city of Liverpool you may see the hills of Wales, and individual Welshmen abound among you; yet how different are they from us in their character as a race, and how little do we really know of them? These

* The *Morning Star* of Nov. 3, 1866, thus announces the birth of the Manchester society; and it deserves to be recorded, as showing harmony existing between fact and the statements which appear in our revered contemporary.—EDITOR.

"An Anthropological Society has been organised at Manchester. Those who are acquainted with the society of the same name in London, can easily imagine what the tendency of this body is likely to be. One thing is certain: that it will emulate the parent society in its hatred of the Negro and in its contempt of authorities like Professor Huxley, Mr. Mill, and Mr. Herbert Spencer. Dr. Hunt appealed to Dr. Beddoe to confirm his own wild theory that the evils from which the Irish people are suffering are due, not, as Mr. Bright argues, to the conditions to which they are subjected, but to peculiarities of race. Dr. Beddoe, however, did nothing of the kind, but remarked that the misfortune was that England had undertaken to govern a people whom she could not understand."

things he commended to their consideration, and with them another subject of great interest and importance, for the study of which Manchester affords peculiar facilities. It is this—you have in Lancashire a vast population which has almost suddenly changed its whole system of living—with the increasing development of material civilisation, a scattered agricultural population has been converted into a closely-packed manufacturing one, and almost all the other influences bearing upon it have undergone an equally great change. Now, what are to be the results of these changes on the race, physically and morally, for good and for evil? It is a great subject, and it falls in part at least within the domain of anthropology. He concluded by recommending the study of anthropology to the people of Manchester (cheers).

Mr. PLANT, F.G.S., moved the next resolution :—"That the thanks of the Manchester Anthropological Society be given to Dr. James Hunt, Dr. Beddoe of Clifton, and the Rev. Dunbar Heath, for their presence on the occasion." Mr. Plant said, that the resolution was but a slight acknowledgment of the great services these gentlemen had rendered at the inauguration of the local Society. Their presence was an assurance to the members, that the parent Society in London would give both encouragement and support to local endeavours to spread the scientific study of man. The address which had been given by their learned local President had taken a wide field for its valuable and philosophical views of the subject of anthropology; but in the systematised and scientific remarks from Dr. Hunt, the President of the London Society, they had had more exact and definite rules applied to the science, and it would be the object of the members of the local Society to keep their course of future action within the limits of the track laid down. The materials upon which they would have to labour were not locally abundant as far as the past and the present were concerned. The vicinity of Manchester did not abound with flint weapons, tumuli, or lake-pile remains—in fact, not a vestige of either had ever been found west of the Pennine range; but there was a wide field of research for those members who did not shrink from the investigation of the origin of the oldest tribes which first peopled Lancashire. The subject was full of difficulties arising from the use of derivative terms applied to ancient people, which, if they were capable of a definite and distinct application, the local historian seldom succeeded in making a satisfactory use of. The Roman remains of Lancashire had been very industriously worked out, and had all the value which belongs to history, but beyond that period backward in time, the anthropologist could fairly claim as his own. The great question, however, of the present day, was one which the geologist and anthropologist could only solve; it was a question of growing importance to all educated minds, and its influence upon the future teachings of the religious and moral world could not be overstated. The question was, "What was the origin of mankind upon the earth?" Is science to be the authority upon this question, or are we yet to rest our faith upon the early teachings of a literal revelation? He believed the day was not far distant when it would be regarded as no heresy in a Christian to declare his belief in the

scientific conclusions as to the great antiquity and primitive barbarism of man in his origin, and that it would not be blasphemy to say, that revelation is not an authority upon this question any more than upon questions in astronomy and the other sciences. But they must be prepared for a state of feeling in society which time would only ameliorate from suspicion, prejudice, and dread, into confidence, favour, and admiration. They would, he was afraid, meet with but little opposition to their Society, for opposition meant a knowledge of the subject, or else opposition was puerile and aimless; and as far as experience seemed to lead to a safe conclusion, the study of the subject by a cultivated mind always converted an intended opponent into a sound supporter of the "hard logic of facts." He hoped the Manchester people would carry out the same desire which it had hitherto displayed for other branches of natural science, for anthropology, and it then would maintain a good standing as a flourishing local society. There was an opening for some discoveries yet to be made as to prehistoric man in Poole's cavern near Buxton. The present year had brought to light several interesting matters, and by a well directed scientific exploration valuable light will be thrown upon the geological period at which the cavern first became a river course, and how early in its series of changes it first became the abode of prehistoric man. Under the care of the Society a successful result might be arrived at. He could hardly agree with the tendency of the remarks from Dr. Beddoe upon the Celtic races in Ireland, it gave a political aspect to the labours of the anthropologist, which was not science, nor in the true direction of scientific investigations, and of all places in the world it would be necessary for the anthropologist in Manchester to be careful that his views upon the question of races, whether the Celt or the Negro, be consciously kept clear of the political and religious aspect. As the President had pointed out, these questions are only countenanced by the Society in their Archaic, Historical, Descriptive, and Comparative aspects, and the religious and political questions must be rigorously excluded from the Manchester Society if it is to find a footing and be successful.

Mr. Devis, F.Z.S., F.A.S.L., Vice-President of the Manchester Society, said, he apprehended there are very few here to-night to whom the name, the fame, of Dr. Hunt are unknown; few, who previous to our meeting did not entertain a pretty strong opinion about him. To many he was known as a master in science, a zealous investigator, a bold expounder; and, moreover, as the uncompromising and successful leader of our science in a critical period of its history. To many he was known as all this, and something more. Clever, my dear sir, it has been said to him, ve-ry cle-ver—but dangerous, decidedly dangerous (laughter). He hoped that the address which we have heard from him to-night has swept their brains clear of all such cobwebs. Dangerous! why there is not a more harmless man alive than his friend Dr. Hunt, because there is not one more outspoken (hear). There was danger in men who dread to have an opinion of their own, lest it should prejudice their own comfort and convenience. There was danger in men who reap where they do not sow—who cleave to emolument and honour while they scorn and betray

the creed which fosters them; but there is no danger to the truth in men who stand to the front and say this is our creed, we do not ask anybody to believe it, we ask them to confute it. To such men the heartiest thanks are due from their bitterest opponents, for such men enter the lists with their visors up and proclaim to all comers who and what it is they fight against (cheers). Such men are the first to rejoice when they see opponents doing as our future friends in bonny Dundee are doing, furbishing their armour and whetting their weapons, and they are only anxious that the best man should win. Those who have taken an interest in anthropological matters will rejoice at this opportunity of recognising the skilful generalship which has at length enabled the science to break through the barriers of prejudice and vested interests, and asserts its due position among those cognate sciences which themselves culminate in that of man. But the pleasure arising from the success attained in the British Association should by no means be confined to the anthropologist, its benefits will be felt if not acknowledged by every lover of truth (cheers). It was the vindication of unfettered liberty of thought and speech everywhere and in all things—for this was really the principle at issue, and this I hold to be a grand intellectual gain (hear). It is the establishment of this principle which enables us now to consider every science, not anthropology merely, but every branch of research, as an arena in which every statement, every opinion, may be fairly, freely discussed, without dread of being frowned down; it is this which enables us now to come before you frankly and fearlessly and say, here we offer you an opportunity of bringing together all the information about man, physical, psychical, social, which you possess or can obtain, and of broaching any opinion you may choose to form about him and his doings. We will accept your facts as far as they are authenticated; we will hear your opinions, but we will not identify ourselves with your theories on the one side or the other. As a society we can have no opinion, and we decline the responsibility of either your sense or your nonsense; and if from all this good results follow, not to anthropology only, but to general independence of thought amongst us, they will be traceable to the previous efforts of Dr. Hunt and his colleagues; and if, as we believe, no small amount of those results will have to be credited to the impulse which he and they have communicated to us to-night, we may fairly calculate that a large instalment of those thanks is already due, and approve the resolution cordially and unanimously (loud cheers).

The Rev. DUNBAR HEATH then rose to return thanks in the name of the deputation. The parent Society, he said, during less than four years of existence, has gathered together nearly four times two hundred members. During those four years events of the utmost importance have passed before us, and have illustrated some of the fundamental truths of anthropology. The French Emperor openly proclaimed his intention of grouping all the Latin nations into a unity, but the Teutons have taken a long step towards actually doing what the Latins have only talked about. In America, the greatest anthropological experiment the world has ever witnessed is at this

very moment in process of exhibition. The question is, can or cannot a black race live side by side with a white one, under the same laws and privileges? Taking facts as they are, taking the laws of the human mind in blacks and whites, taking the laws of competition for food, taking the laws by which property is accumulated and children reared; taking, in fact, all the mental, social, and physical laws of anthropology into consideration, will or will not the blacks, who used to number 4,000,000, and who probably already only number 2,500,000, die off or increase again, and hold their ground? A very few years will show the result of this mighty experiment. Mr. Heath then explained what the parent Society provided in return for its annual two guineas. Papers and discussions every fortnight in the season; a *Journal* once a quarter containing these discussions, etc., etc., with proceedings of other similar societies in Paris, Moscow, Madrid, etc.; an independent *Review*, which feared not to show up the anthropological deficiencies of the highest names, such as Mill, Comte, etc.; a volume of *Memoirs* annually, and besides all their translations of important foreign anthropological works. To show the impartiality by which these works were selected, Mr. Heath stated that the first (Waitz) advocated the unity theory of man's origin; the second (Pouchet) maintained plurality; while the third (Vogt) proclaimed the logical theory of development. Mr. Heath seeing several of the clergy present, gave his opinion that the Old Testament clearly recognised plurality, adducing not only the fact of Cain's banishment into a land of cities, but the mistranslated phrase, "High and low, rich and poor," in several parts of Scripture, the real rendering of which should be, "the race of Adam and the rest of mankind." The words in the original are simply "Adam and Ish." As to the hypothesis of a single origin, Mr. Heath pointed to the facsimiles of certain works of human art derived from the caves in the South of France. Here we have an outline of a naked human form drawn by the contemporaries of the mammoth. This form is not that of a Negro. This undeniable ocular proof that the Europeans so long back as the time of the Mammoth were not Negroes, seems very much in favour of the view recognised in the book of Genesis, that Adam and Ish were races of distinct origin (hear).

Mr. HARRIS then left the chair, and the company proceeded to examine the many objects of interest which were exhibited, and in which all present seemed to take the greatest interest.

Here we might very properly have concluded our report, but we feel sure that our readers will like to be informed how the appearance of an anthropological society was greeted by the people of that great city. The usual abuse of anthropologists had of course come, but not yet in sufficient quantities to render the Society much service. Some of the local newspapers have yet roused themselves sufficiently to see the vast national importance of the science of man. "Anthropology—what does it mean?" "Anthropological Society—what is it all about?" were the general comments made at the time of meeting.

The following article from the *Manchester Examiner and Times* of November 3, 1866, deserves to be reproduced.

"If 'the proper study of mankind is man,' anthropology is fairly entitled to high rank among the 'ologies.' The science is young, but its professors are ambitious, and if they fail it will not be owing to a lack of self-assertion. They have been engaged for six or seven years in the study of man. During that interval they have attained to some important results, and they propose to prosecute their researches in all directions, and after the most approved philosophical methods. At present, as Dr. Hunt confesses, they are quite in the dark. He has not the remotest idea of the sort of conclusions which will ultimately be established. But they are inquirers after truth. Their watchword is 'loyalty to facts.' They desire to travel round the globe in a guileless spirit, searching out the relics of humanity in former ages, and ascertaining all that can be known of its present ways. They will not of course forget to stretch defunct men and monkeys on the same dissecting table, and force anatomy to give up its most hidden secrets. They will collect every hint that history supplies relative to the laws, customs, superstitions, and traditions of various races of men. They will intercept sailors at the port of Liverpool and elsewhere, in order to get from them the latest news respecting the Sandwich Islanders. In these different modes they hope in time, not only to amass a valuable stock of information, but to be able to construct a science of the human race. But this, however distant it may yet be, will only serve as the starting point of their career. Anthropology is eminently practical. You must know your man in order to treat him properly, and when you know the universal man, or all the sorts of men that go to make him up, then only will you be able to govern him aright. When that day arrives philanthropy will be superseded by science. In other words, the love of man will be supplanted by the knowledge of man. We do not exactly see the logic of this substitution. We do not see why it should be assumed beforehand that a larger knowledge of man should necessarily set aside a system of conduct which is based upon our love of man. It may modify the practical working of the system, but the fundamental principle of the system it never can destroy, save upon one hypothesis. It may be that the more we know of mankind the less we shall love them. It may be that to love at all is a blunder born of ignorance. This seems to be the opinion of Dr. Hunt, and we must therefore admit that, from his own point of view, his reasoning is conclusive. It seems also to follow that when anthropology is perfect, hatred, or at least indifference, will be recognised as the proper regulating principle of civilised races towards other races less perfect and less perfectible than themselves.

"We have no doubt at all that, if our anthropological philosophers pursue their investigations diligently, we shall obtain from them a great deal of valuable knowledge. Fifty years hence we may hope to attain to an inkling of what we are. The discovery may not do us much good, but it will benefit our descendants, who will know pre-

cisely what scientific estimate to put upon our bones. In the meantime, on behalf of interests which have a charm for some of us, we venture to submit that our anthropological friends ought to catch their hare before they cook it; they ought to be sure of their science before they apply its conclusions. We shall, perhaps, be excused for hinting that they talk a good many platitudes, and are slightly too dogmatic. Dr. Hunt says that 'the chief disputes which are going on in the world are simply questions of race, or, as they are now generally termed, questions of nationality.' Now, we are not anthropologists, but we cannot help asking whether 'race' and 'nationality' are regarded by this new science as convertible terms? It seems to us that they are quite distinct, and refer to essentially different facts. Differences of race naturally produce differences of political organisation, and, under favourable circumstances, the race and the nation may remain co-extensive. But this is a mere theory, of the smallest possible value in explaining the political questions which are now agitating Europe. Poland is one of the 'nationalities,' but what has race to do with its repeated insurrections against Russia? Something might be said about difference of race with regard to Posen and Galicia, but there the Poles don't rebel. The great war just ended was waged by Germans against Germans. The sentiment of nationality has much to do with it, but the instinct of race simply nothing at all. The other great movement of the day is that of Italian independence. The Italians are a distinct people, but Dr. Hunt won't contend that they all belong ethnologically to the same race, using the term in the sense in which he uses it. No clearer lesson is taught in history than that circumstances may render a difference of descent of no political value whatever. Geography, conquest, historical tradition, language, religion, these override differences of race, and build up nationalities on their ruins. What are the relations between race and national sentiment in Great Britain? The Tweed is the dividing line of two strongly marked national sentiments, which for centuries led to bloody wars. Is there, at the same point, an equally clean division of race? The truth is that man, by his own thoughts and actions, creates agencies which, in the struggle for mastery, prove too much for ethnological differences, and that race, so far from being the most persistent, is the most yielding and most pliable fact in the history of mankind.

"We should be content if our anthropological friends merely talked platitudes, but we cannot resist the impression that, in spite of their talk about freedom from prejudice, they allow themselves to be largely influenced by foregone conclusions. They propose to inquire into the history of man with a view to determine his proper place in creation. They propose also to investigate the differences between one race and another, so as to fix their relative position in the scale of humanity. They propose to hold an impartial inquest upon the lowest types of man and the highest types of those animals which at present we do not call men, so as to tell us how many degrees of difference there are between them. These are important questions, but we take the position of the anthropologists to be that of patient inquirers, beginning in the dark, and resolved to grope their way towards daylight. But we find that

Dr. Hunt and others, whom we may regard as the leaders of the new movement, have already made up their minds. The science is only seven years old, yet its conclusions are already imported into politics. We expect to be asked before long to establish an anthropological department in Downing Street, and issue instructions to the Secretaries for Ireland and the Colonies to conform their administrative measures to the latest reports of the society's investigations. The anthropologists have already arrived at the conclusion that an impassible gulf divides certain races of men; that it is the right of the superior races to do as they like with the inferior races, discarding the philanthropic theory for the scientific; and that it is the merest Quixotism to make any attempts to improve the condition of those inferior races who, by Heaven's decree, are made the slaves and the victims of the privileged portion of mankind. Mr. Harris is an honourable exception, but he is almost the only anthropologist we have heard of who did not seem possessed by an uncontrollable desire to tear a missionary to pieces. We gather from Dr. Hunt that it is utterly impossible for an anthropologist consistently to subscribe to the funds of the Jamaica committee. Mr. Huxley has done so, along with Sir Charles Lyell. Mr. Huxley has explained that his only object is to ascertain whether it is murder by English law to hang a man illegally, but Dr. Hunt has a different explanation. It is clear that Mr. Huxley's anatomical researches have led him to the belief that the Negro is at least potentially a man, and that this heresy alone could have led him to conceive how, by any possibility, a Negro could be unlawfully hanged. In a vein of offensive pleasantry, Dr. Hunt puts the Negro and the gorilla into adjacent categories, and suggests that if Mr. Eyre is to be called to account for hanging Gordon, M. du Chaillu should be put on his trial for shooting gorillas. Nay, Dr. Hunt does not shrink from applying his theories to Ireland. In the condition of that country he sees the results of race deficiencies. Ages of oppression and spoliation go for nothing. Ireland is what it is because the Irishman is what his Maker made him. We begin to see Dr. Hunt's reasons for assuming that the triumph of anthropology would be the extinction of philanthropy. If he is a fair type of the science, the two cannot live together. In that case it may be a question whether we ought not to think of hanging Dr. Hunt. Anything to save us from the brutal devilism with which he threatens us. In the meantime we don't condemn the science; we merely submit that its professors have missed its first lessons, and enthroned their own prejudices in its stead."

We are glad thus to see that the great Radical organ of Manchester does not condemn anthropology. This is, at all events, one point gained for the science. It is not our business to defend the views of Dr. Hunt or any other anthropologist, but we think it is important that anthropologists, both at home and abroad, should see a fair and reasonable criticism on their doings, whenever such a remarkable phenomenon occurs.

ART IN RELATION TO COMPARATIVE ANTHROPOLOGY.

THE fine arts have long been devoid of a grand inspiration. We affect to despise the middle ages. But they gave us Gothic architecture. Shall we bequeath an equal idea to posterity? It is not sufficiently understood that we live in a decidedly negative, that is, protestant era. We cannot build up; on the contrary, it is our sad vocation to pull down. True edification is beyond us: that must be left to a more fortunate posterity. We are the creatures of an age of analysis. It is our business to criticise the works of others—but too happy if we succeed, even in this. Nevertheless, there are signs of the end—the end, we mean, of the reign of death. We are the men of transition—the road-makers to a better time. It is our business to improve processes—to perfect mechanical invention—and to make money; most respectable, and even right worshipful vocations, in their way, and for the faithful discharge of which the world will hereafter thank us. The fine arts partake of this spirit. They are gradually attaining to precision—shall we say it?—to veracity. Perhaps this was in some measure a matter of necessity. There was no longer, as we have said, a great inspiration—to cover a multitude of sins. What might be pardoned in Raphael or Titian, could not be overlooked in Smith or Malthus. To paint architecture that was never built, costume that was never worn, manners that never prevailed, vegetation that never grew, and even animals that Nature, in very shame, would have disowned, might be pardoned in the great masters, but certainly not in the little ones. So we have begun, in right earnest, to amend these things. Anachronisms are most carefully eschewed, and the forms of nature most religiously followed—at least in the vegetable and animal realms. Our roses might almost be plucked, and our horses seem ready to start for the course. But what of our men and women? What do, not only comparative anthropology, but anatomy, physiology, and phrenology say to the human types that we sometimes see, not only upon canvas, but in marble? We fear that the answer here would scarcely be quite so favourable. The age of artistic monstrosities, composed of a head from one subject, a torso from a second, and limbs from a third, is happily past. But a glance at any exhibition of modern paintings, is sufficient to convince a competent observer that man has been far less studied than the horse or the dog; Landseer and Rosa Bonheur being immeasurably more at home with their favourite quadrupeds, than certain other artists with

those interesting bipeds intended as illustrations of the human form divine.

In saying this, however, we are by no means prepared to blame art as being especially and exceptionally guilty. It has in such matters very naturally, and perhaps very properly, followed in the wake of medical science. It has studied anatomy, and thought this sufficient. Bones and muscles and blood-vessels being properly adjusted, what more was required? and, we may add, what more could anatomy teach? Truly but little. But then, above and beyond this familiarity with the mere mechanism of the human system, is an acquaintance with its working; with its functional activity; in short, with physiology, and its subdivision of temperament. The medical science is confessedly imperfect, and art is wholly at fault. It is under this head, that the practised eye of a good anthropologist and phrenologist still detects impossible monsters upon the canvas. It does not seem to be sufficiently known, that a certain contour of head implies a corresponding expression of face, and that both together necessitate a peculiar development of the torso, a special proportion in the limbs, and an accompanying management of the extremities. All this is known in the horse or the dog, because the breeds of those creatures have been carefully studied. Hence we do not see the head and neck of an Arab joined to the legs and body of a cob; nor do we ever behold the tail of a spaniel attached as a caudal appendage to the enormous chest and combative cranium of a bulldog. We know too much of brute nature, we have studied it too thoroughly, to fall into any such palpable mistakes.

But it is quite otherwise with the human system. Here we are apparently at the mercy of accident, or at best are dependent upon the individual inspiration of the painter. That man should be most profoundly studied, physiologically as well as anatomically, is only beginning to be recognised in our schools of art; while anything like an intimate acquaintance with cranial contour in relation to mental endowment, must be acquired, not within, but without our royal academies, the pupil, in this most important matter, being thrown wholly upon his own resources; his ability to produce a head in accurate correspondence with a certain cast of character being left to chance and his own industry—the academy, in its corporate capacity, not having recognised the existence of phrenology as a science. And it is the same with anthropology; the specialities of racial type being but indifferently understood by artists, and scarcely at all appreciated by the public. Now in all this, do not let us be understood as implying that art is at all behind the age. It perfectly satisfies its patrons as it is, because they know no better. They are at the same

stand-point, in relation to the human type, which their predecessors were, a few generations since, in relation to architecture, costume, and manner. They have not the information requisite for detecting error. But should art itself be thus easily satisfied? Are the painters of the nineteenth century prepared to be regarded with pity by their successors of the twentieth century? For, let us clearly understand it, the rectification of these most palpable errors is simply a question of time. To paint a well known historical character, that is, a man of marked mental attributes and of a given race, by accident, or according to the freaks of individual fancy, will some day be thought as barbarous as to represent Alexander in the dress of a Turkish pasha, or the beautiful Cleopatra in an Elizabethan bodice. These anachronisms are now admitted into our galleries upon sufferance—we know better. Are we willing to hold the same inferior place in the eyes of posterity?

As example is better than precept, we will illustrate our meaning by a few remarks on one of the finest and most carefully studied works of modern times—"Christ disputing with the Doctors", by Holman Hunt. In architecture, costume, and manners, this is perfectly unexceptionable. In all that antiquarian research and the most careful study of existing facts could accomplish, the artist has succeeded to admiration. As a reproduction of ancient Jewish life it is unique. Even racially, the doctors are ethnic models. Thus in all the accessories it is perfect; while in composition and execution there is nothing left to be desired. And yet, after all, this sublime achievement of the highest existing art is a magnificent failure. The central figure is both physiologically and phrenologically incorrect. That fine, vigorous, healthy, muscular boy, has no doubt the makings of a splendid man in him, but not the elements that, under any circumstances, could ever ripen into "the Man of Sorrows". It is a wonderful painting, but "the Christ" is nowhere visible. It is the play of *Hamlet*, with the part of Hamlet omitted. It could not be otherwise, from the manner of its origination. The artist went to Jerusalem, and studied his figures, as he did his manners and customs, from existing facts and living persons; a most excellent procedure as regards the doctors, and the musicians, and the on-lookers, but one altogether fatal in reference to the divine boy, and perhaps not quite safe even in regard to his saintly mother. Nothing, indeed, could more clearly indicate our utter ignorance of the real requirements of high art, than the entire approval, so generally expressed, of the very practical manner in which the painter obtained his data. It seems to be supposed that there is always a model Christ at Jerusalem; some favoured youth, of Jewish descent, who, with due location

and the proper opportunities, might emerge into the likeness of the Nazarene! Perhaps misconception could no farther go. Let us hope that an idea so essentially vulgar and irreverent, is not universal, even amongst ourselves. Catholicism very properly stands by the Christ of tradition, the morally exalted, coronally developed, spiritually organised, nervous, susceptible, and profoundly devotional founder of the woman's faith, the pure, benevolent, and sympathetic author of the grandest development of the feminine phase of religious thought, which the world has ever seen. And it is supposed that this exalted being, this supreme incarnation of the divinest of the attributes—that of all-embracing love, which we sometimes call mercy—for whom the ages had waited from the beginning, has his organic counterpart in every generation, and can therefore be "drawn from the life", simply by going to Palestine! Art knew better three centuries since; and Raphael is superior to his modern rival, in the boy, though so very inferior in all the antiquarian accessories which surround him. The reason is, that the former drew from inspiration—the latter from fact.

Let us go somewhat more into the detail of this subject. The Christ has a strongly marked and very distinctive character, admirably delineated in Jew biographies, and reflected yet more effectually from the pervading spirit of the system which he bequeathed to posterity. From these two sources in combination, we obtain such data as cannot fail to put us in possession of the grand outlines of his character; that is, of the elemental forms of his mental constitution. In the first place, then, it is obvious that in him the moral dominated not only the passional, but also the intellectual nature. His head must have been distinguished by coronal altitude. He was profoundly venerative. He was not simply devotional. He lived the inner life. He dwelt with men in the body—with God in the spirit. He loved the former as brethren—he revered the latter as his Father in heaven. Yet his veneration was not incompatible with a self-respect so exalted, and a self-reliance so sublime, that he hesitated not to believe and proclaim himself the Messiah. The central organs must have dominated the lateral, and this, too, not only in the moral, but also in the affectional and intellectual regions. His love of children speaks for his philoprogenitiveness. His unequalled parables are evidence of his comparison. He was not a logician. His lightning intuitions rendered deduction needless. He saw the truth—as by direct perception. His cognitions were the instantaneous result of inspired insight. His perceptive faculties were large, and the forehead lofty but sloping, more distinguished by height than breadth; the poetry of his parables arising rather from the play of comparison than ideality. The basilar region was beneath the average, the pos-

terior developments being in the sphere of the affections rather than the passions; the general structure being in this, as in all else, essentially feminine. The temperament was unusually refined, almost purely nervous. The hair, of silky softness, had probably a slight curl, or rather wavy undulation, and, if long, would fall naturally on each side—of the elevated central line.

Now such a head and temperament imply much else. The face must have been oval, with an approximately Greek, or rather Phœnician profile—the classic type of the high-caste Syrian Jew in his native habitat. The large, dreamy, loving eyes, were characterised rather by the tenderness of the woman than the fiery ardour of the man. The eyebrows were not corrugated, but very regular and beautifully arched. The eyelashes were long, softly shading the lambent light beneath. The ears were small and thoroughly finished, even to their minutest details, and set close to the head. The nostril was well marked—the nose throughout being delicately chiselled. The beautifully marked short upper lip, led to a mouth where purity sat throned. On the wavy outline of those lovely lips, the keenest eye, in its most searching glance, could detect not even the faintest shadow of sensuality. It was a mouth which an angel might kiss without defilement; yet was it most richly expressive of all human love. It was made for prayer—not the agonised prayer of the terrified bondsman, but the confiding supplications and profound soul-communion of the beloved son. The voice had tones of the most enchanting sweetness, that, once heard, could never be forgotten. It forgave the Magdalen. It said "Suffer little children to come unto me". Such accents have never been heard before or since from a masculine speaker; yet had they a depth and significance in their entrancing music, to which even the finest woman has only remotely approached, for here was a nature that in a most extraordinary manner united the higher qualities of both sexes. The chin was well marked, but not massive, the lower jaw having feminine delicacy rather than masculine strength. And lastly, the beard, like the hair, was of delicate texture, and, without being actually deficient, was nevertheless wanting in the strength and luxuriance indicative of a thoroughly masculine nature. It did not cover the cheeks, on which in latter years an unutterable sorrow, as for the sins and woes of a self-abandoned world, had left its unmistakable impress.

Now, such a head and face and temperament, necessitate a corresponding corporeal structure. The figure was slender. The chest rather flat, the thoracic development being somewhat feminine. Even the throat wanted masculine muscularity; the action of the cerebellum being comparatively feeble in the direction of the passions. The

abdominal region was small, and the function of nutrition at a minimum. The limbs were rather slenderly, yet beautifully formed. The articulations were perfect, and the extremities small. The hands were eminently psychical. The instep was finely arched, and the tread elastic. The result of such a cranial contour and such proportions in the frame, was an easy and graceful, yet dignified, carriage—the perfection of Syrian motion. No head ever bowed lower in prayer; none was ever bent in more genial sympathy to the tale of distress and suffering; yet none was ever held more proudly erect when the sceptical Sadducee had to be confronted and the hypocritical Pharisee to be rebuked.

Now it is obvious that such a being could never have been the robust and muscular boy that occupies the foreground of Mr. Hunt's otherwise admirable painting. That fine globular head is formed for a life of action, as the expanded chest and vigorously developed limbs also sufficiently indicate. Such an individuality is formed to do rather than to suffer. He is eminently positive and masculine, having in him all the elements of the finest type of eastern manhood. He might have been a Judas Maccabæus. He never could have uttered the beatitudes and prayed for his murderers as he expired on Calvary.

The reader familiar with the various styles of art, will at once see that the Christ of tradition is much nearer the truth than the copy from a modern fact, which has been placed on the canvas of a gifted but mistaken cotemporary. In such a matter, humanitarian inspirations are not to be despised. They must accord with the feelings of our common nature. They are a response to the demand of the universal mind; and, if altered at all, should be yet farther idealised, in correspondence with our growing estimate of the grandeur and power, the purity and spirituality, of the divine original.

We might make somewhat similar remarks on the Virgin, not simply in Mr. Hunt's painting, but even in those of the old masters, whenever they have departed from the traditional type of the Madonna, in favour of some drawing "from the life". It seems to be forgotten that the mother of such a son must have been a most extraordinary woman. Without following literally the text of the two Synoptics, who have furnished us with the popular conception of the preternatural character of his birth, and admitting that he was in the order of nature the son of Joseph, it is still very obvious that he was pre-eminently a "mother's boy". Every characteristic, mental and physical, which we learn of him, unmistakably demonstrates this. His type of mind as shown in his system, and his type of body as deducible either from the traditions of art or the deductions of science, alike confirm us in this conclusion. His racial characteristics

might have been paternal; but we have reason to believe that his specially marked individuality was wholly maternal. The mother of the Messiah came of a family prone to ecstatic illumination. She and her cousin Elizabeth, the mother of the Baptist, were both gifted, not figuratively, but literally, "with the vision and the faculty divine". They were devout and prayerful Hannahs, of whom Samuels might have been expected. Like their distinguished sons, they must have possessed all the elements of seerdom. In accordance with the pre-eminently masculine spirit of Judaism, which systematically excluded females from all the offices of religion, their gift was discouraged in themselves, to be manifested in their sons. Not to be herself a prophetess, but the mother of a prophet, was the highest ambition of the Jewish woman. Both Mary and Elizabeth shared in this lofty aspirations; nor is there any reason to doubt that both believed in their sublime and enviable destiny. "The annunciation" was not the myth which rationalism supposes. It was the clear prevision of religious ecstacy, vouchsafed in some moment of supernal illumination, an experience of which only the Hannahs and Marys of their sex are susceptible.

Thus contemplated, then, it becomes at once apparent that to paint the Mother of Christ from fancy or by chance selection, more especially from an alien race, could not fail to prove a most hazardous procedure, leading generally to results that would be simply ridiculous, were they not also rather profane. And yet we all know that this has been done again and again, with the grave approval, apparently, of "holy Mother Church", even in reference to her altar-pieces. Thus Murillo gives us Spanish beauties, with a most unmistakable dash of Moorish blood, evidenced not only in their swarthy complexion, but in the osseous structure of the brow and jaw! While Reubens has managed a similar introduction of blond Dutch femininity to the honours of divine maternity! The Madonnas of the great Italian masters are proverbial—each has his own, and very beautiful creations they are, if you will only forget the very distinctive character of the original! Here, again, we have reason to believe that the traditions of art are nearer to truth than the wayward fancies of one school of artists, or the arbitrary selections of another. The pre-Raphaelite Madonna might have been the mother of the pre-Raphaelite Christ. In both there is no doubt a certain veracity of outline, though in neither is there the high-toned spirituality of expression, to which Raphael himself sometimes attains in the representation of his favourite saints. Mediæval art was devout in its sentiments, and reverentially accurate in its traditional delineations; but it is wanting in many, if not in most, of the higher elements of executive

power. These have now been attained; and when to these have been added the devotional spirit of the ages of faith, we may expect representations, both of the Christ and the Madonna, immeasurably transcending anything which even the highest art has yet accomplished.

Shall we, then, for a few moments, attempt a portrait of "the Virgin" from the stand-point of modern science? And in the first place, we will commence with what she is *not*, by way of showing what models must be excluded. She was not, then, a European but an Asiatic, a Syrian Jewess of the highest caste, and therefore probably of Phœnician, that is, Greek, not acquiline profile. She was descended from spiritualised ancestors, who, through her, culminated in the flower of Israel, for whom, as we have said, the ages had waited from the beginning. There could not have been one vestige of sensuality, not the faintest trace of grossness, not the slightest shadow of what is of the earth earthy, in her entire composition. The angel had absorbed the woman—rather, shall we say, had transfigured her, as with the celestial radiance of a supernal glory. We matter-of-fact Protestants do not understand the archmystery of the "immaculate conception"; a dogma mysteriously folded up in the Catholic faith from its very commencement, and only requiring time to bud and blossom, as it has done in these latter centuries. Contemplated philosophically, it is simply humanity's undeniable assertion, that so great and good a son must have had a mother proportionately excellent. Let us lay aside our petty sectarianism, and forget for a moment the specially theological form which has been given to this great veracity by the feeble old man and his senile advisers, who now preside over the destinies of the most venerable Church in Christendom. "The immaculate conception", whether of the mother or the son, translated out of theological jargon into rational speech, simply means purity of descent from virtuous ancestors, good blood honourably transmitted —not by the will of the flesh, but of the spirit—not by the lower lusts, but through the higher sympathies and the holier affections.

Do not let us suppose that there was anything exceptional in all this. There can be nothing exceptional, nothing arbitrary or disorderly in a universe governed by divine law. The Virgin was a chosen vessel for a special purpose in the moral economy of the world. An epochal man was wanted, and an epochal woman was provided as his mother, a befitting mould for the peerless form of a divine incarnation. Such advents are not often wanted, for it is not every day that God's temple needs to be rebuilt among men; but whenever it does, there is a competent architect forthcoming, for whose birth a mother, adequate to so sublime an occasion, is duly provided. Again in

this do not let us unwisely despise humanitarian tradition. The adoration of the Virgin is not an accident. Mariolatry is but the somewhat unripened fruit of a beautiful blossom; the grateful recognition of our unspeakable indebtedness to her, whom all Christian nations have, as with one consent, agreed to call "blessed among women."

The head must have been coronally arched, with not only a fine development of veneration, but with wonder, sublimity, and ideality of more than ordinary power. Let us remember that she was susceptible to the "overshadowing;" that in all probability, like Joan of Arc, she was occasionally the subject of visional ecstacy from girlhood, and through all her devout and dreamy youth, long prior to her marriage, had doubtless a growing, and ultimately a clear presentiment, of her unspeakably grand and enviable destiny. To be the befitting mother of such a son, she would also have needed a more than ordinary development of the domestic affections — the priceless dowry of maternal love, purified and spiritualised in this case by an exalted consciousness of the divine character of its object. Whatever we may think of "the adoration of the Magi," we may be sure that Mary, while she loved, at the same time adored her son, knowing that he was "the hope of Israel." Is art even yet competent to combine the unutterable tenderness, the yearning affection, the glowing love of the young and beautiful mother, with the dreamy spirituality and devotional exaltation of the prophetess and the saint? Can it unite intensity of feeling with sublimity of aspiration in the same girlish yet matronly face? Can it show us the intensity of the woman, as we have said, transfused and transfigured by the glory of the angel? Can it give us the ardour of the one expressed through all the stainless purity of the other? Can it combine all that is amiable of the earth with all that is transcendant in the heavens, and embody this in a female form, whose faultless beauty of contour is yet radiant with the splendour and glorious with the light of divine intercommunion?

From what has been just said, it must be obvious that a large proportion of those fine old paintings, known as "the Virgin and Child," must be at once condemned, as utterly inadequate to express the sublime idea involved in "the Mother of God," as the old church has not hesitated to phrase it. The failure in most of these cases is not simply ethnic, it is also affectional and moral. In some instances the artist has simply selected an interesting and beautiful girl, of antenuptial experiences, without special regard to her devotional development. In others he has taken some devout nun, utterly devoid of the maternal element, and in whom the domestic sym-

pathies had been long and systematically repressed. In others the model was obviously a young matron, in whom the wife and mother had altogether preponderated over the saint and devotee. Now it must be at once obvious, that individually, these at the best, could be but fractional representatives of "the blessed Mary." Could the painter by a miracle of art, have succeeded in combining the higher qualities of all three, in one transcendant form of female loveliness, purity, and affection, he would still have failed in the higher prerequisites of the subject. There would still have been wanting the *primal* light, the mystic radiance of ecstatic illumination. The beautiful face would still have been devoid of that heightened spirituality of *expression*, that lingering glory as of the heaven of heavens, which speaks of habitual intercommunion with the divine, and in this case, told not only of the *one* annunciation, but of the grandly cherished hopes of a life of supernal aspiration.

But in addition to these deficiencies, nearly all artistic attempts at the Virgin, are wanting in the requisite intellectuality, whether of cranial contour or physiognomical expression. It seems to have been forgotten, that she was not only the physical mother, but also the moral trainer of the Messiah. She heard the first lispings of his infancy, the prattlings of his childhood, and as we know from authority, the deep and searching questionings of his boyhood. Let us again remember that she was an Oriental mother, between whom and her son there is ever a closer union and a profounder sympathy than in the same relationship among the stronger but harder, and perhaps coarser races of the West. Mary never deserted, and probably never lost faith in her son. She appears at all the more salient points of his career. Not only in the stable at Bethlehem and at the disputation in the Temple, but also at the marriage of Cana and at the foot of the cross. Was woman ever before entrusted with so grand a mission? Nothing less than the maternal tuition of the greatest moral teacher that has yet appeared in the sphere of time; the formation of the most powerful mind yet devoted to the sublime task of religious edification. It does not seem to be sufficiently understood that the fortunes of Christianity lay folded up in that divine babe, so providentially entrusted to her keeping. That she had to respond to his first desires, to help the unfolding of his earliest aspirations, to watch and to favour with all reverence and with unresting solicitude, the gradual awakening of that terrible consciousness of his supernal mission, as the God-sent Saviour of mankind. Now a blind bigot, on the one hand, or a girl of merely mediocre ability on the other, would have proved utterly incompetent to the efficient discharge of so important a duty, which demanded a woman of the rarest endow-

ments, not only in the more feminine sphere of the affections and sentiments, but also in that of the intellectual faculties.

The forehead must have been not only lofty but expanded, more especially in the superior region of the reflective faculties and towards the temples, in the group known as "the poet's corner." For this sublime seeress was not only a subject of the grandest visions—on the lowest standard of the most vulgar rationalism, of a dreamy idealism ever tending to objectivity — but she was also eminently capable of manifesting the good sense and sound judgment of a really superior woman in the education of her son. To permit of such a combination, the anterior lobe must have presented a more than ordinary development, in the sphere of perception, memory, thought and imagination. There must have been a certain breadth and comprehensiveness, in one sense, a manysidedness in such a nature, of which the usual Virgin (and Child) affords but an imperfect indication. The traditional Madonna, like the traditional Christ, is nearer to the truth, and probably for the same reason, namely, that in both we have some faint and far off copy of the sublime original.

It need scarcely be said, that such a structure combined with such manifestations, implies a temperament of the very finest quality. The hair was probably auburn, and like that of her son, of silky softness. With such warmth of affection, with such gushing sympathies, with all the attributes of the purest, the noblest, and the most richly endowed womanhood, absolutely overflowing in her genial nature, that hair, more especially in early youth, must have been long and luxuriant, and, left to nature, would have fallen in wavy and massive folds on her beautiful and finely rounded neck. It was high—almost bare—at the temples, distinctly divided off from the smooth, clear, transparent brow, its almost redundant profusion arising from the coronal and lateral, but more especially *occipital* regions—nourished by the genial affections beneath. The eyebrows were well-marked, and arched with all the symmetry of the finest type of eastern beauty. The eyelashes were long, and when the lids were closed, nearly touched the cheek — nature's kindly provision against the burning light of a Syrian sun.

The form was graceful and elegant, and probably rather above the medium height. The extremities were small, indicative of the highest blood, yet the finely moulded limbs were full and rounded. The slender waist was surmounted by a perfectly developed bust—for remember that while we have the saintly, we have here also the *maternal* element at its maximum—a combination which, in contour and expression, taxes all the resources of the very highest art to the utter-

most, and presents indeed a problem yet waiting its effective and triumphant solution at the hands of future genius. Hitherto art has presented us with mothers on the one hand and with saints on the other, but it has never yet effectually united the two in one sublime embodiment of glorified womanhood, seen in the light and crowned with the halo of ecstatic illumination.

Similar observations of course apply to artistic representations of the apostles. It should never be forgotten that they were Galilean fishermen. That they were Asiatics and Syrians, though probably of rather mingled descent, still ever tending to the predominant type of their race and area. Hence the absurdity of taking Italian, French, German, or English models, as befitting representatives of these simple and devoted, yet earnest and energetic men. Thus adjudged, the great work of Leonardo da Vinci must be pronounced an ethnic failure. Those powerfully organised and strongly-marked heads and faces, that surround the Lord at the last supper, are no more Syrian in their type and physiognomy, than in their manners and costume. They are magnificent Europeans, not distinguished Asiatics, and are very properly placed in a sitting and not a recumbent attitude, and surrounded by mediæval and not Oriental accessories. Even here, however, the inspiration of the highest genius has not been wholly wanting, and in the approximative resemblance of the beloved apostle to the type of his Divine Master, we see an explanation of their almost fraternal sympathy, and of that Christ-like spirit which breathes through the Epistles and speaks in the Gospel of St. John.

"John preaching in the wilderness" is another pet subject of Christian art, in which the imagination of the painter has been allowed to freely dominate not only European manners and costume, but also ethnic data and phrenological principles. The race, the family, and the individual character of the Baptist have been alike forgotten, and the fiery successor of Elijah, the daring precursor of Christ, the great prophet and master of the Nazarenes of Galilee, themselves the northern counterpart of the more famous Essenes of the south, has usually been represented by some stalwart and nervo-fibrous European, generally with far more of the porter than the prophet in his thoroughly and merely human composition. The archmystic of the east, who quite independently of Christianity, stamped his impress on the ages, is nowhere to be seen. The mighty seer, through whose stupendously magnetic force, the Messianic consciousness of Jesus was finally awakened never again to slumber, stands before us in the person of a simply material man, in whom digestion is obviously the preponderating function. Or where, in the place of a servile copy of some swarthy and muscular Spaniard or

Italian, the painter has given the reins to his imagination, we have but too often some impossible savage, the incarnation of brute force, not only in corporeal structure, but also in cranial contour, with a physiognomy and temperament anything but saintly or seerlike, and such as, in all human probability, never did and never could bear rule in a school of the prophets.

Again let us glance at this matter from the standpoint of ethnic and physiological science, and see if there be not some data by which art may be guided in its attempted reproductions of the great forerunner. John was a Jew of ancient and honourable lineage, and of eminently masculine proclivities. The male element was as distinctly marked in his character as the female in that of his greater successor. His universal recognition as a second Elijah, is also sufficiently indicative of this, while his mission as a pioneer specially demanded it. Nor in this connection can his hardy life in the desert be wholly ignored. He was pre-eminently positive, born to *do* rather than to suffer, to threaten and command rather than to supplicate and obey. Nature had clothed him with authority, and the majority of men must have felt that he was to be feared rather than loved. As a leader he was far more formidable to political rulers than his cousin, and met his death at the hands not of priests but a king.

Like Elijah he was probably tall and certainly muscular, not however with the osseous ponderosity of a European, but with the combined lightness and firmness of a powerfully grown Arab. His finely expanded and magnificently arched chest was for unimpeded respiration under rapid movement, and to give force and volume to the thunder tones of his stentorian yet varying and flexible voice, more especially in these terrible denunciations, which must have sounded like the minatory notes of a judgment trump. This chest, in accordance with his distinctly pronounced masculinity, was covered by long, dark hair, over which fell the massive shadow of his black and curling beard. The hair, as in the case of all Nazarenes, was unshorn, and swept his broad and swarthy shoulders in thickly tangled folds, telling more of the sun and wind of the desert than of the recent labours of the toilet, so that even this speciality gave nothing feminine to his appearance. It was hair which could only have grown on the head of a man. Like his great predecessor the Tishbite, he was throughout eminently hirsute, and we may add leonine in appearance, this characteristic being merely his inner disposition ultimated into form. The poise of the figure was particularly firm and erect, the attitude and gestures being unmistakeably commanding, and very decidedly expressive of the consciousness of both mental and physical power. The latter was borne out by the finely formed and firmly knit limbs, on which we

may remark, the muscular elevations and depressions were strongly but not coarsely marked, their development, to a practised eye, being obviously the result not of heavy lifts but of oft repeated and elastic movements, in the wild gymnasium of the mountain and the desert. Let it be distinctly understood that both Elijah and John were magnificent instances of the occasional return of a cultured race to its primitive type. They were civilised Jews by immediate birth, but they could both trace up their remote ancestry to the faithful Abraham and his Bedoween clansmen, to the desert lords and wiry nomads of the eastern pastures. Hence ethnically, they had much of the wild Arab in their constitution. They were more fervent and intense, more daring and excitable, less settled and conventional, than the ordinary Palestinian Israelite, the tamed creature of many centuries of Egyptian and Syrian civilisation. They were neither of them the bondsmen, even of a system. Of Pharisaic formalism they had not a shadow. They were free, not merely in outward life, but in thought and feeling, and their structure and bearing, the contour of their limbs and their physiognomical expression, must all have been profoundly symbolical of this spiritual condition of untrammelled liberty.

Phrenologically speaking, the temperament was eminently nervo-fibrous. The head most distinctly partook of the general power of the organisation. The brain was considerably above the average in volume, and the cranial development strongly pronounced. The basilar region afforded indisputable evidence of an aptitude for action, combativeness and destructiveness being both very prominently marked. The region of the affections was only moderately developed, this portion of the system, like every other, being entirely devoid of the *feminine* element. The fulcrum of the mental constitution was in the governing portion of the moral principles. Firmness and conscientiousness were both very large, and well-sustained by considerable self-esteem. The central line, in accordance with the Semitic type, was well elevated throughout, but nevertheless sloped down through veneration towards benevolence, indicative of a certain severity of tone in the general character. John came to call the (Jewish) world to judgment, to announce the end of the Mosaic system of retributive justice, while it was left to his gentler cousin to really inaugurate the new religion of love. Strictly speaking John was a destroyer. He was the axe laid unto the root of the tree, and possessed in full measure, not only the fearless daring, but the strength and sternness usually attaching to such dire instrumentalities of a frowning Providence.

The head was dolichocephalic, the anterior lobe being distinguished by length rather than height or breadth. Nevertheless the forehead

was decidedly indicative of considerable intellectual power, arising, however, from intensity rather than range, from force and earnestness rather than grasp of thought. The ideas were neither vast nor varied, but they had already worn themselves into deep channels, and were adhered to with a tenacity and a strength of conviction that defied argument and despised persecution. It was a naturally vigorous intellect, specially reinforced, however, from the depths of the moral nature, both thought and imagination being dominated by principle. The perceptive faculties were unusually developed, transcending even the average of the desert Arab. The frontal sinus was very strongly marked, and the black eyebrows, arched perhaps in childhood, were corrugated, in part by the fiery zeal and consuming earnestness of the prophetic soul that flashed beneath them, and in part by the physical necessities of the desert prophet, exposed habitually to the burning light of a Syrian sun. The eyes of darkest hazel, were large yet deeply set. At rest and in solitude, they often shone with the lambent light of dreamy and prophetic meditation, and occasionally, in hours of relaxation among his chosen and faithful disciples, were lit up with all the warmth of undying friendship and ardent attachment. But these milder manifestations were for the chosen few, for John was pre-eminently a prophet of reproof. His rebukes and denunciations were truly terrible, the stern utterances of an earnest soul, committed to life-long warfare with respectable iniquity and pharisaic formalism.

The nose was long and acquiline, and when seen in profile appeared rather strongly pronounced. It was in perfect accordance with his resolute and aggressive character, indicating most unmistakeably the more salient points in the mental constitution of the young prophet of the wilderness. It was impossible to associate it with a weak will, or with confused and self-contradictory ideas. On the contrary, it was abundantly eloquent to all competent beholders, of the high and stern resolves, if not the unrelenting severity of the chief of the Nazarenes, who from his desert fastness dared to openly reprove not only the hypocrisy of priests, but even the immorality of kings. The nostrils were powerfully marked even in moments of repose, but dilated with especial force in his bursts of righteous indignation, as if to mark and emphasise his towering contempt and withering denunciation of Pharisaic pretentiousness.

In congruity with his fibrous temperament and unyielding nature, the osseous portion of the structure was effectually, though not coarsely developed. And as an accompaniment of this, the cheekbones were distinctly perceptible, being, however, rather high than prominent, and not interfering to any marked extent, with the generally oval and

perfectly Caucasian form of the face. There was something of almost Roman strength in the lower jaw. Its contour, however indicative of will, conveyed no evidence of sensuality. The chin was prominent, and in a certain sense massive, but neither broad nor heavy. But this, together with the outline of the jaw, was now effectually masked by the black and flowing beard of his matured and rarely gifted manhood.

The mouth, like the remainder of the physiognomy, was eminently expressive of promptitude and determination. No one could look on those firmly closed lips, and doubt the decision of their owner. It was obviously the mouth of a man that never relented, that never softened, and from whose soul every vestige of feminine weakness had been thoroughly purged amidst the sterner discipline of the desert. Self-denial, and the denial of others were inscribed in lines of fire, on every curve of those clearly cut and thoroughly masculine, yet beautiful and intellectual lips. His mother's kiss was the last that had ever pressed them. Filial love was his only experience of the magnetic power of woman. His volcanic heart was consumed with the burning zeal of the religious reformer, and its lava floods were those of righteous anger, not of baser passion. He was a Nazarene, not merely in outward form, but inward spirit. To every form of indulgence he was an utter stranger. The man was lost in the prophet. His deepest thoughts, his highest aspirations, his most ardent wishes were all unreservedly devoted to his mission. He regarded the world but as the theatre for a divine drama, now culminating towards the grand crisis of a Messianic advent, wherein it was his part to enact the precursor. And through life and through death he was faithful to the part allotted to him. And all this was reflected in that stern yet refined, that decisive yet intellectual mouth.

The ears, like every other portion of the system, were eminently masculine. They were of fully average size, and to a keen eye indicated the all-pervading muscularity of the organisation. They were placed well forward, and left the impression of considerable volume in their rear. Well-shaded by his dark and tangled locks, it was, however, only at intervals they could be seen, and then but imperfectly, as the desert wind occasionally swept the superincumbent mass of swarthy curls upon its passing blast, so that art, if diffident in the matter, may altogether avoid committal to details. If shown at all, however, they must be represented *close* to the head, as this was an organisation, that with stupendous power, gave nowhere an indication of coarseness or inferior blood. Above all, remember that the prophet was perfectly Caucasianised, which is only saying, in other words, that he was entirely *human*, and had nothing Simian in his whole structure.

From the foregoing observations, which after all afford but an imperfect sketch of the great Baptist, it must be at once obvious that John is an ethnic study, demanding more than ordinary care, and by no means to be painted from passing fancies or casual models. The demand on the racial and physiological knowledge of the artist, is, indeed, all the more severe in consequence of so much of the figure being nude, so that he cannot hide his structural errors beneath the folds of his unexceptionable drapery. It is not only the powerfully formed head and strongly marked face, but the muscular neck, the broad shoulders, the arched chest, the finely formed limbs, the well-knit joints, and the fibrous yet fundamentally psychical extremities which he has to represent, even to the last articulation, according to the severest rules of science. It is a work that must be executed throughout in strictest obedience to the organic laws, under the penalty of defects, which although imperceptible to cotemporary critics and existing patrons, will be patent enough to the better informed and more observant generations of the future.

But should even these severe demands be fulfilled, there is yet another and a higher which cannot be neglected; we allude to the law of expression. This organisation has to be put in action, and its every attitude and movement must be in strictest accordance with the cerebral development and general anatomical structure. The habitual poise of the body in such a being is not a matter of accident, but dependent on the proportion of the coronal to the lateral, basilar and anterior portions of the brain, whose action on the muscular system is again modified by the law of temperament. The very manner in which such a man, so morally determined, so physically firm, so prompt in thought, so elastic in movement, would place his foot to the ground, is the result of forces inherent in his structure. The arched instep, the cleanly formed ankle, and the symmetrical calf, placed high in the leg, are all simply the necessary accompaniments of the lordly port of the desert seer. It is the same with his arms, now rapid and vehement, and anon solemn and commanding in movement, as with instinctive propriety, the inspired prophet adapts his graceful gesture to his ever-varying but always impressive thought. Let no painter fall into the grievous error of supposing that he can obtain the model of that perfectly flexible wrist, or of that finely formed and tendinous forearm, from the first stout peasant that enters his studio. If he must draw from the life, perhaps a first-class swordsman would be somewhat more germane to the matter. So with the neck, in every respect so admirably formed as a support to that haughty and commanding head. Its muscular development is before and not behind, and arises not from the erotic action of the cerebellum, but the sustained will-power of firmness and self-esteem.

But the highest of all forms of expression—that, indeed, properly so called—the expression of this powerfully marked face, in its moments of ecstatic illumination or transcendent oratorical power, yet remains to be portrayed. The first should attach to the baptismal scene on Jordan; the last to his addresses to the multitude, "Repent! for the kingdom of heaven is at hand." In the former, he is the prophet actually rapt in seer-vision, with the supernal light of present inspiration beaming in full effulgence from his heavenly countenance; in the other, he is only the prophet of reproof and denunciation, hurling the thunderbolts of divine wrath on the heads of an erring yet pharisaical generation. The treatment of the latter is comparatively easy. Combativeness and destructiveness, sustained by firmness and self-esteem, and directed by conscientiousness, will give the predominant feeling of minatory indignation at the leaders, softened through benevolence, with a slight ray of almost contemptuous pity for their ignorant and misguided followers. The uplifted arm, the frowning brow, the flashing eye, the dilated nostril, and the curling lip of the haughty prophet, uttering his message with withering scorn for all that Jerusalem held as high and holy, may be readily managed, provided only there be the requisite force for an effective delineation of the sterner sentiments and stronger passions. But it is otherwise with the former. Here higher powers and nobler faculties, rarer gifts and finer endowments, come into play, and must, if possible, be reflected from the canvas of the painter. In this case, the passions have subsided into temporary quiescence; leaving, however, the traces of their stormful passage in many a well marked line. But for the time they have been overmastered by the sentiments, more especially by veneration, wonder, and sublimity. The archmystic, like Elijah of old, already knows of his own approaching departure. "He must increase, but I must decrease." This, however, only adds to the grandeur and solemnity of expression, and to the general elevation of his look and bearing. He is about to ordain his successor, generally a culminating point in the life of an ancient prophet, involving as it did the outpouring of his whole soul in the consecration of another to the dread and holy vocation, now proving mortal to himself. But that other is the hope of ages, the expectation of Israel, the crown and glory of the long beadroll of prophetic souls from Moses downwards. The great end and purpose of John's life is now about to be accomplished—the public recognition, and, if we may so say, official consecration of the Messiah. His emotions, even in the ordinary condition of the system, would, under such circumstances, have been sublime beyond description, and such as only the earnest and enthusiastic devotee of one grand and all-absorbing idea

can ever experience. But in the very act of baptism, the prophetic afflatus and the full power of seervision were developed into effective manifestation; and the great precursor, raised to the highest point of ecstatic lucidity and inspiration, hears the words of divine approval, and beholds the symbolical dove of the Holy Spirit descending on the beloved son of the Infinite. It is in this expression of present inspiration, that art has hitherto failed in its representations of the Baptist. It has not only given us an Aryan in place of a Semitic type, but it has also presented us with a material in place of a spiritual man. But the demands we make are unfair. To realise such an idea, we should need the force of Michael Angelo for the attitude and the outlines, and the devotional spirituality of Raphael for the expression, combined with a knowledge of manners, costume, and ethnic type, of which they were necessarily and utterly ignorant.

It must not be supposed from the foregoing remarks, that we are yet prepared to lay down all the rules by which art should be guided in its reproduction of the human form. Like anatomists, we may point out the grosser errors of which art is sometimes guilty, and may perhaps offer some few suggestions on the subject; but the details of application must be left to artists themselves. It is enough if men of science evolve the principles; they will then have done their share of the common work, and the remainder must then devolve on Royal Academies and their pupils. In short, artists must study race and type, structure and temperament, for themselves, and not depend wholly, or even largely, upon us for guidance. What naturalist could have given their finishing lessons to Landseer and Rosa Bonheur? or what geologist could have fully instructed Horatio McCulloch in the character of his lakes, or the outline of his mountains? Archæology is one thing in the book, it is quite another in the picture. In the former it is Dr. Dryasdust's descriptions—hard, angular, and pedantic as a black-letter folio; in the other it is a living reality, redolent of love and heroism, of poetry and beauty, where the generations of the past undergo a resurrection, and once more move before us in court and camp, in bower and tournament, with light in their eyes and bloom on their cheeks, the actual men and women of a bygone, yet not wholly vanished time.

At a future period, we may perhaps extend this paper, by a few remarks on Greek sculpture, and the treatment of classic subjects in modern art.

JANET'S ATTACK ON MATERIALISM.*

BEFORE we say a word about the merits of the book before us, we will make one or two extracts from the translator's preface :—"The Sorbonne has never lacked spirited and eloquent advocates, to maintain the *true* principles of metaphysical science. The standard of *sound* teaching is still borne aloft." And since the year 1857, M. Paul Janet "has never ceased by his pen or in the lecture-room protesting against the *errors*"—of what? Now we have no hesitation in predicting that our readers already know which side the author and translator have taken up. It is quite unnecessary to tell them that the "errors" are those of the modern materialistic school.

What a comfort it must be to those good people, who never accept an invitation to tea without promising to go if God will let them, to know that they can never make a mistake. How delightful it must be for them to know whenever they have been under a shower-bath, and felt the benefit of it, that they have been under God at the same time. There is only one thing about these good people that we have never been able to understand, and that is why they persistently ignore the teachings of the Bible in which they affect to believe. We have, for instance, some recollection of meeting in that book with the excellent precept, "judge not that ye be not judged." Yet these excessively good people are always the first to do precisely what the Pharisee did in the temple, to thank God that they are not as other men.

From the extracts that we have already made it will be seen that Mr. Masson is a Pharisee of unimpeachable belief. And he has translated a book which is thoroughly Pharisaical, yet not by any means orthodox. Dr. Janet knows he is right just as much as Mr. Masson or Dr. Cumming. But his certainty is of a kind which would horrify both the Evangelical Alliance and the priests of St. Alban's, Holborn. Dr. Janet is certain only that Dr. Büchner and Mr. Darwin are wrong, and maintains nothing but an incomprehensible will.

An incomprehensible will is, without doubt, a very fine thing in its way, but we submit that this is not the teaching of the Bible. We have been taught from our youth upwards that God showed his back parts unto Moses; and that has always appeared to us an intelligible proceeding. Back parts necessarily imply front parts; and from back

* ***The Materialism of the Present Day.*** **By Paul Janet. Translated from the French by Gustave Masson, B.A. London: Ballière.**

parts and front parts it is not difficult to infer top parts and bottom parts—in short, the entire man, which we believe is the only idea that any one ever clearly conceived to himself of the entire God.

But this is by no means the teaching of M. Janet. He, on the contrary, says :—

"As a run-away horse carried on by blind impetuosity in his reckless career might follow a thousand various directions, but under the guidance and authority of a skilful rider, takes only one course which leads him to the appointed end ; so, blind nature, constrained from the beginning by the power of an incomprehensible will, and directed by an unknown master, is everlastingly progressing by a graduated movement full of greatness and of splendour, towards the eternal ideal, the desire of which possesses and animates it."

Of course if any man likes to write this kind of stuff, he is certain to be well received by a particular class; but we need hardly point out that such writing is quite outside the province of science. The first thing required of any scientific proposition is that it should be intelligible ; and Dr. Janet at once puts himself out of court by confessing that his first principles are incomprehensible.

We, however, agree with the author of this book, so far as to allow that however far we may go back we come at last to something incomprehensible. But an incomprehensible will signifies no more to us than an incomprehensible Abracadabra. An incomprehensible and infinite impotence is just as intelligible to us, just as useful a formula of belief, as an incomprehensible and infinite omnipotence. No doubt, when the Büchnerists and Darwinists assert that their systems explain everything (which, by the way, we believe Mr. Darwin does not assert), they lay themselves open to attack. They have not explained, and they never can explain, everything. But the fact that the dogmatic atheists are wrong, is in no way evidence that the dogmatic theists are right. Neither party has the slightest tittle of evidence to rely upon.

It is perhaps right that the belief in an incomprehensible will should be finally expressed in an incomprehensible sentence. And thus the book ends :—

"Let us conclude with them against the champions of a blind mechanism, that an unknown law directs the progress of things towards an end unceasingly receding, but the absolute type of which is precisely the very cause from which the stream once of old issued forth by an incomprehensible operation."

We submit that if all things progress towards an end unceasingly receding they perform a more incomprehensible operation than any dreamt of by Dr. Janet. If the end recedes unceasingly it must recede at the same speed with the "things," at greater speed or at less. If at the same speed, or at greater speed, it is quite clear that

the "things" do not progress relatively to the end at all; if at less speed, it is equally clear that the "things" must overtake the end at some time or other, and the end does not recede unceasingly. We have no notion what the absolute type may be, because there is nothing to show whether it is the type of the end, the things, the progress, the law, the mechanism or the champion. But this possibly is the fault of the translator. We have not seen the original.

We have spoken somewhat severely, but let it not be supposed that we have not a good word to say of Dr. Janet. He has written a very concise and clear *résumé* of the history of German philosophy since the time of Hegel, and has given a fair abstract of Dr. Büchner's *Kraft und Stoff*, with a shorter and somewhat less satisfactory account of the Darwinian theory.

In the chapter on German philosophy we noticed some very remarkable passages extracted from German authors. Dr. Büchner is quoted by Dr. Janet to this effect:—"It is nearly thirty years since the Germans have been making transcendental science. If they once become aware of it they will find themselves very ridiculous." But this is nothing to Schopenhauer who, according to Dr. Janet, has thus expressed himself:—"Dilute a minimum of thought into five hundred pages of nauseous phraseology, and trust for the rest to the truly German patience of the reader." This is a German recipe for making a philosophical reputation in Germany.

PIKE ON THE ORIGIN OF THE ENGLISH.*

Mr. Pike's book has met with more attention at the hands of the leading reviews than has perhaps been ever accorded to an anthropological work by the critics who aspire to be the fuglemen in general literature of the reading public. This may be partly due to the growing interest taken by that public in the science of man, but is certainly not wholly so; for even those who are least disposed to agree with the author's conclusions, must give him credit for the learning and ability he has displayed in his attempt to show their probability.

Mr. Froude, by the publication of the later volumes of his history, has stirred up in Scotland the smouldering embers of the controversy between the pro-Marian and the anti-Marian parties. Nearly three

* *The English and their Origin; a Prologue to Authentic English History.* By Luke Owen Pike, M.A., F.A.S.L., Barrister-at-Law. London: Longmans.

hundred years ago the latter faction got Mary satisfactorily beheaded and buried out of the way; but the feud was by no means extinguished by that trenchant proof on which side lay the right of the stronger, and has continued to be waged in the field of literature even to the present day, though the pen has generally, and on the whole, corroborated the decision of the sword. Similarly the Anglo-Saxons, or the Normans who in the eleventh century served themselves heirs to them, have in a manner more or less satisfactory and complete, by superiority of valour, strength, prudence, perseverance, civilisation, or wealth, succeeded in putting down the Kelts throughout the British islands; but the question whether the several so-called Keltic tribes or races, by reason of their faults or deficiencies, deserved to be so put down, has continued to be fought over by politicians, antiquarians, and ethnologists, even to our own time. In general the verdict of the lower court has been confirmed, and from Spenser to Pinkerton, and from Pinkerton to the latest special correspondent, the Saxon scribes, or the scribes who believed themselves to be Saxon, have not ceased to add insult to injury, and to follow up the unhappy Kelt with all the contumely that conscious superiority could dictate. If now and then some frantic Gael dared to ridicule the "dulness of the creeping Saxon," or to describe him as "a bullet-headed boor, with a mop of flax on his head;" if some Welshman, on his own dunghill of an Eisteddfod, and secure of the inability of the enemy to test his assertions, crowed over the superior flexibility and expressiveness of his own language, a smile of contempt from the Englishman was a sufficient answer to such ravings.

In the persons of Matthew Arnold and of our author, however, the Kelts have at last found two doughty champions; but while the former thinks it necessary to go to Wales to find his protégés, the latter discovers them among ourselves and in our own persons, or perhaps we should rather say he discovers the *Cymric* race; for that is the name he prefers, spelling it, by the way, as he insists on spelling *Celtic*, with a C, and arguing with some point on behalf of his practice, to which we will endeavour to conform in the present article.

Mr. Pike appears to have two principal objects: he desires in the first place to prove that the bulk of the people now called English are really descended, not from the Teutonic conquerors of South Britain, but from the Cymric division of the Celts; and, in the second, to make out a case in favour of the nearer connexion of these Cymri with the Greeks than with other branches of the Indogermanic family.

The proof of the former point is made to depend on the convergence of four lines of argument, historical, philological, anatomical, and psychological: the suggestion of the second arises mainly, though not

entirely, from considerations of the second and fourth class, especially the second.

In the historical chapter, the most important object is to discredit the account given by the "school-books," which is shown to rest almost entirely on the very unsound foundation of Gildas. We wish the author's space and plan had drawn more largely on the statements of the Welsh Triads, of Aneurin, and of Llywarch Hên. To most of us Englishmen these are sealed books, nor can their unsupported dicta, of course, be allowed any great weight; but we are informed, on competent authority, that some of the Triads support Mr. Pike's historical views in a remarkable manner. He, however, rests this part of his case mainly on *à priori* reasoning; and succeeds very well in showing the extreme improbability of the notion that an invading tribe, coming by sea, would ever have destroyed or driven out the entire aboriginal population.

When Mr. Pike approaches his second line of argument, we find that in him we have to deal with that too great rarity, a philologer who expects no more from his science than it is competent to give him; one who is willing to use without abusing it. His canons as to the use of philological evidence in questions of race are excellent.

"Whenever," he says, "any given people speak, wholly or in part, a language spoken by any other given people, there has been, at some time, a connection of some kind between these two peoples. Language cannot of itself tell us what are the proportions of the constituent elements in any nation. We cannot say that the language of the conquerors always prevails; for, if so, we should ourselves speak Norman-French, the French would speak German, and the Germans would speak Latin. (!) We cannot say that the language of the conquered always prevails; for, if so, the French and English would probably speak dialects of a common Celtic language. We cannot say that the prevailing language is that of the race which survives in the greatest numbers; for, if so, there would be hardly a trace of Latin in France or Spain. We cannot say that change of language may not be simply the result of time, geographical contact, and the influence of a metropolis, because we have seen one instance of such a change in Cornwall. It is obvious, then, that we cannot, by means of philology alone, solve the more delicate question of the exact proportion which one element, in any population, may bear to another. . . . . If language cannot tell us which was the conquered people, and which was the conquering, it certainly cannot tell us that any people has been almost or completely extirpated, though it may, in certain cases, lead us to suspect that a people has *not* been extirpated.

We have quoted these propositions of our author, partly because, though there is only one of them that is open to the slightest cavil, they are often so entirely ignored by writers of the philological

school of anthropology; and partly because they have been the subject of a criticism in the *Westminster Review*, which, for muddle-headed perverseness, beats almost anything of the kind we have ever read:—

"No sane man," says the reviewer, "has ever asserted that the language of either the conqueror or the conquered, or the race which survives in the greatest numbers, always prevails. All that is asserted is, that where two races have come into conflict, and the language of one is found to have superseded the language of the other, the race using the prevailing language is, *cæteris paribus*, most likely to have been the conquering one of the two. This is a very narrow proposition, which Mr. Pike has neither conceived nor grappled with. Yet its irresistible cogency, as applied to the present question, is such as at once to throw upon all Celtic advocates the onus of showing by distinct positive evidence that the Celts have contributed more than the smallest proportion of blood to the formation of the English people."

Probably the writer of this galimatias had some idea seething mistily in his brain when he penned it; but what that idea was we cannot divine, for he can never have meant what he said. His "irresistible proposition," translated from generalities into particulars, amounts to this, and this only. The Saxons and the Celts came into conflict: the language of the Saxons is found to have superseded the language of the Celts: *therefore, the Saxons probably conquered the Celts.* This is another, but a roundabout and confused way of stating that the language of the conquerors generally prevails over that of the conquered. The only possible bearing of this rule on the matter in dispute would be favourable to Mr. Pike's views, as it might lead to the inference that the Saxon language prevailed in England owing to other causes than superiority of numbers on the part of the invaders.

Mr. Pike, however, is by no means prepared to admit that the English language is so radically Teutonic as it is generally supposed to be. His arguments will of course be examined by all who are interested in the subject; some of them have considerable weight, but on the whole we are disposed to think he is more successful in rendering probable a peculiar connection between the Cymric and the Hellenic than in reducing the Teutonic element in our language. He is certainly right when he says that our grammar is not purely Teutonic; but when he takes to counting words in dictionaries he must infallibly go wrong. A great many words which are and have been in common use (and of which, by the way, some are Celtic) do not find their way into dictionaries, which on the other hand readily admit all kinds of Johnsonian and scientific slang. His remarks on the sounds *th* and *dh* are very interesting. The frequent confusion of

the two in Anglo-Saxon orthography rather tends to strengthen his position, that the English borrowed both sounds from the Welsh. But when we consider how the guttural aspirate, *gh*, though found in almost all other Teutonic or Celtic tongues, and still represented in the spelling of our own, has gradually slipped out of our pronunciation, until, everywhere south of the Don,* its power is absolutely forgotten; when we consider this, we shall be more disposed to think that the Germans have forgotten how to pronounce their *th*, than that they ever encumbered their language with a literal combination which had at the time no meaning or use for them.

The anatomical section of the book testifies to careful study and judicious employment of all the materials as yet available, to which the author has added some observations of his own on the prevailing colour of hair in England. He is fully aware, though some of his reviewers appear to have obstinately shut their eyes to the fact, that while no European tribe or race exhibits anything like uniformity in respect of colour, the differences among several races in the proportion of the various shades are great and tolerably constant, so as to furnish a valuable characteristic. His principal aim in this chapter is to show that the ancient Britons were longer-headed and darker-haired, as a rule, than the Germans; that the same difference still exists between the English and the modern Germans; and that these facts lead to the inference that the British type has not been materially modified by immigration from Germany. If the data are, perhaps, not quite sufficient for his purpose, this is assuredly not the fault of the author, but depends on the nature of the subject, on the loose notions as to nomenclature of colours which prevail equally in modern as in classical times, and on the paucity of craniometrical observations. We may expect a considerable addition to these last very shortly, from the publication of Dr. Barnard Davis's *Thesaurus Craniorum*, and from the continued investigations into the contents of British barrows, which are now being carried out, not only by the authors of the *Crania Britannica* and their friends, but by Greenwell, Hunt, Tate, and others.

What we are inclined to desiderate in the present volume, and what we hope to see in any future edition, is an attempt to *define* the physical and other differences between the High and Low Celts, who are too often confounded by writers on the subject. Among other points, we are disposed to think the prominent mouth a characteristic of the Low as distinguished from the High Celt, and not a mere result of unfavourable "media". The Irish are, as a rule, inferior in strength of shoul-

* The natives of Keighley do, or did not many years ago, pronounce the name of that town with the guttural aspirate.

der to the Welsh of Cymric type: the latter and the Staffordshire men are said to furnish the best hand-workers in the iron works: the Irishmen can use the barrow, etc., but not the sledgehammer. We would have liked, also, to have seen a more sustained attempt to develope the differences that exist between local sections of the English people. For the admixture of races is as yet very far from being uniform over the whole country; and there can hardly be said to be any such thing as a typical Englishman.

Though the Saxon type is not the prevailing one in most parts of England, we have met with it in great abundance over extensive districts. For example, Saxons, as described by Mackintosh, who is more accurate and less trenchant than Knox, swarm in Berkshire, and in parts of Hampshire, Gloucestershire, and Wiltshire; and, having ourselves travelled through Friesland and Hanover, we can testify that thoroughly English-like people abound in both regions. The Philistine of Arnold, the typical John Bull, is, we are confident, no true Celt, in person or in character. We think, moreover, that Mr. Pike has not given sufficient prominence to the Scandinavian element.

"No one," writes to us a Welsh anthropologist, who has unusual opportunities of observation, "can have much to do with Swedes, Norwegians, Danes, Holsteiners, etc., without being struck by their resemblance to, if not their complete identity with, the higher classes of Englishmen. The straight face, regular features, moderately developed cheekbones, rounded forehead, the arched skull, considerably developed over the parts ascribed by phrenologists to self-esteem and concentrativeness, and the graceful body, as also the moderate views on religion, the absence of tendency to metaphysics, the eminently practical straightforward character, the capacity for making good sailors, etc., are all common to both."

Mr. Pike would account for so much of these statements as he would receive, by the theory of the presence in the Scandinavian blood of an element derived from the ancient Cimbrian occupants of part, if not the whole, of Scandinavia. This theory we are not prepared to contest, still less to condemn. We must concede to him that many modern Scandinavian heads, while they differ much from the ordinary Teutonic, approach in some respects the Celtic forms. But we will not further follow up this subject; for already one enticing theory after another, each more or less plausible, but each equally incapable of proof, seems to rise up before us and to beckon us onward into a labyrinth of unprofitable speculation. To return! Our author has investigated the subject of the ancient Greek head-form, with the view of showing that it was usually long, like that of the Cymry. The evidence is scanty, but, on the whole, rather favourable to his view: as usual, it is set forth clearly and with candour.

The psychological section of the work has provoked much hostile criticism from the Teutonophilists. We must confess that we think Mr. Pike has dealt rather hard measure to our friends (he will hardly allow us any longer to call them our relations) beyond the Zuyder Zee; but, when we consider the amount of abuse and detraction that has been showered upon the Celts by English writers, we think it was full time that some one should begin to paint the other side of the shield. This chapter will to many prove the most interesting in the book: but it would be impossible to do justice to it except by devoting to it more space than we have at present at command. We will, however, call Mr. Pike's attention to one little fact which, if he was aware of it, he may perhaps have thought hardly worth mentioning. It is the identity of the Derby "foot-ball play" with the Breton national game of the "soule". This seems to us noteworthy, inasmuch as the plain of Derby is not generally supposed to be at all a Celtic district. The game called bandy or hockey in our western and midland counties, identical, or nearly so, with the shinty of the Highlanders and the hurling of the Irish, furnishes another instance of an athletic game apparently belonging to the several divisions of the Celts.

We have given our readers rather a running and disconnected commentary on the book, than a complete sketch of its nature and purport. For it is a book that every one interested in the subject (and what English anthropologist can fail to be so?) should study for himself: in fact, no one who is ignorant of it can henceforth speak or write of the origin and anthropological character of the English nation.

ON THE SKULL OF DANTE.

A Letter from HERMANN WELCKER, *Professor of Anatomy, Halle, Hon. Fellow A.S.L., Corr. Memb. E.S.L., to* Dr. J. BARNARD DAVIS.

MY MOST ESTEEMED FRIEND,—

The following inquiry, which I have the pleasure to address to you, is founded not only on the death-mask of Dante, and that important, interesting, and full Report,* which the Commissioners for the identification of the recently discovered remains of Dante have published, but also on a treatise of the excellent anthropologist Nicolucci, in many points based upon this Report.† [A third publication, issued in the meanwhile, I did not become acquainted with until you informed me of it.‡

The question of the *authenticity* of the bones found in the chest of the Fratri Minori, I shall not enter into the probability of, or into the arguments by which it is sustained, which are derived from the history of Dante's interment, the first renovation of his tomb, and the finding of the chest. This is a subject already sufficiently examined into by those entrusted with the inquiry, and it has been copiously treated on. For my part, so far as I am able to survey the circumstances, I do not doubt the authenticity of the bones produced to be the remains of Dante, and believe that in this letter I shall bring forward new grounds in support of this authenticity. All that I know speaks for the same, nothing against it. But it cannot be denied that the authenticity of the contents of the chest found at Braccioforte, notwithstanding the inscription thereon in distinct characters, might be doubted. The ashes of Dante have in the course of centuries experienced so many vicissitudes; they have, as it is said, after repeated interments, been saved by flight and hidden in an unknown place, then been suddenly found again by a peculiar accident. The circumstances and the moment of this re-discovery might excite distrust in those inclined to doubt. They came to light opportunely, during the preparations for the celebration of the six hundredth year jubilee of the poet, in the ecstacy of the Italian people, who could not regard the bones of their

* *Relazione della Commissione Governativa eletta a verificare il fatto del ritrovamento delle ossa di Dante in Ravenna.* Firenze: 1865. 4to.

† *Il Cranio di Dante Alighieri;* Lettera del Cav. Dr. Giustiniano Nicolucci, all' illustre Antropologo, Sig. Dr. F. Pruner-Bey, Parigi. 1866.

‡ *Intorno al Cranio di Dante Alighieri;* Nota Antropologica diretta al Preside della R. Accademia di Science, Lettere ed Arti in Modena, da Paoli Gaddi. 1866. 4to.

greatest poet, the combatant at Campaldino and Caprona, the leading champion of the white party exiled by the black, to have been scattered to the four winds—they appeared, as it may be said, quite *à propos*. Might not, if we do not admit an intentional substitution, an undesigned change of the bones have taken place in the flight? However much all things plead for the honest purpose of the Frati Santi, still I believe that as thorough an examination as possible, based on anatomical conditions, will only be welcome to the friends of Dante.

1. The "Relazione" or Report justly lays great stress upon the question of the agreement of Dante's mask and the skull found in the chest; and it is stated at p. 17, that the comparison of the two has afforded the same character in the conformation of the forehead, the same form of the arches of the eyebrows, of the bridge of the nose, and the same length and shape of the nasal bones. But, if the skull and the death-mask belong to one another, they must show, not only corresponding *forms*, but also corresponding *proportions*. The dimensions of the mask must be everywhere *larger*, certainly in various proportions; since the soft parts covering the bones in different divisions of the face are of different thicknesses. Yet, everywhere the measures of the mask will be greater; *smaller dimensions cannot be expected*. The measurements of the mask do not occur in the "Report"; on the other hand, there are specified (p. 17) a number of dimensions which were taken from the skull found in the chest. Let us compare them with those which I have obtained from the mask.

a. The perpendicular distance from the root of the nose to the lower extremity of the connection of the two superior maxillary bones, consequently to the roots of the inner incisor teeth, *i.e.* to the middle of the upper lip. In the skull, according to the statement of the "Report", this is 85 *millimètres*. In the mask I find the distance between the two points named, which cannot be easily missed, to be at most 66 *mm*. The dimension taken from the skull is consequently much *too large* for the mask. The callipers, when opened to the extent of 85 *mm*. and one limb placed on the root of the nose, reach down a finger's breadth below the mouth.*

b. The transverse measure through the middle region of the cheek-

* Professor Welcker's letter was accompanied with two outline tracings of the profile of the mask of Dante, taken by the profile apparatus described in his *Kraniologisches Mittheilungen*, p. 101. One of these sketches is of the size of the mask, where it is seen, by a line introduced for the purpose, that the distance in question is 66 *millimètres*. The other is a magnified or colossal profile, made sufficiently large to allow of the distance defined to extend to 85 *mm*. In this way the incongruity of the latter measure of the *Relazione* is rendered more conspicuous.—Ed.

bones. In the cranium, 107 *mm.*; in the mask, 115 *mm.* This is an increase which may very well be dependent on the soft parts of this region of the face.

c. The transverse measure between the middle of the two jugal arches. In the skull, 135 *mm.*; in the mask, 134 *mm.* at the most. The compasses opened to 135 *mm.* allow the whole jugal region, in all places, to come between them without touching.

d. The distance from the outer edge of the orbit on one side to that of the other. On the skull, according to the "Relazione", 124 *mm.*; upon the mask, I find it to be only 106 *mm.* The callipers opened to 124 *mm.* and placed on the transverse line intersecting the orbits, reach much farther backwards, to the surface of the temples.*

Other dimensions of the skull given in the "Report" (especially those of the proper brain-skull) are but little fitted for comparison with the measurements of the mask. I believe I may assert, as the result of our comparison, that *either the mask is not genuine, at least it is not the death-mask of Dante, or the measures of the "Report" are not the measures of Dante's skull.*

This result leads us, first of all, to a closer examination of the *mask.* The "Relazione" appears to hold it to be genuine; and, although this is not explicitly asserted, there is no intimation that the authenticity of the mask is doubtful.† It is always called a mask ("maschera") whereby, according to the usage of the Italian language, is understood a *death-mask*, not a free imitation. It is so much like the best and most assured portraits of Dante, that, if it be a death-mask, there can be no doubt it is the death-mask of Dante. The copy used by myself I owe to the kindness of our renowned Dante-man, my colleague Witte, who obtained it from the atelier of Rauch, and warrants that it is identical with the Torregianian example.

I have never been able to think this modelled head was a mere and unaltered death-mask. The same hand that modelled the portion of a cap in the manner of a diadem rising upwards, may also have employed some art touches here and there upon the face, to dissipate the expression of death, and give the whole an appearance of life. Indeed, there are many points to be recognised in this mask, which remind

* It must be allowed that, with respect to this measure especially, a mistake on the mask is not very likely; for it concerns the narrow border of bone lying close under the skin, which limits the outer edge of the orbit. It is quite clear that for the mask of Dante the dimension of 106 *mm.* is too small, and that of 124 *mm.* far too large.

† It is introduced in the Report (p. 17) by the words "La maschera di Dante, che dicesi tolta dal cadavere, ora posseduta della R. Galleria di Firenze per legato del marchesa Torregiani"; and by Nicolucci it is said, "La maschera tolta dal suo cadavere", p. 8.

us more of the proceedings of art and the technicalities of modelling than of the mere cast of a dead head. On the other hand, I consider that in the neighbourhood of the eyes, at the corners of the mouth, and in some other places, I can perceive marks such as are to be seen in real death-masks; so that I must suppose that the mask, so far as it is not the mere impression of the real head, has had the actual death-mask for its original ground.*

I am, however, of opinion that this point ought to be most carefully investigated. Against the supposition that the Torregianian head is a death-mask, it might probably be of moment that it reminds one more of the profile portrait of the youthful Dante (28—30 years) originating from Giotto than of Raphael's picture of the older man; whilst we should have expected the reverse, that the death-mask would represent the features of the pictures taken in later years. Still, there is no ground for assuming that Raphael collated this with any authentic portrait, it is much more probable that he only relied on the traditional likenesses of the manuscripts of the Divine Comedy. So we might suppose that the original of the "mask" was a Dante at a period of life between Giotto's and Raphael's portraits, and that the "death-mask" was nothing more than a likeness made in Dante's lifetime. There is another question after all—its answer in the *negative* would totally alter the state of the whole matter—were death-masks usually taken six hundred years ago? Upon this antiquarian point I am not informed, and shall content myself with having raised the question. The oldest death-masks I recollect are of a later time, those of Luther and of Tasso.

Let us, however, suppose for a moment that the mask is really a death-mask, although artistically restored, we should then not expect to find it cut away, diminished; but the reverse, deeply depressed places filled out, and here and there parts of the face enlarged. But it is quite the contrary. The jugal breadth (*c.* of our previous explanation) is in the mask *less* than the corresponding dimension of the bare skull; and the measures mentioned under *a.* and *d.* (length of the upper face, and breadth in the orbital region) are in the skull so exceedingly much larger, that we must assume the mask to be, if genuine, still to be a reduction of the natural size. But, how could it be that the mask could be copied from Dante's face other than the

* It is evident that Goethe did not regard a certain head of Dante to be the poet's death-mask (Eckermenn's *Gespraechen*, i, p. 170), for he says: "It is well done—he is already old, bent, peevish, with the features relaxed and sunk, as if he had just come from hell." These expressions weigh but little against the supposition of our mask being a death-mask, as it is not clear whether Goethe had the Torregianian mask before him. Eckermann speaks of a "colossale Büste", a "colossaler Bild".

natural size? On the other hand, the measure mentioned under *b.* must also be equally diminished; yet in this diameter the mask is larger than the skull.

Let us submit the *measures of the skull* to a critical examination. The measurement given in the "Relazione" for the breadth of the orbital region, 124 *millimètres*, appears to me under all circumstances to be too great, whether I take into consideration the portraits of Dante which lie before me, or whether I make use of the general results of craniometry as a standard. The highest cypher which I have obtained for the dimension in question (linea *zz.* of my system of measurements), out of two hundred and thirty-seven skulls of German men, is 112 *mm.* Twice I found the next highest figure to be 110. The average was 99 *mm.* Out of twenty-seven skulls of Italian men I obtained a mean of 97 *mm.* In Schiller, whose skull is of a rare size, and at the same time has an uncommon breadth, the cypher in question is 106. For the skull of Dante, a man of middle stature,* whose head was well proportioned to his body, and whose countenance, according to all the portraits, was of a rather narrow oval form,† 124 *millimètres* is an absolutely *impossible* measure. Open a pair of callipers to 124 *millimètres*, and seek to find amongst thousands of skulls an example, the orbital diameter of which will reach that breadth;‡ or model a bust of Dante, taking that foundation for the dimensions of the diameter of the orbital region of the skull and of the upper face, and a colossal bust would be obtained.

I am not able to explain the contradiction which exists between the specified measures of the mask and the skull. If the words, "la distanza della parte esterna della periferia della base orbitaria d'un lato fino al punto identico dell'orbita della parte opposta" should be understood not to be the line uniting the two outer edges of the orbits (as my line *zz.*); but should the outer surfaces of the frontal

* "Una statura media dell' uomo."—*Relazione*, p. 15.

† "Il suo volto fu lungo."—Bocaccio, *Vita di Dante*, p. 54.

‡ In the table I have given of remarkably large skulls (*Untersuchungen über Wachsthum und Bau*, u. s. w., S. 136), the skull of the "Marburger Reisen", with the enormous horizontal circumference of 592 *mm.*, certainly has an orbital breadth of 125 *mm.* The cranium of Professor Arnoldi (horizontal circumference 569 *mm.*) has 111 *mm.* All the other skulls of that table have less than 111 *mm.* I am now able to add, that in the Neanderthal skull, described by yourself, with a horizontal circumference of 581 *mm.*, which I take to be the skull of a giant, the line *z z* amounts to 114 *mm.* In the Neanderthal itself it is 116 *mm.* In no single normal skull of any race have I found the dimension in question greater than 112 *mm.* The horizontal circumference of Dante's skull amounts, according to the *Relazione*, only to 525 *mm.*; this is a size at which the corresponding orbital breadth is usually from 98 to 104 *mm.*

processes of the jugal bones be regarded as the points of measurement, yet these unusual measurements certainly would turn out only 4 to 10 *millimètres* more than the transverse line *zz.* of the same skull. Even in Schiller's cranium,—such an orbital breadth taken from the outsides of the orbits, is only 116 *millimètres.* I should assume for this cypher "124" the occurrence of some accident, as an error of the press, if I did not find the same difficulty again in the dimension of the upper face (compare as before). 85 *millimètres* for this line is an extraordinarily large measure, such as could only be met with in quite particular, abnormally large skulls. It is in the highest degree to be regretted that the members of the Commission were not allowed to have a mould of the skull taken. To produce a cast from such mould, or only a good drawing of the skull, would have been of more validity than the best that I am able to say upon the matter.

Let us pass on to another character equally found in the mask and the skull, which, in spite of the contradictions just named, falls into the scale weightily for the authenticity of the skull found in the chest.

The "Relazione" mentions at page 16 the occurrence of an *asymmetry* in the skull discovered in the chest. And although the text in this place only says the skull appeared "somewhat unsymmetrical," since the left parietal protuberance was more prominent than the right, and, at the same time, "placed a little further backwards," there cannot be a doubt that a more considerable degree of asymmetry existed in this part than those smaller defects of symmetry which are only perceptible by careful comparison, and from which scarcely any skull is free. It certainly was not the intention of the "Relazione" to remark that there was some trace of deviation from the mathematical equality of the two halves of the skull. Indeed, in *Nicolucci* there occur the words (p. 5), "il teschio offre in questa parte una notevole assimetria"—"il che tiena senza dubbio ad una *sinostosi precoce.*" We may consequently presume upon a real *obliquity of the skull*, and there is no contradiction in the circumstance, that as it appears none of his contemporaries had observed a want of symmetry in the face of the living man, as such inequalities are confessedly easily overlooked. It further seems that here we have a case of that obliquity of skull depending upon one-sided ossification of sutures in early infancy, as made known by Soemmering, Virchow, and others, for there follows at p. 16 the assertion of a one-sided obliteration:—"Le suture della volta craniense non sono cancellate, se non che vedesi una soldatura là dove il parietale destro s'articola coll' osso occipitale."

With respect to the obliteration of sutures, which in this skull

occasioned asymmetry, the text of the "Relazione" does not permit me to form a judgment. It says, "the left parietal protuberance was more prominent, and at the same time lay a little more backwards." But the asymmetrical obliteration affected the right half of the lambdoidal suture. Asymmetries, as far as they depend on obliteration of sutures, usually operate otherwise. The backward position of the left parietal tuber commonly depends upon this, that the frontal and parietal tuberosities of the *right* side, in consequence of the obliteration of the limb of the coronal suture lying between them, are not sufficiently separated from one another. An obliteration of the right half of the *sutura lambdoidea* cannot draw the *left* parietal tuber backwards; but it will, on the other hand, bring the right parietal tuberosity nearer to the occipital tuber. However that may be, there occur in the case of wry skulls diverse irregularities, and the obliteration of sutures and their results in older skulls are only with difficulty recognised and estimated.

It appears to me to be of decisive importance that the mask of Dante exhibits a very obvious asymmetry originating in the bones, exactly of that nature which I have often observed where the posterior position of the left parietal tuberosity was dependent on synostosis of sutures.* If we place the mask so that the upper face is directed straight forward, and glance from the forehead of the mask down to the chin, it is very remarkable that the anterior surface of the strong angular chin deviates to the right. The deviation from the true square line amounts at least to from 12 to 15 degrees.

It is singular that the Reporters in their assertion, that the skull and the mask exhibited essentially the same characters, did not make mention of this *obliquity* as a character common to both; but, that this skull, which on many other grounds is probably the skull of Dante, and that the mask, which on many other grounds also is likely to be that of Dante, should both agree in a character so rarely occurring, renders the probability greater that both are genuine.

I find in the "Relazione" no mention that the mask of Dante is awry, neither is it known that the same mask nor Dante's head was formed unsymmetrically. Indeed, a considerable asymmetry of the skull and face may escape a common observer. We assume it has not been known of Dante;† but if a modeller should have undertaken to discover a "death-mask" of the poet, or to have substituted one, how should he happen to make it so strongly unsymmetrical, and in that definite manner which agrees with the skull?

* For example, the skull No. 103 of the Halle collection may be referred to.

† No portrait, as far as I know, indicates it. Boccaccio's very exact report of the bodily proportions of Dante (in *Vita e Costumi di Dante*) knows nothing of a wryness.

However absolutely incompatible the measures taken upon the mask may be with the corresponding dimensions specified in the "Relazione" as those of the skull, it appears to me that in the agreement of the asymmetry of the mask and of the skull, we have a testimony for the genuineness of the cranium found in the chest outweighing this contradiction. And to this may be added another fact. On the opening of the marble urn in which the ashes of Dante were interred, it was found to be empty, with the exception of three phalanges lying at the bottom; and exactly the same bones were wanting, as the Reporters rightly call attention to the fact, in the remains of the skeleton in the chest. The authenticity of the marble urn and its contents is unassailable; and if the contents of the urn and of the chest represent one congruous skeleton, it is as good as certain that the chest contained that which was wanting in the urn—*the bones of Dante.*

2. The "Relazione" gives at page 19 a detailed account of Dante's skull according to the principles of Gall's Phrenology. We hear that the back-head showed the organs of passion, the anterior frontal region, intelligence; the lateral frontal and the parietal regions, "poetry, music, satire, and benevolence;" further, a love of authority, a sense of independence, self-esteem, pride, courage, egotism. The lateral parts of the vault of the cranium indicated circumspection and understanding; the temporal depressions, mechanical talent, drawing, sculpture, architecture; the entire development of the skull, a philosophical spirit.

The phrenological interpretation of a skull is so much the more doubtful an affair, the more intimately the constitution of the mind of the respective man is already known by his life and his works.* Science, in my opinion, still stands too far from a localisation of the actions of the mind in individual working territories of the brain, to venture to bring the talents and powers of a master-spirit into relation with the greater or smaller projection of this or that part of the brain. Even to this day it is not generally recognised, that a surpassing spiritual endowment pre-supposes simply a more largely de-

* In this respect, even accident has many times played its mischievous part. In praise of the beauty and fineness of the skull of Raphael, Goethe could not say enough. Yet later it has come out that this skull (which is found in plaster in different collections, as at Giessen in the Soemmerring museum, "Cranium gypso effictum summi pictoris Raphael") is not the true skull, but that it is a very ugly skull, of coarse, rude construction. Concerning the reopening of Raphael's tomb in the year 1833, to which "even professors of surgery and anatomy, which is indeed common, were appointed", compare J. D. Passavant, *Rafäel von Urbino*, Leipzig, 1839, i, p. 562. There was a plaster cast taken of Raphael's skull, of which hitherto I cannot obtain any account.

veloped, and consequently *heavier brain*, than a moderate endowment. This leads us to the question of *the size of the brain of Dante.*

In this respect the "Relazione" contains the statement, that the cerebral cavity of the skull found in the chest was filled with grains of rice, and that the weight of the grains consumed in the process amounted to 1,420 *grammes.* Of the specific gravity of the rice there is no mention.

As the fixing the weight of the brain of so richly-endowed and so genial a man as Dante has a great interest for the question touched upon, *Nicolucci* hath sought to reduce the figures given in the "Relazione" into brain-weight. He has obtained out of the 1,420 *grammes* of rice of the Report, p. 63, an internal capacity of the cranium of 1,493 cubic *centimètres*,* and deduced a weight of brain of 1,552 *grammes;* adding that this weight of brain, if it does not reach those of Cuvier and Byron,† yet it exceeds that of the eminent intellectual men brought forward by *Rudolph Wagner*:—Dirichlet with 1,520 *grammes*, Fuchs with 1,499 *grammes*, Gaus with 1,492 *grammes*, Dupuytren with 1,437 *grammes.*

I must here object that a weight of 1,420 *grammes* of rice cannot possibly correspond to a brain weighing 1,552 *grammes.* The volume of the internal capacity of the skull, which Nicolucci estimates at 1,493 cubic *centimètres*, is scarcely too little; but when he estimates the weight of the brain at 1,552 *grammes*, it is surely very much too high.

1,420 *grammes* of rice, which I shook together pretty well, gave a volume of 1,630 cubic *centimètres.* When I pressed the same into the measuring-glass closer together, probably closer than it would be shaken into the somewhat fragile skull of Dante, I then obtained a volume of 1,680 cubic *centimètres*,‡ which would still correspond to a greater internal cranial capacity of 87 cubic *centimètres* than Nicolucci (reckoning with the specific gravity 0·9512) has deduced from the 1,420 *grammes* of rice of the "Relazione." After this, I at first conjectured that the cavity of the skull might have been *larger.* But

* "Pollici cubici" is obviously a misprint.

† In the case of Byron, I have pointed out that the usual statement "2238 *grammes* of brain" is an impossiblity, as the skull proper to this weight of brain would presuppose a head about as large as a tun; a view which Wagner afterwards adopted. We do not know what kind of weight the figures quoted for Byron's brain refer to, and it therefore appears to me not justifiable when Wagner reduces them to "1807 *grammes*". I think that the amount of the weight of Byron's brain, of which we know nothing certain, should be struck out of the tables.

‡ The specific gravity of rice with the air included between the grains, was in both cases 0·870 and 0·897.

still I have no ground to doubt that the rice used in determining the volume of the cavity of the skull of Dante did not possess the specific gravity assumed by Nicolucci, since the other measurements of the skull communicated in the "Relazione" lead me to *figures expressing the internal capacity of the skull, which deviate little from those calculated by Nicolucci, and are at all times not greater.* Thus the horizontal circumference of the skull is specified at 525 *millimètres.* With such a circumference (where no abnormal conditions of the skull, which here do not exist, exercise a disturbing influence) agrees with, as I by numerous experiments have shown,* an internal capacity of from 1,350 to 1,570, in the mean 1,470 cubic *centimètres.* Further, the sum we obtain by adding together the long, broad, and high diameters is 458. From this amount of the three chief diameters of the head, the mean size of the internal capacity to be expected is, according to my observations, 1,460 cubic *centimètres.* So I do not doubt the correctness of the 1,490 cubic *centimètres* obtained by Nicolucci. Still the weight of the brain is undoubtedly reckoned too high at 1,550 *grammes*, as more than 100 cubic *centimètres* of the internal capacity must be deducted for the membranes of the brain and the blood in the venous sinuses.† The figures of the weight of the brain must, therefore, in all cases, be lower than those expressing the internal capacity of the skull in cubical *centimètres.*‡ To an internal capacity of 1,490 cubic *centimètres* there belongs, according to my investigations, a weight of brain of 1,420 *grammes, so that* I believe 1,420 *grammes* (and not 1,550 *grammes*), must be accepted as the probable weight of Dante's brain.

Let us now inquire how this weight of brain stands in the series of weights of the brains of pre-eminently intellectual men known to us, and for this purpose a glance at the following Table will render it distinct.§

* *Untersuchungen über Wachsthum und Bau des Menschlichen Schaedels*, s. 37, and taf. xvii, 3.

† In the three cases I have mentioned at s. 38, *op. cit.*, the volume of the dura mater and of the blood contained in its sinuses amounted to 100, 115, and 130 cubic *centimètres;* in other cases to 200 *c. c.* and more. Cf. Davis, *Crania Britannica*, p. 224.

‡ In Nicolucci's calculation this appears to be overlooked. This is obvious from p. 6 of his Letter. Internal capacity of the skull = 1493 cubic *centimètres;* specific gravity of brain 1040. Consequently, weight of the brain 1552 *c. c.*, for 1493 × 1040 = 1552.

§ The basis of this table was laid in my former one, by which the commonly accepted position, that the weight of the brain of distinguished or intellectually pre-eminent men is, in the average, greater than the normal mean weight of the brain, was for the first time proved in a more exact manner (cf. *Ueber zwei seltnere Difformitaten*, etc., Halle, 1863, p. 14). I have

Out of the brain weights of the twenty-six highly endowed men of the accompanying Table, besides Dante, there results as a mean 1509 *grammes*, a figure which is related to 1390 *grammes*, the average obtained from a very large number of the "brains of commoner men," as 109 to 100, and consequently exceeds the mean nine per centum. We shall not rate it too high if we assume between these numbers (the mean of the common brain, and of the brain organised for higher intellectual manifestations) a difference of ten per cent: since the series of our twenty-six men contains, together with real geniuses and men of great talent, some simply well-endowed heads; whilst the great series of nameless men, which affords the mean of "common

increased this table by some later measurements, as well as by the addition of some further statements given by an accurate inquirer, J. Thurnam (*On the Weight of the Brain*, London, 1866).

It might perhaps be objected against my table, that "pre-eminent intellectual endowment" is a somewhat indefinite and wide notion. Notwithstanding, I have not at present determined upon making any division into several sections (as men of intellect, of imagination, of will), because the series seems to me too small for this purpose. Nevertheless, I willingly admit the possibility that the individual members of this table may have excelled by excessive development of very different segments of the brain.

In fifteen brains of our table, distinguished by the addition of *w*, the weight was directly determined by weighing. In five (Schiller, R. Bruce, Weissenbach, v. Mosheim, Spix), marked *h*, I have derived the cyphers for the brain from the circumference of the skull. In 6 (Arnoldi, Doell, v. Rheinwald, Bünger, Heinse, Schubert), marked *c*, it has been reckoned from the internal capacity of the skull determined by grain-corns.

To our table belong the following notes. 1. Cuvier, the renowned naturalist, died at the age of 63 years (Thurnam, *op. cit.*, p. 33). 2. Abercrombie, physician, 64 years (*ib.* p. 33). 3. Arnoldi, professor in Marburg, renowned orientalist, 85 years. 4. Joh. Veit Doell, excellent medalist, of diversified talents, 85 years. 5. v. Rheinwald, man rich in intellect, friend of Soemmerring. 6. Robert Bruce, King of Scotland, 54 years. 7. Schiller, 56 years. 8. Spurzheim, physician, 56 years (Thurnam, p. 33). 9. Bünger, professor of anatomy in Marburg. 10. Prof. Weissenbach, out of the Tyrol, 70 years. 11. Dirichlet, professor of mathematics, 54 years (R. Wagner, *Vorstudien*, i). 12. Count de Morny, statesman, 50 years (Thurnam, p. 34). 13. Dan. Webster, statesman, 70 years (*ib.* 34). 14. Campbell, Lord Chancellor, 80 years (*ib.* p. 34). 15. Fuchs, professor of pathology, 52 years (R. Wagner). 16. Chalmers, celebrated preacher, 67 years (Thurnam, p. 34). 17. Gauss, mathematician, Goettingen, 78 years (R. Wagner). 18. v. Mosheim, theologian, multifarious, very intelligent investigator (skull in Blumenbachian collection). 19. Dupuytren, surgeon, 58 years (Thurnam, p. 34). 20. W. Heinse, author of *Ardinghells*, 57 years. 21. Franz Schubert, composer, 69 years. I have to thank Professor Seligmanns of Vienna, for the measurement of the skull. 22. Whewell, philosopher, 71 years (Thurnam, p. 34). 23. Spix, naturalist, 45 years; skull at München. 24. Hermann, philologue, Goettingen, 51 years (R. Wagner). 25. Tiedemann, physiologist, Heidelberg, 80 years. 26. Hausmann, mineralogist, Goettingen, 77 years (R. Wagner, *Vorst.*, i).

Weight of the Brain in Grammes.

1900.

1830. Cuvier, 1, *w.*

1800.

1780. Abercrombie, 2, *w.*

1720. Arnoldi, 3, *c.*

1700.

1650. Doell, 4, *c.*
1640. v. Rheinwald, 5, *c.*

1610. Robert Bruce, 6, *h.*

1600.

1580. Schiller, 7, *h.*

1560. Spurzheim, 8, *w.*

1530. Bünger, 9, *c.* Weissenbach, 10, *h.*
1520. Dirichlet, 11, *w.* de Morny, 12, *w.* Webster, 13, *w.* Campbell, 14, *w.*

1500. 1500. Fuchs, 15, *w.* Chalmers, 16, *w.*
1490. Gauss, 17, *w.*

1460. v. Mosheim, 18, *h.*

1440. Dupuytren, 19, *w.*
1430. Heinse, 20, *c.*
1420. Schubert, 21. *c.* DANTE, *c.*

1400.

1390. Mean of man's brain. Whewell, 22, *w.*

1350. Spix, 23, *h.*

1300.

1260. Hermann, 24, *w.*
1250. Tiedemann, 25, *w.*
1230. Hausmann, 26, *w.*

1200.

brains," does not consist of pure talentless people. Still more, the mean of the ordinary brain is derived from the brains of four hundred and thirteen men, who were of the age of from twenty to sixty years. The mean time of life of our twenty-six men of talent is *sixty-five years*, at which period of life the weight of the brain usually amounts to only about 1320 *grammes*, i. e., *full fourteen per cent. less than the mean estimate of our six-and-twenty.* So great a difference would scarcely have been expected by those inquirers who already share my view.

Under all circumstances the position of Dante in our Table must appear very remarkable. That the cypher representing the weight of the brain of so eminent a genius exceeds the common average only by a little, appears to stand in strong contradiction to the before-stated position. Among the true geniuses of our Table Dante shows the lowest figure, and the five instances in which smaller cyphers occur are far from being of equal birth.

If we ask for an explanation, I may remind the reader that, as I have shown in another place,* in many highly-endowed and in part truly genial men, who have a small capacity of skull and consequently not a very large brain, *the skull, in consequence of infantile obliteration of sutures, has become contracted.* The skull of *Paracelsus* (so far as the remains of the skeleton preserved in the Sebastian's church at Salzburg, are really genuine) has an internal capacity of only 1250 *centimètres*, which would give a weight of brain equal to 1200 *grammes.* In Philipp Meckel the internal capacity is only 1320 cubic *centimètres*, which represents a brain of 1260 *grammes;* and also the brain of Wilh. von Humboldt stands, without doubt, below the average. Whilst I, according to my observations, may maintain that smallness of skull, so long as it does not rest on a checked development, produced by synostosis, will rarely, if ever be met with, in conjunction with higher intellectual endowments. Still, I also admit, that a brain designed for greater intellectual powers, restrained in its development by the occurrence of contraction of the space of the cavity of the skull, may, without injurious results, be circumscribed to a smaller volume under a limitation of the growth of those tissues which are indifferent to the psyche, and when the tissues especially serving the intellectual functions are spared. Admitting this hypothetical proposition, I might first of all merely maintain the position, *that smallness of brain, which is met with in conjunction with open sutures, is a more unfavourable condition for the intellectual functions, than smallness of brain, which is in conjunction with synostotic con-*

* *Ueber zwei seltnere Difformitaeten des menschlichen Schaedels, und über die Frage nach dem zwischen Hirgroesse und geistiger Begabung bestehenden Wechselverhaeltnisse,* Halle, 1863, s. 17. Cf. Barnard Davis, *On Synostotic Crania among Aboriginal Races of Man,* 1865, p. 21.

traction of the skull. Now, if the skull and the mask of Dante show symptoms ensuing from a contraction of space in early childhood, according to our positions, the remarkably low figure representing the weight of Dante's brain obtains a sufficient explanation.

The inquiry embraced in this letter, as no one mistakes less than the writer, has had to contend with several difficulties, chiefly from this cause, that *the skull of Dante*, its peculiar subject, or the best substitutes, a mould of it, is wholly wanting. And this cast is wanting because anthropological science, however great the progress it may have made in the last few years, has still not acquired in all places the estimation due to it. When the injuries which the precipitate attempts of phrenology, certain hypothetical doctrines of natural philosophy, and a more trifling and playful mode of treatment have occasioned our science, shall be completely dissipated, when people more generally learn to understand that to undertake the study of the whole natural history of *man*, is at least as valuable and important, even where it brings no uses serving any direct so-called practical purpose of common necessity, as the study of snails, plant-lice, crabs, then shall we no longer have to complain that the psychologically interesting remains of our great dead can only be employed clandestinely, and so far as a lucky accident brings them to daylight for our investigations. Then it will not be regarded as a desecration to open graves, and an investigation, under all circumstances difficult, will not then be rendered still more difficult by depriving it of the necessary materials for study.

Always your most devoted,

H. WELCKER.

Halle, July 30th, 1866.

The distinguished anatomist who has honoured me by addressing to me the preceding Letter, has expressed a wish that I should add some Notes to it from the *Memoir* of Professor Gaddi mentioned above, as this *Memoir* did not fall into his hands until this Letter was written. I do not see any important fact in Dr. Gaddi's *Memoir* that bears upon the ingenious line of argument of Professor Welcker which he has not already introduced from the "Relazione" of the Commissioners. Professor Gaddi was already struck with the extraordinary height of 85 *millimètres*, attributed by the Reporters to the upper face, which, he says, in long faces amounts only to 71 *mm.* But he regards this comparative observation as sufficient of itself to demonstrate that these were the bones of Dante, as he is always represented with an extremely long face—a special conformation—which passes as conventional among artists. He also remarks upon

the inordinate distance between the two extreme margins of the orbits, said in the "Relazione" to be 124 *millimètres*, usually only 103 *mm.*; and concludes that the eyes of Dante were placed at a great distance from one another, which Professor Gaddi attributes to the considerable development in breadth of the middle frontal region. The other measurements of the *calvarium*, for such is the skull of Dante, the lower jaw being absent, are regarded by Professor Gaddi as, for a like reason, to exceed the ordinary dimensions of human skulls. He notices the precocious obliteration of the right parieto-occipital suture, and attributes the want of symmetry in the two sides of the calvarium to this as its cause.

The deductions Professor Gaddi obtains from the statements of the "Relazione" and his own comparisons, are these: That the head of Dante Alighieri, is, 1. dolichocephalic; 2. eminently orthognathous; 3. offers great development in the frontal, inter-parietal, and superior occipital regions; and 4. belongs preeminently to the *frontal races* of Gratiolet.

These results are supported at some length, and the eminent anatomist concludes thus:—

"From this combination of facts the encephalon of this amazing genius has had a great volume of the cerebral hemispheres, signally in the anterior and middle segments, and also a conspicuous predominance of the cerebellum. If to these facts we should add that which is known to the entire world of all the incomparable mental faculties exercised by him in his life-time, we shall be constrained to conjecture that the cerebral hemispheres of Dante will have been certainly provided with a great number of convolutions, with anfractuosities very profound, and consequently with a spacious superficies for action. The noted prominence situated longitudinally upon the middle superior part of the frontal bone, gives reason for the *Theosophia* which always shines through in his immortal writings," p. 18.

With respect to the stock from which Dante, who regarded himself to have been of Roman origin, was descended, Professor Gaddi quotes a passage from Dr. Nicolucci, who decides with confidence that he was not Roman, but Tuscan by birth and descent.

The most generally interesting portion of the *Memoir* addressed by Professor Gaddi to the President of the Royal Academy of Sciences, Letters and Arts of Modena, is probably that in which he exhibits such striking zeal to have secured that thorough anatomical investigation of the remains of the great Italian poet, which all must now lament was not instituted when these relics were brought to the light of day.

Convinced of the great value of anthropology, and regarding ethnographic and anthropological studies as signally based upon the confor-

mation of the cranium, which, he says, is that part of the human skeleton upon which nature has impressed indelible and constant characters, he early addressed (June 3, 1864) a respectful letter to the municipality of Ravenna, offering his services to search for the venerable remains and to give a scientific description of them. He received a tardy reply from the municipality, informing him that there was no intention whatever to open the urn which contained the bones of Dante, and that the profane hand of man could not, without offence, approach its interior. This was in July 1864. The bones of Dante, which had been removed from the chest at a remote period, were found in the wall of the chapel of Braccio Forte, on the 27th May, 1865, which took away all idea of profanation. He pointedly inquires why, if the municipality had not confidence in him, did they not apply to other competent persons, and above all to the illustrious ethnograph Nicolucci? At this latter time a Government Commission was created by the Minister for Public Instruction, which did not include the name of Nicolucci or of Gaddi, for the purpose of identifying the remains. Among the instructions given to this Commission was that of especially examining the cranium to see if it corresponded to those portraits which are considered to be most authentic, and *to institute upon it those phrenological investigations which science suggests.*

Professor Gaddi, with great justice, feelingly laments that so precious an opportunity should have been lost, that his ardent desires should have been frustrated, and that he should have been prevented from obtaining the materials necessary for producing a *Memoir* for the Acts of the Royal Academy of Sciences of Modena, which, from its subject, would have thrown lustre on the Academy itself.

J. B. D.

ON THE VALUE OF PHRENOLOGY IN ANTHROPOLOGICAL INVESTIGATIONS.*

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

As a Member of the Phrenological Association of Edinburgh, and a Fellow of the Anthropological Society of London, I have long felt that phrenologists, devoted to their own speciality, are, as a body, unwisely indifferent to the wider field of anthropology; while conversely, anthropologists, occupied with their grander facts and larger area, are

* This is a report of a speech delivered at the anniversary meeting of the Edinburgh Phrenological Association, on October 24th, 1866.

prone to neglect phrenology, alike ignorant of the evidence by which its truth as a science is demonstrated, and indifferent to the aid which it is capable of affording to their investigations. Happily, on the present occasion, thanks to the high culture which still distinguishes certain classes of the modern Athens, I see before me an audience not thus limited, some of whom, indeed, like our excellent secretary, Mr. Gowans, are members of the one and fellows of the other society; while the remainder, not so distinguished, are, while zealous students of phrenology, also enlightened and unprejudiced readers of the *Anthropological Review* and the publications of the London Society. This, then, is an opportunity not likely to again occur, at least till our next annual gathering. For with all due respect to other, and perhaps higher intellectual centres, I must candidly confess that, at the present moment, I do not know where, within the limits of the United Kingdom, to find an auditory so capable of taking in both sides of this important question, so qualified by a knowledge both of phrenology and anthropology for estimating their relative importance, for seeing the extent to which the data furnished by the former science may throw light on the inquiries of the latter.

It need scarcely be observed that anthropology is the science of man in all his attributes and relationships; that in the hands of its abler leaders it presumably entertains no prejudices, nourishes no presumptions, has, in Baconian phrase, no "idola," which could interfere with the truly inductive investigation of its subject matter. Its followers want only the truth as it is in nature. They have no antagonism to anything save baseless assumption and dogmatic assertion. They neither oppose nor favour the groundless cosmogonies which have descended to us, in the shape of written records, from the ages of tradition; they simply ignore them, together with the equally groundless and absolutely ridiculous, because utterly impossible, schemes of *à priori* anthropology which generally accompany them. And while thus conducting their investigations, independently of traditional ideas and written authority, they are, or at least aim to be, equally free from the dogmatism of science and the prejudices of the schools. Perhaps in this duplex attempt at perfect intellectual liberation, they are more successful in the former than the latter; they defy the antiquated absurdities of theology better than the crude hypotheses of science; and while waging successful battle with creeds, are, almost unconsciously the willing slaves of theory. They have cast off much; but, as a body, I would scarcely be understood to assert that they have risen entirely superior to the prestige of great names or the despotism of accepted ideas. For example, they are not yet prepared, save with few individual exceptions, to investigate the

claims of phrenology. The great majority would, I fear, be found incapable of approaching this subject in a true Baconian spirit, having neither favour or affection, wish or feeling, on the subject. They have already made up their minds that it is a baseless hypothesis; and while utterly incapable of delineating a character from craniological and physiological data, content themselves with an *à priori* assumption that the thing is impossible. This is, of course, only saying, in other words, that they occupy the ordinary position of men of science who are not phrenologists, and who, in utter oblivion of the lessons which they have acquired from the *Novum Organum*, content themselves with denying, and sometimes deriding, what they do not understand, and what in their present state of mind, whether as regards knowledge or feeling, they are very imperfectly capable of investigating.

In the foregoing remarks, I have been perhaps almost blameably severe on my brother anthropologists, who are for the most part absent; and now do you, phrenologists, who are present, bear with me while, in no unfriendly spirit, I lay bare, with an equal freedom of remark, the deficiencies and shortcomings, if not of ourselves, at least of the majority of our cobelievers and coadjutors. Phrenology, then, let us confess it, has been persecuted into isolation. It is something apart; it stands alone; it expects no favour from, it affords no help to any other branch of science; it is not an integral part of the living and growing intelligence of the age. It is not sufficiently vital and expansive; it does not advance; it moves in a circle, the circle of ideas, developed by its champions in the last generation, whose thoughts it echoes and whose limitations it observes. Like some ivy-circled sapling, it exhibits all the signs of premature old age. It is falling into saint-worship; it reverences its olden reputations so devoutly, that it has neither eyes nor ears for higher veracities, lying beyond their horizon, and only now looming into view, as humanity in its onward march advances to a new position, from whence there is a wider outlook and a sublimer prospect; it has fallen for the most part into the hands of professional manipulators—men who are practical phrenologists and nothing else, and who, except in this, their professional position, have no status either in the scientific or the literary world.

As a necessary result of this condition of things, phrenology does not occupy the position to which it is legitimately entitled; it does not do so either in the estimation of its disciples or in the opinion of the public. Let us clearly understand this matter. Phrenology is not simply craniology, but neurology. In its higher aspect, it is the science of the nervous system. Nay, in its widest acceptation, it is

the science of the external in its relation to the internal, of the body in its relation to the mind; it predicates the relation of form to function. It is by no means confined to the human sphere: its principles are as applicable to animals as to men. The carnivorous character of the tiger is as effectually impressed on his feline brain, with its powerful and predominant combativeness and destructiveness as on his teeth and talons, his stomach calculated only for the digestion of flesh; or his agile limbs and powerful chest, which qualify him for the capture of his prey. It is no exaggeration to say that comparative anatomy will ever remain imperfect till it calls phrenology to its aid, for by this alone will it be enabled to explain how the habits and instincts of each species are so beautifully in harmony with its organisation.

Were this the time and place, we might dilate on its application to art, which, without its guidance, but too often paints monstrosities and calls them men. Or we might explain its use in medical diagnosis, where it would often guide the physician in his estimate of constitutional proclivities, and provide him with a key to individual specialities and idiosyncrasies otherwise all but inexplicable.

But it is time we should advance to the more especial subject matter of this evening's address—the value of phrenology in anthropological researches. Again, to such an audience as the present, it is scarcely necessary to observe that anthropology, the latest of the sciences, is also one of the highest; that it implies not only the pre-existence, but also the effective development of many others. It could not possibly have existed in its present comparatively advanced state even a generation since, for the instrumentalities which it employs were not then fully prepared for its use. This remark applies more especially to geology and archæology; while as regards philology, technology, and comparative anatomy in its relation to the various types of man, these subordinate and contributive departments are not yet sufficiently matured to effectually aid us in our investigations.

As anthropology demands the assistance of so many branches of knowledge, it is almost needless to observe that it also requires the labours of many diversely constituted minds. It wants both the observer and the thinker, the collector of facts and the master of principles, the workman who quarries the stone, and the architect who designs the temple. And among these workmen, these hewers of wood and drawers of water to the higher priesthood of intellect, we may place the phrenologist. It is his humble vocation to supply the facts of cerebral physiology, for which, let me warn him, he will at first receive but slender thanks. He must be contented to wait in faith and patience for the recognition of his services. He must submit

to be treated with indifference, if not contempt, by men who are ignorant of the very elements of his science, and who could not practically wield the simplest of its resources.

The fundamental problem in anthropology is, "the place of man in the animate scale." On this depends much else, and on its solution some of the keenest if not highest intellects of the age are now engaged with a zeal that occasionally outruns discretion, and leads to personalities, of which theologians may be guilty, but which are altogether beneath the dignity of science. Now, I presume, most of you are aware that the determining element of form and function throughout the animal kingdom, is the development of the nervous system. To this, bone and muscle are simply subordinate instrumentalities. This is only saying, in other words, that the place of an animal in the scale of being is determined by its relation to the imponderable forces. Those of you who have listened to some of my previous addresses are also aware, that I regard the form of plants and animals as by no means arbitrary and accidental—they could not have been other than they now are in the present state of the earth, of which they are in reality the necessary and appropriate organs, through which as a cosmic organism, at a certain stage of growth or development, it discharges some of its more important, and in truth, vital functions. Their form, therefore, is no more arbitrary than the shape of our hands or the relative position of our features. They are what they are, and in a sense, where they are, because they discharge certain duties in relation to that larger whole, of which they constitute the subsidiary and harmonious parts. Forgive my thus descending to fundamentals. If we start from a false basis our conclusions can scarcely fail to betray the error of our premises.

The place of man in the animate scale must then be primarily determined by the development of his nervous system, to which, however, the ruder portions of his organism will infallibly bear a certain relation. In other words, if you would accurately, or even approximately define the specialities, by which man is differenced from the anthropoid apes, you should commence, not with his feet or hands, but with his brain, thus mounting at a leap from the circumferential sphere of effects to the central sphere of causation. It is here that phrenology becomes not only valuable, but invaluable. Where anatomy stumbles, it triumphs. This is a bold assertion, but I utter it advisedly. And now to the proof; not, however, for the present audience, but rather for those who may hear the echo of our proceedings.

Most of you are doubtless familiar with the rather extraordinary circumstance, that two of our greatest comparative anatomists se-

riously differed, not about a principle or a conclusion, but a fact, the presence or absence of the *Hippocampus minor* in the brain of some of the anthropoid apes—a little matter, which might have been settled far more conveniently by dissection than assertion. Without attempting to enter into the merits of this very important controversy, we may say that from the phrenological standpoint it loses much of its significance. We are quite prepared to find that the basis of the human brain resembles that of the apes; nay, it would not modify our estimate of the place of man, to find that they are identical in character, for in the animate scale the superior differs from the inferior not so much by subtraction as addition. Now the additions here are in the way of superposition. The specially human brain rests upon that of the animal, and in all normal cases dominates it. When it does not, the man sinks not only to, but below the level of, the brute.

Let us go somewhat more minutely into this matter. Here, for example, is a cast of the brain and cranium of a gorilla; now, at a glance, the practised eye of a phrenologist detects the presence of the animal and the absence of the human elements. Here are the powerful impulses of amativeness, combativeness, and destructiveness, in the postero-basilar region; resting on which are at least the rudiments of domestic affection, in strong philoprogenitiveness and considerable adhesiveness. But when we look for the moral sentiments, which should control these excitable feelings, they are nowhere to be found. The true coronal region of the human head is entirely absent. This is a creature morally idiotic and absolutely irresponsible, as much so as a tiger or a bull. And when, advancing to the anterior region, we examine its indications, we find in perfect correspondence with the animal characteristics already adverted to, that perception is almost the sole function of the intellect. Here is a being utterly incapable of rising from a fact to a principle, from a phenomenon to the law on which it depends. He has never entered the sphere of abstract thought. His reflective faculties are on a par with those of the dog and the elephant, or rather perhaps of the wild ruminants. He is utterly devoid of imagination. He has never, at any moment, conceived of a state of existence superior to that arboreal life, of which alone he has had experience, and to which alone we may add, is he either morally or physically adapted. Here, then, is a being existing on a totally different plane to that of man, between whom and man there is indeed a gulf so wide, that neither genus, order or class seems fully adequate to express its whole significance, and we are almost tempted to adopt the nomenclature of Mr. Luke Burke, and specify the human type as the germal and embryonic form of a new KINGDOM.

Again, those of you who have read my communications to the "*Future*," are aware that I regard man as the beginning of that higher and aërial type of being, which will hold the same relation to quadrupedal and instinctive mammals that birds do to reptiles, and which the papilio as an individual does to the creeping grub, of which it is the transformed and translated, or, shall we say, transmigrated completion. This, of course, does not strictly imply a new kingdom, the relationship being one for which the Cuvierian system provides no term, because it does not embrace the idea on which it is based. Remember that in uttering these thoughts I know to whom I am speaking, namely, to those who have mastered scientific knowledge without being enslaved by scientific systems.

But to return from this semi-digression. We have here, in the case of man and the gorilla, an instance of the competence of phrenology and the incompetence of anatomy (as at present taught and practised by the highest authorities) to express a diversity in organisation, which must exist, for we see and can admeasure its effects in function. The man and the ape are different, radically different, in mental aptitudes, and yet anatomy so imperfectly defines this difference in structure, that its ablest representatives are in conflict, not only as to the degree of this difference, but as to its very existence. After the foregoing remarks, you will not think that I exaggerate in saying that anthropology will ever remain imperfect without the aid of phrenology, or to speak yet more correctly, without the aid of those facts in cerebral physiology, whereof existing phrenology is the very imperfect and inadequate expression.

But if phrenology can thus aid us in defining the place of man in the animate scale, it is of course equally valuable in defining the rank of his various types. No phrenologist has any doubt as to the inferiority of the Negroid to the Turanian type, or the superiority of the Caucasian to either. But he can do more than this; he can enter with confidence upon the specialities of mental constitution, attaching to each of these great divisions of humanity, and in many cases, of their subdivisions. To such an audience as the present it would be superfluous to illustrate this by the citation of examples from the writings of our greater phrenologists, whose portraiture of national character shows what may be done in this direction even by men but imperfectly acquainted with anthropology as a science. While on this subject, permit me to remark, that while phrenology—or shall we rather say cerebral physiology—constitutes a most important province of anthropology, the many important facts furnished by the latter in reference to the crania of foreign nations and ancient races, are of unspeakable value from the phrenological standpoint, and constitute indeed a

mass of data so interesting and instructive, as to indicate the approach of a new era in the application of phrenological principles to the interpretation of racial characteristics.

But we are yet far from having exhausted the possible application of phrenological principles to the solution of anthropological problems. There is the great subject of temperament, which means quality, in all its profound effects upon character, and in all its far-reaching consequences upon organisation. Even the ablest anthropologists have as yet but an imperfect appreciation of the vast importance of this subject. They are so occupied with the form and volume of a human structure, that they are comparatively indifferent to the quality of the materials of which it is composed, and yet this element often underlies form and always influences function. Though type and temperament are not identical, there is obviously an intimate connection between them. It is only necessary to say that the Caucasian is predominantly nervous, the Turanian muscular, and the Negro vascular, to show that certain types tend to promote the development of corresponding temperaments. Again, let us clearly understand this matter. Form is not the only determining element of type, but form and quality in combination. The Negro is not only ruder than the Caucasian in form, but he is also coarser in texture. Now it is here that a practical acquaintance with phrenology would prove an invaluable acquisition to the anthropologist. Where the language, and it is to be feared, the ideas of the latter are often vague, the terms of the latter are well defined, and he expresses himseli with ease and precision on a subject, long familiar to him, but only now faintly dawning on the minds of anthropologists who are not also phrenologists.

But it is to be feared that I must have already more than exhausted your patience, in the utterance of what must appear mere truisms to you, but which are yet, for the most part, unknown or unappreciated veracities to even the world of science, on the outside. Throughout I have assumed phrenology to be based on truth; this at least was neither the time or place to question or defend its principles. Such a task may well be postponed to another time. Suffice it that, although during more than twenty years a convert to the fundamental doctrine of specialisation in cerebral function, I am far from regarding phrenology as perfect, or its present teachers as final. If we do not expand it and leave them behind, our doom is sealed. We must march with the age, or consent to be trodden under foot by those more progressive than ourselves. But I have no fear. Our past is the earnest of our future, we were pioneers in the former, we shall not be less in the latter.

MR. PIKE AND THE "WESTMINSTER REVIEW."

To the Editor of the "Anthropological Review."

SIR,—It is not without great diffidence that I ask you to find a place in a scientific review for some remarks upon a production which is not only not scientific but which is not even grammatical. And I only ask this favour at the instigation of my friends, who seem to think, one and all, that gross ignorance and gross want of good faith in a critic should not be allowed to pass unnoticed; and so, as the subject is anthropological, I appeal to you.

I do not, however, ask you to let me give a complete statement of my whole case. If I can show that the writer of a critique on the "English and their Origin," which appeared in October, 1866, in the *Westminster Review*, is not competent to write on that or any other subject, I shall, perhaps, have done enough for my present purpose. And if I can further show that this critic is no more scrupulous in his assertion than he is correct in his grammar, happy in his metaphors, or well read in English literature, I shall have committed what may perhaps be considered a cruelty. But I am glad to say that I can do all this, and yet show mercy in abundance. I shall select for the gibbet one or two specimens of bad grammar, one or two of self-contradictory metaphors, one or two of general ignorance, and one or two of deliberate misrepresentation, and I shall then leave the critic to the tranquil enjoyment of the rest.

Of bad grammar I ought perhaps, in fairness, to select specimens, which show that the critic appears to have adopted a system of compensation. If he makes a blunder of a given kind in one place he sets it right by making the converse blunder when he has an opportunity in another place. The system is not original, because its working may be observed in the very lowest classes, who compensate the blunder "you was" by the blunder "I were," who, if they have their 'ats on their 'eads have been known to carry ropes of "honions" on their "harms." Of this principle, however, the Westminster reviewer tells us that "the *picture* of the forefathers whose claims Mr. Pike advocates *are*, to say the least of it, not more attractive;" and further on, that "such *has been the positive circumstances* of the English people from the times of Edward the Confessor."

I do not know what is intended to serve as a compensation to *Belgorum*, which the critic gives as the genitive case of *Belgæ*. Perhaps it is this elegant sentence: "The Teutonic race in Germany *has*, in

every department, closely rivalled, and in some actually eclipsed, *their* Anglo-Saxon competitors." Perhaps it is the still more elegant sentence which follows: "The truth is, that within the brief period of German literature, the celebrity of German poets of the second and third order is probably far greater all over Europe than that of more than four or five of all the poets who have illuminated the whole four centuries of literary effort in England."

I confess myself unable to interpret the last quoted passage, which appears to me to be simply nonsense. I suspect, however, that the critic wishes to assert this proposition; every one of the second and third rate poets of Germany has a higher reputation than any of the first rate English poets, except four or five. Perhaps he thought this statement would not look well in grammatical English.

I shall say but little more about my critic's grammatical blunders, because, numerous as they are, they are nothing to his other absurdities. I have only to remark that he lays claim to the title of — philologist! He is quite ignorant that the leading philologists are already giving up the belief in language as an index to race, and falls foul of me because I do likewise. This, perhaps, is not much; but to discover a philologist who has no notion of grammar is better fun than to see a bridegroom of ninety, a quack doctor dying of the disease for which he advertises a specific, or a blind man leading not the blind but the quick-sighted.

Except in this same review I do not believe that anything equal in absurdity to the subjoined passage has been written since the days when Mr. Robert Montgomery announced that

> "The soul, aspiring, pants its source to mount,
> As streams meander level with their fount."

The critic appears to differ from Mr. Robert Montgomery only in possessing the pompous wordiness of Dr. Nares:—

"The result is a simulation of logical methods all the more dangerous for its seductive garb; an ostentatious parade of valueless and unverified occurrences, the mere pallid skeletons of cautiously collected and indisputable phenomena; in fine, the earliest of generalisations, wholly destitute of contrary instances, exclusion of possible causes, and allowance for the plurality of causation. The old vices of ancient logicians are repeated in the dress of the most modern improvements; and unless a new Bacon arise, or the warning voice of criticism is listened to betimes, a modern *Dunciad* will be ushered in, more irremediable because more delusive and phantasmagoric, than any of old."

The critic tells us elsewhere that the Germans "can hardly use their marvellous language without handling some suggestive metaphor, or combination of imagery, or luminous trope." The Germans

may well pray to be saved from their friends. This critic's tropes are so luminous that they quite put out our mental eyes; his imagery is so combined that it is not the likeness of anything in the heavens above, or in the earth beneath, or in the waters under the earth; his metaphors are most unquestionably suggestive—of Bedlam; indeed, a few more such articles as this on "The English and their Origin," would entitle the *Westminster Review* to set itself up as a "Comic Quarterly," with its own Special "Colwell Hatchney" Correspondent.

To begin with the first metaphor in the sublime passage above quoted: a simulation is made more dangerous by having a seductive garb. I have heard of butter upon bacon, of a light hidden under a bushel; but these are nothing to a simulation hidden under a garb. How can a simulation be a simulation when it is concealed, or even partially concealed? If we could see a wolf in sheep's clothing we should see a good instance of simulation; but if the wolf thought proper to clap on a peacock's tail, the illusion would at once be destroyed. But perhaps the greatest beauty of my critic's metaphor is that he never tells what the garb is. I suspect if he had any definite idea at all, it was that the simulation and the garb were identical; but in order to impress us with his eloquence, he went on to assert that his simulation was more dangerous than itself, simply because it was itself and nothing else.

Not less absurd is the metaphor which closely follows the garb of a simulation of methods. Valueless and unverified occurrences are the pallid skeletons of cautiously collected and indisputable phenomena. But what sort of a thing is a pallid skeleton? *Pallid* is an epithet applied to the complexion; but where is the complexion when there is no skin? and how, on earth, can an unverified occurrence be the skeleton, pallid or otherwise, of an indisputable phenomenon? A skeleton is that which underlies the flesh, and before the skeleton can be reached the flesh must in some way be got rid of. If it were suspected that a certain bony structure supported certain soft tissues, the only way of testing the truth of the suspicion would be to tear away the flesh, and the thing verified would be the existence of the skeleton itself. If, then, there is any connection at all between an indisputable phenomenon, a skeleton, and an unverified occurrence, it is the indisputable phenomenon which is the skeleton of the unverified occurrence, and not the unverified occurrence which is the skeleton of the indisputable phenomenon. For my own part I do not quite see how any occurrence can deserve the name and be unverified at the same time. If any one were to tell me that a meteor, weighing forty pounds, struck him in the eye and inflicted no more injury than a raw beefsteak would counteract, I should consider not

that there had been an unverified occurrence, but that there had been no such occurrence at all. To use the expression "unverified occurrence" is to admit that some event has happened, and yet to express a doubt whether it ever happened or not.

"The old vices of ancient logicians," it will be remarked, are "repeated in the dress of the most modern improvements." I know neither what particular vices are referred to, nor what is the dress. But my critic is extremely liberal in the distribution of superfluous clothing. He has elsewhere bestowed a "guise" upon me for which I am very much obliged to him; and I do not doubt that he had the very best intentions when he thus carefully wrapped up "the old vices of ancient logicians."

But the end of this passage is the very climax of absurdity. Unless a new Bacon arise, or we listen to the warning voice of the critic, we shall have a new *Dunciad*. It is a great thing to know that if we cannot get a new Bacon, the critic in the *Westminster Review* will do as well; but it is a still greater thing to know that if we cannot have another Bacon we are certain of another Pope. The Reviewer does not appear to be of this opinion. He seems to think that the advent of a new Pope would be about the greatest evil that could befall him. Perhaps this is not to be wondered at, as Pope was harder upon dull and ignorant critics than any writer who preceded or succeeded him, and it was in the *Dunciad* that he displayed his severity. But what is the meaning of a *Dunciad* "more delusive and phantasmagoric than any of old?" How many *Dunciads* have there been? I am almost ashamed to confess my ignorance, but I am acquainted with only one *Dunciad*, and that Pope's, which is neither delusive nor phantasmagoric, but full of the hardest hits, in downright good English, that ever I met with. May I be permitted to recommend this poem to the notice of the critic? Perhaps he will repay me for the treat thus provided for him by telling me where I can find any more old *Dunciads*, and especially those which are delusive and phantasmagoric; perhaps, too, he will add to the favour, by stating precisely what he understands by a *Dunciad* that is irremediable.

I suspect he has some vague idea that a *Dunciad* is not a poem, but a collection of dunces; if so, what harm could possibly be done by dunces not real but phantasmagoric?

As I am now on the subject of the *Dunciad*, I may perhaps be permitted to say that I have no quarrel with any of my critics except the Westminster Reviewer. I considered myself ill-used by two others out of about a score; but the opportunity of setting myself right was most courteously granted to me by the editor of one paper in which I had been misrepresented; and the other critic, who did

not adhere to facts, received such a punishment at the hands of Mr. G. W. Cox as I should have been unable to administer myself; and if I were to say another word on the subject I should be justly accused of hitting a man who is down.

But to return to the Westminster Reviewer. He announces that I have accused the Germans of "incapacity to blush at the most outrageous violation of decency and comeliness." Not only have I made no such accusation, but I have no idea what a "violation of comeliness" can be. It looks like rape; but why a rape chould be committed upon the abstract term "comeliness" rather than upon a girl that is comely, and what the act would be like, I no more know than I know what could have put such an expression into the critic's head. There is not a word about rape in my book. But to quote from the *Dunciad*:—

"In clouded majesty here Dulness shone."

And as the reviewer would, without doubt, like to know still more about the *Dunciad*, here is another passage which is specially applicable to him:—

"Ductile Dulness new meanders takes."

And these meanders are of a most extraordinary character, as will be seen in the following remarkable sentence:—

"The most accomplished of positivists does not owe his power and skill to having learnt to despise or underrate the mysteries of life and being; but having travelled to the farthest limits of human experience, he finds the desert lengthening as he goes, and almost distraught by the ineffable revelation, he comes back a more sombre man, prepared to work out his little day in finding out such narrow truths as alone lie within his ken, and doing such beneficent works as best promote the happiness of man."

It seems, according to this, that it is when man is distraught that he does "such beneficent works as best promote the happiness of man." If so, the sooner the earth is converted into one vast lunatic asylum the better. But first of all it seems we must have an *ineffable* revelation. As the revelation is ineffable, it is rather hard to see in what way it can be made, and, of course, no man can tell another what it is. This is, however, the less to be regretted, as it appears that the sombre man knows less after the revelation than he knew before, and they are but "narrow truths which lie within his ken." But the way of getting at this revelation must be excessively unpleasant, because it appears to be necessary either to stand still and move on at the same time, or to move in two different directions at once. The unfortunate positivist having reached the farthest limits, still goes on, and finds the desert lengthening as he goes. The rack was nothing

to this process of infinite stretching which is too suggestive of nightmare to be dwelt upon any longer.

So much for the critic's competence; now for his good faith. He says, "Not to linger at present over the special instances of weak and fallacious reasoning with which Mr. Pike's book abounds, the sum of its shortcomings may be conveniently gathered up in the allegation that Mr. Pike ignores from first to last the nature and strength of his opponent's case." The word "allegation" is, perhaps, better chosen than any other in the review; it is a term which may without impropriety be applied to any breach of the ninth commandment. The state of the case is simply this:—I have devoted a whole chapter to the consideration of the historical evidence, and the critic's "allegation," if it means anything, means that this particular chapter is not to be found in my book. In confirmation of what I assert, I need only refer to No. 34 of the *Fortnightly Review*, in which there is an excellent *résumé* by Mr. G. W. Cox of the chapter in question. It is the Westminster Reviewer who has from first to last ignored one of the most important portions of my book, not I who have ignored the case of my adversaries.

I cannot quote a chapter in a letter; but it fortunately happens that I can expose another of the critic's "allegations" in very few words. He gives his readers to understand that in my book will be found no "exclusion of possible causes," no "allowance for the plurality of causation." The absurdity of using these two expressions will be obvious to every logician. It is, however, true; and the critic may have meant to say, not only that a given effect may possibly be produced by one cause, possibly by another, but that some effects are produced by the conjunct action of several causes. Having now assumed that the reviewer really had more than one meaning in his double-barrelled accusation, and having allowed the accusation the widest possible range, I shall demonstrate its accuracy by a very short passage from my book:—

"But let us not too hastily rush to a conclusion. Let us consider all possible hypotheses which may account for the phenomena. Of such hypotheses three suggest themselves: the first is that the medium (*i.e.* the climate, food, aspects of nature, &c.) may so modify physical and psychical characteristics that in the same place they will always conform to the same type, and that therefore the English type resembles the Cymric type; 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; the third hypothesis is that the ancient pre-Roman inhabitants greatly outnumbered the invaders of different blood who at different periods obtained a footing in the island."

It is not necessary for me to quote the reasons which induced me to adopt one hypothesis rather than another, because the question is not whether I have adopted the right hypothesis, but whether I have made allowance for other possible explanations. I believe I have now said enough to expose the true character of my critic; and that, it must be remembered, is the only object which I have had in view—not a complete defence of my book. I cannot, however, refrain from making a very simple statement: I have found in the *Westminster Review* a misrepresentation wherever I have found anything which touches my argument. There are many passages in which the attempt to get up a case is so apparent and so clumsy, that any one who has not seen my book can detect the trick; for the rest, I hope my word will be considered as trustworthy as that of an anonymous and ungrammatical writer in the *Westminster Review*, some of whose statements have already been shown to be false.

I have only further to say that no one appreciates honest criticism, however severe it may be, at a higher value than I do myself; and I am sincerely sorry to see discredit brought upon a periodical which has been honourably associated with the names of Mr. Stuart Mill and Mr. Herbert Spencer.

I am, Sir, your obedient servant,

L. Owen Pike.

New University Club, Nov. 17, 1866.

THE CELTIC TUMULI OF DORSET.*

The anthropologist ought to have a special reverence for tumuli, for they alone can give him any solid information concerning the physical structure, habits, and social economy of races, whose existence lies altogether beyond the range of history, or receives but scanty illustration from it. He is an antiquary in the truest sense of the word; for his object is not the mere gathering together of what is curious of antique art, or venerable for its age, but his aim is to acquire data that will serve as a basis for building up a theory to supply the place

* *The Celtic Tumuli of Dorset.* An account of personal and other researches of the sepulchral mounds of the Durotriges, etc. By Chas. Warne, F.S.A., author of an Illustrated Map of Dorsetshire, etc. John Russell Smith. 1866.

of positive knowledge, and give him perhaps such an insight into the past as history herself might not disown. What do we know of the migrations of the Indo-European race from books? So little, that the very existence of the race itself is disputed. Cimmerian darkness hides it from our sight; and reason and research, where authorities are silent, must be our guides in tracking the devious steps of that race from its cradle in the East to the bounds of the far West, and the isles of the northern sea. Philology and the study of the science of language have cleared the way in this pursuit, and facilitated our progress very materially, by discovering and pointing out affinities in the speech of peoples who are widely diffused, geographically distinct, and wholly differing in their political and social institutions. And yet those affinities are so well marked as to afford strong presumptive evidence of community of origin. Other evidence, of a corroborative tendency, may be gathered from the stone monuments, the dwellings, and the burial-mounds which mark the path of the primitive migrations.

In endeavouring to discover the starting point of that ancient race which has left its footprints on British ground, we naturally inquire whether the vestiges of its past life are at all analogous to what may be observed in foreign and distant lands, in relation to *their* ancient population. Take the monuments of the Megalithic era, as it is called—the Stone Age. We are told by travellers that cromlechs, cairns, circles, menhirs, etc., are found in the Deccan precisely similar to those which are in Britain: they are seen in Arabia and Syria, and Algeria is said "to swarm with lithic structures exactly similar to those in Brittany," therefore the same as those in Britain. Then, as to tumuli: in the Coimbatore district, and on the Neilgherry hills, they are numerously scattered, and have yielded, on examination, such results as bring them strictly within the category of the tumuli of our own country. They do not seem to affect the southern shores of the Mediterranean to the same extent as the stone monuments; but they are largely dispersed in Europe generally, and especially in Northern Germany, along the shores of the Baltic, and so into ancient Scandinavia. The tumuli of the steppes of Tartary, Scythia, and Siberia, existing there in great profusion, seemingly belong to another race, for the character of their contents argues a striking distinction in sepulchral customs; and those of which we have details are perhaps of a more recent date than those generally which are met with in Europe.

Now, looking at the fact that stone monuments are frequent in the south, while tumuli prevail in the north, and that both are found together in India, as in Britain; and assuming the existence of an

Indo-European race, we infer that the original stock separated into two streams, divided probably by a wide interval of time, and flowed towards the north-west of Europe; one, the stream of the earliest migration, the stone-builders, taking a course through Media, Arabia, Syria, Libya, Mauritania, and thence through Iberia and Aquitania into Britain; the other, the barrow-builders, flowing through Dacia and Mæsia into Europe, and inundating the countries bounded by the Baltic and Atlantic ocean, and breaking on the shores of Scandinavia and Britain. This hypothesis of a double and successive migration of the Indo-European race, commends itself as favourable to the doctrine, universally accepted, of the racial division into Gael and Kymri. The Galli, Gauls, Gael, the men of the Stone Age, are the more ancient; the Kymri, the men of the Bronze Age, the more modern of the two migrations. With regard to the date of these successive migrations it is obviously impossible to give anything like an approximation to the truth, for we have no reliable data to go by. The accounts which British historians give of the original colonisation of these islands must be considered as purely fabulous; and yet fables and myths may enshrine some particles of the pure ore of truth.

Now, Geoffrey of Monmouth would have us believe that this country received its earliest settlers at some time not long subsequent to the Trojan war, eleven centuries before Christ; and he makes his hero Brutus pass from Greece into Africa through Mauritania, thence into Aquitaine and Britain.

Here may be dimly shadowed the course of that earliest migration, of which we have spoken. The true date of the arrival of those strangers here, may have been centuries earlier than the date assigned. The siege of Troy is one of those remote epochs that serves well as a hegira to any transaction that is really shrouded in the night of time, but fain would be brought within the pale of authentic history. It is equally impossible to affirm in what probable period the second or Kymric migration occurred. We believe they were the same people as they who in the time of Herodotus occupied the central parts and west of Europe, and to whom he gave the name of Κελται—Kelts. But they were not of pure blood; before they had reached Gaul, their type was modified by admixture with the Turanian elements they had encountered on the way. In this view, there can be no great difficulty, one should imagine, in determining the normal Keltic skull-form, about which doctors have differed so much. That two ancient peoples, branches of the same primitive stock, have inhabited these islands, we have strong and growing proof from the researches in the two kinds of tumuli that are found here, and known as long and round barrows. From the former are obtained skulls of longer, and

from the latter skulls of shorter, proportions—respectively termed dolichocephalic and brachycephalic skulls; and the latter appear, also, to have belonged to people characterised by greater stature and coarser outline than the former. These latter people we apprehend to have been the men of the Bronze era—Kelts or Kymri. Moreover, these two skull-forms have their analogues in the existing population of these islands. In Scotland, where the Gael prevails, both long and short heads are found, but the former the more frequent. In Ireland, the same forms again, but the long head the more prevalent. In Wales, as in Brittany, there is a tendency towards brachycephalism. Amongst the English generally the long form of head is the more common; derived, in all probability, chiefly from our Anglo-Saxon genealogy.

But we had well-nigh forgotten the work before us, Mr. Warne's *Celtic Tumuli of Dorset*. The county of Dorset was anciently occupied by a people who, in their Kymric tongue, may have called themselves "Dwr-trigiawdwyr", dwellers by the water, which Ptolemy converted into Δουροτριγες. How far they were justified in appropriating to themselves this appellation, may be understood by a glance at their territory on the map, presenting a seaboard of about forty miles in extent, consisting of elevated land chiefly of the chalk formation, which seems to have been generally in favour with the Kymri, probably by reason of the dryness of the soil. The whole length of this southern ridgeway of the county is thickly studded with tumuli, interspersed with a few stone remains. And the tumuli are also seen throughout the county, on the downs and high lands that extend into Wilts. As a cautious antiquary, Mr. Warne observes:—

"In making use of the term Celtic, and applying it appellatively to the Dorset tumuli, I desire to be understood as describing the sepulchral remains of those peoples who occupied Britain up to the period of Cæsar's invasion."

Seeing the divergence of opinions that still prevails on the Celtic question, the author was quite right in premising this definition, though, with somewhat more of boldness, we should not hesitate to assign these round tumuli to the men of the Bronze Age, the Kymri; nor would it make any difference to us if some should prefer to call them Belgæ, considering, as we do, that the Kelto-Belgæ and Kymri were the same people. Unfortunately, we are denied the proof to be found in skull-form; for, as these researches were made before the importance of that mark of racial character was so fully appreciated as it is now, we have here no measurement of skulls. We have no reason, however, to doubt that the general typical form will be found, in future researches, to correspond with what has been discovered

elsewhere in round barrows; Dr. Thurnam, indeed, has tabulated one skull obtained from a barrow in Purbeck, that presents remarkably brachycephalic proportions. We have heard, however, of long skulls having been procured from certain round barrows in Dorsetshire; and it is well to be on our guard against a probable source of fallacy in this seemingly contradictory evidence, and to bear in mind, that not all the skeletons found in round barrows can be deemed to be coeval with them; and, as a practical suggestion, we would recommend that close attention should be paid to the position and mode of interment of the bodies. Without this precaution, the facts themselves would possess but little value as evidence. These researches extend to the investigation of one hundred and ninety tumuli, and on the part of Mr. Warne and his friends appear to have been carried out with great carefulness and accurate observation. The general results are, that fifty per cent. of the tumuli were found to contain cinerary urns; and about thirty per cent. contained skeletons, of which about an equal number were found interred with urns as without; and by far the greater number of tumuli presented indications of cremation in one form or another. The author observes:—

"The principal forms of deposit appear to have been two—either by burying the body entire, or by submitting it to the process of cremation, an operation invariably so effectually performed that 'the earthly house' was resolved into a very small compass, the few whitened bones which alone remained, being carefully collected and deposited in a hollowed cist, small grave, or in an urn (usually unbaked), which was placed either in an upright or inverted position, sometimes covered by a flat stone or protected by a mass of flints carefully and skilfully packed around it, and then covered with the superincumbent mound."

In the Rimsbury "necropolis", where numerous interments were found, the extraordinary fact was revealed of "*skeletons in their integrity found lying beneath the urns.*" These Dorset tumuli are distinguished for "the paucity and simplicity of their contents"; from which Mr. Warne deduces the inference that—

"Though they cannot be placed in comparison with many of those of Wiltshire, and the still more prolific and illustrative cairns and tumuli opened by the late Mr. Bateman in Derbyshire, they may nevertheless be regarded with intense interest, and as their examination has satisfactorily established the fact that they constitute the earliest series of tumuli in any part of this kingdom, whilst they identify Dorset as one of the earliest colonised portions of Britain."

The urns are for the most part of a very rude and unartistic form, as may be seen by the admirable plates which are included in the work. Weapons, whether of bronze or flint, were but rarely found; the former in ten per cent. of the tumuli, and the latter in only five

per cent., which is a remarkable fact considering the abundance of flint that exists in the district. But bronze and flint were occasionally found with the same deposit. Stone implements were rarer still, only one battle-axe having been discovered; but that one was beautifully shaped and polished. In one exceptional barrow a fine bronze dagger, having an ivory handle, was found in apposition with two iron spearheads. Throughout the contents of the tumuli there was a general absence of any indication of Roman art or influence, "all is purely Celtic; and a fact so forcibly attested must lead to the inevitable conclusion, that tumular practice can be only ascribed to a period anterior to the establishment, and possibly to the advent, of the Roman power." Ornamental objects were rare—a few beads of glass and amber; the latter substance seems to be indicative of early intercourse with the Germanic tribes. With regard to the plan of construction:—

"They were all constructed on very simple designs, consisting either in the heaping of the soil over the deposit, which was placed in a cist cut in the chalk, or laid on the floor of tumuli of several rearings, and in parts of which the deposits were either collected in small heaps, enclosed in urns, sometimes placed in rude kistvaens, or protected by flints carefully packed so as to form an arch or dome over them."

But we must refer to the work itself for a great deal of curious and valuable information. One of the tumuli, however, is too singular to pass unnoticed. It was of very large size, and was found to consist of two cairns of flints, the one superimposed on the other, and each capped with a massive stone, on the underside of which was the figure of a concentric circle incised, precisely resembling those described by Mr. Tate in Northumberland. In the lower cairn was an urn; on the floor six skeletons, and some bones of the ox.

We find here no instance of the examination of a long barrow, and regret the circumstance the more, as attention has been attracted by the researches of Dr. Thurnam and Mr. Greenwell in tumuli of this description. They are not by any means numerous in Dorsetshire, and the few that exist there are chiefly towards the northern side of the county. It would be very desirable to have the opportunity of comparing their contents with those of the same kind in other districts.

Anthropologists will thank Mr. Warne for his work. In a subject of so much obscurity as the investigation of the ethnic relations of a primitive race, we cannot too highly appreciate any fact, however trivial, that may tend to dispel some portion of the mystery in which the subject is enveloped. Interesting as such facts may be to the archæologist, to the anthropologist they are doubly acceptable.

MEMOIRS READ BEFORE THE ANTHROPOLOGICAL SOCIETY OF LONDON.*

THE first in the series of fourteen papers contained in the first volume is one by the founder and President of the Society, Dr. Hunt, on "The Negro's Place in Nature." This mysterious being, whose origin and destiny are problems forced upon the contemplation alike of the philanthropist and philosopher, is here treated in a critical, logical spirit, whose object is truth, although it may prove to be in opposition to popular notions, which are not always founded on wisdom when dictated by motives of benevolence. The author's object in this essay is to determine the Negro's "position in animated nature and the station to be assigned to him in the genus *homo*." His physical, mental, and moral characteristics are brought under review, for the purpose of comparing him with the European. The question of his origin is not entered upon at all, as being unnecessary to the consideration of the Negro as he is. The term "Negro" is limited here to "the dark woolly-headed African found in the neighbourhood of the Congo River," and "excluding all who have any admixture of foreign blood in their veins." Now what are his physical distinctions? The anatomist will tell us that his skeleton differs in many particulars from that of the European, which we need not particularise. Who has not noticed his stooping gait, his long weak limbs, long hands, flat feet, and projecting jaws? his coarse, crisp, woolly hair? But his skull presents marked features of difference—premature union of the bones gives it always an elongated form—it is never round or oval like the European—and this is accompanied by an arrest of development of the brain. The skull bears a greater resemblance to the European female or child's skull. Its capacity is usually below the standard of European skulls, though higher in the scale than several other cognate races. (This point is ably illustrated in this volume by Dr. Peacock, who contributes a paper on "The weight of the Brain in the Negro, and on the Capacity of the Cranial Cavity.") The convolutions of the brain are less numerous and more massive than in the European.

He differs again in his psychological character. It is a very remarkable fact in his history that he has never civilised himself, or adopted any kind of civilisation with which he has come in contact. He is a child in art, in science, in literature, religion. As a child he

* *Memoirs* read before the Anthropological Society of London. Vols. I. and II. Trübner and Co.

is precocious in ability, but no advance is made after the age of childhood is past. The reflective faculties remain undeveloped; he is incapable of generalisation. His memory is good; senses acute; and the faculty of imitation strong, which accounts for the improved intelligence which domestic slaves have exhibited in America; just in the same way that the natural intelligence of some animals is improved by training and domestication. But in all instances in which the Negro has been observed to acquire European features and intelligence, it has resulted from admixture of European blood. His *moral* qualities are a paradox: he is at once kind, affectionate, hospitable; revengeful, treacherous, sensual and mendacious. The deductions which the author draws from these facts, are—

"1. That there are good reasons for classifying him as a distinct species from the European. 2. That the analogies are more numerous between the Negro and Ape, than between the European and Ape. 3. That he is intellectually inferior to the European. 4. That he becomes more humanised when in natural subordination to the European than under any other circumstances. 5. That the Negro race can only be humanised and civilised by the European. 6. That European civilisation is not suited to the Negro's requirements."

The author, in fact, declares his opinion that the Negro's place in nature is that of inferiority, indeed of servitude, to the more highly organised races. If his degraded position in the scale of humanity be the consequence of an original curse, this opinion is quite consistent with his nature. We cannot revoke his destiny, but we may endeavour to render it more tolerable. Let not Dr. Hunt be misunderstood. He abhors slavery as much as any member of the Abolition Society; *that* slavery which is known by the atrocious barbarities with which it is identified; but slavery in his views has another meaning. It is simply the subordination of an inferior to a superior race, which, when practically carried out on principles of humanity and justice, is capable of improving the condition and nature of the inferior race, and of conferring on the Negro an existence, which, in comparison with his natural state, is a paradise. With all the disadvantages he has had to contend with in the Confederate States of America, his type there is improved mentally and physically; the duration of his life increased. The question, however, may be asked, why not civilise him at home? Let the attempt be made and persevered in by all means. Let every moral and religious influence be made to bear upon him. The probability is, that the object aimed at will be much easier attained when he is separated from his savage associations.

There is but too much reason to fear that the liberated Negroes, under the influence of English institutions, present but sorry examples

of the civilisation we desire to introduce amongst them. Alas! they generally show a greater aptitude for the vices than the virtues of the European. But when it is remembered that many of those free Negroes were criminals before they were enslaved, no wonder that their freedom is not conspicuous for a higher scale of morality. The idea entertained in some quarters of the Negro's equality with the European, must be abandoned; it will not stand the test of experience; it is an assumption contradicted by evidence. Our duty is equally clear, and is not rendered less imperative by the demonstration of error.

Captain Richard Burton contributes "Notes connected with the Dahoman," which contain useful additions to our knowledge of these Africans, especially as regards their language and certain peculiar customs, for the details of which we refer the reader to the memoir itself. And we must adopt the same course in reference to a paper by Mr. Sellon, "on the Phallic Worship of India."

Mr. Pritchard has a paper "on Certain Anthropological Matters respecting the South Sea Islanders (the Samoans,") curious customs relating to marriage; and in a second paper "on Viti and its inhabitants," the author gives some important information on the comparative anthropology of that mixed race, amongst whom it was his lot to dwell for a period of fifteen years.

Three papers by Mr. William Bollaert, viz., "Observations on the Past and Present Populations of the New World," "Introduction to the Palæography of America," etc., and "some account of the Astronomy of the Red Man of the New World," etc. comprise a large amount of detail which will be useful to the student of anthropology. The author reviews the population of the various states and republics of North and South America. The one great fact established is its large decrease since the discovery of America. It has been estimated that there were one hundred million natives before the discovery, whilst at the present time there may be only ten or twelve. Here is a loss of ninety millions. But it seems to be a law that the native races everywhere should diminish before the advent of the white man. In the United States nations and tribes of the Red Indian are disappearing wholesale. In the West India islands the aboriginal Lucayans and Caribs have entirely disappeared. The Negro race, who were first imported into America by the Spaniards, are dying out in Mexico and the Argentine Republic. More favoured by climate in other parts of the New World, it seems to flourish, as in the West India islands, three-fourths of the population there consist of Negroes.

The population of the New World is calculated by Mr. Bollaert to

have amounted in the year 1863 to nearly seventy-four millions, of whom thirty-eight were white, twelve black, eleven Indian, and eleven and a half mixed breeds. The mixed breeds exist in endless varieties; the chief of which are the Mestizo, Mulatto, and Zambo, resulting from the union of the white with the Indian and Negro, and of the Indian with the Negro. From these hybrid stocks a strange confusion of races ensues, which seems to have the effect of impairing their prolificness. Emancipation of the Negro has not improved his moral character. "In Lima and throughout Peru the free Negroes are a plague to society. . . . . Dishonesty seems to be a part of their nature; and, moreover, all their tastes are coarse and sensual. My opinion is, that the Negro, in respect to capability for mental improvement, is far behind the European." Contrast the condition of Lima and Peru with the republic of Chile, where there are no mixed breeds, no Indian or Negro blood. There, "Wealth and population are increasing rapidly. In the last thirty years landed property has risen tenfold: its ports are scenes of the greatest activity; mining and agriculture are most prosperous; the public treasury has always a surplus; public works of great magnitude are continually going on," etc.

Such are the indications of the superiority of the European races over the aboriginal and mixed breeds of South America, and where is this contrast between energy and indolence, prosperity and wretchedness, virtue and crime, civilisation and barbarism, so strongly marked as in the United States? The white man is destined to be the renovator of the world.

The method adopted by the red man to communicate his thoughts by signs, was the same in principle to that which was used in the Old World, namely by figures, pictures and symbols. The languages and dialects of the New World were as numerous and varied as the tribes; and it is said that their structure is different from that of any other known language. They were represented by hieroglyphics. But the pictorial scratches on the rocks of North America bear no comparison with the picture-writing of Mexico, and this again is less artistic than the system which prevailed in Central America, and to which the Maya language is the key, as the Coptic is to the Hieroglyphics of Egypt. In Peru there existed a curious method of communicating their ideas by a certain mechanical contrivance of strings and knots, called *Quipu*; and we see there ancient stone monuments with figurative sculptures, but no hieroglyphics.

Their mode of the computation of time, their chronology, astronomy, their zodiacs and calendars, are as curious and as original as their picture-writing; so different, indeed, from anything we find in the

Old World as to justify the opinion that the red man must have invented his own system. The history of his ancient civilisation is one of the deep mysteries the anthropologist will endeavour to penetrate.

"The History of Anthropology" is ably handled by Mr. Bendyshe. In reference to the subjects we have just noticed, we find it here stated that "the discovery of America gave rise to the first polygenist doctrines of modern times." "In 1512 it was found necessary to publish the famous declaration that all the Indians were descended from Adam and Eve," to check the atrocious acts of the Spaniards. But Paracelsus was the first to assert the plurality of the origin of mankind; and Isaac Peyrere in 1655 ventured the hypothesis of the *Præ-Adamitæ*—that Adam and Eve were not the first human beings. Mr. Bendyshe traces the various opinions held by the philosophers of Greece on the origin of man; he includes in his essay a translation of the treatise of Fabricius, "*On the human inhabitants of our globe, who are of one and the same species and origin*," containing a great deal of curious matter; and he quotes largely from the *System of Nature*, of Linnæus, who seemed greatly puzzled to know where to place man in his zoological classification; he placed him at the top of the animal scale, admitting at the same time that man is distinguished from all other animals principally by the possession of reason; but even in this respect he differs from them in *degree* only, not in kind. There is a greater difference between the highest type of man and the lowest, than there is between the lowest type of man and the highest species of ape; yet debased as his nature may be, he possesses still a *psychical ductility* that separates him widely from the brute. The so called "missing link" between the animal and man had been by some enthusiastic anthropologists deemed at length discovered in the celebrated Neanderthal skull. But this dream has been scattered by Dr. Barnard Davis, who has here a dissertation "On the Neanderthal skull and its peculiar conformation explained anatomically," wherein is shown that its peculiar type has mainly resulted from premature ossification of the sutures. That this particular skull cannot, in fact, be regarded as typical of a race, but as an abnormal or exaggerated specimen of an organisation that is common to several races, and termed dolichocephalism.

Ancient skull-forms are further described by Mr. Carter Blake in his "Remarks on the Human remains from the Mückle Heog in the Island of Unst, Shetland," which is a companion paper to Mr. Roberts's account of "The discovery of large Kist-vaens on the Mückle Heog containing Urns of Chloritic Schist." These papers are illustrated by two plates of the urns and skulls, exceedingly well engraved. But we pass on rapidly to the very able papers by Dr. Thurnam, "On

the two Principal Forms of Ancient British and Gaulish Skulls," (Parts i. and ii.) "with Appendix of Tables of Measurement." These papers are illustrated by plates and woodcuts. Who were the ancient British people? It must be admitted that the question has not yet been satisfactorily answered. Did they consist of one distinct race, to which the term Celtic has been applied, or of more than one pre-historic race? The researches of Dr. Thurnam and others in the tumuli of this country reveal the existence, at all events, of two distinct types of skull-form; the one long, the other short or round; and these types so associated with distinct forms of the tumuli, that Dr. Thurnam lays down the axiom—"Long barrows—long skulls; round barrows—round skulls." In the round tumuli, bronze weapons are found, and stone; in the long tumuli, stone only. In the former, the bones belong to a tall stalwart race; in the latter, they denote a people of short stature. The round tumuli belong to the people who inhabited this country at the period of Cæsar's invasion, who are said to be one with the people of Celtic and Belgic Gaul. The long or chambered tumuli appear to indicate a more ancient people, that people probably who inhabited "Britanniæ pars interior" in Cæsar's time. This form of barrow is found in Dorset, in North Wilts, and in Gloucestershire (the country of the Dobuni), and in Derbyshire and Yorkshire. The Dobuni were certainly not of Belgic or Gaulish origin, like the Belgæ of Wilts, the Atrebates of Berks, or the Regni of Sussex. We are at variance with the French in our estimation of the relative antiquity of these two skull forms. With them the older (*Gaelic*) is round, and the latter (*Kymric*) is long. Retzius considered the Celtic type to be long; and the round or brachycephalic skulls from Gaulish tombs to belong to a pre-Celtic Turanian race, represented by the ancient Basques. But the Basque skull-form is now admitted to be of the long or dolichocephalic type. The evidence is strong that the long type preceded the round in this country; but it was not the same in France: the two types are there found together occasionally, whence we infer that the races came in contact earlier there than in England. Dr. Barnard Davis, Bateman, and Wilson agree with Dr. Thurnam in considering the brachycephalic type the form of ancient British skulls at the beginning of the historical period. There is a similarity between the ancient Basque skull and the long skulls of the long tumuli. Does this point to a common Iberian, Berber, or Phœnician origin? The brachycephalous type is found in the Scandinavian chambered tumuli of the stone age; and it characterises the modern Germans, Slavonians, and Mongolians; and Dr. Thurnam sees so great a correspondence between the skull forms of the brachycephalous Briton, Gaul, and Scandinavian, and modern

Finn, that he would have no difficulty, on sufficient evidence, in admitting their common origin. The two distinct types of skull are still found to exist in the British population. In Ireland it is dolichocephalous; in Wales, the form inclines to brachycephalism. "It appears to me," Dr. Thurnam observes, "worthy of inquiry whether these two peoples are not, in truth, the descendants, and representatives, the latter of the people of the round, the former of those of the long barrows."

If this be so, the distinct skull-forms cannot be received as evidence of distinct races, but taken in connection with the gradations by which they merge into each other from the two extremes, as indications of a race whose physical forms have been modified by circumstances during the lapse of ages. That race being the Indo-European, with its Gaelic, Kymric, and other modifications and branches.

The publication of the Society's second volume of *Memoirs* will be hailed with satisfaction by all who are interested in the science, and did not enjoy the opportunity of hearing these papers read and discussed at the Society's meetings. The thirty papers which it includes, present, as may be imagined, a very large amount of information of great variety, which, for our own convenience, we will arrange under the several heads of Archaic, Historical, Descriptive, and Comparative anthropology—a classification for which we are indebted to the President. We do not pretend to give within the limits of this article anything like an analysis of the *Memoirs*, and must be content to direct attention to those which seem to us to be the most worthy of notice. The last in the series, is decidedly not the least in importance, therefore we wish to take it first, "On Blood Relationship in Marriage," by Dr. Mitchell. The author, who is Deputy-Commissioner in Lunacy for Scotland, was induced to institute this inquiry with the view of determining what proportion of the cases of idiocy and other mental disease that fell under his inspection was due to the influence of blood alliance in the families in which they occurred; and having satisfied himself on this point, he enlarged the field of his inquiries to other districts of Scotland, for the purpose of ascertaining the effects of marriages of consanguinity on the physical and mental constitution of their inhabitants. The results obtained are confirmatory of the popular conviction that such marriages are injurious to the offspring. Inquiries of this kind are surrounded with difficulties, and one great value of this paper consists in its showing how such difficulties should be met, and how much caution and judgment are required in deducing legitimate conclusions. Cases which appear to be startling evidence of the evil consequence of the union of relations in marriage may be toned down by extending the range of observation to unions when no

relationship exists, for even they may exhibit equally deplorable results. The children, if cousins, may be as healthy as any other; and again, a natural defect in the parents may not show itself until the third or fourth generation. There can be no doubt that if blood alliance does not of itself generate disease or infirmity, it strengthens and intensifies those proclivities in the parents' constitutions which tend to the production of disease in the offspring. Therefore the risk attending such marriages ought to be avoided. The author states, in reference to the fishing villages on the north-east coast of Scotland, that "there is a general lowering of the physical and mental strength in these communities, which is popularly attributed to the system of in-and-in breeding. When compared with the agricultural population, or with the tradespeople of the small towns of the neighbourhood, they are, as a race, inferior both in bodily vigour and intellectual capacity." . . . . Their heads are small, so that "the average size of hat, which is for Scotland $7\frac{1}{8}$ inches, representing a head $22\frac{1}{4}$ inches in circumference, is for the fishing villages from Fife to Caithness $6\frac{7}{8}$ and 7 inches, representing circumferences of $21\frac{5}{8}$ and 22 inches." The defect has become almost a racial character.

Dr. Gibb, who is well known for his researches in the anatomy and physiology of the larynx, contributes an important paper, "On Essential Points of Difference between the Larynx of the Negro and that of the White Man." These points consist chiefly in the large development of certain small cartilages connected with the vocal cords in the Negro, which are altogether absent in the white race, or are so minute that very few British anatomists have any practical knowledge of their existence. But the great interest of this discovery consists in the fact, that the same structures are also largely developed in the quadrumana. The skull comes in for a considerable amount of notice.

There are papers "On the Iconography of the Skull;" "On the Orthographic Projection of the Skull;" and the "Description of a New Goniometer," by Dr. Broca of Paris. The question mooted is as to the relative advantages of the two methods of delineation, geometric and perspective, neither of which can be affirmed to be absolutely superior to the other, and both must be held in subordinate estimation to accurate measurement, from which alone can be obtained those data of form and size, which serve as a basis of comparison between races as well as individuals.

Mr. Carter Blake follows with a paper "On Certain Simious Skulls, with especial reference to a Skull from Louth, in Ireland;" and Dr. Beddoe "On the Head-forms of the West of England;" and again, "On the Testimony of Local Phenomena in the West of England to

the Permanence of Anthropological Types." Dr. Beddoe deduces the conclusion that the people of the west of England are decidedly dolichocephalic. He attaches very much importance to colour as a race-mark, and says, "there is a certain chromatic character, the frequency of which I have myself observed in all parts of Ireland, in most parts of the Scottish Highlands, and of Wales, in Cornwall, in the West of England. . . . . The conjunction of blue, cerulean, or ash-grey eyes, with dark hair, brows, and lashes, which Dr. Barnard Davis calls, for shortness sake, "the Keltic eye." Having found this combination frequent everywhere where Keltic blood may be supposed to abound, and scarcely any where else, I believe it to furnish a pretty good index of the presence of Kelts." The typical form of Keltic skulls he considers to be "pear-shaped," or "coffin-headed," "varying in length, but usually rather dolichous." The author's observations are worthy of great attention.

There are several other papers on matters relating to anatomy, physiology, and psychology, which we are compelled to pass over, and as we enter the domain of descriptive anthropology, we cast a passing glance "On the Dervishes of the East," by Arminius Vambéry; "The Gallinas of Sierra Leone," by Mr. Harris; "The People inhabiting Spain," by Mr. Beavan; and pause awhile on Mr. Bollaert's "Contributions to an Introduction to the Anthropology of the New World," which, together with his paper "On the Maya Hieroglyphic Alphabet of Yucatan," form a continuation of the same subject from the first volume of the Society's *Memoirs*, and become a connected account of one great division of the human race. The author passes in review the various theories that have been propounded at different periods to explain the probable source from where America obtained her original population. The Jews, the Phœnicians, the Celts, the Mongols, the Tartars, have all had their turn, but not one of them has helped forward the solution of this great problem. The red men themselves believe they are a separate branch of the human family, and this view Mr. Bollaert has adopted; for after a long familiarity with his subject, he admits that he can form no other opinion than that which arises from the conviction of their origin being distinct from that of the white man. He is a polygenist. This hypothesis will probably continue an open question.

The author takes a cursory view of the various tribes, nations, and peoples of the New World, ancient and modern, from the frozen lands of North America to Cape Horn. The mounds of Ohio, the ruined cities, pyramids, tombs, roads, aqueducts of Mexico; the stone monuments, temples, palaces of Central America and Peru. The mind is overwhelmed by the contemplation of such stupendous

remains of an ancient civilisation, the origin and history of which is hidden in the deepest obscurity. Our author, however, believes it to be as indigenous as the race itself. Some faint hope remains that the mysterious cartouches of hieroglyphic inscriptions in the temples of Yucatan, may yet be made to give up their secrets to the spell of that Maya alphabet, which is the last and most important addition to Mexican discovery. A Spanish Franciscan monk, Diego de Landa, who went to Yucatan and died, the second Bishop of Merida, in 1759, has the merit of handing down to posterity this precious fragment, which is preserved in the Royal Academy of Madrid. His zeal for religion, as then understood, led him to destroy all the Maya MSS. he could find, for their uncouth palæography could be, he thought, no other than the devil's own handiwork; haply, some stray document may yet be found that escaped destruction, and with the clue we now possess may throw some unexpected light on these visions of the past. We are glad to find that Mr. Bollaert is now engaged in comparing the hieroglyphics of Yucatan, Palenque, Copan, etc., by this Maya alphabet.

We must not leave the New World without noticing the paper by Dr. Seemann "On the Resemblance of Inscriptions found on Ancient British Rocks with those of Central America." This paper is illustrated by a plate. Two of the figures are quite identical with the concentric circles incised on the Northumbrian rocks, and elsewhere, and described by Mr. Tate; but we must admit that the other figures do not impress us with any resemblance at all. They were discovered in a district of Veraguas, New Granada, "once densely peopled by a nation that buried their dead in stone cists, accompanied by their weapons, ornaments, potteries, and other household articles." Here is food for speculation on the possibility of an ancient intercourse between the Old and New Worlds, and we agree with the author that more facts are wanted before we may assume the existence of a natural bridge between them, by which alone such intercourse could have taken place.

We are now on the threshold of archaic anthropology. Mr. Westropp has a paper "On Analogous Forms of Implements among Early and Primitive Races." It is a striking fact that the flint, stone, and bronze weapons or implements of uncivilised man were manufactured after the same types all over the world, but they are not of themselves evidences of high antiquity, but of a low and barbarous stage of society, for stone hatchets are found at this day amongst the South Sea Islanders. The transition from the lower to the higher forms, from the flint to the metal, is an evidence of the advance of civilisation in the countries where they are found.

A series of Reports on archæological researches in Scotland follows. Mr. Petrie contributes "A Notice of Brochs and Picts'-houses in Orkney;" Mr. Anderson, "A Report on the Ancient Remains of Caithness;" "A Report on Explorations into the Archaic Anthropology of the Islands of Unst, Brassay, and the Mainland of Zetland," by Dr. Hunt; and a third "Report," by Mr. Tate, "of the Zetland Anthropological Expedition." Mr. Anderson gives a very interesting report of the ancient burial mounds of Caithness, which consist of "grey" and "green" cairns, and chambered tumuli of the long and circular form. Certain long cairns were ascertained, for the first time, to be chambered barrows of a very peculiar construction, in having at the extremities "horns," or double walls of a crescentic shape, the use of which is totally unknown. A short cairn of similar structure was excavated, which proved to be as singular in its contents, as unique in type. It contained both human and animal bones, burned and unburned, fragments of ware, a hammer of grey granite perforated and polished, flint arrow-heads and a flint knife. Bronze implements are sometimes found in these cairns, therefore they must clearly be assigned to the bronze age, although implements of flint and stone are most numerous. The Picts'-houses, as those of Orkney, are decidedly chambered cairns or barrows of the same era. The expedition to the Zetland isles appears to have been undertaken in consequence of the discoveries made in the Mückle Heog, or "large burial mound" in Unst, and reported in the former volume of the *Memoirs*. These consisted of skulls and urns of "chloritic schist;" the material proves to be steatite, which was no doubt worked up in a soft slate, like other clay, and baked. Although the expectations of the party as to farther discoveries in this spot were not realised, their labours received some compensation in other directions, particularly in the discovery by Dr. Hunt, in the Island of Brassay, of a stone implement of new type, and at Safester of a great number of rude stone implements connected with an underground structure, as well as lying about on the surface of the ground. They present no trace of polish, are most rudely fashioned, and seem to be "a connecting link between the flint implements of the drift and polished celts." Stone battle axes, or steinbartes, of a more finished style of art, are very commonly found in Zetland.

On examining some graves in peat soil, Dr. Hunt was struck with the circumstance that in one of the cists there were merely a few traces of the body remaining, which seemed to be caused by a chemical action of a nature contrary to that which is usually attributed to that substance. This question is treated in a paper "On the Influence of some kinds of Peat in destroying the Human Body," etc.,

by Dr. Hunt; and at the same time and place a stone was brought to light, having some Runic characters incised upon its under side. The inscription has been submitted to several eminent Runic scholars, but without any decisive explanation of its meaning; their various opinions are recorded in a paper "On the Interpretation of some Inscriptions on stones recently discovered in the Islands of Brassay, Zetland," etc., by Dr. James Hunt.

With regard to the brochs and Picts'-houses of Orkney, Mr. Petrie observes, that "the name *Picts'-house* is applied indiscriminately, in the northern counties of Scotland, to every sort of ancient structure;" these to which his researches refer, are of that class which resemble a bowl-shaped barrow, and they are, no doubt, chambered cairns. The brochs are circular towers, which were probably occupied as strongholds, but it appears it is impossible to assign a date to them. These Memoirs are illustrated with plates.

Mr. Morris presents a "Report of Explorations conducted in the Kirkhead Cave at Ulverstone." The objects disinterred consist of portions of human remains, animal bones, bronze weapons, a disk of polished granite, and a flint flake. We can, therefore, have no difficulty in referring these relics to the bronze age, and probably to some period subsequent to the Roman invasion, as a coin of Domitian had been previously discovered.

Historical anthropology is represented by Dr. Bower's paper "On Ancient Slavery." The author commences his subject, "ab ovo," from the curse on Canaan, and traces the consequences of that sentence in relation to the political economy of the Jews. Slavery was sanctioned under the Hebrew polity, and it has prevailed, in one form or another, from the earliest historical period until now. The author gives an account of it as it existed amongst the classic nations of antiquity. The Negro has ever been a slave, and time alone will prove whether he be destined to work out his existence as "a servant of servants," or to perish through his own incapacity for rising to the standard of civilised races. If his inferiority be, as the author thinks, penal, the one or the other of those alternatives must infallibly occur.

Mr. WALLACE ON NATURAL SELECTION APPLIED TO ANTHROPOLOGY.

To the Editor of the Anthropological Review.

Sir,—In the last number of your periodical, Dr. Hunt's paper "On the Application of the Principle of Natural Selection to Anthropology," which was read at Nottingham, is printed at length. I beg, therefore, a little of your space to reply to the charge of being entirely "illogical," in the application which I have elsewhere made of the principle of natural selection to the question of the origin of man.

Dr. Hunt selects from my paper "On the Origin of Human Races, etc., deduced from the Theory of Natural Section," published in the *Review* of May, 1864, two statements of opinion which are not, perhaps, very important parts of that paper, and maintains that they are not fairly deducible from Mr. Darwin's principles. The first is, "Man may have been, indeed I believe must have been, once a homogeneous race." The second is that, "Man may and probably will in the future again become a single homogeneous race." I am only now concerned to show, that admitting the application of "Natural Selection" to man, these are fair and logical inferences.

In Chapter IV. of *The Origin of Species*, Mr. Darwin maintains, that just as all varieties of a species are descended from one homogeneous species, so all the species of a genus are descended from one parent species, and all the genera of a family from one parent genus; and generally any group of animals, whether large or small, has descended from a more or less remote single species. It matters not, therefore, whether man be a species with many varieties, or a genus with many species, in either case he has, on Mr. Darwin's principles, descended from *one species*, and if that one species was sub-divided into varieties, then by going a little further back we arrive at their common ancestor in a single homogeneous species, or one in which there are no well marked and permanent varieties. Such species among animals, when we now find them, are almost always confined to a limited area, cosmopolitan species being as a rule variable. I think, therefore, that when I state that I believe man was once "a single homogeneous race," I am merely stating a truism to those who admit the application to him of the principle of "natural selection."

It is, however, my second statement, that man may in the future again become a single homogeneous race, that seems so paradoxical to Dr. Hunt; and no doubt it is very like blowing hot and cold with the same mouth to make "natural selection" answerable for such opposite

results. But the whole scope and purport of my paper was to show, that since that early period at which the ancestors of mankind formed a single homogeneous race, all the very distinct forms now existing (and perhaps others now extinct) were produced by "natural selection," till the process was checked by the development of the *mind* of man, causing changes of his external form to be less important than advances in his intellectual and moral nature. Had this check not occurred it seems to me probable that the world would now be inhabited by many quite distinct *species*, and, perhaps, even distinct *genera* of the animal *man*. As it is, the forms of man on the earth are steadily decreasing in number, owing to the more rapid mental, moral, and physical development of a few superior races. It is a bare fact that man *is* becoming more homogeneous. The most extreme forms, the native American, the New Zealander, the Australian, and the Polynesian races, are all doomed. It is a mere question of time as to when these will become extinct. And when I see how Europeans have spread over tropical South America, when I contemplate the rapid increase of that energetic race which in three centuries has changed the vast continent of North America from a waste of forest to a hive of industry and high civilisation, when I think of the possible advances of science in making the forces of nature subserve the wants and supplement the energies of this dominant race, I cannot believe that the resistance of lower races and lower civilisations will permanently avail them, or that climatal influences will for ever prevent the tropics from being the home of the civilised man armed with ever-increasing insight into nature and nature's laws.

This is the "struggle for existence" on the grandest scale; and I believe the next few centuries will see it go on at such a rate that even the great races hitherto dominant in their own areas—the Negroes, the Hindoos, and the Mongols—will begin to suffer from it. I cannot believe that the progress of civilisation and science will stop, and I can see no end to such progress, but the absorption and displacement of lower races by higher, till the world again become inhabited by a "homogeneous race," whose command over nature and whose powers of intercommunication will be such as to prevent local conditions affecting, to more than a very slight degree, its external characteristics. The globe is or very soon will be to civilised man, an area over which he can roam at will, with as much ease as any animal over the single island or continental area that it inhabits; and it will then become impossible for an inferior race long to maintain itself against him. If then we admit that the mental are more important than the more corporeal forces in the great human "struggle for existence," it is a necessary result that the higher will continue to

displace or absorb the lower races of man. It is for those who deny this to show why and when this process will cease.

I believe that I have now shown that the principles of Mr. Darwin's *Origin of Species*, if applied to man with such modifications as are required by the great development and vast importance of his intellectual and moral rather than his mere animal nature, leads to the apparently paradoxical result that he is tending to become again as his progenitors once undoubtedly must have been, "a single homogeneous race."

ALFRED R. WALLACE.

DR. MOORE AND HIS FIRST MAN.

To the Editor of the Anthropological Review.

SIR,—When reading the remarkable article in No. XV of the *Anthropological Review*, "On the Application of the Principle of Natural Selection to Anthropology," my interest was peculiarly awakened by the hard blows which the writer therein took occasion to aim at myself and my book entitled *The First Man and his Place in Creation*. At once acknowledging that work to be immeasurably below the dignity and grandeur of the subject, I must, nevertheless, beg permission to expostulate with the author of this article on the severe treatment of me and my volume. My science and philosophy, alas! are not so advanced, but that I feel it painful to be misunderstood by him, more especially as the misunderstanding provokes him to express himself in a manner indicative of unphilosophical perturbation in his own spirit.

Dr. Hunt cannot be offended at my endeavour to defend the Christian idea of man's origin as that which, in my opinion, best accounts for the actual condition of mankind. This point of view may be deemed that of prejudice and presumption; but it is manifest that those who have been able to find their way to this point appear to comprehend the phenomena and ideas pertaining to man's mind and world quite as clearly as those who take other ground, and yet have not succeeded in accounting for man's existence and experience either scientifically or otherwise. In this respect, therefore, the Christian has an advantage; he assigns a sufficient cause for his existence and his hope, while those who do not believe as he does are still inquiring where they obtain no intelligence. Is not the fact that so many men of average thinking faculties have for ages believed the Christian

point of view to be most rational and satisfactory itself worthy of scientific consideration? This is an anthropological question. You at least will not blame me for striving to attain a stand-point whence best to discover the truths most important to man, and I will not blame him, if, proving my position to be wrong, he does his best to conduct me to the right one.

Dr. Hunt does not say my point of view is ill-chosen, but he classes me with those popular writers who "follow the reckless speculations of some of our teachers of science." Now, as true science cannot be compatible with reckless speculation, it is desirable to know what teachers of science he means. The most popular speculators of scientific character, at present in vogue, are, I believe, those who follow the teaching of Mr. Darwin and Professor Huxley, but he will not charge me with following them either very closely or very far. Had I not known better, my first impression might have been that he charged me with following certain teachers whose names are familiar in the *Anthropological Review*, since recklessness of speculation is supposed by many to be their most striking characteristic. It is important not to run into error on this matter. As, therefore, he intended to caution me and others, he would complete his kindness by informing us who are "our teachers of science," whose "reckless speculations" we are unfortunately following.

Dr. Hunt next observes that in my work on that interesting creature, *The First Man*, I write "with charming simplicity and modesty, 'How then was a Negro produced? We answer in a word by climate.'" Dr. Hunt writes ironically; by charming he probably signifies offensive; by simplicity, foolishness; and by modesty, impudence. As, however, I adduce the personal testimony of those who have observed the influence of climate and its concomitants in degrading the common African to the inferior condition of the Negro, may I not in all candour and courtesy assert that it is quite as charming, simple, and modest to attribute the Negro's inferiority to such external influences, as to his derivation by birth from some unknown species of black ape, which must have been wonderfully subject to external influences of some sort to produce a man at all, especially when we consider, that evidence to that effect is altogether wanting?

Dr. Hunt then gave me credit for stating a fact known to everybody, namely, that "man as he is has not yet been accounted for by philosophers." He does not, however, approve of my added suggestion, that anthropologists should endeavour to understand their own nature in particular, in order to prepare their minds for the study of "the science of man" in general. He deems it "deleterious to the cause of truth and science that such views should go forth to the

world unchallenged," and he rightly observes that men ought to learn the alphabet before they attempt to read. Precisely so; if any one would learn anything concerning man, either as a genus or a species, he should begin at the beginning, that is with himself, as Linnæus says *nosce teipsum*, because it is only as we are conscious of of our own qualities that we can know what is human.

Lastly, Dr. Hunt announces that "no one can have read with greater feelings of indignation than myself, a charge which Dr. Moore has made more than once in his recent work, *The First Man and his place in Creation*, that Professor Huxley 'had undertaken his researches and assumed his character of seer and prophet on the ground of prejudice against Christianity.'" Now, it is not correct to say I either bring a charge against Professor Huxley or impute motives to him in this or any other passage. I merely express a fear founded as I show on these, his own words—"Thoughtful men, once escaped from the blinding influences of traditional prejudice, will find in the lowly stock whence man has sprung, the best evidence of the splendour of his capacities, and will discern, in his long progress through the past, a reasonable ground in his attainment of a nobler future." In these words Professor Huxley clearly asserts his power of surveying the past of man and of foreseeing man's future. That is to say, he thinks it a more reasonable ground of faith to rely on his own ability to discern a past nowhere revealed, and a future nowhere foretold, than to entertain the faith of Christians who, according to "the blinding influences of traditional prejudice," associate the beginning of man with his end, and believe in a direct genealogical connection between the second Adam, the Lord from Heaven, and the first Adam, of the earth earthy, but without any intermediate paternity between him and his Maker. As Christianity is professedly founded on a record of the past and a promise of a nobler future, does not the whole evidence on which Christian faith rests properly belong to the science of Anthropology? Certainly Christianity offers the key of knowledge to all, and repudiates no true science, but while excluding superstition and pretension declares the right of all men to acquire all the truth they can. If then I find Professor Huxley founding his faith only upon his own retrospective and prospective discernment of "Man's Place in Nature," as expounded by himself, am I not justified in expressing a fear lest, while he attributes my faith to the "blinding influences of traditional prejudice," he grounds his own faith on a prejudice in favour of a theory that excludes Christianity? If in the expression of this fear I have wronged Professor Huxley, I most sincerely beg his pardon, and assure him that no one can possibly feel higher respect for him as a profound and most thorough anatomist

than myself. But I am sure that if I believed he taught a dogma that is not true, and, therefore, is dangerous, he would not think me honest if I did not say so, when the occasion properly presented itself. Why he, or any one else, should be more indignant at my expression of a fear as beforesaid, than at Dr. Hunt's affirming, as he does, "his reasoning incorrect" and "his assertions dogmatic," I cannot conceive. Professor Huxley may deem my views dreamy, as I deem his, and that without indignation on either side. I honour him as a gentleman of extraordinary scientific acquirements, and I would honour all men because they are men, but especially those who are entrusted with vast endowments, such as Mr. Darwin, Sir Charles Lyell and Professors Huxley and Owen; that, however, is no reason why I should not the more deplore anything which appeared to me wrong in their teaching, and freely say why to the best of my ability.

Dr. Hunt directly applied the terms reckless, contemptible, deleterious, ungenerous, base, and he has implied offensive foolishness and impudence in relation to my opinions. I do not complain of such terms because they injure me, but because he feels justified in employing them, while I cannot help thinking them quite uncalled for and utterly unphilosophical on the occasion, since they serve no purpose but to show how heartily he abominates my ideas.

Suffer me to add an expression of regret that the reviewer of my book in the *Popular Magazine of Anthropology* (Oct. 1866) suffered from *melancholy* in consequence of reading it; I regret the event the more, since the *black bile* to which the malady is ascribed, seems to have disturbed his discerning functions. He condemns the strong language I apply to Büchner's logic, and I fear it is blamable, but yet I would say that if he adopts the reasoning in "*Force and Matter*," as the exponent of his own views, he will still be unable to explain the existence of his own reason, his will, and his consciousness of personal self-hood. The pity and indignation he expresses towards me as a "malicious, incoherent, scribbler," whose writings are fit only for the entertainment of "elderly *females of both sexes* and Sunday-school children," must pass for what they are worth in comparison with his very positive science for the useful results of which the world waits. As the verdant freshness of his style indicates mental vigour, it is somewhat surprising that he perceives no difference of meaning between being *anatomic* and being an *anatomist*. We speak of anatomic specimens but not of anatomic men. If he thinks that he himself can be made into an anatomic specimen, as his body or any part of it can be, I can only say *that* is not my idea of him. With regard to my anatomy, though my life is not devoted to that science, I have studied it with the best anatomists in Europe, and, while from youth to age I have

watched the progress of science and the vagaries that falsely go under its name, I have retained enough anatomy to understand what Professors Huxley and Owen have so admirably written, but have failed to learn that the nature of a man is to be discovered by anatomising his body.

I thank my reviewer for his corrections; and, though his own article shows how easily he overlooks his own mistakes, I should be glad of his keen eye for errors when revising the press for a new edition of *The First Man*, to be improved by a review of reviewers, whose *animus* may usefully serve as a warning to that nobler class of readers, curiously designated by my reviewer, "elderly *females of both sexes*, and Sunday-school children."

GEO. MOORE.

[Dr. Moore, in the foregoing letter, makes the remark: "Now it is not correct to say I either bring a charge against Professor Huxley or impute motives to him in this or any other passage." Dr. Moore, in his work, says, Professor Huxley undertook "his researches and assumed his character of seer and prophet on the ground of prejudice against Christianity." This, he now tells us, does not convey a charge or impute a motive! We think it would have been well had Dr. Moore remained silent and not again called attention to a book which ought to be buried in oblivion as soon as possible. When we look through Dr. Moore's book we feel very much inclined to apply far stronger terms to it than any employed in the article complained of. Who, for instance, can read without a feeling of indignation such passages as the following?—"So we believe that Vogt, like some others, has *perverted science* under the blinding influence of prejudice, arising from *ignorance* of Christianity," preface, p. xv. "Hence a kind of smaller philosophers are now prevalent, who think they believe as they teach, that man was verily, in some remote era, in the immeasurable ages, gradually raised in character and style of mind by the pressure of circumstances and natural selection, under which a first-class pair of apes begat the lowest possible pair of approximate human beings," p. xix. "The theory of man's origin and self-elevation now advocated by certain lecturers on science, who exclude especial revelation, and endeavour to supplant or supplement the pulpit by their platform on Sunday evenings, will probably convince themselves and many of their audience that the babel language of their science is that of true inspiration . . . . but it is *profane impertinence* to obtrude their clashing 'ologies' upon us on the day appointed to hear what He who died and rose from the dead for us would say to us," p. xxv. The foregoing passages all occur in the preface, but

throughout the whole volume the same narrow-minded spirit prevails. Our facetious contemporary, the *Popular Magazine of Anthropology* has, we understand, given up the ghost (at least for a time) on hearing that the public generally, and Dr. Moore in particular, could not understand how there could be "elderly females of both sexes." Our contemporary will, we understand, appear again when the popular mind is prepared to accept this profound and suggestive truth. If Dr. Moore will take the trouble to read this article again, he will find that the quotation he has made from it of "malicious, incoherent scribbler," nowhere occurs there. The word "malicious" is not to be found in the article, nor any word of similar import.—EDITOR.]

ON THE DOCTRINE OF CONTINUITY APPLIED TO ANTHROPOLOGY.*

By JAMES HUNT, Esq., Ph.D., F.S.A., F.R.S.L., F.A.S.L., etc.

THE great German philosopher, Emanuel Kant, in his work on *Anthropologie*, points out the fact that it is somewhat hazardous to publish any assertion opposed to the general opinion, and that man generally is loth to utter opinions in which few persons will agree with him. Human nature has, I fear, not greatly changed since the time of Kant. I must confess to a great sympathy with those people who like to utter sentiments in unison with those whom they address: but on the present occasion I am entirely in ignorance of what may be the sentiments of my audience on the subject to which I have undertaken to call attention. If, therefore, I express sentiments in which I shall find few or no supporters, you must please remember that I do so in entire ignorance of what you would like me to say on this subject. I do not promise that if I did know what you would like me to say, I would do it.

A celebrated anthropologist of the last century, Charles White, said that he published his work "under the idea that whatever tends to elucidate the nature, constitution, and history of the human race, must be interesting to man; and whatever tends to display the wisdom, order, and harmony of the creation, and to evince the necessity of recurring to a Deity as a first cause, must be agreeable to man."† I think few will doubt that the subject I have chosen is in-

* Extracts from a paper read before the Hastings and St. Leonards Philosophical Society, on December 12, 1866.

† *On the Regular Gradation of Man and Animals*, 1795, p. 138.

teresting, but I cannot consent to advocate that we should attempt to refer natural phenomena to a Deity because such sentiments may happen to be agreeable.

It is not the duty of science to be concerned with the question of what may be agreeable to mankind; but she is simply concerned to know what is true. Nor can I admit that the continual recurrence to a Deity for the explanation of natural phenomena is agreeable to mankind generally. On the contrary, it is the duty of science to explain all natural phenomena. Within the last two centuries she has made some wonderful strides in this direction: but she is far, very far from the goal at which she aims. But if it be admitted that science is not yet in a position to solve all natural phenomena, we are not then driven to call in the aid of a first cause; we merely admit that secondary causes known to us are not capable of solving them.

The title of my subject was suggested to me by the admirable address which Mr. W. R. Grove recently delivered, as President, before the British Association for the Advancement of Science at Nottingham. The extensive publicity which was given to this address, together with the remarks which have since appeared in the public prints, leads me to hope that the subject has been to some extent under your consideration. As Mr. Grove has remarked, the word "continuity" is not a new one, and he has not treated it in any new sense, but simply given it a wider application than it has ever before had. Nor can I claim any novelty in my attempt to apply this doctrine to anthropology. This has been done with admirable effect in the last century by such men as Herder, Soemmerring, and Charles White.

But although for eighty years the science of mankind has made little perceptible progress in England, yet when we find that the subject is again being discussed, it behoves those who have to any extent investigated the subject, to come forward with their views whatever they may be.

Mr. Darwin says that, "whoever is led to believe that species are mutable will do good service by conscientiously expressing his conviction; for only thus can the load of prejudice by which this subject is overwhelmed be removed," p. 569. Now I can really see no good in any man expressing his belief that species are mutable until he has got some facts on which to base such an assumption. What good can be done by men expressing their belief either on one side or the other? Or how can we make deductions from the unknown? It is equally objectionable to assert that because we have not yet found transition forms, that none therefore exist. All true science must be based on facts or on philosophical deductive reasoning. Unless a man's sci-

entific belief be based on one or the other, he had better not express it. I am quite willing to admit that the mutability of species is a fair and philosophical hypothesis, but I must not by this be understood to endorse the manner in which Mr. Darwin advocates the mutability of species: on the contrary, I shall endeavour to show that Darwinism, as now being taught in this country, is neither warranted by scientific facts, by logical reasoning, nor by philosophical assumption.

I shall further endeavour to prove that the doctrine of continuity, as advocated by Mr. Grove, is far more supported by facts and logic, and that it is far more philosophical.

To show that continuity is no new doctrine applied to anthropology, let me quote the words of Herder,* written more than eighty years ago.

"Everything in nature is connected; one state pushes forward and prepares another. If, then, man be the last and highest link, closing the chain of terrestrial organisation, he must begin the chain of a higher order of creatures as its lowest link, and is probably, therefore, the middle ring between the adjoining systems of the creation. He cannot pass into any other organisation upon earth, without turning backwards and wandering in a circle; for him to stand still is impossible; since no living power in the dominions of the most active goodness is at rest, thus there must be a step before him, close to him, yet as exalted above him, as he is pre-eminent over the brute to whom he is at the same time nearly allied. This view of things, which is supported by all the laws of nature, alone gives us the key to the wonderful phenomena of man, and at the same time to the only philosophy of his history."

I now come to the position in which the science of man is placed by admitting the doctrine of "continuity", or that of "natural selection". Now anthropology is a science based on known facts; or, as Kant observes, "Anthropology comprises empirical phenomena, combined according to the laws of the understanding." Now, if we sum up all the empirical phenomena, bearing on the origin of man, what do we find? Do these phenomena, interpreted according to the laws of the understanding, in any way support the Darwinian hypothesis of the origin of man?

With regard to the origin of man, let me here remark that real, true, genuine science ought not to trouble itself very much about what Mr. Darwin or anyone else likes to believe regarding that question. There is an adage which says, "He is a wise divine who follows his own teaching." I suppose this precept would apply with like force to the man of science. I would suggest that it would have been well for Mr. Darwin, and especially for some of his disciples, had they followed the wise remark, speaking on another question, which I

* *Philosophy of Mankind*, 1784, p. 127.

find on the 145th page of the last edition of his celebrated work:—"But as we have no facts to guide us, all speculation on the subject is useless." There are no facts at present which throw any light on the origin of mankind. Mr. Darwin is only to be blamed because he has not curbed the restless impatience of his disciples. The mischief is being done by Professor Huxley and Mr. Wallace; but Mr. Darwin has hitherto refrained from coming forward to protest against the abuse which is being made of his theory. If, however, he agrees with his disciples, then so much the worse for his own theory. If the views advocated by Mr. Wallace are logically to be deduced from Mr. Darwin's hypothesis, then we may bid a long farewell to Darwinism. The brief period during which it will reign triumphant in this country will only go down to posterity as evincing the very low logical powers of the scientific men who supported it. Darwinism may be true applied to botany or zoology; but there is not a fact in the whole range of anthropology which lends it any support. I am glad to know that when Mr. Wallace first brought his views before the Anthropological Society of London, he did not find a single supporter to what I then ventured to call his eloquent dream. I for one have done all in my power to show the absurdities into which the modern advocates of Darwinism are leading their followers. Anthropologists in this country drop a tear of pity for the poor victims when they hear that Professor Huxley is announced to appear before the working man in Jermyn Street, or the ladies who attend the lectures at the Royal Institution. There is a most noteworthy point respecting the manner in which these disciples of Mr. Darwin carry on their defence of their master's teaching. If you tell them that a logical application of Darwinism does not lead to a coming unity of all mankind, they at once reply that it is a fact! The lower races are dying out under our own eyes! Mr. Wallace used this style of argument at the last meeting of the British Association at Nottingham. Natural selection, according to that gentleman, has produced from one homogeneous race all the diversity now seen in mankind, and now natural selection is going to lead us again to a unity. I tried on that occasion to convince Mr. Wallace that if Darwin's principles were logically applied to man, there never could be a monotonous uniformity amongst all races of man, but that the struggle for existence would continually assist to produce new races. Mr. Wallace's theory seems to me to be about on a par in scientific value with Dr. Cumming's prophesies respecting the end of the present order of things. When I think of this past and coming unity, I am continually reminded of the Greenlanders' account of the origin of man. In the beginning they believe that God created man, and that woman was

made from the thumb of the man. In time the world was thickly inhabited, when they were all destroyed except one man. Woman had to be manufactured a second time, and this was done by knocking the earth with a stick, when forth came a full-grown woman. Now there is no more reason for supposing that there was ever only one homogeneous race than supposing that only one man was originally created. Nor is the supposition that we are again uniting in one homogeneous race one whit more wonderful than the way in which the Greenlanders get rid of the whole world except one man. There is much in common between these views.

On former occasions I have contributed to this Society views regarding the diversity in mankind, which appear at first sight entirely at variance with the doctrine of continuity. I have, for instance, on more than one occasion endeavoured to show that on mere zoological principles of classification we are bound, if consistent, to apply the same nomenclature to the groups composing humanity as we do to other groups of animals. I contend that, if this were done, it would at once be evident that mankind is composed of distinct species. In this view, which I have now advocated for a number of years, I am supported by Professor Carl Vogt, of Geneva, one of the most logical and accomplished naturalists of modern times, who says he has "proved that the differences between some human races are greater than those subsisting between some ape species; that, therefore, we are justified in assuming different species of mankind."* As Mr. Darwin remarks,—"Varieties, when very distinct, take the rank of species." That is a correct statement of the principle which regulates all systems of classification. After we get a certain number of well marked varieties, we then change the word from varieties to species. But it has been asked by my friend, Dr. Moore, how I can reconcile the views of distinction of the species of man? "If their views were true," says Dr. G. Moore, "Mr. Crawfurd and Dr. Hunt will certainly be able to point to some impassable boundary between the white and black man." But, supposing there is no such thing as an impassable boundary in the whole of animate, or, indeed, inanimate nature, what becomes of the value of this argument? I have before adduced facts to demonstrate that the European and Negro do differ as much as any two allied species. But Dr. Moore goes on to remark, "In default of intelligence concerning the existence of lines of demarcation between the different so-called types of mankind, it was universally believed, until the new preposterous philosophy was invented, that the extremes are united by intervening gradations and varieties that blend together in every shade." Dr. Moore says that such teaching means, "that

* P. 462.

the creation was bound, so to say, in accommodation to their ignorance, to form one kind of man expressly to suit the climate of Central Africa, and another kind in adaptation to that of Northern Europe." I grant it may be "preposterous philosophy," from Dr. Moore's view of the matter, to admit facts, because if he were to do so, he could no longer be the sole possessor of wisdom and knowledge on this subject. The height at which Dr. Moore writes is quite inaccessible to myself. That gentleman exhibits himself on a lofty pinnacle, and delivers his oracular fiats to the world as if he had received them direct from the hands or voice of his Maker. If the past history of mankind really has been "revealed" to Dr. Moore, then what he says deserves the most profound attention. I am quite ready to believe, on good evidence, that such has been the case ; but, in the meantime, I must continue to propagate my "preposterous philosophy," simply because it is based solely on the only logical or rational interpretation of the facts which I have before me.

But strange to say, Dr. Moore's views respecting the "intervening gradations" are just those of Mr. Darwin, Mr. Grove, Professor Huxley, and Mr. Wallace. His picture of the physical character of Adam, as given in his recent work, is certainly not in accordance with the views of either of those gentlemen. In anthropology Dr. Moore is with the most so-called advanced thinkers of the age. The differences now existing in mankind are very slight ; variations do occur, but they are not specific, and, if they are, they are so small! All mankind now proclaims the truth of natural selection, and supports continuity! But if we take these gentlemen back in time for thousands of years, we find they begin to quarrel. The Darwinites implicitly follow their leader. He tells that the principle of natural selection "always acts very slowly, generally only at long intervals of time, and generally on only a very few of the inhabitants of the same region at the same time."* This they accept as their gospel without asking for the table of observations which enables their master to use the word "generally." He further tells them "that this slow intermittent action of natural selection accords perfectly with what geology tells of the rate and manner at which the inhabitants of the world have changed." And Mr. Darwin further announces that he "can see no limit to the amount of change," and armed with these three articles of faith, viz., a belief that natural selection only generally acts on a few of the inhabitants in the same region at the same time; that it is intermittent; and that there is no limit to the amount of change it can produce, they forthwith rush

* P. 122.

before the public with a practical application of these principles to anthropology. The problem is very simple, viz., how to explain the origin of man with these articles of faith. In the first place, they take the dogma that natural selection only generally acts on a few individuals at the same time. If this is the case, it might only act on one; and thus they get unity. And if it acts on more than one individual, they still get unity of race. But from what do they get the original man? Here we see Dr. Moore and his companions part in anger. They have no time to discuss the merits of the other article of faith, "intermittent action;" but they can produce man without it. It is surely only logical to assert that mankind sprang from an ape, if natural selection has no limit to its power, and it acts on only a few or one favoured individual. But here we see the difference between a disciple of Darwin and a disciple of Moses—one calls in natural selection with unlimited power, and the other calls in a Deity provided in the same manner. One gets the first man from an improved ape, and the other has him created perfect; the one supposes low forms of man who have all become now utterly extinct, and are only to be found at the bottom of the ocean; the other fancies that his perfect man has degenerated so that no single man in the present day is equal to him.

The disciple of Darwin says to the disciple of Moses, "You are blinded by the influence of traditional prejudice" (Huxley); and the disciple of Moses proclaims to the world that the Darwinites are simply promulgating their views from "the blindness of prejudice against Christianity,"* to use the words of Dr. Moore.

Let me, if I can, endeavour to pour some oil on the troubled waters. Let me cry peace before you do each other more injury!

First of all, then, which is right, Moses or Darwin? Now many will answer that question without hesitation, and, although quite differently, each will be equally positive that he is right.

But what says Science to all this Babel respecting the origin of man? Something very significant is to be learnt from the aspect of science with regard to that question. She folds her arms, and remains absolutely silent. "It is useless for either party to plead," says Science, "until one of you have got a solitary fact on which to base your assumptions." Let it, therefore, be proclaimed to the world at once that Science teaches absolutely nothing on that point. I have here used the word science in order to signify especially inductive science. But it is still permissible for students of physical science to advance hypotheses which explain any natural phenomena, although these may not be supported by an ascertained fact. But this deduc-

* *First Man*, p. xiii.

tive or *à priori* reasoning must be carefully separated from science, properly so-called.

Both natural selection and continuity commend themselves to our attention and study as valuable *à priori* assumptions. And here let me say a few words on which I think best accords with known facts and logic. In the first place, the words "natural selection" did not convey a correct impression of what Mr. Darwin's theory really is; it is, indeed, more than probable that his theory will not prove to be natural selection. His theory is Darwinism. The words natural selection also convey a logical flaw, as even Mr. Darwin does not imagine that nature can "select" in the usual application of that word. But admitting the word selection to be used in this sense, we must bear in mind that it is quite possible that some other writer may come before the world and publish views on the same subject which better explain natural phenomena.

It is for this reason that the recent attempts of Mr. Grove to explain all phenomena by one simple word—*continuity*—assumes such vast importance, and affords such an interesting field for discussion.

On examining Darwinism by the side of continuity, as advocated by Mr. Grove, we see several striking points of difference. In the first place, Darwinism requires that life shall have originally "been breathed by the Creator into a few forms or into one;"* but Mr. Grove believes "that the day is approaching"—"when the two fundamental conceptions of matter and motion will be found sufficient to explain physical phenomena."†

Mr. Darwin does not require continuous slow changes, and expressly says, at p. 162, "nor that it goes on continuously;" while Mr. Grove sees continuity, not necessarily uniformity, in everything. They, however, both agree in one feature: they both advocate indefinite variability.

Mr. Darwin has, I think, most unfairly put natural selection *v.* independent creation. Now those who refuse to accept Darwinism are not to be compelled to resort to independent creation. Professor Owen long ago pointed this out. In the last edition of his book, Mr. Darwin complains that many of those who have opposed his teaching have not taken the "trouble to understand" his views.‡

But the difficulty in Mr. Darwin's views, and which has called down upon him well-merited criticism from my friend Dr. Moore and others, relates to the fact that he merely removes the difficulty regarding special creation a little further back in time.

Mr. Darwin is most successful in his sneers at those who resort to the hypothesis of independent creation to explain the existing species

* P. 577. † Address B. A., p. 20. ‡ P. 146.

of plants and animals, apparently entirely oblivious to the fact that he lays himself open to exactly the same charge. Men that sneer at special creation must expect in their turn to be treated in a similar manner. Spontaneous generation forms no part of Darwinism. When spontaneous generation is proved to be true, Darwinism will necessarily, by implication, be found to be false. To Lamarck's system spontaneous generation was a philosophical necessity. Future generations will be able to decide on the respective merits of the two systems better than we can do at this time.

Mr. Grove says, of the origin of life on the globe, "The earlier forms have existed at a period when the planet was in course of formation, or being separated or detached from other worlds or systems."* Even the author of the *Vestiges of Creation*, with all his gratuitous assumption, is nevertheless more logical and philosophical than Mr. Darwin respecting the origin of life on the globe. In the eleventh edition of that work, published in 1860, he points out, that as "Mr. Darwin's hypothesis places the advances and variations of organic beings upon a natural basis," it cannot escape the conclusion advocated in the first edition of that work, "that the very first appearance of organisation on the primitive mineral surface, was also the result of a process in all respects natural (though not on that account otherwise than divine)." I quote these extracts to show that continuity and Darwinism, although having much in common, yet are not the same thing.

Anthropology offers much to support continuity; nothing to support Darwinism, or what at least is passed off to the public as such. A fundamental objection to the application of Darwinism to anthropology is to be found in the fact that it is supposed to support a unity of the origin of mankind. Such an assumption is entirely contrary to what we know of both existing monkeys and apes, and also of fossil monkeys. When Mr. Darwin takes us back to the origin of life on the globe, he again seems inclined to argue that all organic life has had its origin in one primary form. Carl Vogt, although professing to accept the hypothesis of "Natural Selection," is at the same time utterly opposed to the unity of organic life, and prefers "the assumption of an original difference in the primary germs from which the animal kingdom has been developed."‡ That distinguished anthropologist has well remarked, that without the assumption of original difference, he will find himself face to face with an "insoluble enigma," and he very properly fails to see "why the primary

* Appendix, p. xiv. † Address, p. 32

‡ *Lectures on Man*, Eng. ed., p. 460.

single-celled organisms which might have arisen from the elementary substances should all have possessed the same form, quality, and capacity for development."*

So, too, he repudiates the idea that "Natural Selection" logically leads to the unity of origin of mankind. In replying to the late professor Rudolph Wagner, he disclaims the idea that any Darwinite should raise that inference. To those interested in this question I would especially recommend the study of Vogt's *Lectures on Man*.

How, then, does anthropology support the doctrine of continuity?

* * * * * *

I can see no reason why continuity may not apply with equal truth to anthropology as to the rest of organic nature. The acceptance of this doctrine must not be supposed to warrant the destruction of all our systems of classification. Such a confusion is rather to be produced by those who refuse to apply to some causes of classification to mankind which they advocate for the rest of animate nature.

There is a grandeur and sublimity in the view of continuity, as advocated by Mr. Grove, which is most seductive. To many a student of science it is looked upon as the development of the highest philosophy which has ever been put before the world, simply because they think it is the truest.

It is good for the anthropologist occasionally to tear himself away from his own engrossing study, to see in what direction other sciences are tending. Mr. Grove has brought together what he believes to be the tendency of modern scientific research, and it may be a very long time before we again have so masterly and logical a summary of what that tendency really is. That address, I trust, will assist to regenerate British science.

The year 1866 will be remarkable for two events in the history of science of the period; the first being the delivery of this admirable address, and the second the recognition by the British Association of the science of anthropology. I have said it is the duty of anthropologists to occasionally ascertain the progress made in allied branches of study. Thus at Nottingham, the anthropological department was adjourned to hear the address of the President of the Biological Section on the science of life, and the subdivisions into which it could conveniently be worked. Now the British Association has, in some quarters, got the character of being rather too conservative in its tendency; at all events, it was supposed that a dread of the science of anthropology had taken hold of some of the rulers of the Association. Be this as it may, we have now been admitted and

* *Lectures on Man*, p. 461.

all promises to work well for the future We attended, however, to hear the President of the Section, with some dread that we were about to have a lecture on our past conduct, and some advice on our future behaviour. Happily, however, we got off very easily indeed. Our past received only a friendly sneer, and our future was not proscribed by any rules or maxims.

The nerves of some of the anthropologists who attended to hear this address were however somewhat shaken at hearing that the science of physiology was nothing more than applied physics and chemistry. To most anthropologists who heard this, such a statement, I do not hesitate to say, was a little startling. Some men do not now see how the psychical, intellectual, and moral differences in different men, and especially in the different races of men, are thus to be solved. Others cannot see how the wonderful diversities of language, religion and art, can also be thus explained. But after all, these may be only apparent objections. It is very unsafe to pronounce such broad statements unworthy of consideration. Mr. Grove thinks physical phenomena may be explained by the true fundamental conceptions of matter and motion. Professor Huxley only echoes a similar statement. Life, then, may be simply matter in a state of motion, and mankind only particles of matter in a more violent state of motion than the rest of animate nature !

In any case, continuity is one of the grandest conceptions of man, and we have rather poets than men of science who work it out.

With a quotation from a poet, Alexander Pope, I will therefore conclude.

> "See dying vegetables life sustain,
> See life dissolving vegetate again:
> All forms that perish other forms supply,
> (By turns we catch the vital breath, and die,)
> Like bubbles on the sea of matter borne,
> They rise, they break, and to that sea return.
> * * * * *
> All serv'd, all serving: nothing stands alone,
> The chain holds on, and where it ends, unknown."

PROCEEDINGS OF THE PARIS ANTHROPOLOGICAL SOCIETY.*

Hair as a race character.—M. Bonté, in reply to M. Pruner-Bey, observed that although we cannot expect the most *rigorous conformity* between the hair of the same head, two conditions are nevertheless required in order that it should constitute a race character. The first is that there should exist a general form upon the same head; the second that this general form should belong *exclusively* to that race and not to any other foreign races.

Starting from this principle he had two objections to offer to M. Pruner-Bey's theory: first, there are met with on the *same head* the most *different* sections, nor is there any general specific character seen; second, so little can the hair be considered as a race character, that the most similar sections are found on the heads of races quite distinct from each other.

If this diversity were only met with in heads of mixed blood it would be very natural, but such is not the case. To commence with the Arab. In five sections of the hair of the same head *not one resembles the other.* Now the Arabic race is by M. Pruner-Bey himself considered as perfectly pure. The same applies to the hair of the Esquimaux, the Jambas, and the Malays, in whom the sections of the hair on the same head greatly differ.

As regards the second objection, namely, that he found similar forms in the most distinct races, he would mention that he met with a circular form in the Japanese, the Chinese, the Mongols, the Aymarus, the Peruvians, South Americans, Turks, Gonds, and Basques. He would admit that the first four are allied in blood, but still there subsists a marked difference between some of them. Compare, for instance, the dolichocephalic Chinese and the brachycephalic Japanese with the pure Calmuck! Are all the Americans of the same race? Why, M. Pruner-Bey considers the American as a heterogeneous race, despite the uniformity of their hair. Thus, according to our author, the same hair may exist in the heads of races differing in every other respect, which was quite sufficient to establish his (M. Bertillon's) starting points.

Boucher de Perthes read a paper "On New Discoveries of Human Fossils in the Diluvium", already noticed by the *Anthropological Review.*

November 3, 1864.—*London Anthropological Society.*—Mr. Carter

* Continued from No. xv, p. 386.

Blake transmits to the society a printed list of the papers to be read before the Anthropological Society of London during the session 1863—1864. This list comprises twenty-four memoirs on a variety of interesting subjects. This is the best answer to a recent decision of the British Association which has decreed "that Anthropology forms but an *inferior* branch of Ethnology"—(laughter). Despite this decree, which fortunately may be appealed from, the London Society is becoming rapidly developed, numbering already 439 members.

Merovingian Crania of Langres.—M. de Saulcy presents to the society four crania found at Langres in Merovingian tombs. Col. Fernel, who superintended the excavations, gives the following account: There exist in the territory of Langres two Gallo-Roman cemeteries, the one within the citadel, the other at the northern extremity of the suburb called *Sous-Murs*, about forty mètres from the wall. The latter cemetery is about three hundred mètres long and fifty mètres wide. The former is in the west limited by a Roman road and is filled with cinders, carbonised substances, and sculptured tombs. The quantity of animal bones is so great that the workmen trade in them. Bones of the wild boar are specially abundant.

All the tombs are monolith troughs with monolith lids. In these tombs were found earthen lamps, oil vases, ivory hair pins, medals from the time of Tiberius and Constantine; urns filled with cinders and bones have been found in the vicinity. The number of the tombs is so great that a suburb called *des Anges* has taken its name from them, though the learned assert that the name Anges is derived from *aage*, water. Langres is known to have been a vast necropolis, and there is daily found varnished pottery with the names of the manufacturers Germanus, Primus, Sigillus, Macrinus. Most of the crania crumble into dust on exposure to the air.

M. Broca places on the table the first copy of a chromatic table (already noticed in the *Anthropological Review*). M. Meillet gives some particulars concerning the manufacturing of worked flints near Pressigny-le-Grand. The fields of Pressigny, of which there are about twenty-five, are encumbered with *débris* of worked flints, knives, etc. Flint hammers are found which served for the manufacture of the various objects. M. Meillet found also hatchets well worked of the same form as those found in dolmens. Two of these hatchets were three-fourths polished. Some amateurs of Pressigny possess a dozen of them found in a particular field. The large flints which are found in immense numbers are the nuclei from which the knives are split off which are found in every stage of workmanship. What is singular is that the principal field where these objects are found,

though situated in the open country far from towns and villages, is still called *Champ du Commerce*. These museums of a novel kind are not in a diluvian terrain but on the surface of the soil or covered with a recent deposit. M. Meillet thinks that they belong to the third period of the stone age, which preceded the appearance of metal.

M. Pruner-Bey on the Neanderthal Skull, in reply to Dr. B. Davis. —The question relative to the Neanderthal cranium has entered a new phasis. An English officer has in the environs of Gibraltar discovered an enlarged edition of this cranium, *i.e.* with an identical cranium, but with an *entire face*. I place before the society the photograph of this object for which I am indebted to Mr. Busk. The original is in possession of our eminent colleague, and we shortly expect to hear the particulars.

I fully agree with the judicious views of Dr. Barnard Davis with respect to the first condition in the examination of any cranium. First, it must be determined whether the object is in a normal state. As regards the Neanderthal cranium I also admit that the state of the sutures corresponds with the clear and precise description given by Dr. Davis, and that their obliteration may partly at least have been premature. But in admitting this possibility I should be much embarrassed to prove its reality. There is no doubt that the Neanderthal man is an aged subject, as shown by the sinking of the anterior lobe of the brain and the state of the arteries, which may be ascertained in the internal cast of the cranium. Besides this the coronal suture presents in the line of its obliteration the senile character. Secondly, if this cranium is abnormal from the cause assigned by Dr. Davis, how can we explain the concordance of its circumference and its principal diameters with those of other ancient Celtic crania which are found in the normal state?

There is another argument which appears to me decisive. The piece I have the honour of submitting to the inspection of the society comes from an ancient tumulus of Poitou (Pictones). It is a frontal bone to which fragments of the parietals are still attached. The coronal suture finely indented is still open. But what is most remarkable is, that in the centre of this suture there exists an intercalated ossiculum where ordinarily the sagittal suture commences. This ossiculum in form of a parallelogram has a length of 41 mm. and a breadth of 27 mm. The four sutures by which it adjoins the frontal and the parietals are also open and finely denticulated. Here we have a multiplication of sutures, *i.e.* a disposition reverse to that pointed out by Dr. Davis in the Neanderthal cranium, and yet by the development of the frontal sinuses, and still more by the lowness of the forehead we are permitted to approach it to the Neanderthal cranium. At least

its internal surface adapts itself perfectly to the cerebral mould of the latter; and, taking into account the difference of age of these two individuals, it is presumable that the projection of the supraciliary arches would have increased in the posterior if he had lived longer. His frontal sinuses have an elevation of at least 30 m.m., a width of 45 m.m., and a depth of 13 m.m. Their cellules are in horizontal juxtaposition as is the rule in ancient dolichocephalic crania, whilst in brachycephalic they are vertically superposed. The fragment of the cranium just described comes from the territory of the ancient Celts, another motive for insisting upon a similar origin of the Neanderthal man. Lastly, whilst recognising the great influence of a spontaneous and premature obliteration of the sutures on cranial forms and *vice versâ*, I am not aware that the cranium thereby changes its primitive form so that its national character is no longer recognisable. I ask, can the spontaneous obliteration of the sutures without artificial compression convert dolichocephali into brachycephali and *vice versâ* ?

I am happy to agree with our eminent colleague as regards the human and European characters of the Neanderthal skull, and I may by the way mention that Mr. Carter Blake has compiled a complete and remarkable collection of the literature relative to this subject which has been discussed more or less successfully in all Europe. Very lately M. Meyer has found traces of rachitis in the left forearm and the ribs of the Neanderthal man. This individual was then in a pathological condition. Finally Mr. Turner has as appears to me proved, even to the satisfaction of Mr. Huxley, the parallelism between modern crania of Europe and that of the Neanderthal.

November 17, 1865.—*Distribution of the Basque Language in France.*—M. Broca in presenting to the Society a manuscript map indicating the actual limits of the Basque language in France, said, in one of our preceding discussions, the question of the gradual extinction of languages was mooted. I endeavoured, therefore, to ascertain whether the Basque had lost ground during the last centuries. For this purpose I have searched the various authors on this subject, but to my surprise none of them indicates these limits. All that is said on the subject amounts merely to a statement, that the Basque is spoken at the foot of the Pyrenees in Soule, Basse Navarre, and Labour. Old authors are equally vague, and with such data it was impossible to compare the past with the present. After an interesting account of the history and distribution of the Basque language, M. Broca expressed his opinion that the Basque would sooner or later be supplanted by the French language, and not, as some think by the Bearnese dialect; and that everything leads to the conclusion that in a few generations the Basques will all speak

French, and have forgotten the language of their ancestors. In Spain the Basques had lost territory since the commencement of this century; half a century ago it extended south to Puenta del Reyna; at present the limits of this language pass a little north of Pampeluna, and have thus diminished by eight leagues towards the north. The Basque country of France, from its greatest length from the Pic d'Anié to the mouth of the Bidassoa, is only twenty-five leagues. In its eastern portion it was, on the average, ten leagues in breadth, and in the west its width does not exceed four to five leagues; M. Broca also stated that he was, with the assistance of M. E. Réclus, preparing a similar map of the Spanish Basque provinces, for which he would claim the assistance of M. Velasco.

M. Martin de Moussy thought that these researches should be hastened as much as possible, for the alteration of the Basque language proceeds so rapidly that those speaking it reproach each other for altering it. Moreover, the Spanish and the French Basques accuse each other of not speaking the genuine Basque.

M. de Quatrefages said, that there are such profound differences in the dialects, that he had seen French and Spanish Basques, who were obliged to have recourse to French to understand each other.

M. Goussin considered such a map of the distribution of the Basque language of the highest importance, and proposed its immediate publication.

M. Broca, however, thought it would be better to wait till that for the Spanish Basque provinces was ready, when one map embracing the whole region where Basque is spoken might be published.

On the Larynx of Negroes.—M. Auburtin called the attention of the Society to a memoir by Dr. Gibb, which recently appeared in the Report of the British Association, and which was based on the examination of fifty-eight dissections of the larynx of Negroes compared with the larynx of the white. If the facts are correct, we are authorised to think that the particular *timbre* of the voice of the Negro is owing to these anatomical differences.

M. Pruner-Bey said that he had dissected many larynges belonging to distinct races, and the differences he could detect applied chiefly to the form of that organ, which is rounded in the Negro and angular in the Arab, for instance. M. Eschricht has found in the larynx of the Negro, an internal cricoidian muscle, which also exists in the ape; but it is possible that this is only an individual character which is not applicable to the whole race; an error to which we are liable when inferred only from few cases.

December 15, 1865.—*Crania of the Sepulchre near Maintenon (Stone age).*—M. Leguay presents to the Society in his own and Dr.

Lamy's name three crania found in a sepulchre, of which he gives a minute description. He expressed the hope that well-directed excavations will reveal the mystery attached to this interesting monument. One of the three heads presents all so-called Celtic characters, and the form of all the three crania resembles much that of the crania he found in 1862 at La Varenne, Saint Hilaire, and which he had assigned to the period of polished stone preceding the bronze period. The three tibias which he also presented, although belonging to adult subjects, differed considerably in size; one of them presented an alteration resulting from a chronic ulcer.

Prognathic face of a Cranium of the Stone period.—M. Pruner-Bey showed to the Society a plaster-cast of a human face found in a stalagmite breccia by Viscount de Sambucy in the cavern of Larzac (Aveyron). Near this piece were two crania of the ancient Celtic type, small fragments of brachycephalic crania, fragments of the pelvis and the tibia, a fragment of the humerus of a child, pieces of charcoal, and of coarse pottery containing grains of quartz.

The piece must have belonged to an infant, there being in the jaws only room for six teeth. What strikes us first is a prognathism as decided as in the chimpanzee at the commencement of the second dentition. The alveoli of the incisors and of the canine teeth are very wide and deep; those of the latter projecting from the face. No trace of an intermaxillary bone, nor of a incisive suture. The length of the alveoli is as considerable as in the most prognathous adult Negro, but their forward inclination exceeds that observed in the latter. After some further descriptive remarks, M. Pruner-Bey continued: What are we to think of this specimen? Its human origin is unquestionable, since its prognathism, owing to the absence of the intermaxillary, is not that of the ape, nor has it any other character of the anthropomorphous apes. He thought that it was a pathological specimen. Crétinism presents two series of phenomena; one series manifested in the cerebral cranium, indicates arrest of development, whilst the other shows in the face, by an inverse progress, the features of animality. Crétins have usually the tongue very large; many of them are prognathous. He admitted, however, that he had never seen any analogous cranium.

M. Gratiolet said that the prognathism of this piece was certainly considerable, but did not present the prognathism of the ape, in which the alveoli project forward, but the line from the maxillary to the nasal spine is always curved and convex. In man it is curved but concave; so that even in the absence of the intermaxillary bone we are enabled to assert that it is not a pithecoid prognathism, but a prognathism peculiar to man.

On the Pelvis of Different Races.—M. Pruner-Bey read a long and interesting historical and critical essay containing a summary of the views of various authors on the form of the pelvis in different races of mankind. The greater portion of this paper is devoted to an analysis of M. Joulin's interesting treatise, *Sur le bassin considéré dans les races humaines*,* in which that author, differing from his predecessors, endeavours to demonstrate :—

I. That the important anatomical peculiarities which have been signalised as characterising the pelvis of the Negro and Mongol races have no existence.

II. That the slight differences observed in the pelvis of three human races have nothing characteristic in them ; they only appear when the comparison is made in a number of subjects.

III. That the Mongol and Negro race present, in the conformation of the pelvis, an identity which does not admit of their being distinguished.

IV. That whilst, by the examination of the cranium, we ought to divide the genus Homo into three principal races, the examination of the pelvis only furnishes two groups. In the first group the author places the Aryan or Caucasian race ; in the second the Mongol and Negro races.

On the Crania from the Cave of Lombrives. By M. GARRIGOU, read by the Secretary General.—Our readers will find a description of the caverns and of the crania in Professor Vogt's *Lectures on Man.* Here we give a few more extracts of M. Garrigou's paper :—The tear and wear of the teeth observed in fossil human jaws is so general that it must be owing to a general cause. Prof. Richard Owen, to whom a speculator of Avignon sold fossil bones from the cave of Bruniquel, has expressed on this subject an opinion which certainly would not have presented itself to his mind had he been present at the excavations. He thought that the men of Bruniquel did not cook their food, since all the teeth were completely used up by the mastication of raw aliments. I have no hesitation in saying that this interpretation is erroneous.

The bones of all the caverns, especially those of the polished stone age, may be divided into two categories ; such as adhere to the tongue and such as do not adhere, which two categories exist in almost all caverns formerly inhabited by man. I believe that the first of these bones belonged to animals, the flesh of which was either roasted or boiled, whilst the second were not subjected to any preparation. These bones are frequently found amidst cinders and charcoal, or in a mass agglutinated by grease, cinders, and coal. The

* *Archives Générales de Médecine*, Juillet 1864.

condition of bones used for the fabrication of instruments supports my opinion. These bones are usually hard; they have preserved their gelatine, and do not adhere to the tongue. It is presumable that the men of the prehistoric period had still sufficient experience to know that fresh bones, containing still their gelatine, were preferable for making implements to bones whose solidity was diminished by cooking. I conclude, therefore, that the men of Bruniquel, like those found in stations of the pre-historic epoch, cooked the flesh of animals, and that the excessive wear of their teeth must be ascribed to some other cause than that assigned by the learned English professor. For my part I am inclined to ascribe the wear of the teeth of the peoples of the quaternary period to the use of raw vegetables, roots, or other parts of trees and plants. I also agree with MM. Vogt, Morlot, and others, that the mastication of coarse bread, intermixed with stony particles, is the chief cause of this wear and tear of the teeth.

After giving the description of these crania by Professor Vogt, with whose conclusions, as regards their elevated type and their osteological construction, he agreed; he, nevertheless, did not share his opinion that they were Basque crania. He looked upon these two crania as having belonged to mongrels of Celts and Iberians, presenting however more of the type of the latter. He could not conclude without offering some observations on craniology and its results as affecting the antiquity of man upon the earth.

Hitherto two great divisions have been established for the study of crania. Round, short, Iberian, brachycephalic, and elongated, Celtic, dolichocephalic heads. These divisions may suffice for the present; but the time will arrive when a new and more ancient form will be established, and when the dolichocephalic and brachycephalic crania, now forming separate species, will only be considered as varieties. Already human remains, probably more ancient than such at present known, discovered by M. Alzien and by himself, and of which M. Pruner-Bey has promised to give an account, do not present the character of pure dolichocephaly. He felt convinced that, despite the authority of Lyell, the primitive type of man will be found not merely in the post-pliocene and even the pliocene beds, but in lower geological strata. Wherever such perfect mammals as the mastodon, the lion, and the hyæna, could live, man could exist. Whether or not the theories of Lamarck and Darwin be correct, we see the progress of nature from the trilobite to the ape; and if nature has contrived to mould and animate the brain of the ape, why should it be more difficult for her to rise to that of man?

(To be continued.)

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RACE IN HISTORY.*

TIMES of political and religious change have an unparalleled interest in the history of a people; it is during such times that many latent characteristics which strongly mark races and nations become conspicuous. Whatever may be the inherent qualities of a race, these are certain to influence, or to be influenced greatly by new ideas on matters which so powerfully affect human feelings and passions. Every race, pure or mixed, is modified by political or religious theories; not that any creed or any form of government is peculiar to anyone, but the manner in which a religious creed or political institution operates is almost solely dependent on the character of that one by which it is adopted. Let the government be monarchical or republican, the social conditions will determine its special operation, so that the monarchy or republic shall be developed entirely in relation to the instincts of the race among whom it is instituted. And, also, let the creed be orthodox or heterodox, Christian, Mahometan, or idolatrous, its tenets are sure to be modified by the feelings and sympathies of the people among whom it is propagated.

No period of British history is, on this account, more instructive than that which commences with the civil war in England in the reign of Charles the First, and ends with the insurrection of 1745 in the Scottish Highlands for the purpose of restoring the Stuart dynasty. During that period the religious creed and the form of government had undergone an extraordinary and rapid change; and the people in the different parts of the British Isles were affected variously by it, according as Celt or Teuton preponderated among them. The progress of the reformation brought out very boldly the different racial

* *History of England.* By Lord Macaulay. London: Longmans.

peculiarities. In Scotland the religious change was rapid and accompanied with much fury and violence. The persecution which the reformed faith had to endure in that country evolved the Celtic fervency and enthusiasm as well as the Teutonic imperturbable firmness and dogmatism of the mixed people. In Ireland protestantism entered as the religion of the rulers; owing to which the old creed became the suffering one, a fact which rendered the masses of the population averse to listen to any arguments adduced in favour of the former; for the Celts are very prone to believe that the side of weakness and suffering is the right one, and usually court, rather than avoid, martyrdom. "Be always on the weak side," is a favourite Celtic adage. The Scotch, having adapted presbyterian tenets, clung to them in defiance of force, sword, and fire; nor could any amount of persecution compel them to relinquish these; on the contrary, the more they were persecuted the more confirmed did they become in their opinions. The Irish people have been almost as much persecuted for Roman Catholicism as the Scotch were for presbyterianism. It is the same fervent enthusiastic character which made the Scotch hold to their presbyterianism that has made the Irish people hold to their Roman Catholicism. The results in both countries have been widely different so far as social, moral, and intellectual progress are concerned; but the difference in the results may be traced mainly to difference of creed and political institutions. All error is opposed to human progress, and no error is more opposed to it than religious superstition; presbyterianism is christianity with fewer superstitions than Roman Catholicism; so the balance of superstition in their favour has partly helped to render the Irish people less progressive than the Scotch; while the amount of it thrown away has greatly contributed to the advancement of the latter nation. Circumstances also secured to the Scotch their national independence, owing to which they were governed by political institutions of their own growth until united with England in the reign of Queen Anne; while Ireland, struggling for independence ever since her partial conquest by Henry the Second, was governed, so far as that could be done, by political institutions imported from England until her union with the latter country in 1801. This diversity in the political conditions of Scotland and Ireland accounts further for the greater progress of the former. With destinies so different, however, and with outward peculiarities so apparently opposite, the Scotch and Irish characters have much more in common than many of the intelligent would feel disposed to believe. With external austerity, the Scotch have in their nature more wit and vivacity than those who are not intimate with them are at all aware; and the Irish have more coolness and forethought when not labouring under excite-

ment than has ever been accredited to them. Both have this in common that they are disposed to fatalistic faiths and enthusiastic forms of worship. Both nations opposed the change of the ruling dynasty of Britain, and fought for the old.

In England Teutonic and Celtic elements seem to have been more evenly blended than in Ireland or Scotland; so that Celtic socialism had been better tempered by Teutonic individualism. The consequence was that personal freedom and religious toleration were more successful in England than in the sister countries.

The history of the period which we have mentioned is of intense interest to the student of British anthropology; and it has fortunately been written by men of superior genius and talent, one of whom was pre-eminently gifted with all the mental endowments requisite to an historical artist; and accordingly he has given us a book which does not yield in clear and vivid delineation to any of the kind written in the English language. As Lord Macaulay brought such superior qualities to the task, we need not wonder that his work has realised all the high expectations entertained of him by the learned and enlightened. Glad were all the lovers of literature when the brilliant orator and essayist announced his intention of writing a history of England, and great was the delight of all when two volumes of that history appeared. It was a work surpassing the most sanguine expectations, whether the clearness of the style, the arrangement of the matter, the acuteness of the arguments, the vividness of the details, or the wonderful discriminative delineations of character were to be considered. The various changes which took place in men's characters and opinions, the difference between one period and another, the progress made in each, the distinctive characteristics of the original peoples from whose intermixture the English nation has been formed, are investigated and portrayed with matchless ability. The weaknesses which were displayed under the influence of certain sectarian whims; the bigotry, enthusiasm, and fanaticism of contending factions; the blindness of partisan zeal and the violence of political opponents, are exceedingly well analysed, and are delineated with great graphic power. In these analyses and delineations the student of the science of man will be able to trace the peculiar instincts and moral sentiments of the various races which have blended into one great and powerful people.

In treating of race, Lord Macaulay frequently errs in theory. He was not an anthropologist, and probably had studied little or nothing of the science. Perhaps this is not to be regretted, as in that case a work so highly artistic might have its beauty and excellence impaired by too much scientific disquisition. That which is required of the

historian is to delineate peoples and nations as they exist in the concrete; as he knows and observes them; as they are influenced and modified by circumstances at various periods; and this the author has done in an admirable manner. Errors and exaggerations doubtless abound; as the writer is extremely fond of contrasts, and has light and shade always in view. Like all those who are richly endowed with the artistic mind his primary idea is a beautiful and perfect work, to accomplish which he looks upon men and nations as mere material; but the love of truth is ever present, and rhetorical ornament is chiefly employed for the purpose of rendering a truthful portraiture of men and peoples more conspicuous. Provided with such a portraiture the anthropologist is powerfully aided in his researches; and he will find them eminently suggestive even when he thinks he has just grounds for disputing their correctness. It is much to be regretted that the illustrious historian did not live until he brought his history down to the year 1745. However, the history of the last insurrection that took place for the purpose of restoring the Stuart dynasty has been so well handled by Lord Mahon that the loss sustained by literature through the death of Lord Macaulay is in a great measure compensated.

No author can write the history of a race unless he partly belongs to that race himself; a statistical account or a brilliant romance he can write of them if possessed of the suitable talents; but not the chronicle that livingly expresses their instincts, feelings, sentiments, and mental peculiarities; and, racially, Macaulay was qualified for writing British history. By the mother's side an Englishman, the blood of all the races forming the English nation flowed in his veins; by the father's side he inherited those qualities of mind and character which have distinguished the Scandinavian Celtic race of the Scottish Highlands. From the former he derives his shrewdness, his calmness, and his keen practical sense; from the latter his eloquence, his rhetorical aptitude, and his poetic cast of mind. He is not only of the Scottish Highland race, but a descendant of one of their bards. An elegy full of tenderness and pathos, and an exquisite love song displaying a luxuriant fancy found among old collections of Gaelic songs and ballads are the compositions of "Isachari Mac Aulai," one of his ancestors. In these two beautiful pieces that inherited genius may be traced which pervades his "Lays of Ancient Rome," his essays, his speeches, and his English history.

The first part of the work being a review of English history from the earliest times to the commencement of the reign of James the Second, is remarkable for its comprehensiveness and concentration; but here and there the brilliant writer commits grave errors. "Nothing," says he, "in the early existence of Britain indicated the

greatness which she was destined to attain. Her inhabitants, when first they became known to the Tyrian mariners, were little superior to the natives of the Sandwich Islands."

No authentic history points to a period when the inhabitants of Britain were as low in civilisation as those of the Sandwich Islands before their conversion to Christianity; and if Britain was inhabited at the period to which the author refers by any of the mixed races that have blended into the mixed ones, which now inhabit her, there is everything to indicate her present superiority in their organisation; and that she was then inhabited by these there is little room to doubt. Julius Cæsar found a regularly organised priesthood in the island; and according to his account of them their knowledge and wisdom, when we consider the age, were by no means contemptible. These were the Druids. The Sandwich Islanders have no Stonehenge. The British Druidical schools, according to the same writer, were superior to those of Gaul; and thither the Gallic youths resorted for the purpose of being initiated in the mysteries of that worship. Tacitus, in his *Life of Agricola*, informs us that the British youths were more talented than those of Gaul, and that they acquired a knowledge of the Roman language and literature with wonderful facility; also, that, although the Britons were conquered and would easily submit to pay taxes, they could not endure the idea of being considered as slaves; and, consequently, stoutly opposed all attempts made by the Romans to curtail their personal freedom. From these remarks of the two great Roman writers, as well as from numerous other sources, we clearly discern in the past the germ of the present greatness of the British people. They are great because the races of which they are composed are physically, morally, and intellectually superior. They are great because they have superior brains, nerves, bones, and muscles. We pass from this to another passage, which assumes that the English, at the time that the Scandinavian invasion commenced, were a pure Teutonic race. "The same atrocities," remarks the author, "which had attended the victory of the Saxon over the Celt, were now, after the lapse of ages, suffered by the Saxon at the hand of the Dane. Civilisation, just as it began to rise, was met by this blow, and sank down once more. Large colonies of adventurers from the Baltic established themselves on the eastern shore, spread gradually westward, and, supported by constant reinforcements from beyond the seas, aspired to the dominion of the whole realm. The struggle between the two fierce Teutonic breeds lasted during six generations."

This is a clear and concise description of the long struggle between English and Danes; but the Anglo-Saxons at the time that the Danish invasions began were not a pure Teutonic breed, but a Teutonic British

one. The Anglo-Saxon language has elements common to the Cymraeg and Gaelic in its structure; and as that is so it may be judiciously inferred that it is a speech formed from the language of Eastern Britain and that of the original Saxon invaders; for before the Saxons had ever put foot on British ground there is strong reason for believing that the tongue of Eastern Britain approached nearer to that of Germany than that of the West did. As we have no specimen either of the language of Eastern Britain or of that of the first Saxon invaders, we are unable to assert how much of the Anglo-Saxon, written long afterwards, was native or imported. It is highly probable that Eastern British and original Saxon had much in common, and that they rapidly amalgamated into one speech. We must not lose sight of the facts, that the masses of the cultivators of the soil continued to be Britons after the Saxons had obtained possession, and that those Britons who were driven westward were chiefly dispossessed chiefs and their retainers. It should always be borne in mind that warriors do not contend for victory with no other aim than putting their hand to the plough; it is rather to secure others to perform that useful labour for them that they fight; and so anxious were the Saxons to have the Britons to do this for them that they were not satisfied with the numbers of the vanquished on the conquered territory only; but made raids into those British districts which still preserved their independence, and thence carried off numerous captives for the purpose of tilling the soil for them. But a vanquished race, when of superior organisation, does not hopelessly continue in serfdom; so, in the frequent and sanguinary wars which so long subsisted between the kingdoms of the Anglo-Saxon heptarchy, the British serfs had frequent opportunities of ruining their masters and rising into power themselves. During centuries of warfare, therefore, by the vicissitudes of fortune, Saxon thanes were reduced to serfs and British serfs were raised to the dignity of thanes. Independently of these freaks of fortune, intermarriages between Saxon and British families were frequent; owing to which the English, at the time when the Danish invasions commenced, were a thoroughly crossed Saxon-British breed. The Anglo-Saxons and the Danes were not "two fierce Teutonic breeds," as the talented historian asserts; but a fierce Teuto-Celtic and a fierce Teutonic breed.

In his beautiful and vivid description of the Norman conquerors of England the same error is committed by the author; namely, that of fancying that these were also a Teutonic race. As this noble delineation of the Norman people is one of the happiest effusions of the author's genius, and is as powerful a specimen of word painting as is to be found in the work of any writer, we quote the following passage from it:—

"They abandoned their native speech and adopted the French tongue, in which the Latin was the predominant element. They speedily raised their new language to a dignity and importance which it had never before possessed. They found it a barbarous jargon; they fixed it in writing; and they employed it in legislation, poetry, and romance. They renounced that brutal intemperance to which all the other branches of the Germanic family were too much inclined. The polite luxury of the Norman presented a striking contrast to the coarse voracity and drunkenness of his Saxon and Danish neighbours. He loved to display his magnificence not in huge piles of wood and hogsheads of strong drink, but in large and stately edifices, in rich armour, gallant horses, choice falcons, well ordered tournaments, banquets rather delicate than abundant, and wines remarkable rather for their exquisite flavour than for their intoxicating power. That chivalrous spirit which has exercised so powerful an influence on the politics, morals, and manners of the European nations, was found in the highest exaltation among the Norman nobles. Those nobles were distinguished by their graceful bearing and insinuating address. They were distinguished also by their skill in negotiation, and by a natural eloquence which they assiduously cultivated. It was the boast of one of their historians that the Norman gentlemen were orators from the cradle. But their chief fame was derived from their military exploits. Every country from the Atlantic Ocean to the Dead Sea witnessed the prodigies of their discipline and valour. One Norman knight at the head of a handful of warriors, scattered the Celts of Connaught. Another founded the monarchy of the Two Sicilies, and saw the Emperors of the East and of the West fly before his arms. A third, the Ulysses of the first crusade, was invested by his fellow soldiers with the sovereignty of Antioch; and a fourth, the Tancred whose name lives in the great poem of Tasso, was celebrated through Christendom as the bravest and most generous of the champions of the Holy Sepulchre."

The distinguishing qualities of a people could not be more vividly and accurately portrayed than in this passage; and these are the qualities of a mixed people, not of a pure race—qualities which have been evolved from the vivacity, sentimentality, and acuteness of the Celt, combined with the perseverance, application, and cool deliberation of the Teuton. The pure Normans did not abandon their native speech, but the mixed Normans did. The language of the mothers, serfs and neighbours, prevailed over that of the fathers and became the speech of the new people. Even the first Normans who obtained possession of Normandy can hardly be said to have been pure Norsemen: for previous to that event the Scandinavians had obtained sure footing on the East Coast of Britain, and, besides, were in possession of Iceland, the Hebrides, and the East of Ireland; and there is very little doubt that many of the mixed Celtic Scandinavian race of the Hebrides and Ireland, were among those Norsemen who first settled

in the North of France. The Norman conquerors of England had probably two-thirds of French blood in their veins; and the conqueror's army was not even composed entirely of Normans. Adventurers from other French provinces flocked to his standard. The Bretons, the descendants of those Britons who had been expelled from their country by the pressure of the Saxon invasion, and had settled in the North-west of France, formed a considerable part of his army, and received a share of that conquered land which, several centuries before, had been wrested from their forefathers by the strong hand of the Teutonic invader. This people, then, whose eminent qualities are so vigorously and brilliantly narrated by Lord Macaulay, were not a German or Teutonic people, as he would imply, but a Teuto-Celtic race in which Celtic elements predominate. The reader who wishes to know fully the history of this remarkable people is referred to Thierry's beautiful history of the Norman conquest.

The Norman people continued distinct from the English for a couple of centuries; and from the reign of William the First to that of John the name of Englishman was held in the greatest contempt. In the reign of Richard the First the historian tells us that the ordinary imprecation of a Norman gentleman was, "Do you take me for an Englishman?" This may be taken as an illustration of the manner in which the vanquished are treated by the victors in all ages and in all countries, and accounts for the many fabulous stories which chroniclers have handed down to us of the subdued peoples by their conquerors; for in such cases the vanquished are usually glad to change their own name and assume that of the victors, to avoid the odium attached to the former. Old Anglo-Saxon chroniclers speak of the entire expulsion of the Britons from England and old Scottish historians relate stories of the complete destruction of the Picts by the Scot; but the reality was that despised Britons and Picts assumed the more honoured name of their conquerors and endeavoured as much as possible to conceal their own origin.

Of the new people evolved from old English and Normans the historian remarks:—

"The disdain with which in the twelfth century the conquerors from the continent had regarded the islanders, was now retorted by the islanders on the people of the Continent. Every yeoman from Kent to Northumberland valued himself as one of a race born for victory and dominion; and looked down with scorn on the nation before which his ancestors trembled. Even those knights of Gascony and Guienne who had fought gallantly under the Black Prince, were regarded by the English as men of an inferior breed, and were contemptuously excluded from honourable and lucrative commands."

Here we have a lucid description of a new people who even excel

those from whom they have been derived; but still the groundwork of their superiority was of British origin. Of this the anthropologist who considers the facts brought forward in this article will be readily convinced. The various conquests served but to refresh and invigorate the old aboriginal Britons. Those Englishmen who gained the brilliant victories of Cressy and Agincourt are but the old Britons invigorated by successive crossings—the old Britons so truthfully and vigorously delineated by Shakespeare in the dramas of "King Lear" and "Cymbeline."

The progress of the new people is finely traced and investigated by the author; their gradual growth in commerce and arts clearly expounded and charmingly narrated.

In talking of Scotland Lord Macaulay errs with regard to its racial character as he does in the case of England.

"The population of Scotland," he asserts, "with the exception of the Celtic tribes which were thinly scattered over the Hebrides and over the monntainous parts of the northern shires, was of the same blood with the population of England, and spoke a tongue which did not differ from the purest English more than the dialects of Somersetshire and Lancashire differed from each other. In Ireland, on the contrary, the population, with the exception of the small English colony near the coast, was Celtic, and still kept the Celtic speech and manners."

The Scotch were indeed the same people with the English in so far as both were descended from the ancient Britons and crossed with Danes and Saxons; both, indeed, spoke a common language; but that language, in Scotland, had spread and displaced the language of a Celtic population which was not conquered or removed by, but intermixed with, a neighbouring Teutonic people. In the reign of Malcolm Canmore Anglo-Saxon became the court language of Scotland, and from the south-east of the country it spread along with Anglo-Saxon settlers in the north-east and south-west. The Highland chiefs intermarried, for centuries, with the daughters of Lowland gentlemen, as did Lowland gentlemen with their daughters; so that, in the course of time, the blood of the upper classes in the Highlands and Lowlands of Scotland must have been very much the same, while in many ways, direct and indirect, that blood must have largely entered into the veins of the lower classes. The Norwegians, having had a hold of the Hebrides and coast of the western Highlands for a long period, intermingled with the native people, owing to which the Scottish Highlanders, who speak a Celtic language, are a Teuto-Celtic race; while the Lowlanders, who speak a tongue of which the principal elements are Teutonic, have a large admixture of Celtic blood. A common nationality had grown through time in Scotland at the same that the Anglo-Saxons there had been politically and

socially separated from those of England, and, in consequence, the kindred peoples in both countries became two different nations, and for centuries there was but interfusion of blood, but the interfusion of blood already mentioned which took place between Highlanders and Lowlanders united both peoples into one nationality. Gaelic was spoken in Galloway in the reign of James the Sixth, and was the speech of the north-east of Scotland from the Firth of Forth to the Pentland Firth in the reign of Malcolm Canmore and long afterwards. The south-east of Scotland is the portion which is most Teutonic in race, and the north-west that which is most Celtic.

While pointing out ethnographical errors in some stray passages of one of our greatest historians, we must call the attention of the reader to the fact, as has already been done, of the author's wonderful aptitude in delineating, as well as in seizing at a glance, the ethnic characteristics of a people. Social relations, as has already been stated, preponderate in the character of the Celt. The social community, the family, the clan, the nation, are everything with him and the individual almost nothing; the contrary is the case with the Teuton—with him individual interests are all important and social interests altogether subordinate. In the olden times an insult to an individual himself was thought little of by Scottish Highlanders or Irishmen; but an insult to a person's family, clan, or country, if it was not one of the seven deadly sins, was still a sin never to be forgiven by them; and Lord Macaulay tells us that "an insult to his country is that which a Scotchman never forgives," and this is actually so because the Scotchman has so much of the Celt in his nature.

Macaulay is almost invariably happy in his descriptions of the people of those districts of Britain which are more strongly Celtic. At all times we find that people strongly moved by anything affecting social relations, such as attachment to country, clan, or family. His account of the agitation in Cornwall in favour of Trelawney, Bishop of Bristol, whose life was considered by his countrymen to be in danger from the arbitrary manner in which he was dealt with by James the Second. The lucid sketch of the Cornish in the following passage clearly shows how very like they are to their Celtic brethren in other districts:—

"The people of Cornwall, a fierce, bold, and athletic race, among whom there was a stronger provincial feeling than in any other part of the realm, were greatly moved by the danger of Trelawney, whom they honoured less as a ruler of the church than as the head of an honourable house, and the heir through twenty descents of ancestors who had been of great note before the Normans had set foot on English ground. All over the country was sung a song of which the burden is still remembered:—

"'And shall Trelawney die—and shall Trelawney die?
Then thirty thousand Cornish boys will know the reason why.'

The strong attachment to chiefs of old standing so strong in the ancient Gauls, the Scottish Highlanders, the Irish, the Welsh, and the Bretons is shown in this vivid description to have been equally strong in the natives of the Duchy of Cornwall."

While the author's delineations of peoples and individuals are so truthful and so accurate, the influence of a false anthropological theory is perceptible in all his speculations—a theory frequently embraced by metaphysicians, theologians, and various other nondescript pedants and bookworms, but seldom received by those who have themselves observed mankind; the theory that assumes that all the differences observed among the human races depend upon civilisation and other circumstances, a theory adopted by the lamented and talented Buckle, and advocated by the logical John Stuart Mill; a theory proved false by scientific observation and experiment, but adhered to with pertinacity by dogmatic and effeminate closet students. Whenever Lord Macaulay speculates this theory is his evil genius; the "dreamy Celt" gains all the mastery in his mind; but the artistic inventiveness of the Celt retains all its vigour, so much so that the reader is more charmed with his fanciful theorising than with the more accurate disquisitions of Hume or of Gibbon. Always powerful and truthful when he narrates, but ever erring when he philosophises, his speculation on the Irish people is pure romance, but his sketching of them is graphic, vivid, and original in the highest degree. He ever talks of the English as a pure Anglo-Saxon race, whereas from the first they were a very much mixed Anglo-Irish people; and not only so, but the English who settled in Ireland were the most Celtic of the English. They were mostly from the West of England, and were accompanied by large numbers of Welshmen—the Fitzgeralds were Norman Welsh. The English government found to their regret that they became in a short time more Irish than the Irish themselves; and this usually happens whenever a mixed race comes in contact with a pure one with which it has half its elements in common. It was, perhaps, the misfortune of Ireland that the English who settled on her soil were already strongly Celtic; and so, introduced but a small admixture of Teutonic blood. Ireland is, in consequence, the most Celtic of the three British kingdoms.

The historian's comparison of the native Irish to the Helots and of the English of the pale to the Spartans is as philosophically erroneous as it is poetically beautiful. Unlike the Helots, who were slaves, the native Irish were a people who had never been thoroughly subdued by the English. Despised they were not by the English in the same sense in which the Helots were by the Spartans, and could not be. A people, partially conquered, who possessed such enduring spirit of in-

dependence and bravery as ever to prevent their conquest from being complete, and to give the victors frequent cause of annoyance and terror, might be hated but could not seriously be despised. According to the illustrious writer himself, the following were the sentiments of the Irish Helots:—

"He had been brought up to regard the foreign sovereigns of his native land with the feeling with which the Jew regarded Cæsar, with which the Scot regarded Edward the First, with which the Castilian regarded Joseph Buonaparte, with which the Pole regards the Autocrat of the Russias. It was the boast of the high-born Milesian that, from the twelfth century to the seventeenth, every generation of his family had been in arms against the English crown. His remote ancestors had contended with Fitz Stephen and De Burgh. His great grandfather had cloven down the soldiers of Elizabeth in the battle of the Blackwater. His grandfather had conspired with O'Donnel. His father had fought under Phelim O'Neil against Charles the First." And this is the man who stood in the same relation to the Englishman as the Helot did to the Spartan!! As much like a Helot as a Bedouin Arab is like a Negro.

But it is to be remarked that feigning contempt and indulging in contemptuous ridicule is a strong trait in the Teutonic character. In coarse ridicule the Teuton much excels the Celt; moreover, the Teuton who is acquainted with the Celt knows that the latter is usually sensitive; and that, consequently, the darts of ridicule are not aimed at him in vain. On the other hand, the Teutonic races are more impervious and are but little moved by the flashing raillery of the Celts. They can better suppress their emotions, they can better conceal their sufferings, they can better laugh under misfortunes than the Celts. Their great firmness and self-esteem enable them well to conceal their weaknesses. Celts glory in giving way to their emotions; Teutons take pride in restraining them. Owing to these distinctive racial qualities, the historian has been led to think that the feigned contempt of the Anglo-Irish was real, and that the desponding pathetic laments in which Celts are prone to indulge, were signs of their being hopelessly trodden down and vanquished. With a masterly hand does the talented author describe the Gaelic people of Scotland; and as prominent Celtic characteristics are found to unite all peoples who have a strong admixture of Celtic blood, we quote it here, in order to show how much Scottish Highlanders and Irish agree in their leading peculiarities. Of the former he graphically remarks:—

"And yet an enlightened and dispassionate observer would have found in the character and manners of this rude people something which might well excite admiration and a good hope. Their courage was what great exploits, achieved in all the four quarters of the globe, have since proved it to be. Their intense attachment to their own tribe, and to their own patriarch, though politically a great evil, par-

took of the nature of virtue. The sentiment was misdirected and ill-regulated, but still it was heroic. There must be some elevation of soul in a man who loves the society of which he is a member, and the leader whom he follows with a love stronger than the love of life. It was true that the Highlanders had few scruples about shedding the blood of an enemy; but it was not less true that they had high notions of the duty of observing faith to allies and hospitality to guests."

To illustrate this brilliant delineation of the Scoto-Gaelic character, we beg to quote Lord Mahon's beautiful description of the devotion and bravery of the same people at the battle of Culloden:—

"Yet let it not be deemed that even then their courage failed. Not by their forefathers at Bannockburn, not by themselves at Preston and Falkirk, not in after years when discipline had raised and refined the valour of their arms, not on the shores of the Nile, not on that other field of victory when their gallant chief with a prophetic shroud (it is their own superstition) addressed to them only these three words 'Highlanders, remember Egypt,' not in those hours of triumph and of glory was displayed a more firm and resolute bravery than now in the defeat of Culloden. The right and centre had done all that human strength or human spirit could do, they had yielded only to necessity and numbers, and, like the captive monarch at Pavia, might boast that everything was lost but their honour."

In this description we recognise the same race that fought under Galgacus against the Romans at the foot of the Grampians. As frequently remarked the essential characteristics of the British are still essentially the same as the most ancient writers who acquired any knowledge of these Isles found them to be. From the extracts made from Lord Macaulay's work it will clearly appear that the qualities ascribed to Celts by writers of our own day are very much the same as those ascribed to them by the ancient writers of Greece and Rome. According to the oldest writers they were daring, excitable, patriotic, and clannish; and, according to modern writers, they are still possessed of the same qualities.

While we have made some strictures on some of the views of such an eminent historian as Lord Macaulay, it must be borne in mind that we consider his faults as trifling in comparison with his merits. A noble contribution to anthropology his work doubtless is; and, as an historical artist, he is entitled to rank among the first of all ages and nations.

We have dwelt more fully on the portions of the work which delineate the more Celtic districts of Britain, in order that the intermixture of the original race with the intrusive ones might be more distinctly traced and analysed. In no other historical work can the anthropologist find more suggestive and instructive matters than in Lord Macaulay's *History of England*.

HECTOR MAC LEAN.

ITALIAN ANTHROPOLOGY.*

As it is one of the objects of the *Anthropological Review* to collect and to diffuse, as extensively as possible, the contemporary literature of the grand science to which it is dedicated, it seems desirable to continue the announcements, however brief or imperfect, of foreign publications. We cannot afford to limit our knowledge to the productions of our own islands. On the contrary, light upon any of the multitudinous subjects of anthropology is most acceptable from every source whence it can come. The scientific men of Italy have recently made some important contributions. The first place must be conceded to the zealous Nicolucci, who so ably sustains the position of the Prichard of Italy.

Ancient Liguria may be said to be that region of the Peninsula which reached from Gaul to Etruria, extending along the shores of the Mediterranean Sea. But the Ligurian race has had more extensive limits; to Massilia and the mouths of the Rhone westwards, to the Maritime Alps northward, and to near the city of Pisa on the Arno southward. In the earliest times the Ligurians consisted of a number of wild tribes, rightly to be regarded as the most ancient inhabitants, or aborigines of these regions, whose origin could not be traced. Strabo and other ancient authorities speak decidedly of their distinctness from the Celts or Gauls. Their language is lost. Although much nearer home, the Romans found these brave tribes about as difficult to subject as those of Britain. And, like the latter, almost the only pages of history occupied by the Ligurians are those in which Livy relates the long-continued efforts of a succession of Roman armies to bring them to submission. For upwards of two hundred years different tribes offered vigorous resistance, and it was not till near the commencement of the Christian era that they were finally subdued.

The purport of the author's investigations, he tells us, is limited to the Ligurians, the most renowned among the oldest populations of Italy; to prove that it is probable this was the first people who dwelt on the Italian soil, and that, notwithstanding the revolution of so many ages, and the occurrence of so many and of such diverse vicissitudes, some remnant of the race still survives in their ancient seats,

* *La Stirpe Ligure in Italia, ne' tempi antichi e ne' moderni.* Per Giustiniano Nicolucci. Napoli: 1864. 4to, pp. 87, con tavole vii.—The Ligurian Race in Italy, in Ancient and Modern Times.

and still preserves those characters and same natural attributes by which they were distinguished in the most remote ages. This is a noble design, and will add another to the numerous other such proofs of the permanency and indelibleness of race.

It will be impossible to follow the author in his learned researches through the whole of the recondite course he has marked out. He treats, first, of the primitive populations of the west of Europe of the age of stone, a subject already familiar to his pen.* He assures us that these ancient people were generally distinguishable, according to the evidence of human crania found as well in Denmark as in Germany, as well as in Switzerland, France, and the British Isles, by the *brachycephalic* form of Retzius; namely, by that short, broad, as it were spherical cranial form, in which the transverse diameter stands in its relation to the longitudinal, as 4 or more is to 5, or, as 80 or more is to 100. The succeeding races of the bronze and iron periods are readily discriminated from these by the oval figure of their calvaria, in which the long diameter exceeds by a fifth or more the transverse, constituting the ovoid form of Prichard, and the dolichocephalic of Retzius. Still, in the bronze age, there are frequent evidences of brachycephalic skulls, which gradually diminish in number as we approach the iron period. And this could not be otherwise, since the countries of Europe conquered by the new races of the bronze and iron epochs, would be gradually thinned of their pristine inhabitants. Not all the conquered would submit to the yoke of the victors; many would go in search of other seats, or they would recover some spots not contaminated by the presence of the stranger. Those who were not absorbed by the new comers, and remained free from extraneous mixture, would preserve unchanged their original stamp; and still, even in our times, notwithstanding the lapse of so many ages, represent the types of the primitive races. Remnants of these races endure continually in the north and the centre of Europe, in the Finno-Ugrian family; remnants still exist in that group of people who dwell towards the point of conjunction of the Pyrenees and the Calabrian mountains, in France and in Spain, and in that tract of country named Liguria and Piedmont, which extends from the Var as far as the Macra, and from the Mediterranean up to the Ticino.

The next section of this well-argued treatise is entitled, "The Ligurians traced out by the aid of History and of Philology." This

* *Di alcune Armi ed Utensili in pietra, rinvenuti nella Provincie Meridionali dell' Italia, e della Popolazione ne' tempi antestorici della Peninsola Italiana.* Napoli: 1863. 4to, con tav. ii. This work contains measurements of human crania found at a considerable depth at Torre della Maina and at Cadelbosco di Sopra, and also small figures of two of them.

division of the work is full of learned research, and contains an investigation of the names of districts, rivers, mountains, etc., which are referred to their roots and etymologies, and traced through ancient authors with much patience and ingenuity. This section may be passed over, as it constitutes a speciality for the study of those who have formed a considerable estimate of philology in solving obscure questions of origin. Its importance as a means of collecting the scattered rays of knowledge extant with regard to the ancient Ligurians, cannot be called in question.

The following section takes up the ancient Ligurian type, and endeavours to deduce it from antique medals and from Ligurian crania. It opens with a lamentation that, whilst the ancients, with one unanimous voice, have celebrated the intrepidity, the valour, and the marvellous endurance of the Ligurians, there remains no record of their physical conformation. From some mere expressions, it may be collected that they were of medium stature, of spare and robust constitution. Some cut off their hair, others allowed it to flow freely over their shoulders; whence the Ligurians were distinguished into the *tonsi* and the *capillati* or *comati*. By an ingenious argument, based on the assertions of Jornandés, Strabo and Tacitus, Dr. Nicolucci is enabled to affirm with some degree of confidence that they had black hair, or hair of a dark tint. He says, we have reason to consider that a brunette colour prevailed among the Liguri, with a not unfrequent disposition to curly hair. Although it has been the lot of Liguria to have no ancient monuments, we have some medals of Aquitania and of Spain, which have preserved the portraits of the indigeni expressing the national type. At least, those bearing legends in the obscure characters, which Boudard has shown are in the Basque or Euscarian language. The heads on these medals are generally held to be the true effigies of the persons whose names they bear. In those of the greatest number, there prevails a common type, which is not Greek, nor Phœnician, nor Celtic. They reveal a visage rather short, as it were quadrate, with prominent supraciliary arches; a nose almost always large; curled hair; and beard, where it exists, standing on end.

If from such scant materials we should be disposed to indicate the features by which the ancient Ligurians were distinguished, we might be able with reason to define them by their *medium stature, their spare and vigorous limbs, their brown tint, their thick black hair, their face more square than round, and their prominent supraciliary arches.* If it were attempted to deduce from the effigies on the medals the form of the crania of the persons represented, it would be a skull more round than oval, a short brachycephalic skull, a skull different

from that which is at the present day commonly met with in Spain, in France, and in the Italian population. But this deduction would be of small worth, if it could not be supported by other facts derived from ancient crania appertaining to the Ligurian race. Of these, the author has only three to bring forward.

These antique remains were found in the provinces of Modena and of Reggio, which were in the power of the Ligurian tribe *Friniati*, before the Etruscans could have had dominion there, or their successors, the Gaulish Boii and the Romans. Respecting the antiquity of these skulls, the author considers that he has already demonstrated, in his former Memoir before mentioned, "On the Stone Implements of Italy," that they appertain to the people who inhabited Italy during that portion of the stone age which adjoins the epoch of bronze. Hence he regards them as certainly relics of the oldest inhabitants of the country—the Ligurians. Two of the skulls were found, in 1862, in Torre della Maina, about ten miles from Modena, in a deposit termed there Maina, or Marniera, *i. e.*, marl beds. They were associated with quantities of charcoal and ashes, fragments of urns, with here and there bones of domestic animals, and chiefly the large antlers of deer; bones, teeth, and jaws of the horse, of the sheep, and of the wild boar. The third is in the anatomical museum of the University of Modena, and was met with at Cadelbosco di Sopra, five miles from Reggio, in 1837, in a stratum of black bog earth, at a depth of fifteen feet. The three skulls markedly differ as well from those of the modern inhabitants of the provinces of Modena and Reggio, as from the other Italians, with the exception of the Ligurians and the Piedmontese, to whose crania they are very similar.

The conformation of these skulls is brachycephalic. This is rendered very striking by the measurements given by Dr. Nicolucci, and the three first of the seven lithographic plates which accompany his Memoir, and which represent the skulls of their natural size. The first and least perfect of the two from Torre della Marna is the cranium of a woman, judged to be not more than from forty to forty-five years of age. The author has described this skull, as well as the others, very carefully, but he has omitted to mention the premature ossification of some extent of the extremities of the coronal suture, which has occasioned klinocephalism. The cephalic index of this skull rises to 90·5, or this is the proportion of its greatest breadth compared with its length, taken as 100. The second example from Torre della Maina is the skull of a young man of from twenty-five to thirty years of age. This is equally brachycephalic with the pre-

ceding, as its cephalic index is 90·7. The cranium from Cadelbosco di Sopra is likewise brachycephalic, with an index of ·85.

The author takes the opportunity in this place to speak of some Etruscan skulls referred to the brachycephalic type, which Retzius did not hesitate to regard as proper to the head of that race. This view has not been supported by the observations of Garbiglietti,* Von Baer,† Rudolph Wagner,‡ and Maggiorani;§ and the Etruscan skull figured in the fine edition of Cuvier's *Règne Animal*, published by his pupils, is also dolichocephalic.

Since the publication of this memoir, *La Stirpe Ligure*, the Etruscan cemetery at Marzabotto, near Bologna, has been very carefully excavated by Count Giovanni Gozzadini, and the results have been made known in a splendid volume by that learned and distinguished antiquary, *Di un antica Necropoli a Marzabotto nel Bolognese.* Folio, Bologna, 1865, 20 Tavole. In this cemetery a few human skulls were found, which were submitted to the investigation of Dr. Nicolucci, who has contributed a long letter or note upon these ancient crania to the volume just noticed. He first compared them with unquestionable Etruscan skulls, and found them to vary from these in a number of important characters. The horizontal circumference of the Etruscan skulls he found to be higher, namely, 529 *millimètres*, that of the Marzabotto crania only 487 *millimètres.* He next instituted a similar comparison of the latter with Celtic skulls, from which they also differed materially, and he was ultimately led to the conclusion that the crania found in the cemetery are not those of the Etruscans who first used this necropolis, but have been introduced at a much later period, and are the remains of the people who at present inhabit the Bolognese territory, belonging to the Italian family of Umbri. In this note Dr. Nicolucci gives the results of some careful measurements of the Marzabotto skulls, of true Etruscan skulls, of Celtic skulls, and of skulls of the Bolognese of the present day. The Marzabotto crania have a cephalic index of 79·6, and those of the Bolognese of ·78, whereas the cephalic index of the Etruscan skulls was ·76 only.

At a subsequent period, the eminent professor, Carl Vogt, addressed a letter to Signor B. Gastaldi upon some ancient human skulls found in Italy.|| In this communication Professor Vogt can scarcely have

* *Brevi Cenni Intorno ad un Cranio Etrusco.* 1841.

† *Ueber den Schädelbau der Rhätischen Romanen.* 1859.

‡ *Zoologisch-Anthropologische Untersuchungen.* 1861. S. 13.

§ *Saggio di Studi Craniologici sull' Antica Stirpe Romana e sulla Etrusca.* 1858.

|| *Su alcuni antichi Cranii Umani rinvenuta in Italia,* Feb. 1866.

had before his eyes the epithet of "rash," applied to him by a recent English writer. He gives the results of his examination and measurement of about a dozen ancient crania found in Italy, comparing them with some others; but, in the course of this investigation, he appears somewhat to ignore the labours of previous observers who have had more abundant materials in their hands.

Professor Vogt in his letter to Gastaldi speaks of the cranium of the ancient Romans, but apparently in a somewhat doubtful manner, and refers to no other writers upon the subject, save Professors His and Rütimeyer, the distinguished authors of the *Crania Helvetica*, who have embraced it under their "Hohberg type," and have, besides, given a profile and a vertical outline figure of the skull of the Roman Prætorian in the Blumenbach collection. This skull seems to have been scarcely long enough and narrow enough for the Professors' conclusions, hence he has thrown out a doubt upon its authenticity, and considered that it might be of barbarian Celtic origin. The Prætorian guards underwent many changes after their institution by Augustus, when they were chosen from the troops *in Italy;* but, except at a late period of the empire, they were of all troops the least likely to contain barbarian blood. The fine and perfect skull of V. L. ALEIVS admits of no doubt of its authenticity. It is dolichocephalic, like those of His and Rütimeyer's Hohberg type, only not in so extreme a degree, and it agrees well with other ancient Roman crania. The cephalic index of Blumenbach's skull is ·72, the mean of those of the Hohberg type is ·70. The former ratio must be regarded to be confirmed by the observers whose estimates Professor Vogt has omitted to quote, unless there be a more exact conformity in crania than we have ever been able to discover. It is difficult to say positively what is the cephalic index of the ancient Roman skulls examined by Professor Carlo Maggiorani,* since it is probable that neither his anterior nor posterior transverse diameter represents the greatest breadth of the calvarium. The anterior is the longest, and by taking this to be the nearest indication of the greatest diameter of the calvarium, the mean cephalic index of the five skulls is ·74. Of a series of four ancient Roman skulls engraved in the *Crania Britannica*, the mean cephalic index is ·74. These materials give us good ground for concluding that the extreme length and narrowness of the Hohberg type of His and Rütimeyer is not essential to the genuine ancient Roman skull, of which the Prætorian of Blumenbach may be, and probably is, a typical representative.

Professor Vogt goes on to assure us in this letter that the ancient

* *Saggio di Studii Craniologici;* and *Nuovo Saggio di Studii Craniologici. Sull' Antica Stirpe Romana e sulla Etrusca.* 1862.

Etruscan skull is brachycephalic, its mean cephalic index being ·82, and proceeds to describe it at length.*

* As we have already noted, Retzius had previously classed the Etruscans among his brachycephali; but there was much evidence on the other side. This we shall get at best, and at the same time supply the missing links passed over by Professor Vogt, by briefly alluding to a recent publication of Dr. G. Nicolucci, the title of which is *Su i Crani invenuti nella Necropoli di Marzabotto e di Villanova nel Bolognese; Lettere del Cav. Dr. Giustiniano Nicolucci all' illustrissimo Sig. Conte Giovanni Gozzadini, Senatore del Regno*, 15 Settembre, 1866. This *brochure* contains a reprint of the author's former letter to the Count, with the table of measurements of the skulls, to which is added a second letter, in reply to Professor Vogt. In this last letter, Dr. Nicolucci informs us that he has found the true ancient Etruscan cranium, in the great majority of instances, to be sub-dolichocephalic, and that its mean cephalic index does not exceed 76. He has deduced this proportion from the study of many Etruscan skulls; and he affirms that the results obtained by Von Baer, by Rudolph Wagner, and by his friends Garbiglietti and Maggiorani, are not different from this deduction, which has the support of Dr. Pruner-Bey also. The characters of the Etruscan cranium, he proposes to treat upon in a distinct work, on the Anthropology of Etruria, in which he will show that it differs from all other cranial forms in Italy. He adds, that Professor Vogt errs in attributing to Von Baer, and to His and Rütimeyer, the recalling the Etruscan type into modern literature. On the contrary, before any of these observers had directed their attention to the subject, the learned but modest Cavaliere Antonio Garbiglietti had discovered in 1839, and had in 1841 described and figured, a beautiful Etruscan skull, which he had obtained with his own hands from a very ancient tomb at Veii. The author has not mentioned the title of Professor Garbiglietti's memoir, but we have already given it above. It may not be unworthy of notice, that this ancient Etruscan skull is the theme of a more recent memoir of Dr. Garbiglietti's. It presents, as far as we at present know, the only example among European races of that anomalous supplementary jugal bone, which has been occasionally observed among Oriental races. To this memoir we may hereafter direct attention. The Etruscan skull of Signor Garbiglietti is evidently not brachycephalic, as its length is 7·5 inches English. The next writer upon the subject of Etruscan crania was Carlo Maggiorani, at that time professor in Rome. His first memoir was published in that city in 1858; his subsequent memoir in 1862. We have already given the titles of these memoirs, and also the proportions of the Roman skulls described by Maggiorani. The mean cephalic index of the five Etruscan crania described appears to be 76.

It will not be necessary to follow Nicolucci in the subsequent part of his last letter. It may be sufficient to say, that he differs materially from Professor Carl Vogt respecting the crania discovered in the Etruscan cemeteries of Villanova and Marzabotto, and supports his former opinions concerning them by an appeal to the method for obtaining an approximate idea of the internal capacity of crania devised by Professor Paul Broca. It is not insignificant to note, that neither observer regards the skulls from the Etruscan cemetery at Marzabotto as of Etruscan origin. Vogt looks upon them as Ligurian; whilst Nicolucci reiterates his former view, that they are

Dr. Nicolucci confines his search for true Ligurians within the limits of Liguria proper and of Piedmont, in what are now named the Ancient Provinces, where the Ligurian type is preserved as it was in the most ancient times. The inhabitants living near the shores of the rivers which bound ancient Liguria have lost much of their native character, and the purity of their Ligurian blood is tarnished by foreign admixture. At the same time, upon the Alps and in the deep valleys of Piedmont they are so mingled with the Gallic type, that the limits of the two cannot be fixed; although in the Grisons, in ancient Rhætia, in many of those valleys of difficult access, the Liguri still continue as if unchanged, and the crania of the alpine people offer at present the brachycephalic conformation, which Von Baer has carefully studied in skulls collected at Chur, or Coire.

After this lengthened exposition of Dr. Nicolucci's treatise, we shall not follow him closely in the next sections of the work. The sixth is entitled "The Races of Europe and the probable order of their Immigration," a section which, together with the following, on "The Aryan Conquest in Italy," affords as much light as is to be collected on the dark and speculative view that ancient European races are to be regarded as strangers and immigrants in this continent. After these succeeds a short section devoted to the examination of the question whether the Ligurians are the descendants of the African Lybians. Sig. Nicolucci here appeals forcibly and conclusively to craniological evidence. The skulls of some Kabyles, preserved in the Anatomical Cabinet at Modena, present a mean cephalic index of ·75; another example in the hands of the writer yields a cephalic index of ·76; four crania of Berbers afford a very similar testimony, for their mean cephalic index is 73; a series of skulls of Guanches, who are fancied by some to have been allied with the Lybians, give a mean cephalic index of not more than ·78; whilst it must be recollected that Dr. Nicolucci's Ligurian race gives a cephalic index amounting to ·86. This difference, without appealing to the absolutely different idioms, belonging to two distinct glossological families, the author regards as the most stringest confutation of the opinion which would derive the Iberians and the Ligurians from the African continent, and would populate Spain, Italy, and the South of France with a Lybian race.

identical with those of the Bolognese of the present day, and belong to the Italian family of the Umbri. Nicolucci concludes his second letter in these highly commendable terms: "To restore facts to their just value, and to give to them that interpretation which is believed to be most consentaneous with truth, is the business of those who devote themselves to the sacred culture of science; and I believe I have performed my duty, in expressing my opinion plainly and without reserve."

The concluding section of this learned and important work contains the author's deductions, which we shall give entire, with the terminal aspiration of an Italian patriot, in which he considers that he has demonstrated:

"I. The modern Ligurians to be the direct descendants of those Ligurians of antiquity, who, in ante-historic times, peopled not only Italy, but also parts of France and of Spain;

"II. Them to be of an allied race to that of the other nations who inhabited Europe before the arrival of the Aryan people, a race distinguished by the brachycephalic character of the skull, and by those other natural qualities which are proper to the Turanian family;

"III. The Aryan colonies coming into Italy, to have in part supplanted the more ancient inhabitants, and to be superposed over the indigenous races, whose type was scattered and was absorbed by the Aryan, which became the general type of the Peninsula.

"IV. But in Piedmont and in Liguria the old race kept itself predominant, hence the ancient type either was not at all or only slightly modified; because, at this day, the brachycephalic cranium is still observable in the major part of the inhabitants of these provinces, preserved unchanged, and as it was at the most remote period.

"V. Notwithstanding the inhabitants of Piedmont and of Liguria, mingled with the rest of the inhabitants of the Peninsula, and bound to them by community of language, of religion, and of customs, have, for a long time, formed with them one single nation; as all the great territory from the Alps to the sea hath formed from a remote period, and forms at present one sole and indivisible country."

J. B. D.

THE ROMAN AND THE CELT.*

HISTORY is a promise rather than a fulfilment, a fragment rather than a whole. It cannot well be otherwise; for it is simply a few scenes from a mighty drama, whose beginning is hidden in an unfathomable past, and whose end lies in the sublime remoteness of an unrevealed future. Science has successfully vindicated the vast eras of geology. Nobody now dreams that the earth began its existence yesterday. Palæontology can draw on unlimited periods for the gradual evolution of the successive forms of sentient life. But it is otherwise with history. It is expected to crowd its successive phases of civilisation into limited areas of time, easily measurable by the compasses of scholastic chronology. We are still haunted with the groundless idea, that we can mount to the origin of human culture, and trace its various stages of development to our own day. Till very recently, the great body even of the learned, believed in nothing but written history, their own history, based on Semitic traditions and classic authorities. Monumental records were scarcely appreciated, and true archæology had no existence, while philology was still encumbered with the grave misconceptions of a shallow pedantry. Nor have we yet fully emerged from this condition of things. The contracted ideas of the popular theology as embodied in its cosmogony, have yielded to the expansive influences of modern discovery, but its equally contracted and erroneous tuitions in reference to anthropology are still tyrannically prevalent. And this despotism of the theological school of thinkers is rather aggravated than softened by their special studies as classical scholars, which unconsciously induce the habit of practically regarding profane history as limited to the annals of the Greeks and Romans, or, at farthest, the nations known to us through their writers. To attempt to mount higher than Herodotus would once have been regarded as scarcely less impious than to doubt the credibility of Moses. "The Father of History" had set effectual limits to idle curiosity, and for anything beyond him, troublesome inquirers were gravely referred to the earlier pages of their Bible. Our studies in Sanscrit literature, and the comparatively recent discoveries in Egyptian Hieroglyphics and the cuneiform inscriptions, have slightly modified these comfortable assurances. Slowly and with much recalcitration, the educated public are beginning to understand that there is a learning outside the area of traditional European cul-

* *History of Julius Cæsar.* London: Cassell, Petter, and Galpin. Vols. I and II.

ture, and that there is a history not yet written in orthodox books. And, of course, as an inevitable consequence, it is also beginning to be confessed that the old plumblines are somewhat deficient for fathoming the depths of primeval history.

We have been led into these reflections by a perusal of what is apparently to be the grandest biography of modern times, the life of the ancient by the modern Cæsar, or at least "My Nephew." The two volumes in which the imperial penman has thus far given us the digest, not simply of his learning, but also of his experience in matters gubernatorial, are now before us, and we can judge in some measure, both of his qualifications and the character of the work which he has produced. Its primal recommendation consists in the fact that it bears, on nearly every page, the internal evidence of not being written by a mere closet scholar, but by a man well versed in the practice of statesmanship, and accustomed to weigh empires in the balance. Perhaps it is not too much to say that there are sentences in it which only a monarch familiar with the exercise of authority, at home in the use of supreme power, could have written. Whatever small assistance in the getting up of subsidiary portions may have been rendered to the august author by his court scribes, there is no question that both in the conception and execution of this extraordinary work, we trace a head that has framed decrees and a hand that has signed treaties. This is, perhaps, the highest praise we can bestow, and implies that we regard this life of one emperor by another as something almost unique in literature, for although monarchs have ere this occasionally condescended to authorship, they have not always written so royally as might have been, perhaps, expected, considering their opportunities and experiences. It is not, however, of the literary attainments or the statesmanly abilities whereof this work is the evidence, that we here purpose to speak. That will doubtless be done far more effectually by our contemporaries. It will be quite sufficient if we contemplate the production of the imperial mind from our own standpoint, that is in its relationship to some of the great race questions, with which it is the business of this journal to render its readers more or less familiar.

It is, no doubt, very proper for the general reader to regard history as simply a narrative of the rise and fall of nations and empires, but to the anthropologist it is also an exposition, although a very imperfect one, of the tidal movement of races. To him the eastern conquests of Alexander and the Greeks, and the western conquests of Cæsar and the Romans, are evidences, not simply of the martial prowess and political power, but also of the racial supremacy and colonial expansion of the classic peoples at the period of their culmina-

tion. Ere they could have achieved so much, he knows that the Semites and Aryans of Asia must have sunk into a state of collapse, after their imperial splendour as Assyrians and Persians. And although he has but little history and imperfect monuments to guide him, he has no hesitation in concluding that a somewhat similar fate must have overtaken the Celts of Europe, ere the stern lords of the eternal city succeeded in planting their eagles on the Seine and the Thames. Now, however necessary it may be to base history on these larger views, it is, perhaps, scarcely fair to expect them in a biography, however strictly historical may be the character with whose career it endeavours to render us familiar. And let our subsequent remarks, therefore, on the life of Julius Cæsar be regarded rather as supplementary to, than critical of, the literary labour of the imperial penman of the Tuileries.

It is doubtful if we have even yet correctly defined the place of the classic peoples, either in history or anthropology. Till very recently, we do not seem to have known how much must have gone before them ere they could have existed. Deriving our knowledge of them from their own imperfect annals, we understood but little that was geographically beyond or chronologically before them. Philology has now revealed their lingual relationship to the great Aryan family, while a study of the principal schools of Hindoo philosophy, shows us that this relationship is not simply one of words, but also of thoughts. Nor has archæology failed to contribute to this enlargement of our ideas. We now know not only that there were "brave men before Agamemnon," but that there was a prehistoric cyclopean civilisation in Greece, Italy, and Asia Minor, whereof Tiryns and Mycenæ are the evidence, though they cannot render us back its minuter annals. We have discovered enough, however, to see that classic civilisation rested on the ruins of a preceding culture, whose antiquity antedates, not only the age of inscriptions, but in its rude beginning, even that of the hewn stone.

Was the classic man autochthonous, or was he induced colonially or otherwise, on a ruder aboriginal type? We suspect that this is but part of a larger question, the origin and age of the Caucasian race. Ever accumulating data seem to indicate with continually increasing force, that in accordance with the general evidence of palæontology, the ruder and lower preceded the finer and higher types; and that the Caucasian is not only the noblest, but the latest variety of man. It is still, however, an open question whether the Semitic or the Aryan division be the older of the two. Without attempting here to settle this still disputable point, we would suggest for the future consideration of anthropologists, the possibility that they may be derived

from different sources, the former from the Negroid and dolichocephalic type of the south, and the latter from the Turanian and brachycephalic types of the north. The fact of most interest to us in this connection is, that the Classic peoples were at the line of junction and interaction between these two great races. The Asiatic, that is Ionian Greek, came into direct contact with the Semitic Jew and Phœnician. Of this we have the present effect in Christianity, that magnificent bequest of the Oriental conquests and colonisation of the Classic peoples during the historical period. But is it to be supposed that the action and reaction of Semitic faith and Aryan intellects, commenced at this comparatively late period in human affairs? Have we not, on the contrary, reason to believe, even from tradition, in a corresponding and prehistoric cycle of events, whereof the myth of Cadmus, and perhaps of Jason, are faint echoes, and of which the dethronement of Saturn was a remote consequence. Inherently and essentially, however, the classic man was obviously of Aryan lineage, and we may add, judging both by his physical type and mental constitution, of nearly pure blood. In other words, he was largely devoid of that Turanian taint which so perceptibly attaches to most of the mingled populations of modern Europe.

But while it is quite proper to regard the classic peoples as one, when contemplated from without, they are, as we all know, historically, and we may add racially, separable into two well-marked divisions, the Greeks and Romans. And while from geographical position it was inevitable that the former should come into more immediate contact with the Semites and Persian Aryans, it was equally inevitable that the latter should interact with the Celts and Teutons. Both the physical type and mental constitution of the Roman, indicate that he was not so purely classical as the Greek, that is, he was neither so harmonious or intellectual. Primarily, he was neither poet nor artist, but warrior and legislator. It is doubtful if he was of such pure blood as the Greek. His cranial contour indicates a powerful Teutonic admixture, as if Alaric and his Goths were only a second edition of some prehistoric invasion from the north. Morally, he was nobler and grander than the Greek, susceptible to higher motives, of more exalted principles, and above all, of a stronger and more persistent will. Intellectually, he was massive rather than brilliant, and endowed with talent as contradistinguished from genius. He was a born statesman, and conserved by policy what he had acquired by arms. He did not subdue the world in a few brilliant campaigns under one Alexander, but marching steadily to supreme power through centuries of conquest, he held the nations in his giant grasp till both their laws and language became unalterably moulded upon his own, so that to this

day Europe bears indelible traces of the ironhanded empress of the West.

The mission of Rome was the summation of ancient civilisation. After her came the flood of race, religion, and policy. To understand the place of Rome, we must, therefore, know what ancient civilisation had achieved. From what has been already said, the reader will be at no loss to understand that we regard it as altogether underestimated. It was older in date and higher in character than even the learned are yet prepared to believe. Already "Egypt's place in history" is admitted to be more remote than was formerly supposed possible; while Nineveh, Babylon, India, and China are relegated to a position, not simply determined by the accepted chronology of the deluge. But while our ideas are being thus rapidly enlarged in relation to the great oriental empires of antiquity, there is another grave possibility looming into view, that does not meet with such ready acceptance, we allude to the prehistoric civilisation of Europe. There, in addition to archæology, we want the help of anthropology. Of Etrurian culture we have undeniable evidence. Of Cyclopean civilisation there are the truly Titanic remains. But it is still lawful to speak of the Celts as "painted savages," and to treat of the Germans as people who always came out of their rude forests. We have already glanced at this subject in some observations on the Roman and Teuton, and what we now purpose is to make a few remarks on the possible prehistoric civilisation of the Celt.

Anthropologists scarcely need to be reminded that humanity is not a democracy, but a hierarchy, ascending in successive gradations from the lowest Negroid to the highest Caucasian type, from the man of muscle to the man of mind, from the creature of appetite to the being of thought; and the grandest problem yet awaiting solution is the due relegation of each great family to its proper place in the ethnic scale. Of the relative place of the Negro, the Turanian, and the Caucasian, there can be no doubt; the order of these primary divisions may be regarded as settled. But when we come to their minute subdivisions, especially those of the last, opinions differ, a satisfactory indication that our data are insufficient, or that our principles are unsettled. We all admit that the Foulah and the Kaffir are superior to the Negro of the coast of Guinea; nor do we deny that the Turcoman and the Finn stand higher in the ethnic scale than the Samoyede and the Lapp. And perhaps one reason why we see all this so clearly is, that we are on the outside of these races, so that we have no feelings of jealousy to disturb our perceptions and warp our judgment. But it is otherwise with our own more exalted type. Here the rival claims of Semite and Aryan, of Greek,

Roman, Teuton, and Celt, afford a never-ending subject of controversy, in which it is to be feared passion and prejudice have but too often supplied the place of fact and argument.

Let us not, however, be too hard upon the combatants in this intellectual warfare. Much of the confusion which reigns in their contest is inevitable. In the language of Comte, anthropology is only now in the process of emergence from its theological phase, and is certainly very far from having attained to the positive stage of development. Its facts are inadequate, and, as we have said, its principles are unsettled, and, as a necessary result, the conclusions of its professors are regarded as little other than individual opinions, from which, whoso pleases, may differ at his discretion. We do not make these statements to discourage our fellow-labourers. On the contrary, such a state of things, while it may oppress the weak, will only stimulate the strong, by showing them how much yet remains to be accomplished, and consequently what opportunities for usefulness are still presented to their choice. It is this, indeed, which renders the study of anthropology so especially attractive to a vigorously constituted mind. We are called upon to work at the foundations, leaving to after ages the comparatively easy task of adding to the superstructure.

The speculation which regards humanity as the collective or grand man, is not perhaps altogether fanciful or ungrounded. It, at all events, has the recommendation of comprehensiveness, and enables us the more readily to arrange subordinate topics as parts of a large whole. Thus contemplated, then, we may say that the Negroid races represent the vascular, the Turanian the muscular, and the Caucasian the nervous portion of this mundane structure. Were we inclined to enlarge our comparison by taking in a wider, and therefore more diversified range of vitality, we would say that the Negro represents the vegetative, the Turanian the animal, and the Caucasian the more purely human attributes of this collective organism. We shall not perhaps greatly err, if we speak of these three great types as successive stages of advancement from alimentation and reproduction to respiration and cerebration. Fundamentally and primarily, it is a question of more or less nerve, which determines all that is subordinate to it. We have been induced to make this statement, although to some who have read previous communications it may sound like a repetition, because if the principles upon which it is based be sound, they must prove applicable to the minor as well as the major divisions of humanity, and so perhaps may help us to arrive at somewhat more definite conclusions in reference to the former.

We are here advancing upon rather disputable ground. Zoology has managed to arrange its classes, orders, genera, and species in a manner sufficiently convenient for all the purposes of description and reference, and on principles satisfactory to most, if not to all, students of natural history. But it is yet, alas, quite otherwise with anthropology. Here we have not yet determined authoritatively whether there be more than varieties. So that while some anthropologists, like Mr. Luke Burke, regard the *genus homo* as a new kingdom in nature, with of course all its subdivisions, at least in a germal condition, there are others, jealous of the affirmation even of different species. This diversity of opinion is no doubt, in large part, due to the imperfection of the science, but it may be also in some measure due to the merely incipient and embryonic stage of its subject matter. Man, as the latest advent on the globe, is presumably at the farthest remove from his ulterior possibilities. While indubitably the highest of all organic types, he yet manifests unmistakeable traces of ethnic immaturity; and among other concomitants of this condition of things is, probably, the rather imperfect demarcation of his special diversities. But to whatever cause it may be attributed, let us begin with the rather humiliating confession, that anthropology, both in its classification and terminology, is still in a miserably confused and almost chaotic condition. So much so is this the case, that scarcely any two writers use the word "race" in exactly the same sense, nor indeed does any one author employ it at all times with the same signification. Thus, for example, we speak with equal facility of the Negro and the Caucasian, the Aryan and the Semite, the Teuton and the Celt, as constituting different "races," while, in reality, the two last are but subdivisions of the Aryan, as the latter is but a branch of the great Caucasian stem. We do not make these observations by way of urging a precipitate attempt at classification, which in the present state of our knowledge would be premature, but simply as a means of guarding the reader, as far as possible, against misconception, from the rigid interpretation of terms, necessarily used with a latitude anything but conducive to the precision demanded in the language of a fully matured science.

One of the profoundest observations of Swedenborg, who if he had not been so noted as a mystic, might have been more famous as a philosopher, was that the great is seen in the small, as, conversely, the small may be seen in the great. So, perhaps, in the present case, we may throw some additional light on the minute subdivisions of the principal races by studying the relation of the latter to each other, not despising, indeed, the hints which we may obtain from the still wider fields of comparative anatomy and animal physiology,

more especially as these are enlarged by the data obtainable from the structure and presumable habits of extinct species. It is not, indeed, until we contemplate man by the light derivable from a wider area than his own—that is, until we view him in relation to sentient life as a whole—that we begin to thoroughly understand him, or estimate aright his true position as the crowning glory of organic existence; for man is but the realised result of ascension, thus far, in the scale of telluric being. To this, as an effect, has the earth attained in her attempted production of form and function. With the noblest individualities in the highest races, we sum up nature's power *then* and *now*. Thus far has she prevailed—and no farther.

Now, by a comparison of the lower with the higher types, whether we proceed by classes or orders, it will be found that nature has been moving in a definite direction, aiming, if we may so say, at a result, and steadily, or at least persistently, approaching it through successive stages. She has not only been advancing towards specialisation, but also centralisation; the former being indeed not only a necessary concomitant, but, in a certain sense, an effect of the latter. Thus, man is not only the most specialised, but the most centralised being yet developed on the earth, the one on whom the brain has attained to the highest complexity and the greatest power. Indeed, Owen's fourfold division of the mammalia into Archencephala, Gyrencephala, Lissencephala, and Lycencephala, or, to give examples, into man, lion, hare, or kangaroo, proceeds on a recognition of the same principle. So, again, if, enlarging our view, we take in the entire range of the vertebrata, we shall find a regularly ascending series, not only a specialisation, but in centralisation, from fishes to reptiles, and from the latter, through birds, up to mammals. Nay, if we embrace the entire animal kingdom, from the radiata, up through the mollusca and articulata, to the vertebrata, we shall find the same tendency manifesting itself. But to return to the last, with which we are more immediately concerned, it will be found that this tendency to centralisation in the structure and functions of the nervous system, eventuating, or rather consisting in increased cerebration, is accompanied also by a corresponding, and probably proportionate change in the relative form and importance of other functions. Thus, as the brain increases in power, the thoracic tend to predominate over the abdominal viscera, so that cerebration and respiration become of more, and nutrition and reproduction of less, importance in the animal economy. Fishes are the most prolific and the most voracious of all the vertebrates, while their cerebration and respiration are at the minimum.

Descending, however, from these perhaps rather vague generalisa-

tions, let us apply some of the principles involved in them to the matter more immediately in hand, in illustration of the order and relative position of races. And here we are at once made painfully conscious of an admitted deficiency in anthropological science; we allude to its comparative anatomy. We do know something of the structure of various species of animals, but what do we know of the visceral and other peculiarities of the various types of men? With the exception of the facts recently furnished to us by Dr. Pruner-Bey in reference to the Negro, and some others by Baron Larrey, as to the Arab, we may say almost nothing. From the former we learn, as might be expected, that the liver of the Negro is much larger in proportion to his lungs than that of the Caucasian, which is only saying in other words that he is more fœtal than the higher type, as his cranial, facial, and entire osseous structure would clearly indicate. From the latter we learn that the Arab is the very antithesis of all this, and in the disposition of his viscera, and the elasticity and play of his muscles, is superior even to the European. But for the remaining races and varieties we are thrown back, for the most part, upon external configuration and those indications of function which we find in the established and traditional habits of different peoples.

But before attempting to proceed with such an application, it is well to guard ourselves against a possible source of error in the examination of data. We allude to the necessity which obviously exists for the periodic baptism of the nervous races by their muscular correlates, devoid of which they sink into ethnic effeteness from overaction and its consequent exhaustion. This was the condition of the classic and Celtic races at the period of the Gothic conquest, which no doubt took place in strict obedience to law, as the appointed means for their renewal. Now, it is from their ignorance of this law that most writers regard the Celtic-speaking peoples of these islands as the only true Celts remaining among us, whereas they are simply the imperfectly baptised remnant of the old or effete type of the race. Thus it is not the wiry little Connaughtman who is the truest representative of the Irish Celt, but the well baptised Irishman of the Pale or of Ulster. In fact, the radical defect of Ireland, the ethnic source of the manifold evils under which she labours, is the still imperfect baptism of the Celtic by a superincumbent Teutonic population. She wants racial renewal. So the best representative of the British Celt is not the little Cardiganshire peasant, with his Amazonian wife—the feminine element always tends to preponderate at the decline of a race,—but the normal Englishman, the well-amalgated result of Roman, Saxon, Scandinavian, and Norman infusion. He is the re-

habilitated Celt—in the process of resurrection. So the best type of the Gaul is not the native of Britanny, but the Frenchman of Paris—not the diminutive citizen of the South, but the vigorous and comparatively stalwart man of the North, with plenty of German blood in his veins. We must not confound purity of race with exhaustion. The German is all the better for an occasional Sclavonic admixture, and the Spaniard is periodically recuperated, not merely by a Gothic immigration from the North, but a Moorish conquest from the South, the former being needed by the Celtic, and the latter by the Iberian element in the Peninsula.

From what has been said, the reader will be at no loss to understand that we regard the Celtic race (when effectually baptised and regenerated) as inherently and essentially superior to the Teutonic, as the latter is higher than the Slavonic; and, we may add, as the last is superior to the Tartar and the Tartar to the Mongol. From the east of Asia to the west of Europe, throughout the northern temperate latitudes, it is a continual ascent in the scale of being, a march from the partially animal to the truly human plane of existence. In the lower stages, from Mongolia to Teutonia, this will no doubt be readily admitted. But a fair and unprejudiced application of the principles, which induce us to regard the Teuton as the highest of all the muscular races, as, in truth, the Caucasian representative of muscular man, must, of necessity, land us in the conclusion that the Celt is unquestionably his racial superior—in fact, his nervous correlate. He has a higher nervous development, and, as a consequence, more intense cerebral action, with respiration more preponderant over alimentation; and, as an accompaniment of this, he has a more delicately organised physique, and a mental susceptibility, immeasurably more acute. When effete, he becomes diminutive in stature, and excitable rather than energetic in mind. He wants weight and volume of being; but when these have been duly supplied, as they have been in the case of the English and the greater part of the Scotch, you have Teutonic power put into action by Celtic force, and in favourable individualities, like Shakespeare, Milton, and Byron, may combine the refinement, susceptibility, intensity, and taste of the latter, with the breadth, grandeur, and masculine vigour of the former. Were this the place, it would not indeed be difficult to psychologically dissect the mental constitution of our men of genius, and point out the special racial source of their respective qualities. Suffice it here, that Shakespeare is the highest example extant of the perfectly matured, and therefore harmonised, blending of Celt and Teuton; in other words, he is thoroughly baptised, and so completely rehabilitated Celt. Let it suffice, however, for the present, that we

simply affirm the superior quality of the Celtic race; the question of relative power we will leave for decision at a later stage of the inquiry.

We have hitherto spoken only of the baptism of the superior by the inferior races for the purpose of physical invigoration—the great ethnic event of the last two thousand years. But action and reaction are always equal, even between Iran and Turan. If the nervous races require an occasional accession of bone and muscle, the muscular races, conversely, demand a periodic innervation—an infusion of fire—to save them from sinking under their constitutional phlegm and inertia. Conquest and colonisation are not always Turanian and Teutonic. They are sometimes Classic, as was evidenced under both the Greeks and Romans, and sometimes Celtic, as we see under the French and British, but more especially the latter, to say nothing of similar movements farther east under the Saracen, in comparatively modern and the Assyrian in more ancient times. Nay, in the memory of living men, did not the Corsican lead his victorious Gauls, not only into Germany, but through it, into the very heart of far Sarmatia? And are we to suppose that this was an exceptional fact in history; that it and the like of it never occurred before? Such a conclusion would indeed show us to be but superficial students of the past, and utterly incompetent to the interpretation of its remoter chronicles. We may be quite certain that in this last age of the world, and on the well-worn track from Britain to India, we see nothing but repeating cycles, ever enlarging in their area and deepening in their effects, on the law of the epicycle, but still repeating. Of course written history makes but the faintest allusion to these earlier cycles, for the simple reason that they were transacted ere it was composed. But geographical names and ethnic facts, to say nothing of mythology and tradition, combine to indicate the prehistoric presence of Celtic peoples in much of Germany if not Scandinavia, in that remote era, when western Europe, from Denmark to Spain, was, if not wholly, at least predominantly, Celtic. The truth is, that as the Celt without the Teuton becomes wiredrawn and exhausted, so the Teuton without the Celt becomes lymphatic and inert, degenerating like an uncultured plant, to the wild Turanian type, which probably constitutes his remote ethnic root; so, in a similar manner, the Slavon is sometimes conquered by the Tartar, and occasionally, as at present under Russia, subdues and rules him in return.

In an inquiry like the present, where so much new ground has to be trodden, and so many disputed questions have to be approximately settled, it will be well to avail ourselves of all possible aid in their attempted solution. As an additional means, then, of enabling

us to decide on the relative grade of the superior nervous races, let us look at the rank of their inferior and muscular correlates, with which, from geographical position or other causes, they are more nearly associated, and to whose reaction, in periods of ethnic exhaustion, they are more especially subjected. And here we are again reminded of the racial superiority of the Celts. To begin, then, with these. They are placed in the extreme west of Europe, at the farthest possible remove from the Turanians of Eastern Asia. Their proper muscular correlates are the Teutons, and when subjected to conquest from the south, it is by the classic Romans. It is doubtful if even the Sclavons ever reached them except by infiltration through the Germans and Scandinavians, while judging by the later and therefore historic career of Attila, Ghengis Khan and Tamerlane, neither Tartar nor Mongol proper, ever prevailed to penetrate so far into the sacred realm of Iran. In Spain and perhaps Southern France they have been exposed to the inroads of Moorish but still Caucasian conquest. Surely a race so especially protected by position from direct contact with either the ruder Turanian or Negroid element, and whose successive racial baptisms have thus always been effected by comparatively pure Caucasian tribes, must, from this circumstance alone, have preserved a purity of blood all but unique. But is not the fact of their being so placed also indicative of a primordial superiority, as if, so to speak, the Celtic area were the highest in the world, from whence, by successive ethnic planes of descent, humanity ultimately arrives at its simply material type.

We are aware that to this very flattering, though rather sweeping conclusion, the scholar will cite his favourite Greeks and Romans, but more especially the former, as an exception; and, historically speaking, he is right in regarding them as having attained to the culminating point, hitherto, of intellectual manifestation. But we should remember that the prehistoric cycle of Celtic culture corresponds chronologically to their Cyclopean age, and that the present epicycle is, we have reason to believe, only at its initial stage, more especially in Britain, the (oceanic) Rome of the future.

But leaving this aspect of the question for the present, let us return to that branch of our subject-matter more immediately under consideration, namely, racial correlation as indicative of ethnic rank. That the Classic is one of the specially intellectual races, and if not the very highest, at least next in order, cannot for a moment be doubted. But let us pursue our inquiry. Italy, within the historic period, has been conquered and colonised by the Teutons, and at least invaded by the Celts, who in some of its subalpine provinces are, if not absolutely indigenous, yet of prehistoric antiquity. And as

mediæval Italy owed her regeneration to an infusion of the Gothic blood of her conquerors, so from their cranial type and mental constitution, we have reason to believe that the Romans were Italians quite recently baptised by transalpine immigration, and thus mounting in the process of resurrection to the very heights of mundane empire. From Dalmatia and Lower Austria a Slavonic element may have occasionally and exceptionally percolated, but as a rule the Celt and Teuton are the appointed baptisers of the effete Italian. The wars with Carthage and some Saracenic inroads indicate, that like all the Mediterranean peoples of Southern Europe, the Italians may at remote intervals have been subjected to more or less of reaction from Northern Africa. Their racial correlates, however, are all Caucasian, and that, too, as in the case of the Celts, of exalted type.

But it is otherwise with the Greeks; they interact with the Slavon, and are subject to the invasion and occupation of the Turcoman. And here a grave question arises, whether we have not greatly undervalued both these races, but more especially the former. In this connection, let us not forget the very important and significant philological fact, that Sanscrit finds its nearest lingual relative, not in Greek or Latin, but in the rude and despised dialect of the uncultured Lithuanian peasant. Neither is it unimportant from the anthropological standpoint, that the Russian church belongs to the Greek communion and was the result of Greek missions, many of its clergy being still of undoubted Hellenic descent. No wonder the Muscovite tends, as by a racial inspiration, to Constantinople; he goes there to be Hellenised as the Goth did to Rome to be Latinised. The baptismal speciality of the Greek, however, as contrasted with European peoples placed farther west, consists in the fact that he is subject to invasion and permanent occupation by a race of decidedly Turanian stock, a fate he shares in conjunction with the Slavon. We suspect however that this is, in a sense, exceptional; that is, it occurs not periodically, by the law of national action and reaction, but only at those long distant and epochal intervals, when as at the collapse of classic civilisation there is a *mundane* movement that precipitates the muscular on the nervous races from India to Britain, and under which the Aryans and Semites of Asia also of necessity succumbed. And as a counterpoise to this, we have reason to believe that the Hellenes have, at other periods, been invigorated, like the Italians and Celts, by a direct Teutonic colonisation. Of this probably we have an ethnic record in the *Iliad*. Achilles is a Scandinavian Jarl; Ajax is a well-fed, ponderous and stupid German Baron; while Agamemnon has many of the moral qualities, at least, of an exalted Gothic king. In Ulysses, on the other hand, in virtue, perhaps, of his insular isolation,

we have the subtlety and cunning of the primæval Greek (Pelasgian?), a remnant of the ancient leaders of the then vanished age of Cyclopean civilisation; that civilisation, we may remark in passing, we regard as predominantly the effect of a prehistoric *Celtic* conquest of South-Eastern Europe, while, what we know more immediately as classic civilisation, was due to that Teutonic colonisation, of which, as we have said, the racial effects are so vividly pourtrayed to us in the Homeric poems.

The Greek, however, holds another racial relationship, in virtue of his eastern position, and consequent proximity to the Caucasians of Asia. If, in periods of especial collapse, he is liable to the inroads of the brutal Tartar, he is also exposed to the refining influence of the Aryan, and the exalting power of the Semite. The Ionic school of philosophy in earlier and the Alexandrian in later ages, to say nothing of the system of Pythagoras, afford ample evidence of the susceptibility of Grecian intellect to the influence of Oriental ideas. But the most notable and convincing instance of the profound and peculiar relation which the Hellenic holds to the Oriental mind, is afforded by the history of Christianity, both in its origin and its diffusion. Arising from the interfusion of Greek philosophy and Judaic theology, its first impingement on Europe was through Hellas, while its sacred records were composed and still exist in the Greek tongue. Is it from this eastern source that the Greek obtained his metaphysical subtlety and logical acumen, and that tendency to refined and profound philosophic speculation, whereby he was differenced, not only from the ancient Roman, but also the modern Italian?

From the foregoing survey of the racial correlates of the Classic peoples, it is obvious that they, too, like the Celts, are well protected from a direct Turanian invasion under ordinary circumstances; but the fact that both the Asiatic and European Greeks have been for centuries subjected to the Turkish yoke, indicates that they are less favourably situated in this respect than the more westerly divisions of the Caucasian race. And here we obtain the glimpse of a great principle, which may perhaps help to guide us in this investigation of an ethnic labyrinth. If we glance at the muscular races from West to East, from the Teuton, through the Slavon and Tartar, to the Mongol proper, we shall find a gradually diminishing refinement of type, a descent by successive stages, from the high-caste Scandinavian on the Atlantic to the flat-faced nomad on the Pacific. But if this be so with the baptisers, do not the orderly and generally harmonic arrangements of nature suggest the probability, if not necessity, of a corresponding condition in their nervous correlates, from whom, in positive ages, they are to receive nerve and intellect, and to whom, in

periods of political decay and organic exhaustion, they are destined to communicate corporeal strength and material vigour? From such data, and by such reasoning, it is obvious that we should arrive at the conclusion that Europe, as a whole, is a higher ethnic area than Asia, and that the west of Europe is higher than the east; and lastly, that the Celtic is the highest, because the best protected and the most nobly related of all the intellectual types, from India to Britain. We would not be understood as pushing this conclusion too far, or estimating it beyond its real worth, as a suggestion for further inquiry, and a hint to future speculation.

But it is time that we should return to the more especial subject-matter of the present paper, from which, however, we trust the foregoing remarks will not be considered a needless digression. And first as to the Roman. He was not a (modern) Italian; that is, he was not a pure ethnic product of the Italic area; he was not of that type, mental or physical, to which the people of the peninsula ever gravitate, after full recovery from a racial baptism. He was too strong and too coarse, too harsh and too angular, too stern and determined, too calm and self-possessed, too osseous and too muscular, for the lineal descendant of a perfectly classic type. Neither was he of this type, crossed by another of yet greater nervous refinement and sensibility, like the Celtic. He errs, if we may so say, on the side of muscularity. His alien progenitors were either Teutons or Moors. We incline to the former, though it is possible there was a dash of the latter. His character and cranial contour present many decidedly Teutonic elements. He was cautious in the formation of plans, but persistent in their execution. Though stern to the verge of cruelty, he was fundamentally just. Till vitiated by the possession of empire, he entertained a profound respect for women; and the Roman matron of the republic was the highest model of domestic virtue and excellence that heathenism has bequeathed to us. He was great as a warrior, he was still greater as a legislator. He was devout, yet not superstitious. He was solid rather than brilliant, and sound rather than subtle in intellect. He lacked suppleness, that especial characteristic of the modern Italian; but he supplemented this deficiency by his iron will. He was neither æsthetic nor literary by natural proclivity, being pre-eminently a soldier and a statesman. His faculty was for the field and the senate, with an occasional condescension to the forum; but his appearance in literature was late, and too obviously the result of Greek culture, to allow us to regard it as in any respect spontaneous. The elder Cato was right as regarded the rhetoricians, but fate was too strong both for him and the republic.

We are quite in the dark about prehistoric Italy. Like Greece, it

was Cyclopean. But what was that? What definite image can we form of the men who piled the massive walls of Norba? What language did they speak, what arts had they mastered, what power did they exercise? Above all, whence did they come, and what bequest did they leave to posterity? To call them Pelasgi, is simply to put a name in place of a fact. We are in nowise helped, but rather hindered, by such a procedure. Of one thing we are certain, they left us the SITE of Classic civilisation. Such a sequence cannot be altogether devoid of significance. The rudeness of their structures indicates that they preceded the Etruscans, as these antedated the Romans. As already hinted, our *conjecture*, and it is nothing more, points to Classic aborigines dominated by Celtic immigrants, in that far-off movement, when primæval civilisation was moving eastwards from its western source in the high ethnic area of Europe, towards the warmer latitudes and softer races of Southern Asia, taking Italy and Greece in its way, as it did at a later, and therefore historic, age, on its return.

But who, or rather what, were the Etruscans? And we reply, judging by the predominant character of their art, a fundamentally Classic people, but, judging by their physical type, with a decidedly alien baptism. Descending from the Rhætian Alps, crossing the Po, and conquering Tuscany, short, thick-set, broad-shouldered, round-limbed, heavy-built men, with large heads and respectable corporations, implying vigorous cerebration combined with a sound digestion, have we not here the indications of a Czech or Slavonic element? Shall we say, in modern language, a Bohemian and Croatian immigration, the prehistoric foreshadowment of long subsequent Austrian occupation! Was not Count Cavour a modern reproduction of this type, which also reappears to a certain extent, though with a stronger dash of the Greco-Roman element, in the figure of the elder Napoleon? Nay, was not the Roman himself, in part, an ethnic result of this descent from the Rhætian Alps; that is, had he not Etruscan blood in his veins, as well as Etruscan laws in his political constitution? Was not Latium the border territory of the (Dorian) Greeks of Southern Italy, and was not Rome its frontier fortress on the Tiber? We may depend upon it that Etruscan aggression did not begin with Numa, though it may have ended with Tarquin; and, had we the early annals of Alba Longa, we should probably discover this.

And thus, then, we are brought to the great problem of the Latian aborigines. Dorian Greeks, as we have said, by their language, semi-Etruscans by their laws, and yet, in part at least, Teutons by their mental constitution. Though, of course, beneath all this, as the stock to be grafted on, they were Italians, in the same sense in which

Englishmen are Britons. And we may remark here, that the Romans held the same ethnic relation to the Greeks, which the English do to the French; that is, they were fundamentally of the same Classic type, but with a larger alien and invigorating element, just as the modern Briton is stronger than the Gaul, because he was more effectually baptised at the great Teutonic invasion. But of this more hereafter.

The rise of Rome to imperial supremacy was not an accident. It was due to a mundane movement. Empire and civilisation, in their north-western march, having reached Greece, and eventuated in the conquests of Alexander and the rule of his successors, were now passing into Italy, and settling on the central town and central race of that peninsula. It was simply the second and western phase of Classic development, and, from the mundane stand-point, may be regarded as one with that of Greece. In a sense, Classic and even Mediterranean civilisation culminated in Rome, the wealthy heiress of the total past. The fact, however, that the great political and ecclesiastical mission of Rome tended westward, as that of Greece did eastward, would indicate that her principal racial correlates must lie in the same direction, and so points unmistakably to prehistoric Celtic and Teutonic baptisms, as the ethnic preparation for her after greatness.

We have purposely mentioned the ecclesiastical mission of Rome. As Protestants we may wish to ignore this, but as anthropologists we cannot consent so to falsify history by the sin of omission. Fourteen centuries of sanctity and pontifical supremacy cannot be an exceptional phenomenon. It must be due to the operation of a law and to the presence of forces of a very permanent character. Rome is unquestionably one of the sacred cities of the world. Now the question is, can such sites be *made*. Do they not antedate history, and place even tradition itself at fault. The faith of Islam did not *make* Mecca sacred. It *found* it so. It was not Judaism that sanctified Jerusalem. Melchisedec, King of Salem, received tithes even of so exalted a character as Abraham, and this too obviously in virtue of his pontifical supremacy. It is a most mistaken idea that the union of sacerdotal and regal functions in one person is a comparatively modern invention. On the contrary, it is one of the oldest arrangements with which history renders us conversant. In a sense, Rome has always been ruled by a Pontifex Maximus. Before the Popes it was the Emperors who bore this title. Is not Roma Rama, one of the great Aryan incarnations; and is not Rome still the highplace for the worship of the great Semitic incarnation? To what, then, do our remarks tend? Why to the rather heterodox conclusion that the political Rome of history arose

on the ruins of a prehistoric and sacred Rome, and hence the *cloaca maxima* and other archæological puzzles, which in reality belong not to the time of the kings, but of their pontiff predecessors in yet remoter ages. Again let it be distinctly understood that we throw this out simply as a suggestion for further consideration.

But to return to the more immediate subject-matter of the present paper. Despite the apparently exceptional, because eastern, direction of Alexander's conquests, civilisation and power were marching steadily north-westward during the entire period of classic supremacy. This was the real direction of the tidal movement, the "set" of the main current to which Macedonian aggression in earlier, and Constantinopolitan effeteness in later, ages were merely counter-eddies. Let us distinctly understand that in her eastern dominions, Rome simply entered upon the inheritance of Grecian conquest, where her supremacy to the last was political, not moral or intellectual, so that she never superseded the language of her predecessor, the Byzantine empire, like its church, being in fact essentially Hellenic not Latin. Hence its slow decline was inevitable, ethnic vitality having for the time deserted the Grecian for a more western area, the appropriate sphere of Latin conquest and colonisation. Hence also the separation between the Papacy and the Patriarchate, and the superiority in power and influence of the former to the latter. Thus, then, we are brought to the second division of our subject, the Celt, as subject and successor to the Roman, or rather to the classic Græco-Roman peoples as a whole.

The idea of conquest and colonisation from the south seems alien to our established habits of thought. To listen to ordinary historians it might be supposed that the Gothic immigration was the only ethnic movement of any importance which had ever taken place. It seems to be forgotten that it was preceded by the extensive colonial operations of Rome, the effect of which is still lingually and perhaps racially distinguishable over large tracts of her transalpine territory, Spain and France being still in a sense, like Italy, the abode of Latin nations, while even Britain is not wholly free from the effects of Roman occupation. Whether conquest and colonisation are to proceed from the north or the south, the east or the west, depends on circumstances. Rome, as the imperial representative of the mundane tendencies of her era, marched westward till her eagles rested on the Atlantic seaboard from the Pillars of Hercules to the South of Scotland, thus completing that great movement which had commenced so long previously on the plain of Shinar. Not that Roman occupation was the first wave which the north received from the south. Both France and Ireland bear distinct traces of an Iberian infusion, but the history

of these earlier invasions is veiled in the night of ages, or, at most, exists simply in the faint echo of tradition.

The speciality of Roman conquest westward is the enduring character of its effects. Over her Asian and African provinces the scimetar of the Moslem has brought desolation and ruin; the armies of the Faithful, like the breath of the Simoon, leaving only death in their course. Now the western mission of Rome was primarily to the Celt. She compelled him to accept the (moral) baptism of her civilisation, prior to his receiving, in common with herself, the ethnic and material baptism of the Teuton. Political, that is imperial, Rome only knew the latter as her enemy, and finally as her conqueror. It remained for spiritual Rome to make him her convert and her subject, and she could only accomplish this as he made his military pilgrimage to the holy city. The true pupil of the Roman, in the political and municipal, the social and religious sense of the term, was the Celt; thus, we have some reason to believe, both morally and geographically, by training and position, his heir and successor.

But what was the condition of this pre-eminently nervous and sensitive man of the north-west, when he emerges into light on the page of history? And we reply, that of ethnic collapse, of racial exhaustion, doubtless after the evocative excitement of a previous era of civilisation. His war chariots, on the one hand, and his Druidical faith, on the other, determine pretty accurately the phase of civilisation, whereof his prehistoric culture was a part. We find it in ancient Egypt, and India, and Persia, and at the siege of Troy. Whether he should be regarded as the master or the pupil, the originator or recipient of this culture may still be an open question, but that he partook of it there can be no doubt. Of course, with this we dismiss "the painted savage" theory to the limbo of all the pedantic vanities, as utterly unworthy either of serious consideration or reply. Chariots and corn fields, and these were retained even to the time of Cæsar, imply agriculture and the mechanical arts of civilised life. They cannot exist alone. They have their necessary accompaniments. They are the harmonious parts of a social state that we may deem barbarous, but which Rhameses would have esteemed civilised. So Druidism was obviously a branch of that primæval theosophy, whereof the Brahmins of India, the Magi of Babylon, and the priests of Egypt were the sacred conservators and expositors. That it was traditional and oral in the manner of its tuition bears witness to its antiquity rather than its imperfection. It obviously belonged to what is sometimes called the monumental as contradistinguished from the literate era of civilisation. This, the *bookish* scholars of the eighteenth century, of course, despised, but we who know how long Sanscrit learning

was thus preserved, can scarcely join in their superficial contempt for the unwritten.

Whether the Celt was the originator or the recipient of primeval culture is part of that larger question, the priority of Europe or of Asia in the march of civilisation. Now, for the free and effective discussion of this debateable point neither the theological nor the scholarly world is yet prepared. Divines, of course, hold fast by Ararat and the Orient! while scholars have still but a very inadequate idea of the importance of archæological and anthropological facts in an inquiry so far transcending the limits of written history. But anthropologists should not be so limited. We know that where written records fail monuments often serve us; while profounder yet than these are the indications of character attaching to the races that erected them. Now it is admitted that written records fail us as to the earlier history of the Celts. The utmost that we can gather from history is that they were once the predominant people of Western Europe. What then do we learn from their monuments? Simply, that for the most part they antedate the age of hewn stone, like the earliest Cyclopean remains of Greece and Italy, of which they may have been the precursors, but could not have been the copies. The monoliths, circles, and cromlechs of Gaul and Britain were obviously erected independently of architectural tuition from more advanced nations. They are in the strictest sense of the term primitive, the result either of priority or isolation. Now with this let us combine the important ethnic fact that the Celts are the most sensitive and refined of all the nervous races endowed, indeed, with sensibilities, to which Greek and Roman, Persian and Assyrian were alike strangers, and which are only now in these later ages finding a voice in literature, to which they are obviously in the process of adding a chapter previously unwritten, the voice of the soul. What then are the historic probabilities, as to this ancient race and this remote past, which are thus dawning upon us? Why that civilisation originated on the true Celtic area in the north-west of Europe, whence it swept over Italy and Greece, emerging into its Cyclopean phase during the process, and so reaching Asia, carried the victorious Aryans through Northern Persia into India. It need scarcely be said that this is exactly the reverse of that movement which constitutes the great feature of history proper, namely, the counter-movement of empire from the south-east to the north-west, now in the process of culmination on the primal seat and amidst the primordial race of civilisation.

Now of all this we, of course, have no hint from the imperial penman. It was, indeed, no business of his in a life of Julius Cæsar to go down to such depths, or stir up such vexed questions. His hero

had simply to carry into effect the racial movement of the Italic portion of the classic race in their aggressive action on the effete Celts, the exact counterpart of the corresponding though previous movement of the Greeks eastward. The two constituting in their totality the political result of classic culmination, whereof we have the moral bequests in Christianity and the Faith of Islam.

What then is the place of classic civilisation in human affairs? What is its true position in mundane history? What is its ethnic value? What is its significance contemplated from the anthropological standpoint? These, it must be confessed, are rather searching queries, more easily put than answered. It was not a part of the primal or south-eastern movement, that eventuated, as already observed, in Cyclopean civilisation. But it was a very important part of the return wave to the north-west. It was pre-eminently the Mediterranean, as its successor on the Celtic area will obviously be the Atlantic or oceanic phase of empire and civilisation, with a larger area and a grander destiny. Through Greece it received influences from the east; through Rome it transmitted them to the west. Classic civilisation was, however, essentially an Aryan product, as that of Phœnicia and Carthage was Semitic. The true imperial era of the latter terminated with the fall of Babylon, Carthage being but a prolonged and dying echo, without any of the true elements of a new life, the *lower* empire of the Semites, as the Byzantine was of the classic peoples. Hence the ultimate triumph of Rome was certain as the result of an ethnic law, she being the existing representative of Aryan power, then and still in the ascendant. This interaction of the Aryan and Semitic races, which reappeared at the Crusades, constitutes a most momentous chapter in the history of man; and, doubtless, has prospective as well as retrospective bearings.

The speciality of the classic man was his predominant intellectuality. In this he was an apt representative of the European as contradistinguished from the Asiatic type of humanity. Under Greek and Roman institutions, the citizen, for the first time in history, emerged into individuality and liberty. The Semitic monarchies of Egypt and Assyria were simply oriental despotisms of the primeval and theocratic order, that regarded the people as blind instruments, the passive subject-matter of their sacerdotal and political rulers. While the eastern Aryans of India and Persia, though exhibiting many features characteristic of the intellectual family of mankind, were nevertheless so far affected by their geographical environment as Asiatics, that their liberty never advanced from the sphere of speculation to that of action. They might be philosophers, but they were never citizens—except of "the republic of letters!" In a certain sense, then, it may be

said that the classic man affords us the first historic manifestation of the Aryan in a position of imperial supremacy. In him intellect for the first time emerged into formal power as the ruling influence of the world. But this is only saying that he was the first European on the page of history, the precursor and preparer of modern civilisation.

Neither the Greek nor the Roman alone suffices for a complete ideal of the classic man. The former was not adequately gubernatorial, nor the latter sufficiently intellectual for the efficient discharge of their combined mission. The Hellenes could never have built up an enduring empire, and centralised the resources of ancient civilisation for five centuries; while the Latins were equally incapable of originating those unequalled models of literary and artistic excellence which the Greeks have bequeathed to an admiring posterity. Yet the latter were undoubtedly the more classic of the two. But their very speciality in literature, art, and philosophy disqualified them for the ruder but sterner task of government. For this, as already observed, the Roman was fitted by some process of racial amalgamation which had given him strength at the expense of refinement, and provided him with vigour while depriving him of taste.

And now then, for it is time that we should conclude this lengthened paper, though we have by no means exhausted the subject, what are the qualifications and what the legitimate expectances of the Celt, in reference to the next great manifestation of imperial supremacy? And this involves the equally important query, what is to be the essential character of impending empire? In the first place, speaking racially, it will be an Aryan power, and so, among other things, decidedly an empire of intellect. From geographical position on the Atlantic seaboard, it must be largely, if not predominantly, maritime and oceanic, which, in the present age, implies a truly mundane area, more especially in the sphere of commerce and colonisation. It will probably be bipolar like the classic, France taking the part of Greece and Britain that of Rome, the Gauls being more purely Celtic, and so superior in taste and refinement, while the Britons, by their heavier Teutonic baptism, are like the Latins, more qualified for permanently sustaining the weight and responsibility of empire.

In a sense, then, it may be said that Celtic will be the epicycle and complement of classic supremacy. In it the great north-western movement of civilisation will culminate at its geographical terminus, on the high ethnic area of Western Europe. In a profounder and larger sense than that of Rome, it must prove the summation of the past. It will be the fire-baptism of a world whose hierarchies, monarchies and aristocracies, creeds, codes, and philosophies will be simply as fuel to the flame. At what stage of development, then, it may be asked, has

this great epicycle now arrived? And we answer, that of incipient transference from Greece to Rome, from Gaul to Britain. This needs some explanation.

The shadow of empire has hovered over France for a thousand years. Charle-magne, Louis le Grand, and Napoleon I, were its political exponents; while for the last two centuries the leadership of France in manners and fashion has been undisputed. Its language is the medium of diplomacy, and at one time almost promised to become that of literature and science. But there is a geographical boundary to Gallic power. It is European not mundane. It is courtly, social and political. It is an empire of influence and example rather than of policy and arms, of fashion rather than of art. It is not colonial, and in the higher and grander sense of the term, it is not strictly imperial. France can conquer, but she cannot retain her conquests. She has swept over Italy from the Alps to the Tiber, and even to Calabria, but she has never held it in her iron grasp with the tenacity of Austria.

But it is otherwise with Britain. Slow, yet sure, in her ascent to power, which rests not on the brilliant talents but the solid endowments of her people, she largely resembles Rome in the manner of her rise and in the character of her institutions. She has never attempted to subdue the world under one Alexander or one Napoleon. Her empire, while partly the result of conquest, is also very largely the effect of colonial extension, and under either aspect is rather a steadily accumulating heirloom from the ages than the bequest of one splendid and irresistible conqueror. The diffusion of her language, unlike that of France, is not a fashion but a necessity, the necessity of commerce and colonisation. It is already the native tongue of eighty millions of the most civilised peoples in the world, who by universal acknowledgment, march in the vanguard of political liberty and industrial activity, and who apparently only wait for the full advent of a spiritual era to assert a similar supremacy in literature and art. Their numerical increase is, at the very least, one million annually, and the fact that they possess not only the prairies of America but also the plains of Australia and Southern Africa, affords ample assurance that for this increase there will be "ample room and verge enough" for centuries to come. Their prospective destiny is the most splendid that has ever yet dawned on the sons of men, nothing less indeed than the religious, political, social, commercial, and intellectual leadership of the world during the impending age of imperial power in North-western Europe. The geographical centre of this truly mundane empire will, we hold, never permanently leave the old world, whose geographical extent and numerical force will combine to retain it on

the hither side of the Atlantic. Contemplated thus in the light of its ulterior destiny as the Rome of the future, the Babylon of the west, the stupendous growth of modern London can be readily understood. It is gradually preparing to become the capital of Christendom, the metropolis of civilisation.

But without dwelling on the specialities of Britain as contradistinguished from those of France, we may say that this Celtic area, as the primal seat and western terminus of mundane culture, cannot fail to present some peculiar characteristics, more especially at the period of its emergence into political and intellectual supremacy. As the primal seat and, in a sense, the source of civilisation, its people are most probably endowed with a richer vein of inventive and creative power than the population of any other ethnic area. In connection with this branch of the inquiry let us remember that, quite independently of their past history and racial characteristics, we have reason to believe, even from their geographical position alone, that the Celts occupy the highest ethnic area in the world.

But in strict accordance with that harmony which is found to pervade every other department of nature, the characteristics and the history of the Celts agree with their geographical position, and all combine to point them out as the most nervous and refined, the most sensitive and receptive, yet at the same time as the most active and energetic, the bravest and the most enterprising of the children of men. Such a people, so endowed and so placed, emerging into their inevitable and predestined supremacy, after the subsidence and rest, the ethnic baptism and reinvigoration of not only their historic but their prehistoric past, cannot fail to assume a power and exercise an influence altogether unexampled in the annals of the race, and such as in quality and degree can never again be attained till, in the grand revolution of the horologe of destiny, their epicycle shall commence, and in the far future of yet unborn millenniums they shall be once more called to the legitimate exercise of their sublime prerogative as the religious, political, and intellectual rulers of mankind, at the greatest and grandest crisis that human affairs can ever know, that is at the summation of their historic past and the birth of their yet unrevealed future.

Throughout these remarks we have been so occupied with "the Roman and the Celt" in the abstract, that we have failed to make any attempt at delineating the illustrious man, to a narrative and laudation of whose career the labours of the imperial author are more especially devoted. This omission was, however, intentional. As a biography, the work is not yet sufficiently advanced for such a purpose. We must wait for its conclusion. Then, with the final statement of fact

and rendering of opinion fully before us, we may, perhaps, enter into an ethnic portraiture of the character and capabilities of the great Roman patrician, on whom devolved the stupendous task of converting the most powerful republic into the mightiest empire upon record—a revolution whose advent, however, did not depend on any individual, or the fortune of any battle, such a result being about that time due on the mundane horologe of destiny.

THE PLURALITY OF RACES, AND THE DISTINCTIVE CHARACTER OF THE ADAMITE SPECIES.

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The object aimed at in the following essay, is simply to inquire how far, and to what extent, the authority of the Bible and of early history confirms or contradicts the supposition that a plurality of races was originally created, or that all mankind were descended from a single pair. After a fair and dispassionate survey of the whole matter, I shall endeavour to draw such conclusions from the entire facts as the case may appear to warrant.

It seems to me extremely desirable, as far as we can, to reconcile the apparently conflicting claims of Scripture and of science; indeed, these differences, if closely examined, will be frequently found, like those among logicians and politicians, to be more apparent than real, more in terms than in things themselves. Although even here I would not for a moment consent to sacrifice truth to secure peace, yet, in this case, I am convinced that the best way to arrive at truth is to banish passion and prejudice, and to discuss the matter in a judicial and philosophical spirit, consistent with the dignity of the subject to be debated. A course very opposite to this, is that which is ordinarily pursued whenever grave and important topics of this class are brought forward; and the prevailing opinion appears to be, that the greater the heat and fury which can be excited, the more surely will truth at last be elicited.

On the directly theological part of the question, I desire to touch as lightly and as briefly as the case will admit of. I may state, however, on the outset, that I am not at all prepared to dispute the authority or the inspiration of the Bible, or to maintain that it is in

any respect at variance with science. Nor do I deem it in the least degree necessary, for the purpose of maintaining my argument to the full, that I should do so. On the contrary, I contend that Scripture and science are thoroughly consistent with, and that they are the best and surest supporters of each other. And so far from deeming it necessary to attempt to impugn the inspiration of the Bible, I hesitate not to assert my conviction that, if you once deny the authority of particular parts of it, it becomes impossible to determine what portion is inspired, and what is merely human. Each person will, of course, claim the right to settle this point for himself, and will be induced to deny the divinity of all those passages which at all militate against his own particular views, or condemn his peculiar failings and practices. Further than this, I would even assert that, if any of the books of the Old Testament exhibit peculiar traces of inspiration, Genesis in many respects bears very evident tokens of its divine origin. At the same time, it appears very reasonable, and fully consistent with all that we can conjecture (for we can hardly be said to know anything with certainty beyond the records of revelation) concerning the Divine wisdom and goodness, that the Bible may have been dictated throughout by Divine authority so far as regards its object in teaching men their duty, but without at all being intended to carry the same authority as an instructor on matters of science or of history. Nevertheless, as observed by Lord Bacon on several important points, the teaching of the Bible with regard to philosophical topics, has proved to be not only quite sound, but far in advance of modern discoveries.

It is, moreover, surely quite possible and rational to believe entirely and implicitly in the inspiration and truth of the Bible, and of every part of it, while at the same time you do not acquiesce with the same implicitness in the interpretation that has been put upon particular passages. As regards matters not directly theological, even the teachings of the church may be fairly questioned here, and that by the most orthodox churchmen; inasmuch as the church, like the Bible, does not set up for a teacher on matters of science or history, but only seeks to guide its members aright as regards their religious duties: indeed, the interpretation put by the authority of the church upon the meaning of the Bible in relation to profane topics, cannot be considered to amount to anything more than the individual opinions of the writers on these points, who, had they lived in our day, and been acquainted with the discoveries of science known to us, would no doubt have greatly modified their sentiments upon many matters. It has, therefore, always appeared to me to be highly undesirable to contend, as some very well intentioned, though not very discreet persons take every opportunity

of doing, that Scripture and science are on many occasions directly antagonistic, merely because they appear in some slight degree to differ, but which seeming contrariety is often caused, not by the actual opposition of scripture to modern discovery, but by the mode in which we have been accustomed to interpret scripture in regard to this subject.

The principle adopted in the following essay with regard to the proper construction of scripture, will moreover do much to disarm the authority of those who contend that, from the direct contradiction which modern science gives to many of the statements contained in the Bible, especially in the Book of Genesis, it is impossible that the sacred volume can be throughout inspired.

One very remarkable instance of this sort occurs with respect to the opinion as to the plurality of races in the human species, entertained by scientific inquirers at the present day. The conclusion at which many eminent physiologists have arrived, is that the whole race of mankind could not possibly have sprung from a single pair. But here they are referred to the scripture narrative, which, they are told, asserts positively that Adam and Eve were the parents of the whole human race. This, however, is exactly one of those cases where the Bible has not been allowed to speak for itself, but its meaning has been explained through the forced and unwarranted interpretations that have been put upon it by writers in ages gone by. Thus, the first chapter of Genesis contains a simple and plain account of the creation of different races of mankind all at once, both male and female. A command was, moreover, then given to man "to be fruitful, multiply, and replenish the earth;"* but which would surely not have been given to Adam alone, when he had no means whatever, Eve not being then created, of fulfilling the command. Nor would Adam while in Paradise, even after Eve became his wife, be told to replenish the earth, to which as yet, beyond the boundaries of Paradise, he had no access. The second chapter (except by the interpreters alluded to) was never intended to contradict or nullify the first, but was only added to give an account of the creation of a particular pair of human beings who were to be the parents of a particular race of people. The Bible, indeed, so far from teaching us that Adam and Eve were the progenitors of the entire race of mankind, on many occasions and in various ways directly and distinctly negatives any such supposition. Thus we are told by the Bible, that after Cain had slain Abel, and the Almighty had set a mark upon him, the murderer exclaimed that every one who sees him will slay him. But how

* Genesis i, 28.

could this be unless the earth had been already peopled, which could not possibly have been the case if all mankind had sprung from Adam and Eve?

The very circumstance of Adam calling his wife Eve, in token that through her as a mother the promised Redeemer should be born, also necessarily implies that there were other women besides Eve then living upon the earth, and who were not descended from Eve, through whom this promise might be accomplished. It has also been remarked by a learned writer, who is, however, opposed to the theory which I am maintaining, that Eve upon the birth of Cain her first-born, exclaimed, "I have gotten man, the very Jehovah; *i. e.*, I have brought forth the man who is Jehovah himself, the person who, according to the promise, is to come and redeem and restore me, my husband and our children, to the favour and acceptance of our Creator,* and who was to be the promised Messiah and Saviour of the world." But could Eve have supposed that the Redeemer would be born at a time when the earth was not peopled with men to be redeemed, with the exception of herself and Adam, and their children? On the contrary, this supposition of Eve's necessarily implies that the earth was at this time filled with inhabitants.

The Scripture shortly afterwards informs us that Cain became the builder of a city.† But does not this fact also imply that there were at least several other persons on the earth at that time besides his own family?. Again, as regards the wife of Cain, a question may be raised as to who she was, if there were no other people on the earth except Adam and Eve and their family. Besides which, although every particularity respecting the successive birth of sons to Adam and Eve is recorded, there is no mention of their having a daughter until after the birth of Seth; yet, when any of Adam's children had daughters, this is always stated. The natural, and indeed the only direct inference to be drawn from the sacred narrative itself is, that there were other races upon the earth, and that Cain's wife, as also Lamech's, were taken from them.

From what the history of civilisation teaches us, we cannot suppose that efforts would have been made to cultivate the ground, or to tend flocks and herds, when only one family on the earth had to be maintained; nor would the members of this family have been likely to resort to this practice unless they had learnt it from others whose necessities had induced them to undertake it.

Each of the facts which I have mentioned, and which are taken from the Scripture narrative, go strongly to prove that there were

* *Mosaic Account of the Creation.* By Philo. 1819. † Genesis iv, 17.

other races upon the face of the earth besides Adam and Eve. If we read the narrative literally we can arrive at no other conclusion ; and this view of the Scriptural account is much strengthened and confirmed by the circumstances which I have recently stated. The argument of the plurality of races may therefore rest on the Bible alone. Those who oppose this opinion, not its supporters, are compelled to resort to extraneous matter to uphold their views.

In addition to this it may be remarked, that it appears much more probable, and more consistent with what we have experienced of the general dealings of the Almighty in regard to the world, that He should have intended only that Adam and Eve and their descendants, being limited to a particular race, should inherit Paradise instead of the whole world residing there, and not entering upon the other parts of the earth, which would consequently, had it not been for the fall, have been left totally uninhabited by the very persons whom it was created to contain. According, however, to the literal meaning and reasonable interpretation of Genesis, Adam and Eve found the earth so peopled when they were turned out of Paradise, not of course by their own descendants who were as yet unborn, but by the "males and females" and their descendants, whose creation is recorded in the first chapter of the sacred volume.

In the fifth chapter of Genesis, v. 2, it is stated that the race of mankind, not one man alone, is called Adam. In the sixth chapter, v. 2, the descendants of Adam are spoken of as "the sons of God," a race distinct from the rest of the world, but with whom they intermarried. By "men" in general, who are mentioned in the first verse, it may be inferred are meant those of the original and ordinary creation, described in the first chapter.*

That there was a distinct creation in the case of Adam and Eve cannot be questioned. Their descendants, however, appear to have formed a separate race of themselves from the rest of the world, from which that of the Hebrews shortly afterwards sprang, and which is very early mentioned in Scripture as a distinct people. Moreover, the object of the Bible as regards the historical portion of it was obviously not to give an account of mankind in general, but only the Hebrew race, and which course was pursued throughout the Old Testament. Very soon

* It was stated by the Rev. Dunbar Heath, whose classical acquirements and extensive Biblical researches are well known, in his address at the inaugural meeting of the Manchester Anthropological Society, that, in his opinion, the Old Testament clearly recognised a plurality of races, and he adduced not only the fact of Cain's banishment into a land of cities, but the mistranslated phrase "high and low, rich and poor", in several parts of Scripture, the real rendering of which should be "the race of Adam and the rest of mankind." The words in the original are simply "Adam and Ish."

after the time of Abraham, the Hebrews were recognised as a distinct and separate race of themselves, which they surely would not have been merely because they belonged to his family. Thus, Joseph, when brought into Egypt, was spoken of as "'an' Hebrew;"* and, in the very interesting representation discovered among the Egyptian remains descriptive of the history of Joseph and his brethren, they have each that strong peculiarity of feature even now characteristic of the Hebrew race. To Abraham was first revealed the design of God with regard to this people; but this does not necessitate its not having been formed long before. Not improbably there were others of the Hebrew race besides Joseph and his brethren, who united with them while they were in Egypt, and thus swelled their numbers beyond what in the ordinary course of propagation they could have reached. The promise to Abraham, indeed, related mainly to the Messiah being descended from him. His being the father of a nation did not preclude others of the same blood becoming members of that race. These appear to have been denominated Hebrews as well as his direct descendants; nor could they, as has been asserted by some, be confined to those who were descended from Ebur. The most probable supposition appears, therefore, to be that, although the children of Israel are the descendants of Abraham only, the Hebrew race included that distinct tribe of people who were descended from Adam, and who retain that peculiarity of feature, and other marked characteristics which have ever served to keep them separate from the other races of the earth. By being the father of a nation, does not necessarily or exclusively signify being its progenitor, but only its founder or deliverer, as many a monarch has been styled the father of his people. Abraham himself is indeed spoken of as the Hebrew,‡, as though the race to which he belonged, which could only have been the Adamite descendants, had been thus early distinguished and recognised.

But it may be said that if there were other races of mankind besides that of Adam, they were all destroyed at the deluge, when Noah and his family were preserved in the ark. Noah himself, it is to be observed, is spoken of as "perfect in his generations,"‡ which may be implied to mean that he belonged to the Adamite race, with very little intermixture of the blood of the ordinary race of mankind. The Bible, as it has been ordinarily interpreted, has led to the supposition that the whole earth was overwhelmed by the catastrophe in question. Here, however, we are told, that the Bible and modern science come into direct conflict. The question, therefore, must again be

* Genesis xxxix, 14. † Genesis xiv, 13. ‡ Genesis vi, 9.

raised, is it the Bible that asserts directly and unequivocally that the deluge was universal? or is it merely the arbitrary and unwarranted interpretation that has been put upon the words of the Bible which has led to this opinion? If the Bible be allowed to be its own interpreter, according to the ordinary and fair rules for interpretation, it will at once be obvious that it contains nothing to warrant the belief that the whole world was at once laid under water and destroyed. Both by sacred and profane historians, the term "whole world" is frequently meant to signify only the entire extent of the territory referred to. In the account of the temptation in the wilderness, the devil is described as exhibiting to our Lord all the kingdoms of the world at once, in one moment, and from the same point of view,* by which of course could only be really meant those cities and kingdoms lying around Jerusalem. St. Luke tells us† that a decree went out from Cæsar Augustus that "all the world should be taxed." Here again is clearly meant not the entire globe, but only such part of it as was comprised in the Roman Empire. So when it is said in St. John,‡ that "the world is gone after him," it was not really meant that every person in the world had become a follower of our Lord, but that a very great number in a certain district had done so.

After the destruction of Sodom and Gomorrah, Lot's daughters either imagined that the whole human race was destroyed,§ or confined the term to the descendants of Adam or the Hebrew race. Whichever way it is taken, whether symbolically or as confined to one race only, the description of the universality of the Deluge must be considered to comprehend merely the district inhabited by the race to which Noah belonged. In many parts of Scripture, both in the Old and the New Testament, the term "whole world" is evidently intended to signify not the entire human race, but either a very great number of men, or a large proportion out of the district where the event happened.|| Cicero and other ancient writers also frequently speak thus metaphorically, when they intend to include a great number of people in their description of any event. When we read in the newspapers that upon an occasion of much interest "all London" was assembled at the Mansion House, should we be construing the meaning of the writer fairly if we insist that he intended deliberately to assert that every man, woman and child in this vast metropolis were assembled in one building? And yet in this unreasonable and unfair manner do those critics insist upon interpreting the Bible, and unnaturally distorting its meaning, who contend that the account

* Matt. iv, 8. † Luke ii, 1. ‡ John xii, 19. § Genesis xix, 31.

|| See also Acts xi, 28, xvii, 6, xix, 27, and xxiv, 5; Romans i, 8, x, 18; and several other passages.

there given of the Deluge necessarily and inevitably means that the whole world was swept away by that inundation. When the meaning of any phrase is doubtful, the fair way is to refer to other and context passages in the narrative which may serve to throw light upon the whole. This is the course ordinarily pursued with regard to other writings, and this is the course I propose to adopt in regard to the Sacred volume. Without such a mode of interpretation, its meaning will often appear obscure and contrary to science and to experience. Interpreting it in this the only fair and legitimate mode, its meaning will be apparent, and its relations appear at once in harmony with our knowledge of things, and with what philosophy teaches. Thus viewed, Scripture and science will be found not to contradict but to aid one another, and to render each other important service.

That a vast Deluge did take place at the period and in the manner described cannot be doubted, or that the event itself was miraculous. If so, it is of little importance whether the whole or only a part of the earth was covered by it, inasmuch as the miraculousness of the event in no degree depended on the number of human beings who perished in the waters, or on the depth or width of the waters themselves.

In reality, I hold it to be far more heretical, as more directly at variance with the plain statements contained in the Bible, to assert that the earth moves round the sun, instead of the sun moving round the earth, than to maintain either the plurality of the human race, or that the Deluge was not universal. It may be said, indeed, that the Bible does assert, and in direct terms, that the sun moves round the earth, and not the earth round the sun, while it nowhere maintains in terms equally positive either that Adam was the father of the whole human race, or that the Deluge extended over the entire world.

If we examine minutely the description of the Deluge as contained in the Bible, we find that the depth of the flood, being the extent to which the waters prevailed upwards, was only fifteen cubits,* or one-half of the height of the ark, which was thirty cubits.† And yet we are told that the mountains were covered.‡ This assertion alone would lead to the conclusion that merely a certain very limited district, in which were only hills of a very moderate height, could have been overflowed by the waters. After the Deluge had subsided, the earth is spoken of as divided,§ implying that people were found living upon it after the flood. Cities and also kingdoms appear to have been formed soon after Noah left the ark,‖ which could not have been done merely by his family. The assertion that by the sons of Noah "was

* Genesis vii, 29. † vi, 15. ‡ vii, 20. § x, 25, 32. ‖ x, 5.

the whole earth overspread,"* may reasonably be interpreted to mean no more than that in every nation would his descendants in process of time be found, a prediction which has been singularly verified by the Hebrew race.

But it has been urged that in the New Testament the opinion that all men were descended from Adam has been confirmed by reference to that event, and by expressing the opinion of the inspired apostles and writers of that portion of the Bible. Were this the case, their authority on matters purely secular or scientific might fairly be questioned, considering that their office was not to teach men philosophy or history, but merely to instruct them in their duty. And if they were ignorant or misinformed respecting the structure and motion of the planets, it is not unreasonable to suppose they might have been left equally in error respecting the other parts of the creation. There is, however, in reality, no assertion throughout the New Testament that Adam was the father of all mankind. The passage which may most reasonably be contended to argue against the plurality of races is the expression of St. Paul, "For as in Adam all die, so in Christ shall all be made alive."† There is, however, no assertion here that all were descended from Adam, but that all died through his transgression; and for this purpose it seems to matter little whether the whole human race was actually descended from him, or whether he was to be regarded as the representative of that race, and through his misconduct they were to suffer.

The scheme, if it may be so termed without irreverence, developed in Scripture with regard to Adam and the fall, appears to be this. Adam, as the representative of the whole human race, was put to the trial and failed, and upon that was condemned to die, turned out of Paradise, and placed upon the same level with the rest of mankind. But through the descendants of Adam the redeemer was promised, the benefits of whose coming were extended from the posterity of Adam to the whole human race. The errors in the interpretation of the Bible already alluded to, have not arisen from any ambiguity in the Bible itself, but from the strained, unnatural, and unreasonable interpretation that has been put upon it by misguided zealots who take upon themselves to explain its meaning according to their own narrow views, and who are presumptuous enough to imagine that the Divine scheme of redemption would not be consistent and complete without their interference and aid. These people, instead of taking their system of religion from the Bible, first frame a system of their own, and then cut, and pare, and explain away the Bible so as to make

* Genesis ix, 19. † Corinthians xv, 22.

it accord exactly with that system. It is from pursuing this course that the errors to which I have adverted in regard to the origin of mankind have arisen.

The following observations with regard to death having been brought into the world and inflicted upon mankind at large in consequence of Adam's transgression, are from the pen of an ingenious and learned writer of our own day, who contends that it "was not a threat that *corporeal* death should be inflicted; it signified that breaking the commandment, he who had it given him should lose the high lovely life which is in union with God, sink into irreligiousness, which is infelicity and disquiet. He died to the true life of the spirit the moment that he tasted; but as to his material body, he continued as he was before. Equally unscriptural and groundless is the notion that physical death was even an appendix to the punishment. Adam would have died had he never fallen, and so would all of his posterity, though none, perhaps, would have died of disease."*

In addition to this, I may remark that the sentence upon Adam was not of death generally, but of death upon a particular day. "In the *day that thou eatest thereof* thou shalt surely die." Now, according to the scriptural narrative, physical death did not take place on that day; and, therefore, we may reasonably infer that not physical death, but death of a spiritual or moral nature was what was intended to be inflicted as a punishment for Adam's transgression.

We come, in the last place, to the consideration of the early historical records of different kinds, containing reference to the creation of man, and we have to enquire how their testimony bears upon the question before us. Evident allusion to Adam and Eve may be found in the remotest traditions; but it is very remarkable that they are there spoken of not as a single pair but as a race. Thus, as Grotius records,† "The Egyptians tell us that, at first, *men* led *their* lives in great simplicity, *their* bodies being naked, whence arose the poet's fiction of the golden age, famous among the Indians, as Strabo remarks. Maimonides takes notice that the history of Adam, of Eve, of the tree, and of the serpent was extant amongst the idolatrous Indians in his time." Traditions of this history, he also tells us, are to be found in Peru and the Philipine Islands, and the name of Adam is preserved among the Brachmans.‡ The most ancient traditions and historians also concur with the Mosaic account as to the extraordiuary longevity of the early inhabitants of the earth. The first men are recorded to have found out the fruit of trees; and in the most ancient Greek mysteries they cried out Eva, and at the same time shewed a serpent.

* *Life, its Nature, etc.*, by L. H. Grindon, chap. vii, p. 74.
† *De Veritate*, lib. i, s. 16. ‡ Ibid.

Diodorus Siculus relates that "the first men," not the first *man* only, "lived very hardy before the conveniences of life were found out, being accustomed to go naked," referring evidently to man in Paradise. And Plato, deriving his account from early tradition, in relation to the primitive inhabitants of the earth, speaks not of one man, but of *men* in the plural, "God their Governor fed *them*, being *their* Keeper;"* and in another passage he states that "they fed naked and without garments in the open air." The opinion of each of these early writers appears clearly to have been that there was originally a plurality of races. Cicero, in his book on the nature of the Gods, describes the creation of man, but makes no reference to the race being derived from a single pair. In Ovid's *Metamorphoses*, the creation of man, as derived from the ancient traditions, is described, not however as though the race sprung from one pair only.

Reference has already been made to the very remarkable ancient Egyptian representation of Joseph and his brethren in Egypt, in which that peculiarity of countenance characteristic of the Hebrew race is clearly marked out in each of the persons described, and which shows that at that early period that race formed one as distinct from the rest of mankind as it now does. This moreover proves how little mankind change, even in the long course of years; and it may be remarked that the representations of Negroes and of Egyptians preserved in the Pyramids exhibit precisely the same cast of countenance as is observable among those people at the present day. This, as I have already remarked, is especially the case with regard to the Hebrew race, although inhabiting different parts of the world, and being consequently subject to those various influences by which changes in appearance are supposed to be produced. But if there has been no perceptible change in races since the time when the paintings in the pyramids were made, the change between the time of the Creation and the erection of the pyramids could not have been very essential, nor could the difference apparent in different races of men have been produced by cross-breedings, if, as contended, they were all originally of the same race. As animals were created male and female, several at the same time, but of different races and species, allied to one another as regards their general structure, but widely differing in their peculiar formation; so is it most reasonable to suppose that the same course would be pursued with regard to man, and that it was so followed on the original creation of the species described in the first chapter of the Book of Genesis, different races and types being at once formed.

The Jews, God's own people, who had the sacred oracles delivered

* *Polities.*

to them direct, differed in opinion as to the question of the plurality of races.* And surely if this liberty was allowed to them, we, at least, ought to have the same freedom. Indeed, St. Augustine was the first among Christians who insisted that all mankind were descended from Adam, and that all Christians were bound to adopt that view as regards the sacred narrative."†

As has been well observed by an eminent physiologist, "the differences of physical organisation and of moral and intellectual qualities which characterise the several races of our species, are analogous in kind and degree to those which distinguish the breeds of the domestic animals, and must, therefore, be accounted for on the same principles. That they were first produced in both instances as native or congenital varieties, and then transmitted to the offspring in hereditary succession."‡ He further remarks that "external or adventitious causes, such as climate, situation, food, way of life, have considerable effect in altering the constitution of men and animals; but that this effect, as well as that of art or accident, is confined to the individual, not being transmitted by generation, and, therefore, not affecting the race."§

The difficulty of supporting the theory of all mankind having descended from a single pair, and of the varieties in their descendants having been caused by circumstances affecting their growth and mode of living, is most forcibly shewn by the shifts and devices resorted to to uphold such a notion. Thus, one writer seriously contends that the peculiar formation of the physiognomy of the New Hollanders, has been caused by their constantly flinching from the numerous gnats by which they are ceaselessly tortured!‖ "The custom of carrying children on their back has also been referred to in order to explain the flat nose and swollen lips of the Negro. In the violent motions required in their hard labour, as in beating or pounding millet, the face of the young one is said to be constantly thumping against the back of the mother! This account is seriously quoted by Blumenbach."¶

How much more in accordance with nature, with reason, and with Revelation, is the opinion that when mankind were originally created, several species were formed at once, from whom the different varieties are derived; instead of supposing that one pair only was created, and that all the differences in formation and colour, and in moral and intellectual qualifications, were caused by adventitious circumstances affecting their descendants.

My desire on the present occasion is to reconcile and to render consistent, as far as I can without the slightest compromise or sacrifice of

* *Memoirs of the Anthropological Society*, vol. i, p. 345.
† Ibid. 347.
‡ Lawrence's *Lectures on Man*, 1st edit., pp. 375, 376.
§ Ibid. p. 376.
‖ Vide Ibid. p. 265.
¶ Ibid. p. 165.

truth, the apparently, but not I believe really, conflicting testimonies of Scripture, of experience, and of science. As Revelation is the voice of God, so reason is the noblest gift of God to man. It is the duty of man to use both aright, and to apply each to the purpose for which it was bestowed. Those two most precious of all treasures, which God has given and intended to be used in conjunction, let not man vainly presume to put asunder, or to apply to oppose or thwart each other. Disunited and counteracting one another, confusion and chaotic disorder are the inevitable result. Reconciled and used aright, and acting in conjunction, the whole system appears at once reduced to order, and the harmony and perfection of the universe are seen to extend to the remotest regions throughout. Over the face of nature the spirit of omniscience is then perceived to rule. Thus, to use reason is but to apply the noblest of the Creator's gifts, and the most exalted of man's endowments to that which is at once its highest and its most legitimate purpose.

THE PEOPLES OF EASTERN ASIA.*

Dr. Adolf Bastian is a writer to whom great respect is due from all who are interested in the study of anthropology. His great work, entitled *Man in History* (*Der Mensch in der Geschichte*, Leipzig, 1860), contains a wonderful collection of information as to the psychological side of the science—from the nervous system and the metaphysical theories of ideas to the nature of language, the history of religion in its widest sense, the abnormal phenomena of madness, hysteria, and morbid enthusiasm, and the social development of the various human races. This remarkable work is too large in its extent, and too discursive in its character, to be suitable for translation under the auspices of the Anthropological Society, while so many works better suited for scientific manuals remain scarcely known even by name in England; but it may be safely said that any of the members of that Society whose inclination is towards psychology, and to whom the rather vague and mystical views of metaphysicians seem wanting in solidity, will find the study of Dr. Bastian's *Mensch in der Geschichte* a most profitable undertaking.

After thus relieving his mind of a load of learning, Dr. Bastian started on a journey into the far East. Between 1861 and 1865 he

* *Die Völker des Oestlichen Asien.* Studien und Reisen von Dr. Adolf Bastian. Vols. i and ii. 1866. Leipzig: Wigand. London: Trübner & Co.

travelled, making long stays for the purpose of studying the native languages and literature, in Burmah, Siam, Cambodia, and Cochin China, the Eastern Archipelago, Japan and China; and in 1865 returned from Pekin through Mongolia, Siberia, and the Caucasus, and was present at the Birmingham meeting of the British Association. In the second of the two volumes now before us he gives an account of his journey in Burmah, and other volumes are to follow with details of the remainder of his vast journey, which was made as a private enterprise in the cause of oriental learning. His desire to be burdensome to no one is curiously illustrated by his scruples in receiving an allowance from the King of Burmah, according to the custom of the country with distinguished visitors. He did not want the money, but it would have been flying in the face of majesty to refuse the monthly bag of silver, and so he had to settle it by acquiescing in its disappearing somehow between the royal treasury and his own cash-box, an arrangement which probably suited all parties.

In his first volume Dr. Bastian compiles the result of his study of the native history of the Indo-Chinese nations. It must have cost him a stupendous amount of labour, but unluckily its contents are seldom of much interest to Europeans, of whom the number is small who take an interest in the dynastic legends of countries whose history is very dull or prolix, and whose mythology is for the most part duller or more prolix still. A native Indo-Chinese history, if we take the best points of it, appears to consist of the following elements:—First, an account of the creation of mankind, or their descent from trees, apes, or demons; next, the low alluvial lands will have the stories of the first settlement of colonists, and as the land is often of recent growth the legends of its colonisation may sometimes contain history mixed with more or less of myth. The following is such a story from Pegu:—

"Long ago, when what is now the great delta of the Irawaddy was an open bay, the king of Kala-gyee sailed across the sea, and saw a wild duck sitting on her nest, whereon he remarked to his followers that the water was sinking, and accordingly they found, as the bird flew off, that there was in fact a morsel of mud visible just large enough for her nest. The king had a stone pillar set up to claim the land, and returning home had the event chronicled in the royal archives. Long afterwards another king of Kala-gyee sailed to the same place and found not only that the land was dry, but that the Taliyns had settled on it. He said to them, 'You have no right here, this is my land; did not my ancestor set up his boundary-stone here?' The Taliyns answered, 'The land is ours; where is your boundary-stone? we know nothing of it.' The stone was duly found, and the Taliyns were much embarrassed what to do, but the prince of the Nats (demons or gods) appeared in a dream to the king of the

Taliyns and told him to acknowledge to the king of Kala-gyee that the stone was really his, but that the Taliyns had been there long before and left their memorial, as he would find by digging underneath the stone. Underneath the stone accordingly were found the tokens of the Taliyns, and so, the story simply concludes, the Taliyns kept the kingdom, and therefore it was called Pae-suh, or 'the stolen land,' for the Taliyns had never really put their tokens where they were found, but the thing came to pass through the power of the prince of the Nats." (P. 225.)

Between the early period and modern times come accounts of kings and political events largely mixed with fable. Monstrous dragons appear and are slain by heroes; when water is wanted a king strikes the ground with his staff, and a spring gushes forth; and the princes and princesses who figure in the story have, as a rule, in Buddhist countries, a predilection for coming into the world in ways not recognised by modern European physiology. The prettiest story in the book is, perhaps, that of the princess Thatungdau, whom king Noatasa gave in charge to his four knights to be carried safe to Pagau, where she was to be married:—

"She was so slight and tender that they put her in a needle-case that the rough hands of the men-at-arms might not hurt her. They weighed the needle-case (it just went against one flower of jessamine), and each of the knights was to take charge of it for a day. Yansitta was the first in charge, but by evening his curiosity was too much for him, and he opened the cover a little way and peeped in, but the evening breeze blew in and puffed up the little lady, so that she began to swell out over the top of the case, and he had quite a difficulty in poking her in again, and getting the cover on, and then he handed the case over to the next man. But he had not reckoned on the precautions taken; when the needle-case was weighed before being passed to the next guardian it was found to be a whole petal of a jessamine-flower too heavy, and the inquisitive hero was condemned to die. He proved too much for them, however, and went off with the princess, needle-case and all." (P. 45.)

As the native Indo-Chinese histories approach modern times, though their character otherwise changes little, they acquire an interest to us by the appearance from time to time of well-known European names. The native history of Ava, coming into the seventeenth century, describes the reign of Ngadabdayaka, and the flight of Younhli in 1658, under pressure from the Manchus, over the Burmese frontier to Ava, when his forces attacked the capital, but the city resisted the first attack under the leadership of Mithari Katau, who appears to have been an Englishman, Mr. Cotton; and about the same time Siamese history mentions an expedition under the celebrated European, Phaulcon (p. 61-2). In later times the Burmese court annals give the following account of the war with the English:—

"The Kulapyu, or white strangers of the west, fastened a quarrel upon the lord of the Golden Palace. They landed at Rangoon, took that place and Prome, and were permitted to advance as far as Yandaboo, for the king, from motives of piety and regard to life, made no effort whatever to oppose them. The strangers had spent vast sums of money in their enterprise, and by the time they reached Yandaboo their resources were exhausted, and they were in great distress. They petitioned the king, who, in his clemency and generosity, sent them large sums of money to pay expenses, and ordered them out of the country." (Vol. i, p. 68.)

Special students of Indo-Chinese subjects will find abundant details in this volume. For anthropological purposes the accounts of the more civilised Burmese nations, and also of the wilder Karens, Ahom, Singpho, etc., are of interest, though anatomical details are unfortunately very scanty.

In the second volume Dr. Bastian begins with the account of his journey at Rangoon, where he notices the practice of building houses on piles as simply made necessary by the muddy morass on which they stand. Dwellings of the nature of Swiss lake habitations are, in fact, here, as in several other places in Asia, so adapted to the circumstances of the country, that their appearance can excite no surprise. On the other hand, the curious point about the Swiss lake-dwellings is, the fact of their existing in places where it is hard to see why the dry land might not have done as well, or better. On his journey towards Prome, up the Irawaddy, he noticed the road-side shelters set up by the pious Buddhists for the refreshment of travellers, and the offerings of food left by the wayside for the demons or Nats, who seem quite to fill a large enough place in the Burman mind to justify the detailed accounts of them which are given in many places. Another topic of continual interest to the traveller in Buddhist Asia is the question of meat or no meat. As we all know, Buddhism forbids the taking of life, and our traveller, finding fowls and eggs at least absolutely necessary to keep up his strength in an unhealthy and debilitating climate, had a continual difficulty in getting outcasts or foreigners to kill the fowls and break the eggs, which it was hard even to buy. If the Burmese and their neighbours really abstained from the flesh of animals and the contents of eggs, there would have been more satisfaction in complying with this inconvenient ordinance, but this is by no means the case. As the king of Burmah, a thorough-paced theologian, carefully explained to Dr. Bastian, it is very wrong indeed to kill animals for food, and therefore you must get some one else to do it for you—what becomes of the misdoer is of course of no consequence to you. In the Siamese temples the torments with which fishermen will expiate their wicked-

ness in hell are depicted on the walls in awful colours. The wretched sinner hangs by the tongue to a fishhook, and mocking demons fish him up out of a lake of pitch and drop him in again. But, nevertheless, the whole population of Burmah delights in a horrible preparation called *ngapie*, which is made by burying fish till it is putrid, and mixing the result with rancid butter. The *ngapie* is so largely consumed that the whole atmosphere of the country, says Dr. Bastian, is pestiferous with it, and the fishermen have to live principally by providing it. The little difficulty as to conscience is therefore ingeniously removed by the fisherman never killing the fish he catches —he merely leaves them out on the bank, and then if they die it is their affair, not his. As in other countries, extreme ceremonial laws lead to evasions which make them practically less troublesome. A *pungyi*, or, as we call him, a *bonze*, must not eat after noon; therefore he sits with his back to the sun, and, being hungry at two or three o'clock, inquires of his scholar whether it is noon yet, to which the boy is trained to answer that it is not, and, on the strength of the pupil's assertion, the master eats another meal. The effect of practices of these kinds on the moral sense of the people is of course disastrous.

The king of Burmah now lives at Mandalay, being, it is said, disgusted with Amarapura by the English embassy presuming to come with their steamboats actually up to his palace. Dr. Bastian had hoped to remain an unnoticed stranger in the city, and thence, in good time, to travel where he would, studying the country at his leisure. It lay, however, quite outside his calculations that the king should know anything about English newspapers, but he had been mentioned in one, and found accordingly that his movements were watched and strictly limited. On presenting himself at court, nevertheless, he was well received, and the object of his journey—the more complete study of Buddhism—appeared to the king a highly reasonable and proper one. Accordingly he took up his abode in the palace, and made a considerable stay there—very successful in his investigations into literature and manners in spite of inconvenient accidents, such as that of profaning the royal abode by carrying in his umbrella, a thing only permitted to royalty, and accidentally having his bed placed so that his feet were turned towards the king, which is a high crime and misdemeanour. Resuming his journey, Dr. Bastian proceeded downwards into Pegu on the Siamese frontier, where his present volume leaves him.

Among the anthropological and ethnographical matters touched upon, the following are some of the most worthy of notice. Phases of mixed Brahminism and Buddhism are always interesting, as show-

ing the course of the two great waves of religious conversion in Eastern Asia. Such things as Brahmanic idols officiating as attendant gods to the great Buddha, and Brahmanic images adorned with Buddhist symbols, are noticed by Dr. Bastian (p. 73). The accounts of tattooing are curious; it appears to be done for magical purposes in Burmah, certain figures having a virtue of protecting the body, and especially hard substances as gold and silver being introduced under the skin to make the patient invulnerable (pp. 35, 144, 160). Eclipses, as elsewhere, are caused by the great dragon, and the calculation of them by the French astronomers did not appear extraordinary to the priests; the foreigners know a great deal about the dragon and can tell when he is likely to be hungry (p. 109). The accounts of Buddhist doctrines and ceremonies correspond in great measure with those given by Mr. Hardy in his description of Singhalese Buddhism. The following remarks on the complexion of the Burmese are interesting.

"At the bathing-place I had a good opportunity of observing the shades of complexion, which run very much into each other. A traveller who, having only known the Burmans of Rangoon, should see others from Ava, would doubtless pronounce those from the northern provinces to be darker, forgetting that the Burmans resident in Rangoon, who besides have all immigrated on account of their commercial affairs, expose themselves little to the sun. If he went into the settlements of the true natives of Rangoon, the fishing villages of Talein, he would find their inhabitants approaching yet more to the dark brown colour. The Karens, especially the Tzan, are generally lighter, as being in thick woods they are seldom exposed to the sun, but the Bghais again are very dark, although they come not only from the north but from high, although treeless mountains. The effect of external influences is shown more clearly in the Burman women. . . . . When they are bathing it is easy to see, as if marked by a line, how far their usual clothing extends, for, contrasting with the dark tint of the upper part of their bodies and their arms, the rest of the body might be that of an inhabitant of Southern Europe. This is common in India. The Chinese ambassador remarked it among the Cambodians, whom he calls deep black, 'mais pour les dames du palais et même parmi les femmes de Nan-plung il y en a qui ont le teint d'un blanc éclatant comme du jaspe, et celà vient de ce qu'elles ne voient, ni le ciel, ni la lumière du soleil.'" (p. 23).

A fair complexion seems considered beautiful (p. 161). As a medical man Dr. Bastian will probably be able to give other valuable anthropological descriptions of the races he met with in the East. As for the Burmese, at least, their interest in anatomical studies is considerable, but they look at dead bodies as merely suggestive of the miseries and horrors of existence; a courtier who had to visit Dr. Bastian used to get out one of his anatomical books, and groan moral reflexions over it. We Europeans, "black barbarians" as they con-

sider us, may retaliate this treatment on the history-books which it was Dr. Bastian's severe fate to wade through; they fill us with a sense of the extremest weariness of the habits of East Asiatic life, and the events of East Asiatic history.

One more matter is mentioned by Dr. Bastian which should always be spoken of when an opportunity occurs. The native governments of South-Eastern Asia find their peoples well stocked with good thriving native vices, which are quite as much as they can conveniently deal with. Under these circumstances they object somewhat to the importation of new ones from abroad, and have therefore endeavoured by law to keep opium-smoking out of the country; but now that we are established in the district of course the opium-houses flourish, and Dr. Bastian's regret is not unfounded, that our otherwise beneficial influence in the country is marred for the sake of the opium revenue.

BROCA ON ANTHROPOLOGY.*

ANTHROPOLOGY is that science which has for its object the study of the human group considered in its *ensemble*, in its details, and in its relations to the rest of nature.

Before this science was definitely constituted, the word anthropology had received several other acceptations, and in point of fact man may be studied from several standpoints. The ancient Greek philosophers were frequently called anthropologists (*ἀνθρωπολογοι*) because they discussed "the nature of man," which, according to some meant the mind, according to others the body. Hippocrates, *περι φυσιος ανθρῶπου*, commences with the following significant phrase, "Those who are accustomed to hear the nature of man discussed apart from medicine will find nothing satisfactory to them in this treatise." The name of anthropology was thus received in a variety of acceptations. With many modern philosophers anthropology is nearly synonymous with psychology, whilst other authors have published under the title of anthropology works relating to descriptive anatomy, to general physiology, or to hygiène. Some dictionaries define anthropology, the description of the human body; others, the natural history of

* We propose to publish, in this and in a future number, a translation of the greater portion of Dr. Broca's admirable article on "Anthropologie", which has just appeared in the *Nouveau Dict. Encyclopédique des Sciences Médicales.*

mankind. It is thus seen that it becomes necessary clearly to define the sense of a word which has received so many different acceptations.

Psychology, anatomy, physiology, hygiène, and even pathology, aid us in the knowledge of man in distinguishing him from other animals in characterising his general and his particular types, but neither of these sciences has any claim to the name of anthropology, since each of these separately only shows man from one point of view. Each of the above has moreover a name universally adopted, and if we think proper from some motive to rebaptise them, we should not give them a name more vague and less characteristic than that by which they are known. Let us add that all these sciences, without excepting psychology, might exist if we had never thought of studying man. Those who cultivate them have no doubt the main object of knowing their own nature. But most of their descriptions might, with some slight variations, be applied to other animals as well as to man; and we know that many great discoveries have been made both by the ancients and the moderns on creatures the zoological type of which differs much from our own. Psychology alone may with some show of reason pretend to the honour of being exclusively a science of man. And yet this appearance is deceptive, because animals possess, according to their respective species, an intelligence in which impartial analysis discovers, in a more or less rudimentary state, faculties and feelings analogous to our own of which we are so proud.

All sciences which concur to give us a knowledge of the nature of man are general sciences; they cannot, without losing their synthetic character and their philosophical scope, be restricted specially to the study of man. And if one of them so mutilated assumes the name of anthropology, it would belie its title; not merely because it makes known to us only a part of man, but it makes it known in an insufficient and frequently an incorrect manner.

It may now be remarked that these different sciences study man only as an individual. Even if by some impossible fusion it be attempted to unite them under the pretext that they relate to the same object, namely, the nature of man, this unique and complex science would still only be the particular history of the individual man, and would leave untouched all that relates to the collective history of the human genus. To give to such a science the name of anthropology would be to run counter to all rules of nomenclature. Zoology does not treat only of the animal, but of the animal kingdom. Ornithology does not treat of a bird, but of the whole class of birds; and in the same way herpetology, ichthyology, malacology, etc., have each for their object the study of a group of beings resembling each other by certain fundamental characters, whilst differing in some cha-

racters of minor importance. But humanity, also, constitutes in nature one of those groups where the unity of the fundamental type shows itself amidst innumerable varieties of a secondary character, and it is the science which studies this natural group, that is entitled to the name of anthropology, which no other science can protest against.

Anthropology might in a strict sense be defined "the natural history of man." This definition would not essentially differ from that placed at the head of this article; it would even be sufficiently strict for such who look upon natural history as something more than taxonomy, pure and simple; for the true naturalist does not confine himself to characterise the genera, species, families, etc.; but he studies in each species, and if necessary in each variety, the manners, instincts, mode of life, geographical distribution past or present; and anthropology might altogether, despite the complexity of its domain, find a place in this programme. But if we abstract some species which man has associated with his existence and his history, the remainder has been studied exclusively, or nearly so, in regard to their form and structure, and hence the description of anatomical and morphological characters constitutes the greater portion of ordinary natural history. It is different with the natural history of the human genus. Men by their intelligence, their language, their social and political life, their voluntary migrations, their conquests over nature differ so much from other animals, that in order to commence the study of this exceptional group, the naturalist is obliged to have recourse to a particular mode of investigation; to historical, archæological, and linguistic researches, which do not come in contact with other branches of natural history. To say that anthropology is the natural history of mankind, might in most minds give rise to the idea that it is a purely descriptive science; that it confines itself to distinguish and classify the various races according to their physical type; and this interpretation must be carefully guarded against, and the more so, since there has been a time when anthropology, still in its infancy, was confined with in such narrow limits.

The definition we have thought proper to adopt is more significative, and it has, moreover, the advantage of indicating with sufficient precision the three great series of facts, the reunion of which constitutes anthropology. We may, in fact, bring all the studies relating to the knowledge of the human group under three heads.

1. It is first necessary to determine the position of this group in the series of creatures; a question apparently very simple since the supremacy of man over all other animals is incontestable. It is, nevertheless, very difficult to be an impartial judge in our own case, and the study of this question proves it. Pride, one of the most cha-

racteristic features of our nature, dominates in many minds over the calm testimony of reason. Like the Roman emperors who, intoxicated by power finished by looking upon themselves as demi-gods, so the king of our planet imagines that the vile animal, subject to his caprice, has nothing in common with his own nature. The vicinity of the ape inconveniences and humiliates him; he is not satisfied with being the king of animals, but desires to establish that an unfathomable chasm separates him from his subjects, and turning his back upon the earth he takes refuge with his threatened majesty in the nebulous sphere of the *human kingdom*. But anatomy, not unlike the slave who followed the car of the victor, exclaiming, "*Memento te hominem esse*," anatomy disturbs him in this self-admiration, and reminds him of the visible and tangible reality which allies him to animality. The doctrine of the human kingdom is then placed side by side with another not less radical doctrine, which pretends to derive man from the ape, and between these two extreme opinions others arise, which, according to a more or less rigorous interpretation of anatomical characters, present the human group as constituting now a species, now a genus, or a class, or a branching-off of the zoological series. A critical examination of the contradictory arguments adduced in favour of these different appreciations, leads to study on one hand the characters common to man and the animals nearest to him, and on the other to find out such characters as are peculiar to man. It becomes, moreover, necessary to see to what extent these analogies and differences agree with the laws presiding over the serial distribution of the groups called genera, species, families, etc.; to investigate whether the gradation which obtains in a lower scale is preserved in a superior scale; to mark the distance existing between the highest term of the simian and the lowest term of the human series, and to examine the arguments of those who do not consider that distance impassable. That portion of anthropology which comprises the study of these zoological questions is entitled to the name of *Zoological Anthropology*, and may be defined *the study of the human group, considered in its relations to the rest of organised nature.*

II. The human group once characterised, circumscribed, and classed as a group in its *ensemble*, must then be considered by itself; it must be divided and subdivided, and each of these partial groups must be studied separately. This constitutes *Descriptive Anthropology*. Numerous physiological differences coincide with the physical differences. The muscular force, general sensibility, the degree of the perfection of the senses, specially of sight, hearing, and smelling, the mode of articulating certain sounds, the odour of the perspiration, the power of resisting heat or cold, the pathological aptitudes and

immunities, the period of puberty, the duration of female fecundity, etc., all these present in various peoples more or less extensive variations.

Finally, that which varies most is the degree of activity of the intellectual functions, the predominance of such or such a group of faculties, the development of the social condition and perfectibility, that is to say the aptitude, to originate or to receive progress.

Thus, whether we consider humanity as regards the external conformation, or the anatomical, physiological, intellectual, moral and social characters, we find considerable differences among the groups composing it. But, although the modifications of the different orders of characters do not always present themselves abreast, there are some which present a sort of solidarity. Thus, the obliquity and the projection of the face, constituting what is called *prognathism*, more or less black tint of the colour of the skin, woolly hair and intellectual and social inferiority are frequently associated, whilst a whitish skin, smooth hair, an orthognathous face, are usually the appanage of the more elevated peoples of the human series. Consequently, although the serial distribution obtains here as in other zoological groups, with its infinite gradations and degradations, its unions and its anastomoses, it is possible and even easy to distinguish between the innumerable variations of the human type, a certain number of secondary types, around which all these varieties group themselves with more or less precision.

As regards these varieties, they have received the name of *races*, which engenders the idea of more or less filiation between individuals of the same variety, but which neither affirms nor denies the question of parentage between individuals of different varieties. The name *species* implies the solution of the question as regards the diversity of origin; the term *varieties* taken in the special sense attached to it in natural history, would on the contrary imply, that the whole human group forms but one species. From this results the inconvenience of speaking two different languages, according as one is monogenist or polygenist, and that neither of these terms is acceptable to such who look upon the problem of origin as doubtful. The word races, on the contrary, may be adopted by all, and it is for this reason that it is now prevalent.

III. The third branch of anthropology, the last in the logical order of regular scientific evolution, but the first in importance, is *General Anthropology*, which has for its object *the study of the human group in its ensemble*. Here it is especially important to establish a line of demarcation between anthropology and other sciences which treat of man. All, without exception, furnish to general anthropology numerous facts, without which it could not exist. They make known

to us the individual man, and it is clear that a collection of individuals cannot be studied in its *ensemble* if we did not commence with the study of the individual type which forms the unit of the number. But general anthropology only borrows from the other sciences that which concerns man considered as forming part of a group. Some examples are necessary clearly to explain this distinction.

The study of the cerebral functions forms part of physiology. Those, for instance, who search for a certain relation between the volume of the brain and intellectual power, study a question which thus put is purely physiological. But if, instead of confining the comparison to individuals resembling each other by their physical characters, and differing in intelligence, we compare a series of individuals of a certain race with a series of individuals belonging to different races; if, in addition, we place the results of this anatomical parallel by the side of those notions we possess concerning the relative intelligence of these different races, we quit the territory of pure physiology and enter the domain of general anthropology, just as in treating of a subject of zoological anthropology, we study the same question with the object of establishing a parallel between man and the rest of animals. The description of the skeleton, the muscles, nerves, viscera, skin, etc., belongs to anatomy only; that of individual varieties equally so. But whenever an organ, either in form, structure, or volume, presents differences in various races, the history of these variations belongs to the comparative anatomy of races which is frequently put under contribution by ethnology, but which study in its *ensemble* belongs to general anthropology.

The study of cancer, tubercular affections, dysentery, yellow-fever, etc., forms part of pathology; but when the pathologist states that either of these diseases presents, according to race, differences in frequency, gravity and progress, and these differences cannot be explained from external conditions, but must be referred to the organisation of the respective races, he contributes to the progress of the comparative pathology of races which forms part of general anthropology.

Hygiène, which has for its object the preservation of health, is not a branch of anthropology. Even public hygiène, although it embraces questions relating to the health of a whole people or of a great number of peoples, is perfectly distinct from anthropology. But the hygienist, by studying the conditions favourable or noxious to the health of individuals or masses, is obliged to inquire how far the influence of media is capable of modifying the organisation; how far these modifications of the individual by external conditions may be capable of transmission from generation to generation, and these two questions form an integral part of the problem of races, one of the the most important of general anthropology.

The psychologist, who studies in himself or in other individuals the faculties of the mind, the feelings and passions, is not an anthropologist; but who, extending the field of psychology, observes the differences existing between peoples and races in reference to intellectual power, perfectibility, sociability, artistic, scientific, literary, industrial, religious and political aptitudes, he participates in the work of anthropologists, and it is thus that the comparative psychology of races becomes one of the most interesting branches of general anthropology. It is unnecessary to multiply examples to show how general anthropology puts under contribution all sciences which have man for their object, without being confounded with these sciences.

Anthropology even borrows from sciences altogether foreign to the study of the individual man, but which still furnish facts concerning man as members of a zoological group. Climatology indicates the condition of the various media in which man can exist; zoological and botanical geography make known to us the existence and the distribution of distinct *Faunas* and *Floras*, of multiple centres from which the actual species sprung, contrary to a general prejudice which derives if not all plants, at least all animals, from one focus; and it is at once perceived how important the knowledge of this fact is for him who inquires whether the human genus had only one or several cradles.

Geology, in its turn, describes the gradual changes which have so many times modified the conditions of life on the globe, and makes us appreciate the immense time which must have elapsed between their different epochs, and the great antiquity of the quaternary strata which contain the remains of man or of his handiwork. And palæontology, finally placing man by the side of species he has survived, reveals to us the conditions of the existence of man in those primitive times, the record of which is lost.

General anthropology, towards which so many other sciences converge, embracing within its immense domain subjects of different orders requires different modes of investigation. The methods it adopts for the discovery of truth, are for each subject borrowed from the corresponding science, but as regards complex questions which encroach upon several sciences, and for such as belong to her properly, anthropology must follow her own principles and her own methods. We must dwell a little upon this point.

In truth anthropology, being a science of observation, has no other method than that of other sciences of the same family. But the modes of investigation vary according to the nature of the facts we desire to ascertain. Now the facts of anthropology are relative to collections of individuals and not to isolated men. In every race, in every family, there are individual variations, establishing sometimes be-

tween two brothers greater differences than such as exist between two men belonging to different races; it is therefore indispensable to have recourse to such means of observation as shall obviate such a cause of error.

Two rocks must here be avoided. On the one hand, in endeavouring to determine the characters of a race, particularly in more or less exceptional cases, must not be capable of altering the general description. Nevertheless, on the other hand, if it be necessary to ascertain the mean type of a population, it is at the same time requisite to ascertain the maximum and minimum of each character were it only to learn whether it is a pure or a mixed race. Thus, even if it were possible to discern at first sight the individuals differing by one or several characters from the general type of the race, they must not be excluded from observation, since the study of these divergences forms an integral part of the description of that race; hence the necessity of collecting a large number of observations, and to have recourse in the determination of each character to exact and uniform notations in order that the comparison of individual observations might yield methodical statements expressing the averages, maxima, minima, and if necessary, many other divisions. In order to effect this we ought to endeavour as much as possible to express by numerical signs the characters observed in each individual; this is easy when, for instance, the length or absolute volume of an organ is to be stated. The results of such observations can then be stated in precise numbers easy to be calculated. The characters which cannot be determined by simple and direct measurement, may still in most cases be formulated either by indirect measurement, to which we shall recur, or by conventional notations. Thus, for instance, the shades of the skin, eyes and hair, despite their infinite diversity, may be reduced to a certain number of types or rather marks, represented on a chromatic table on which the graduated colours are respectively numbered. Thus, also, may the degree of the projection of an osseous protuberance, like the occipital protuberance, be expressed by progressive numbers from 0 to 5, whilst the degree of opening or fusion of the cranial sutures may be numbered from 0 to 3. These notations are conventional. It is clear that if zero expresses the total absence of the occipital protuberance, or of the suture, the number expressing the maximum development of either, is an arbitrary selection, as regards the number of intermediate conditions which it may be desirable to signalise. But if the convention be accepted, the observations may be collected with sufficient precision and applied to methodic statements which, with some necessary precautions, may become statistical.

Indirect measurements, of which we have spoken, relate to the determination of certain angles, fictitious lines, and certain proportions. These are chiefly employed in the study of the head and the cranium. Sometimes, for the appreciation of the relative development of various cephalic regions, we measure the inclination of two lines or planes, sometimes by the aid of certain graphic processes, we construct point by point, curves afterwards subjected to geometrical constructions, the elements of which are measured by compass and the goniometer. The linear or angular measurements thus obtained, in which cyphers express the proportions of the two lines, readily submit to statistical calculation. But in order that these varied statistics should be well composed, it is above all things necessary that all observations should be collected according to a uniform process. In seeking for an explanation of the contradictory results published by different authors, we almost invariably find it in the diversities of their processes, or in the uncertainty of their marks. Nearly all the measurements may be taken by different methods. What, for instance, is the length of the arm? What are the points of the marks for this measurement? For one, the superior point of mark is the point of the acromion; for another, it is the inferior border of the great pectoral muscle; for a third, it is the most elevated part of the armpit. The inferior mark point has been alternately placed on the epicondyle, the epitrochlea, the small head of the radius, the summit of the olecranon, whether the forearm be stretched or bent. To these uncertainties must be added such as result from the position of the arm, for the same process of mensuration applied to the same individual may present a difference of more than a *centimètre* according as the arm is approached to, or moved from, the trunk. It thus becomes indispensable to adopt for each measurement a constant and invariable method sufficiently simple to be employed by all observers.

It is generally admitted that the method of averages, based upon a large number of individual facts, is the only one leading to an exact knowledge of a group of individuals. It has been asserted that all this apparatus of measurement and cyphers is unnecessary, and that it is sufficient to measure in each race a small number of individuals selected *with discrimination*, as being the representatives of the mean type of a race. We readily admit that a very sagacious and much experienced observer, gifted with such particular aptitudes as constitute a good artist, may, without much error, distinguish amongst the mass such individuals, generally not very numerous, who in themselves present a harmonious *ensemble* of the characteristic features of their race. Still such appreciations can never be absolutely rigorous, being entirely subordinate to the qualities peculiar to the observer.

The dates they furnish are merely personal; they are neither demonstrable nor can they be discussed; they may be received with confidence—a confidence frequently justified—but it leads to accept as true, delusive facts; and it tends, moreover, to the restriction of sources of information, to adopt a method, the appreciation of which can only be successfully made by a select few of observers. The facts required by anthropology must be collected from all parts of the world, and with precision by all kinds of educated travellers. The method of individual observations, by means of simple and uniform processes, sheltered from the flights of fancy and repeated upon a large number of individuals taken at hazard, is thus the true basis of anthropological investigations.

This method is, however, only applicable to the facts of the anatomical order. But statistics, of which it is only a particular form, plays in anthropological studies a more general part. A large number of questions find in it a solution it would be vain to look for elsewhere. Statistics alone can demonstrate whether a race is progressing, in *statu quo*, or decaying. Some unquiet and chagrined minds have with complacency accepted a report propagated by our trans-Rhenan neighbours, that the French population, despite its numerical increase, has for some sixty years past degenerated. Some attribute this to the development of industry; others to social revolutions, to vaccination, to the large consumption of potatoes, to tobacco, to alcohol, to universal misconduct; others invoke a real cause and worthy of the attention of the legislature, namely, that the mode of recruiting the army condemns the tallest and healthiest males to a seven years celibacy, whilst the short and less robustious males marry and transmit to their offspring their defective organisation. There are also some, who accuse civilisation in general as violating nature and thus gradually tend to the decay of humanity. Of these various hypotheses some are altogether paradoxical, others puerile; some are founded upon grave facts, although too partial to seriously affect a population of thirty-nine millions of men. We must, however, before all, in order not to discuss the history of the golden tooth, ascertain whether it be true that since the beginning of this century height has diminished in France, and statistics alone can answer this question. This has been done by M. Boudin, and he has demonstrated that from 1831 to 1860, the only period of which we possess precise and complete documents, the height of the conscripts has been continuously on the increase.

The decay of a race, which must not be confounded with degeneration, for the latter may be compatible with a numerical increase, whilst the former is characterised by a continued diminution of births,

or the continued increase of mortality. This decay of a race cannot be measured, and frequently cannot even be revealed by statistics. When, for instance, the population of a colony increases, we are apt to conclude that the immigrant race is prospering, whilst in many cases it only maintains itself by constant reinforcements. Statistics, by comparing the number of births with that of deaths, destroys such illusions, and thus we arrive at the solution of the question acclimatisation or non-acclimatisation of certain races in certain climates. It has thus been demonstrated that European races cannot maintain themselves in Africa and tropical Asia, and doubts have even been raised as to the possibility of colonising certain parts of Algeria by Frenchmen. Here, again, it is by the aid of statistics that we are enabled to appreciate the influence of race and climate on the duration of life, the comparative frequency of the principal diseases, and specially such as cause the greatest mortality. Statistics, finally, is a means of studying the effects of consanguinity; but here the subject is so complex that we must have recourse to other sources of information.

There are a great many questions of a still more complicated nature, which do not lend themselves to the application of rigorous methods. We need not on that account renounce giving them a scientific solution, but an increase of difficulties requires an increase of caution. The uncertainties arise chiefly from the multiplicity of elements combined in each case under consideration; various influences which have, or might have, concurred in producing a definite result. The mind then indulges in various hypotheses, and feels disposed to adopt that which accords with a preconceived doctrine; but it ought to resist such a tendency because facts are not subordinate to doctrines, but doctrines are subordinate to facts. When a physiologist finds himself in the presence of a complex phenomenon which gives rise to various hypotheses, he has recourse to the analytical and experimental method. He considers one by one the various conditions of this phenemenon, isolates them by vivisection or any other process, he successfully eliminates the false hypothesis, and finally succeeds in finding a true explanation. Anthropology must follow the same principles; it cannot apply them in the same manner, as neither a race nor a collection of human beings can be subjected to scientific experiments; but he profits by the experience derived from all parts of the globe, where immigrations, conquests, revolutions of all sorts, more or less modify the conditions of life. When he searches for the interpretation of a fact, he unites and compares all the analogous facts, produced in different places, under different conditions; he analyses these conditions, then eliminates all the

explanations not applicable to the entire series of similar facts; he more and more simplifies the question until the solution is derived from this analysis.

[*To be continued.*]

THE PRIMITIVE PERIOD OF THE HUMAN SPECIES.*

By CARL VOGT.

It is proper that, in a new organ for the natural and primitive history of man, the starting point from which it proceeds should be well fixed and in outlines, at least, the position defined, which science occupies in relation to certain questions. It cannot be our purpose here exhaustively to treat a subject still under investigation. Our object is rather to seize some prominent facts which may serve as boundary-stones, between which the subordinate results may be arranged. We cannot conceal from ourselves that such a selection presents difficulties, since on the one hand the number of discoveries daily increases—nay, owing to the extraordinary zeal with which the investigations are carried on, they swell to an enormous mass; whilst on the other hand facts apparently insignificant come to light, which by subsequent discoveries acquire the greatest importance. Here, it must also be confessed, our knowledge is, more than on other questions, patchwork, so that in arranging the results we in some degree resemble the artist who is engaged in re-arranging the scattered little variegated stones of a destroyed mosaic pavement. It cannot fail that in such a work many errors of association must occur, and that a recovered missing stone may upset the whole combination. But such cases are also instructive, inasmuch as they invite us to caution and to close examination.

My purpose at present is to treat of the oldest documents we possess relative to the existence of man, without reference to periods approaching historical events. I therefore, putting aside the so-called bronze-period, shall exclusively speak of the stone-period, during which stones, wood and bones were the three chief materials of which implements were constructed. I do not so much purpose to cite the facts, as critically to examine, how far the findings are trust-

* This article is a translation from the *Archiv für Anthropologie*, and we have given it a place in our pages as a specimen of what our admirable contemporary is publishing.—Editor.

worthy, and how far we might succeed from the results obtained, to determine the period and the progress of civilisation in primitive times.

It never occurred to me, as some have done, abruptly to divide stone, bronze, and iron periods. Some little reflection clearly leads to the assumption that on the introduction of a new element of culture the preceding condition cannot cease at once. Whether bronze was in our part of the world independently used, or whether, as seems more probable, it was introduced by a more civilised people on the shores of the Mediterranean, or from the coast of Africa; this much is certain, that bronze made its way but slowly, and that stone and bone implements remained in use long after the introduction of bronze articles by trade, and even after such articles were fabricated in the respective countries themselves. The Homeric heroes, who knew bronze and iron, threw stones at each other, and the sling was, in not very remote times, a legitimate war weapon. It also appears that stone implements, even after they had disappeared from general use by the introduction of metals, retained an odour of sanctity, so that stone-knives and stone-hatchets were used in religious ceremonies, it being considered that metal which required so much human labour was rendered unclean by so much handling.

But are we from this transition of one epoch into another justified, as some have done, in inferring that no preceding distinct epoch had existed, and that when in certain spots we only find stone and bone implements, it was merely accidental that no bronze was deposited? It would be foolish to deny that in some cases this may have occurred. But if, on the other hand, the results of many researches agree that there were periods of culture which did not betray any trace of the knowledge of metals, and that stone and bone implements were exclusively used for purposes to which at later periods metal was applied, every unprejudiced inquirer must at once admit that such an epoch has really existed, and that we even distinguish in its progressive periods of development, civilisation.

It may be that a grave, for instance, containing only stone implements, belongs to a comparatively recent period, especially as on account of the above mentioned religious character, these stone implements were perhaps preferentially deposited. But the absence of metal loses its accidental character, when we meet with numerous settlements or stations, when hundreds of caves or graves are explored, where not only metal is entirely absent, but where the discoveries of remains of foreign species of animals, testify to a state of culture resembling those of savages subsequently discovered.

In mentioning savages I must be permitted to offer an observation.

Certain as it is that stone, bronze, and iron periods only form relative sections continued into one another, it cannot be assumed that similar civilisation epochs were simultaneously developed in different parts of the globe. In other words, even in the limited area of Europe, there may, on the coasts and on rivers, peoples have existed, further advanced in civilisation, who knew of and how to use metals; whilst in the interior of the country tribes dwelt, who for centuries, perhaps, had no idea of metals, not unlike the savages of islands who used stone weapons until Europe supplied them with iron, lead, and powder. It is therefore, in my opinion, improper to associate the findings of different countries, lying so far apart, instead of only comparatively treating them, and at first merely approximately to determine the period of the development of a given civilisation. It is, for instance, imaginable that in the Alpine highlands, especially in the northern declivity of Switzerland and the adjoining regions, the knowledge of metals was unknown to the pile builders; whilst around the Mediterranean, and specially on the southern and eastern coasts, the knowledge of metals was generally diffused. The more therefore these researches extend, the more must they be applied to definite regions, and be confined within narrower limits in the comparison of results, within which an arrangement of such results becomes possible.

Since the publication of my *Lectures on Man*, which were not exhaustive, but merely to further researches, materials have in all countries wonderfully increased. Efforts are now making in all parts of Europe, to dig up the treasures concealed in the soil, and new finds are brought to light which supplement the existing. In referring to what is known I shall confine myself to what is essential for the purpose of connection.

The minute exploration of caves and their contents has been carried on with great zeal, specially in France, and also in Italy and Belgium. Everywhere have the reasearches been carried on with the avowed object of arranging the obtained results in their proper series. The contents of a cave are no longer, as formerly, considered as a whole, but a distinction is made between natural deposits and the changes produced by man in different periods. There is no doubt that many caves have been filled up solely by brooks and streams, which reached the elevations at which the entrances to the caves are now found. In some caves we have succeeded to determine the intermediate periods of successive deposits differently characterised.

But although there are many caves recognised as containing deposits in their original natural condition, it cannot be denied that there are many other caves in which the original deposits have been disturbed

and mingled with products belonging to later and recent times. Many caves served as places of sepulchre or refuges in troublous times, or as dwelling places for hunters, shepherds, etc. In the places for refuge the dwellers left behind, their fire-places, portions of their meals, and implements which mingled with the relics of remote epochs. Beasts of prey inhabited the caves, and introduced into them bones of animals. There are thus caves containing samples of prehistoric and historic periods, which are apt to throw suspicion on the results of other investigations. Fortunately most investigators are at present fully alive to this difficulty, and by close attention endeavour to prevent any confusion. Where the natural deposits present themselves clearly and perfectly, where the stalactites which separate generally the deposits are perfectly uninjured, and where no trace is found of any disturbance we are justified in assuming that the finds are genuine, especially if they be of such a nature as to show a decided difference in the various periods of deposition. However reliable cave finds may be in normal cases, the severest examination is requisite to avoid errors. Where we have the least doubt whether we are in the presence of undisturbed original deposits, we ought to be careful in drawing conclusions from the facts. On the other hand, it appears to us foolish that because caves have been found disturbed no valid results can be obtained from the exploration of caves. This appears to me not unlike the assertion that because there are some churchyards in which after some thirty years the old graves are again made use of, all old churchyards must necessarily contain bodies of a recent period. There are, nevertheless, unquestionably churchyards in which for centuries no corpse had been interred, and where we may be sure that all objects found in them, of whatever kind they might be, must date from a period preceding the abandonment of the burial place. Just so with the caves. If we find in the soil beds containing only bones of the cave bear and cave hyæna, and other contemporaneous species, and above them an undisturbed stalactite roof, and above this another deposit of reindeer bones, and those of other animals contemporaneous with the reindeer; it would be impossible to find more convincing proofs of two successive periods differing from each other in their fundamental characters.

Of not less importance is the examination of the beds of the so-called diluvium, the conventional name of which conceals a sense which modern geology can no longer recognise. It must be insisted upon that no geological fact is in the least capable of affording any proof of a universal deluge in a comparatively recent period at all approaching historical times. All the facts, of whatever kind they may be, merely indicate deposits which, in the existing valleys, rose to a

comparatively small height, partly owing to changes of level, and which, though considerable for the respective regions, are insignificant when taken on the whole. It is now proved by incontestable evidence that the so-called diluvial period lasted a comparatively immeasurable long time within which the expansion of the glaciers induced great changes on the surface of Central Europe, and which preceded the arrival of man.

On referring to the various climatic conditions which obtained during this period, we observe that a great portion of Central Europe had at that time, in relation to climate and the *Fauna* and *Flora* depending thereon, an insular character resembling in some degree that of the southern islands of New Zealand. The glaciers could thus descend from the mountain heights into the valleys, where there existed a southern vegetation, and the elephant and rhinoceros could find the means of existence at the foot of the glaciers despite the adjoining ice mountains. When we consider that the glaciers surrounding Mount Cook, in New Zealand, descend to the region of ferns and palms, because the insular climate preserves them by the great quantity precipitated from the heights, whilst by moderating the heat of the summer it prevents their melting, we ought not to be surprised at finding in the circumference of the Alps in the diluvium produced by the glaciers elephant bones, or doubt that these regions were at a former period inhabited by pachydermata.

Whilst the exploration of caves presents peculiar difficulties, those attending the explorations of the diluvium are not much less perplexing, which is abundantly proved by the lively discussions on this subject in the French Academy. There are two special conditions which require our attention. First, the local difference of the deposits. In this respect we may say that not merely every country, but that every river bed and every valley has its own law. That there was a deposit here and none there; that the character of these deposits (gravel, sand, mud, etc.) varies and alternates greatly; that even deposits in adjoining localities, manifestly formed simultaneously, may present entirely different characters. It is, therefore, exceedingly difficult to parallelise the various deposits characterising the diluvium, and for the present, at least, to determine the chronological succession in which certain formations of different countries stand to each other; especially as the stratification which guides us in elder beds is in the diluvium very confused, and offers no certain basis for tenable inferences.

Another difficulty has been pointed out by Chevalier De Beaumont. Diluvial formation is constantly taking place; every little brook carries off some particles into the depth. That this restlessness, so to speak, of the earthy particles by the influence of the water acts also

in the depth, has been proved by the exploration of sepulchres, when it was found that the slightest gap in a sarcophagus was sufficient to give rise to accumulation within, which gradually not merely displaced the bones but by pressure changed their forms. The alluvial formations of the slopes, as Elie De Beaumont calls them, are, no doubt, continuous, and deposits may thus take place which, coming from heights, may present features of being older than they actually are.

We must, however, not forget that these phenomena are well-known to the geologist, and that we no longer live in the infancy of the science, when surprise was felt that, for instance, in the lower tertiary strata of Paris sea-urchins were found which belong to the chalk, but had been carried off and deposited in the tertiary strata. It cannot, therefore, be denied that alluvial formations still take place in which the products of former and later periods are commingled. Thus a river running through sand-banks belonging to different periods of formation, may mingle portions of these sand-banks in a new alluvial formation; but a minute examination of local conditions will also here lead to a satisfactory answer to questions of this kind. If above such deposits, accumulated in slopes, later deposits are found bearing a well defined periodical character, we may at least assume this much that the lower beds must belong to an older epoch.

The peat moors have contributed much to throw light upon certain periods of civilisation, and have yielded rich and genuine results, but unfortunately they reach only to a certain period. In the oldest period here treated of they were not inhabited, and can, therefore, afford us no clue; but they acted as excellent preservers of objects of later periods. It is true that it may give rise to a source of errors, because heavy objects especially may, in the peat moors, sink so deep as to be believed to have originally belonged to this stratum. But this sinking cannot be appealed to when we come to settlements with piles driven in the subsoil. With regard to an individual tree hollowed out for a boat, like that of the Nidan-moor, which caused M. Franz Maures to sing a song of triumph, there may be doubts which, however, must vanish before universal phenomena. If, therefore, peat moors give, as regards a relative period within which the deposits took place, a satisfactory explanation, I cannot help again drawing attention that in the peat moors alone we must look for the determination of the actual period within which the pile villages existed. Although we all at the present time in botanical and chemical respects very nearly understand the formation of peat, still the question of the growth of peat within a definite time is by no means solved. We neither know generally within what time a stratum of peat one foot thick may grow, nor do we possess any scientific data to calculate the quantity of

growth within a given time of any individual peat moor. That the growth must differ in various moors; that even in a given locality they must have differed during certain periods is easily imaginable; but I repeat that by minute researches in individual peat moors, which are as yet entirely wanting, we may succeed in establishing chronological determinations of the age of pile buildings.

We can only assign to the deposits in the open lakes a secondary rank to those of the peat moors, as regards the certainty of results. Although this kind of fishing is now carried on with the greatest zeal, nay, with a certain passion, it is clearly perceivable that the openness of the lakes must, in such places where settlements existed, have mixed products of different epochs. The celebrated Steinberg of Nidan has existed as a settlement from the stone to the iron period; it is impossible to assign to any object found there a chronological date.

Old graves form another source of our prehistoric knowledge. It will, indeed, have to be acknowledged that in the most primitive times burial places, properly so-called, were unknown, and that care for the dead of relations already indicates a progress of culture even before the development of religious feelings. Burial places with their contents will, therefore, although open to chronological doubts, present to us a greater interest, since the rarity of skulls in other deposits obliges us to seek for them in burial places.

The chronological question is a very important one. That these investigations concern a primeval period, of which even tradition renders no account, is now generally acknowledged; nor can it be contested that the existence of man can be traced at least to an epoch during which extinct species of animals inhabited our continent. But between this starting point and historical times intervene a series of periods or epochs which are to be partly demarcated and chronologically determined. What means do we possess for such a purpose, and what results have we already obtained?

I have already in my *Lectures* indicated that the chronological attempts of Gilleron, Morlot, and Troyon in Switzerland have no pretensions to scientific accuracy, and although this may not altogether apply to the excavations of Hekekyan Bey in Egypt nor to the computations of Dr. Dowler, of New Orleans, even these are open to criticism. These experiments lie rather outside of accurate supervision, and although I am perfectly convinced that the computations to which they lead are not exaggerated, I would not altogether rely upon these foreign results. They constitute, however, at present the only attempts chronologically to determine prehistoric times, and should find grateful acknowledgment, even if unsuccessful.

In the absence of a chronological determination of periods, we must be permitted to follow a method applied to geology. We do not in geology ask how many years have passed since this or that stratum has been formed, and for the simple reason that, even if an answer were possible, the standard at our command is insufficient. What we ask is, whether a stratum has been formed before, after, or simultaneously with another given stratum? To answer this question, we possess the same means as geology; and these must be applied to determine the chronology of prehistoric human epochs. The determination of the relative epochs within which a deposit belonging to prehistoric periods had taken place, belongs exclusively to the geological method; and I do not hesitate to ascribe many of the contradictions in this respect, solely to the ignorance of the respective authors of the proper geological method. In order to show this, let us examine the means applied to geology, and their relative value.

The geological character occupies the first place. Here is a stratum of red sandstone overlying a stratum of grey limestone, and beneath a layer of light grey lower muschelkalk (Wellenkalk). At some distance I find exactly the same red sandstone, in the same relative position between these two limestone strata; surely I cannot hesitate to assume that the two sandstone strata had been deposited at the same time, and at the same relative period, before the light grey "Wellenkalk" and the smoky grey magnesia limestone. The geological character thus partly depends upon the mineralogical property, and partly upon the relative position to other known strata. This character may surely be applied to the determination of the various beds in the diluvium. When Prof. Fuhlrott shows that in a grotto of the Neander valley there exists a lehmbed, containing a number of fossil bones and rolled flints, and that this layer corresponds exactly with the lehmbed in which at some little distance the famous Neander skull has been found, this concordance of the geological character affords, if not absolute certainty, at all events the greatest probability, that the Neander skull belongs to the same period in which the animals lived whose bones were found in the so-called Devil's chamber. There can, therefore, be no doubt, that the geological character has a claim to great importance, provided that it refers to localities at little distances from each other, and manifestly subjected to the same conditions. But the geologist who, from the resemblance of the deposits in the Devil's chamber and the Neander grotto, infers their contemporaneous formation, owing to their being scarcely one kilometer distant from each other, this same geologist would, at all events, hesitate to extend such an opinion to Belgian or Franconian grottos; and for this reason, that experience has taught him that de-

posits of more or less variegated lehm with rolled flints, may have taken place in different localities at different periods. Here, therefore, the geological method finds its limits; applied to limited spaces, it affords reliable facts, which may lose their value as regards distant regions.

I look upon the palæontological character as affording much greater certainty in regard to the inferences which may be drawn from the organic remains found in prehistoric deposits. Let us explain. The distribution of animals and plants upon the globe is not the effect of accident, but the result of local conditions and historical traditions. These latter afford a reason why, in spite of favourable conditions, certain animal forms have not been developed. I must show by an example what I mean. An experience of three centuries has shown that America is an excellent field for horses; nevertheless the type of solipeds did not exist in that part before its discovery. The finding of horse bones in an alluvial bed of America, would therefore irresistibly show that this bed has been forming after the introduction of the horse by Europeans; whilst the original absence of the horse type proves that, at the time when solipeds were developed in the Old World, they had no access to the New World. The extinct species, the emigrated forms, still existing in other parts of the globe, the domestic animals gradually acquired, offer a like certainty in relation to the determination of a relative epoch, as the horse bones in the above example. Their bones found in the deposits, are speaking witnesses that they existed at the time the deposits were forming, and offered, therefore, the surest indication for determining that period.

This applies equally to plants. The changes in the flora of Denmark during the prehistoric period have been accurately traced, and, although computed by the elements of the present flora of Central Europe, they are still determinative for certain epochs. The same may be asserted of the pile-work periods in Switzerland and Italy. Even the relative frequency of many plants, as well as the cultivation of edible plants, partly taken from the primitive flora, partly introduced from other countries, may serve for an accurate determination of definite periods. The continuation of such researches, as pursued by Lartet, Rütimeyer, Croizet, and Heer, will afford important contributions to the question of determining the periods to which the finds belong.

At present we cannot assign to the anthropological character, namely, the quality of the human bones, and especially of the skull, such importance as regards the determination of age, as possessed by the preceding elements. It certainly seems that already, at the beginning of man's appearance in Central Europe, as far as we know, several cranial types opposed each other, and that several of these

types succeeded each other in the peopling of certain regions. But, with the scanty materials for the craniology of the olden times, and the duration of the various cranial types, which manifests itself by the intermixture of immigrants with previously existing tribes, the examination of a single or of several crania can scarcely lead to a sound inference regarding the relative age of the same. The masterly investigations of His and Rütimeyer on the Swiss cranial types and intermixtures in the Romanic districts, show what interesting results may be obtained; but they give no accurate information concerning the period in which these cranial types appeared. Let us instance that much talked of Neander skull. Its great antiquity is proved, as already stated, by its geological character. The dispute is whether it be a pathological product, an abnormity produced by premature synostosis, or a normal form. The balance inclines to the latter view, for there are many skulls presenting an early closure of the sutures, without showing the particular form of the Neander skull; and there are also skulls very much approaching the Neander skull, showing no such early closure of the sutures. We therefore assume that the Neander skull belongs to the highest antiquity, and to a peculiar type. Do we, then, say that every cranium of this kind which may be found must belong to that period? By no means. This Neander people have propagated like other peoples; they surely have intermixed more or less with other tribes; and, although it has disappeared as a tribe, be it by gradual extinction or by transformation of its original cranial forms, there have remained remnants which, partly by atavism, have continued down to a recent period.

Finally there comes, so to speak, the industrial character, which is important so far, inasmuch as the introduction of metals, of bronze and iron, must have caused a great revolution in the public and domestic life of man. That this change could only be gradual, that the old implements continued in use for a long time after more perfect instruments were manufactured is clear enough. We have seen even in our rapidly-progressing period that it is perhaps easier to effect a revolution in our government than to change domestic arrangements. If we proceed still further, and endeavour to determine different periods from the polish and workmanship of stone implements, the results will scarcely be in accord with the requirements of accurate investigation. Man with every progress he makes has a desire to render his existence more agreeable. He will therefore at first hammer away and sharpen the edges of his rude hatchets, then polish them; he will then with this knife, work, carve horn, and he will do so in proportion as his struggle for existence leaves him time for apparently useless occupations. But as in our present civilisation epoch there are many

regions where man requires his whole time for the acquirement of the necessities of existence, so must it in greater degree have been in primitive times; and thus it might have come to pass, that whilst in one district civilisation had sufficiently progressed for the manufacture of more perfect implements, those of adjoining districts were still in a rudimentary condition. Do we not possess an instance of this difference in the settlements of Concise on the Neufchatel lake and the implements of Middle and Eastern Switzerland? If these settlements were overlying each other, if above the rude implements of Robenhause were found the neatly worked implements of Concise, it would at once have been inferred that we had before us two successive culture epochs. Nevertheless these settlements might very easily have co-existed, although in one civilisation appears to have made greater progress than in the other.

In shortly recapitulating what we have said concerning the method to be applied for solving the problems in question, we come to this general inference; that no single character possesses an absolute value, and that only by the combination of all, with special reference to circumstantial conditions and limited localities, valid conclusions may be arrived at. When the facts shall have accumulated to such an extent that they embrace countries hitherto unexplored, and of which some had in certain respects attained degrees of civilisation before the already explored regions, then shall we be able to penetrate deeper into the mysteries of the primæval history of our species.

We must now be permitted to enter upon the results hitherto obtained. If partly in contradiction with the views we have advanced, we still divide them into sharply demarcated periods, it is not because we believe in no transitions and intermediate periods, but simply from the necessity of succession and separation.

If, then, we speak of cave-bear or reindeer periods, we protest at the outset against the assumption that the first reindeer was born on the day the last cave-bear died. We are permitted to assume that the form of the cave-bear has been gradually developed into that of the common brown bear; that the reindeer, which was partly contemporaneous with the cave-bear, and acquired greater importance for man, disappeared, like the cave-bear, but gradually, and retired very slowly from the south to its present habitation. These epochs we denominate, according to the chief character they represent, transition periods: we acknowledge their importance as forming the central reflex of a long period.

The oldest traces of man, if they can be attributed to him, have been laid bare by M. Desnoyers in the sand of Saint-Prest, near Chartres. This sand-pit is situated on the banks of the Eure,

covered above by lehm of considerable thickness; then come beds of rolled flints and rounded blocks of sandstone, pudding-stone, white sand, mingled with rolled flints; then very fine sand resting upon chalk. This mode of stratification, that of the sand deposits in which the bones of large mammals are found, is unquestionably older than the diluvial formations occurring in this country or in other districts of France, and that they belong to the upper tertiary strata found in the valley of the Arno, in France and England. The Norwich crag and the deposits of Grays-Thurrock and Ilford in the Thames valley, which at all events were formed before the glacial period, belong to the same period. In the known Norfolk cliffs, near Cromer, in the so-called forest-bed, and unquestionably underlying the glacial mud, there are found, according to Lyell, the following plants as determined by Heer: *Pinus sylvestris*, *Pinus Abies*, *Taxus baccala*, *Prunus spinosa*, *Menyanthes trifoliata*, *Nymphæa alba*, *Nuphar luteum*, *Ceratophyllum nemorosum*, *Potamogeton*, *Alnus*, and *Quercus*, and bones of the following animals, as determined by Falconer, Owen, and others: *Elephas meridionalis*, *Elephas primigenius*, *Elephas antiquus*, *Rhinoceros Etruscus*, *Hippopotamus* (*major?*) *Sus*, *Equus* (*fossilis?*), *Bos*, *Cervus capreolus* (*?*), and other species of *Cervus*, *Arvicola amphibia*, *Castor trogontherium*, *Castor Europæus*, and *Cetacea*. In the valley of the Arno were found, *Elephas meridionalis*, *Rhinoceros leptorhinus*, *Hippopotamus major*, large oxen, stags, and one horse, all differing from the species found in the alluvium. At St.-Prest were found, *Elephas meridionalis*, *Rhinoceros leptorhinus*, *Hippopotamus major*, several species of deer, one of which, on account of its resemblance to the large Irish deer, was called *Megaceros carnutorum*, whilst the teeth of the other species of deer quite resembled those found in the Arno valley; further, one horse and one species of ox, corresponding with those found in the Arno valley, and also an extinct species of rodent of the size of the beaver, called by Laugel *Conodontes Boisviletti*; there obtains, therefore, despite of the difference in localities, a concordance between the deposits, so that, on geological principles, the contemporaneity of these deposits in England, France and Italy is undoubted. Whether these deposits are belonging to the upper tertiary, so-called pliocene, or to the diluvial formation, is a purely theoretical and idle question, inasmuch as the division of the formations usually adopted in geology are purely arbitrary. But the relative age of these deposits is sharply demarcated. The deposits in Norfolk and at Saint-Prest prove that they have unquestionably taken place before the glacial period, and before such formations in which the later contemporaries of man—the cave-bear, the mammoth and *Rhinoceros leptorhinus*—have left us their bones.

If the proofs for the existence of man were as convincing as those for the age of these animals, no one could doubt of his great antiquity. But these proofs only consist of carvings, lines and stripes, certainly not unlike those found in caves and kitchen middens carved on the bones with flint knives. The crania of the large deer are almost all at the root of the antlers, broken as from a blow on the frontal bones, in the same way as Steenstrup has found in certain deposits, and as is still practised by the Laplanders. The antlers are broken into two pieces, apt to form handles of implements. The incisions are specially marked on the long bones of the elephant, but also on those of the rhinoceros and hippopotamus. That these incisions existed upon the bones before they were covered with sand, is proved by the sand being fixed in the incision, so as to refute the objection raised at the Ecole des Mines of Paris, that these incisions were caused by scratching the bones with iron instruments. Besides these incisions, there are seen in these bones other light scratches, which Desnoyers attributes to the friction of flints.

Whosoever has once seen bones from caves, pile works and kitchen middens, from which the flesh and the tendons had been removed by stone-knives, he cannot fail to mark the resemblance to the incisions discovered by Desnoyers. The experiments suggested by Lyell have however established that similar incisions might be produced by large rodents, and as such rodents are not altogether absent in Saint-Prest, the discoveries of Desnoyers have lost much of their validity in relation to the existence of man in the tertiary period. It must certainly be added that prejudice only, and not a rational contemplation of nature, can adduce well grounded reason against the existence of man in that remote period. If man at this day can inhabit the same countries, by the side of the elephant, the rhinoceros, hippopotamus and similar beasts, why should he not at a remote period have found the condition of his existence by the side of these animals? This epoch of the primeval period, if it should be confirmed, might be called the epoch of the southern elephant *(Elephas meridionalis)*.

Since the first undoubted traces of man consist of rude flint implements, so-called hatchets and knives, and later of bones, found in the diluvium of the Somme valley, we shall treat of these first. These kinds of deposits may be designated as the epoch of the cave-bear and the mammoth.

There is no doubt that all such deposits of Central Europe, in which whole skeletons and limbs of the mammoth and the fossil rhinoceros are found, correspond with that epoch in which, around the Alps, the glaciers began to retire. But if this be a fact, doubts certainly may arise whether these diluvial formations, in which flint

implements are found, really belong to the mammoth beds, or whether the teeth of the pachydermata, and other bones found in them, might not have been carried away by the waters from other localities and deposited in the spots where they are found. The geological character was therefore doubted, because it was assumed that the diluvium in which the implements were found had been produced from the destruction of earlier mammoth beds, and was consequently of a later origin. But as the diluvial formations in the river valleys present the general character of stream formations, as they without exception consist of rolled flints, sand and gravel, and present that confused stratification peculiar to river deposits, this view seemed plausible. The thickness of more recent strata which cover the sandbanks containing flint implements could not well be invoked as a proof for their age, it being known that rivers frequently change their beds, and may within a few centuries in some spots accumulate deposits, whilst in other places they carry off huge masses in order to redeposit them lower down their banks.

The geologists who had studied the superficial formations, especially of France, had a full right to invoke the parallelism of the strata; they called to mind that the various deposits in adjoining regions presented the same succession as regards the composition of the banks of variously formed rolled flints. But all these considerations afforded only probability, not certainty. An Italian naturalist, B. Gastaldi, had therefore a perfect right to maintain that the finding of flint hatchets associated with mammoth teeth does not prove the contemporaneity of these deposits, which can only be proved if, as in Italy, whole skeletons, or at least all the bones composing them, are found in one spot. Single teeth and other bones may, like rolled flints, be carried off and deposited elsewhere by streams, whilst the deposit of a skeleton or bones in their relative position proved at least that the whole body, kept together by skin, muscles, and sinews, had been deposited. It did not occur to B. Gastaldi that when he raised this objection it had already been refuted as regards the Somme valley. These deposits, at Cuvier's time, already passed for the richest localities in which bones of the mammoth and fossil rhinoceros were met with; and more than thirty years ago, a Monsieur Baillon has, in the sands of Menchecourt, which yielded many stone hatchets, found a perfect hind foot of the rhinoceros, the bones of which were found in their normal position, whence Baillon justly inferred that these bones, when they were deposited, were still united by muscles and tendons. The skeleton of the whole animal to which this foot belonged was at a short distance from it. At the time when this discovery was made and published,

the existence of hatchets in the same bed was not even anticipated, nor its relation to later discoveries.

Very recently a perfectly valid confirmation of this deposit was found on the banks of the Manzañares at Madrid, in the vicinity of San Pedro, by Casiano de Prado. The stratification is as follows. Immediately beneath the vegetable earth lies a confused mass of sand and rubbish, with few rolled fragments, of the thickness of 7 mètres and 80 centimètres, overlying a lehm stratum 30 centimètres in thickness throughout. Then comes a layer of sandy lehm 70 centimètres thick, in which, in the year 1850, was found an almost perfect skeleton of an elephant, the bones of which were partly in their relative positions. About four or five years ago were found, in the same stratum, bones of a mammoth in a similar condition. There can, therefore, be no doubt that the waters which deposited this bed had carried off the whole bodies of these elephants, and that consequently the bed was deposited at the period when elephants lived in the vicinity of Madrid. Under this stratum was found a mass of rolled stones three mètres in thickness from the underlying tertiary formation, in which were found flint hatchets resembling those of the Somme valley, being neither polished nor sharpened, but solely formed of fractured flint lumps. This discovery removed every doubt. We might, from the overlying strata infer that the man who made the flint hatchets existed even before the mammoth, were it not that we find everywhere proofs that the beds which, beneath present rolled flints, but above a finer material, have been formed in the same epoch, although in different successive times.

The geological character of this first epoch being determined, the palæontological character is no less so. It is unnecessary to dwell long upon this. In my *Lectures*, I have stated that the mammoth, the fossil rhinoceros, the hippopotamus, the fossil horse, the large beaver, characterise these beds; and that, besides them, several species of deer, oxen, goats, and sheep, are not rare in the diluvial formations; while the cave animals, such as bear, hyæna, tiger, and leopard, belonging to extinct animals, are rarely found in the diluvium, but mostly in caves. Doubts might certainly arise as regards the contemporaneity of these deposits, were it not that in the diluvium large bones of carnivora have been found, whilst in the caves the bones of pachydermata and ruminants were met with, which had been evidently imported there by beasts of prey, as the bones still bear evidence of the traces of their formidable teeth.*

* In a little work by M. Troyon (*Recherches sur l'âge de pierre quaternaire*, etc.) which has just reached me, I find a note, according to which Lartet still divides the first period into four different epochs—that of the cave-bear, of

I must at the same time repeat, that many of the extinct species which we find in Central Europe, have gradually retired to the north, where probably they existed longer than in Central Europe; whilst other animals, like the reindeer, the elk, the aurochs, the musk-ox, the gulo, the myoxus, the marmot, the ibex, and the chamois, have partly retired to the north, and partly to the mountains, where they still live; others again, like the stag, the wolf, several species of oxen and swine, have remained, and live among us either in a wild or domesticated condition. Whilst these facts prove that the epochs of the cave-bear and the mammoth were richer in mammals than the present epoch, we find, on the other hand, that the gradual extinction and retirement of the various species within an epoch of long duration, afford us the means of separating individual sections of time. The finding of remains of extinct animals in Central Europe, will thus enable us to separate the earliest epoch, that of the mammoth and cave-bear.

On searching for anthropological character in the deposits of the diluvium, it is reduced to the celebrated jaw of Moulin-Quignon, and to the cranium latterly found there, the description of which we have yet to expect. The other scanty remains of bones and teeth, which are found here and there, do not possess any importance as regards the determination of race.

The industrial character is confined to the various flint implements. Despite many objections, they have proved themselves works of art. They show everywhere the same character, presenting no traces of polish or grinding, rudely struck off from flints, and have been further worked according to the form given them by accident or a skilful direction of the blow. But heaven forbid that we should, from this

the mammoth, of the reindeer, and of the aurochs; a division which Lartet first proposed in his description of the grotto of Aurignac. I must confess not to understand the grounds upon which this division rests. Cave-bear and mammoth have always been found associated. Schmerling enumerates the mammoth and the rhinoceros among the remains of the Belgian bone caves. There is no evidence that either of these animals appeared successively, or that one became extinct before the other. The finding of whole mammoths and rhinoceros in the icy Siberian diluvium, cannot be adduced as proof that they became extinct later. We should probably in our region have found, instead of skeletons, the entire bodies of elephants, if here the ice had increased instead of decreasing. This also applies to the distinction of the two other epochs, those of the reindeer and the aurochs. Both occur with the cave-bear and the mammoth (Schmerling found reindeer antlers in the Belgian caves). Both retired to the north, and have, like the human species, outlived their former contemporaries, The aurochs seems in France to have lived even later than the reindeer; but we know of no facts affording a satisfactory proof that the aurochs, after the retirement of the reindeer, characterises a special prehistoric epoch.

circumstance, conclude that all such rudely worked flint implements, or their cast away nuclei, belong on this sole ground to the first epoch. Already, in the earliest period of human society, there must have obtained a certain division of labour; and many spots where many implements were found are justly looked upon as manufactories where the stonemen, as we may call them, first rudely worked suitable flints, in order subsequently, perhaps, to polish and grind them with ears for handles, etc. Where other characters for determining the age are wanting, we are perfectly justified in suspending our judgment, as regards the antiquity both of the rude implements and of the nuclei from which they were struck off, until other proofs are forthcoming. As an instance, I may mention the large flint nuclei, the so-called butterstones of Grand Pressigny, which have given rise to so lively a discussion between some members of the Academy and M. de Mortillet. These large blocks, of peculiar grain and quality, from which long flint knives had evidently been struck off, of which some have recently been found under the vegetable earth, were by some members looked upon as the remnants of a large manufactory of gun-flints, which had existed on that spot within a comparatively recent time. This assertion was successfully refuted by competent judges, such as Penguilly l'Haridon, director of the Paris artillery museum, and Mr. John Evans, both on historical and manufacturing grounds. I have myself, after inspecting the fragments collected by M. de Mortillet, become convinced that the fabrication of gun-flints by means of steel instruments, which, from the invention of the flint-lock down to the introduction of percussion-caps, obtained in France and England, never left remnants like these butterstones. The latter are frequently more than a foot in length, and consist of a peculiar coarse-grained flint with a waxy lustre, and was from its toughness unfit for gun-flints. It has, moreover, been shewn from the archives that a gun-flint manufactory had never existed near Pressigny. Such butterstones have, moreover, frequently been found in walls erected long before the use of gun-flints. But, whilst all this militates against the modern origin of these flint knives, of which many are found in the vicinity, it must, on the other hand, be admitted that the position in which they are found affords no satisfactory proof that these remnants of a flint manufactory belong to the mammoth epoch. The circumstance that some polished fragments, as stated by Evans, were found in the vicinity, rather proves that they belong to a later period.

I merely mention this instance, to show how cautious we should be positively to determine the age from few facts, and a single character not universally valid. A flint knife, intended to be polished, must necessarily be first struck off; and the find of such flakes, as

well as their nuclei, does not prove that they were not subsequently polished. I shall, therefore, say here no more of the many flint implements found in different spots, partly on the surface, or in the vegetable earth, or in sand and gravel beds. Further observation may, perhaps, by the addition of other more positive characters, assign to them a definite place in history; but, until such characters are found, we should take all these finds *ad referendum*, and rather confess our ignorance, than enter into discussion on subjects which as yet have acquired no scientific certainty.

[*To be continued.*]

THE FOSSIL HUMAN JAW FROM SUFFOLK.

By ROBERT H. COLLYER, M.D.

At the instigation of Vice-Admiral Sir Edward Belcher, C.B., I was induced to exhibit to the Ethnological Society of London in April 1863, a fossil or coprolite human jaw, which was found by the workers employed in excavating coprolites near Ipswich, Suffolk.

The jaw was purchased from the finder by Mr. John Taylor, druggist, of Ipswich, for the sum of 2*s.* 6*d.*, who called my attention to it at the time, 1855. A small portion of the bone was filed off, which, on the application of heat, emitted a slight odour peculiar to burnt gelatine, showing conclusively that the whole of the animal matters of the bone had not been fossilised. As this, to my mind, is no criterion that the bone did not belong to a period coeval with extinct mammals, I was very anxious to become the possessor of this "coprolite jaw." The specific gravity is much greater than that of a recent bone of the like size, it being infiltrated throughout its entirety with oxide of iron, and the surface presents peculiar metallic lustre. The condyloid processes are one-and-half inches distant from the alæ, and from the condyles to the posterior angular protuberance it recedes full 45°, and the same receding angle is shown from the mentum prominens to the alveolar processes of the place formerly occupied by the incisor teeth; the bone probably was that of a female of small stature, and as the alveolar portion of the jaw, where the incisor teeth were inserted, is closed, and the molar teeth ground down, I am of opinion that "the human" tore the food prior to mastication by the molars. The cranium of this jaw must have been very small, with a contracted low frontal region. I have now every reason to believe that this "coprolite jaw" is the oldest relic of the human animal in existence, as its

condition corresponds in every respect with the coprolites in whose contact it was found. Mr. Taylor presented the "coprolite jaw" to Sir Thomas Beaver, Bart., of Norfolk, in whose possession it remained until March 1857, when he kindly forwarded it to me. I took it forthwith to my friend Professor Quekett, who was then curator of the College of Surgeons, who after having carefully examined it, said, "this is, indeed, a curious bone; it belonged to a very low race; I would wish Mr. Owen, of the British Museum, to see it." I accordingly took it to Professor Owen, who kept it for two years without coming to any *expressed* opinion. In 1859 I took it to Mr. Prestwich.

In April 1863, in consequence of Sir Charles Lyell's work "On the Antiquity of Man," I wrote to Professor Huxley a short history of the "coprolite jaw." In the meantime Sir E. Belcher called on me, stating that Mr. Crawfurd was going to read a paper on "the primitive races of mankind" at the Ethnological Society, and urged me to accompany him, and bring the "coprolite jaw."

After the paper, a discussion took place, in which Sir C. Lyell, Sir Roderick Murchison, and Professor Busk took part. At this time the whole scientific world was very much interested in the discovery of the "Abbeville jaw" by M. Boucher de Perthes in the drift of the Somme Valley, in contact with flint haches or langues de chats.

Professor Busk, whom I had not the pleasure of knowing at the time, pronounced the "coprolite jaw" in the most summary manner to be "the jaw of some old woman, perhaps from some Roman burial ground," and also said that the "Abbeville jaw" had been proved to be a deception practised by the workmen on M. Boucher de Perthes. Everyone present at this juncture looked on me as an impostor or a fool for having had the rank temerity to have dared to foster on such authorities and experts "my jaw," without prestige or unheralded by fame. I, however, said mentally, this "old woman's jaw" shall "be heard;" but to vindicate the facts at that moment was out of the question. The tide had turned against me. I enjoyed a private laugh at the perversity of even the highest apostles of the science of geology, hitherto proscribed by the bigotted and intolerant. I was conscious of the genuineness of the "coprolite jaw."

Next morning Professor Huxley called at my house and pronounced the "coprolite jaw" to be a "most extraordinary specimen." I gave it to him, so that a careful examination should be made, and received the following:—

"Royal School of Mines, Jermyn Street, May 2, 1863.

"My dear Sir,—My friend Mr. Busk has taken your remarkable specimen in hand, and I will ask him to inform you as to the conclusions to which he may arrive. No doubt, as I stated when you were

so good as to show me the jaw, it has some peculiar characters, but they do not appear to me in themselves adequate to lead me to ascribe the bone to an extinct or aberrant race of mankind, and the condition of the bone is not such as I should expect a crag fossil to be.

"I am, dear Sir, faithfully yours,

"T. H. HUXLEY.

"Dr. Collyer."

The "Abbeville jaw" controversy enlisted at this moment all the most eminent anthropologists of Europe. The principal disputants were, in England, Messrs. Hugh Falconer, Busk, Prestwich, and Evans; in France, MM. Quatrefages, Delesse, Desnoyers, Lartet, Gaudry, Lyman, Pictet, and Boucher de Perthes. Messrs. Prestwich and Evans undertook to show that the flint implements were of modern fabrication. Messrs. Falconer and Busk, that the "Abbeville jaw" contained so large a proportion of animal matter, as to pronounce the bone to be comparatively modern when compared with *the drift* with which it was alleged to have been found.

The "coprolite jaw" was considered, both by Drs. Falconer and Busk, to be of sufficient importance to be taken by them to Paris, so as to show the French savans that a human jaw favourably situated could be infiltrated with a metallic substance; and in the reprint of a pamphlet from the *Natural History Review*, July 1863:—

"An account of the proceedings of the late Conference held in France to inquire into the circumstances attendant on the asserted discovery of a human jaw in the gravel at Moulin Quignon near Abbeville, with notes by H. Falconer, M.D.; George Busk, F.R.S.; W. B. Carpenter, M.D., Vice-President of the Royal Society."

At note 37, in referring to the "coprolite jaw," I find these words:—

"The specimen *is a very remarkable lower jaw of a human subject* now belonging to Dr. Robert H. Collyer. It is reputed to have been found in the gravel heap of a coprolite pit near Ipswich; although retaining a portion of its gelatine, it is infiltrated through and through with iron. The Haversian cords are filled with red oxide, and a section of the fang shows that the ivory is partly infiltrated with the same metal. This specimen proves that the human jaw, if favourably placed, is equally susceptible of impregnation with metallic matter as the bones of any other mammal.

"(Signed) "H. FALCONER,

"G. BUSK."

The term fossil has been used to designate a total conversion of a substance into mineral matter. Now, it is exactly in the correct use of this word that the whole question rests. I have in my possession the bone of a deer, which was found in the diluvium on the bare rock, twenty-three feet below the surface, with the bones of the mastodon,

but the presence of gelatine is at once discovered on submitting a portion of the bone to the action of fire; it is, therefore, not an infallible test as to the presumed age of a bone that it contains or not a portion of its gelatine.

It now appears that the preservation of the gelatine itself, or its destruction, depends in a great measure in accordance with the earthy or metallic matter with which the bone happens to be in contact. I have found portions of the same bone perfectly fossilised, whilst other parts indicated the presence of gelatine. It is now admitted, as the result of experiment, that bones of recent animals, introduced into old deposits, may assume in a comparative short time the conditions of the bone of extinct animals; while on the other hand, the undoubted fossil bones of extinct animals, may, under certain conditions, present a large amount of animal matter. In the Museum of Natural History, Philadelphia, the bones of the megalonyx and the extinct peccary remain in a condition nearly unchanged. Very little of the gelatine has been lost, nor a particle of the mineral matter added.

Many of the human bones found by Dr. Lund in the ossiferous caves of Brazil were petrified in the same manner, and offered the same metallic break, and were penetrated with the same ferruginous matter as the bones of extinct animals with which they were found associated. The same as the "coprolite jaw" was impregnated, like the coprolites, with which it was found. Sir C. Lyell says, in his *Elements of Geology*, 1852:—

"The large amount of animal matter in the tusks, teeth, and bones of some of these fossil mammalia is truly astonishing; it amounts, in some cases, as Dr. Jackson has ascertained by analysis, to be 27 per cent., so that when all the earthy ingredients are removed by acids the form of the bone remains perfect, and the mass of animal matter is almost as firm as a recent bone subjected to similar treatment."

Who would infer, because of the existence of the animal matter, that the bones had been recently buried or were comparatively modern? "These fossil mammalia" inhabited the earth's surface coeval with a human being whose type was suited to the then state of things. Prior to the last great convulsion or catastrophe which entirely removed all life, the gelatine in the bones of the extinct mastodon, megatherium, megalonyx, glyptodon, or mylodon, is not adduced as an argument that these bones are of recent date, therefore, why should it be made use of when applied to the human bone?

Is the structure of one bone in any wise different from the other, whether of the mastodon or of a man, that, under like conditions, it would not present the like infiltration of metallic matter entirely or in part? It occurs to me that, when the difference is made, the disputant is sacrificing science to preconceived notions and prejudices.

M. Quatrefages says :—

"The presence of gelatine, if I am not mistaken, has been demonstrated in various bones, properly so-called belonging to fossils, much more ancient than the diluvium can be by any possibility."

It is only within a few years that the bones of a fossil monkey were discovered.

Sir C. Lyell says :—

"At Kyson, a few miles east of Woodbridge, a bed of eocene clay twelve feet thick underlies the red crag. Beneath it is a deposit of yellow and white sand of considerable interest in consequence of many peculiar fossils contained in it. Its geological position is probably the lowest part of the London clay proper. In this sand has been found the *first example* of a fossil quadrumanous animal discovered in Great Britain, namely the teeth and part of a jaw, shown by Mr. Owen to belong to a monkey of the genus Macacus. It was not until 1836 that the existence of any fossil quadrumana had been brought to light."*

Now comes the mental struggle—the monkey having been found as existing at a prior condition to that which now exists of the earth—why should not man?

The question is severe, but must be put. What are the conditions which admit of the monkey and mammals enjoying life that would not also equally admit of man being an inhabitant of the earth at a corresponding period?

Perhaps man, in his highest order of development, could not then have flourished ; it is easy to understand a state of the earth congenial to purely animal existence, though not fitted to mental functions as we now manifest them.

M. Pictet says, with regard to fossil man :—

"The question may be put—At what period has man appeared upon the earth? What was the geological state of the surface of the earth? What animals lived at that period?"

A precise answer to these questions would be all that could be desired. We cannot arrive at that point, though we are much nearer than we appeared some years ago. When the earth was sufficiently cooled vegetation was produced on the emerged continents, after which the first zoological creation took place, and animals, differing from most of those which now exist, spread over the face of the earth.

Elevations and depressions modified the surface of the earth, and either by convulsions similar to those which had occasioned them, or by organic laws governing the world and not yet understood, the beings then living disappeared to be replaced by others. These phenomena,

* Prof. Owen has since admitted this "monkey" to be actually a small pachyderm, allied to the pig (*Hyracotherium*).—EDITOR.

or something like them, have occurred repeatedly, and thus numerous populations have succeeded each other. Each of these has left its remains or vestiges in strata formed at different periods. These remains are "the medals of creation," which, with data furnished by geology, enable us to read the past history of the globe—the existence of at least thirty different epochs, more or less distinct, and in each we recognise a different *Flora* or *Fauna*. The most vivid imagination cannot conceive the vast ages or eras of time requisite for the succession of these phenomena in which all these populations were developed in particular zones.

As regards the history of man, we need not occupy ourselves with these remote periods, we may take as a starting point the formation of the deposits of the tertiary period. These deposits, known as the Pliocene, are those in which for the first time, the mammal population contain the remains of such species as are *similar* to those now existing.

At the termination of the tertiary period commenced the diluvium. Now it was that we find the remains of animals similar to those which now exist, and some which are extinct. Did man live contemporaneous with the cave bear, the mammoth, and others like mammals?

The laws of the universe have never changed. The remotest star or sun, which is a million times the size of our planet, is governed by the identical laws which regulate our condition. Uniformity and consistence in the operations of nature show that every form of matter under like circumstances will re-exist, whether it be a crystal, a plant, or a mammoth.

The many alternate contractions, upheavings, and vast dismemberments of the entire earth's surface, having ages of comparative rest intervening in each of these epochs, the various conditions of vegetable and animal existence have been developed. Should the world to-morrow undergo another entire disrupture so as again to destroy all life, the same inherent power, incidental to its particular condition, would again people the globe with the various races, each compatible to the zones especially fitted for their existence.

How many times the earth has been previously to the present inhabited and repeopled, it is impossible to even form a conjecture. It, however, may be admitted as a fact that it only requires a specific condition whether electrical, calorical, or chemical, we are sure to have a definite effect. The great convulsions of the world are accompanied by conditions perfectly adequate to produce every form of life with which we are cognisant. No one who is not intellectually blind, but must have observed the remarkable adaptation to locality which every form of life possesses, from the minutest animalculæ, 187 millions of whom only weigh one grain, to the development of the highest form of life, is exhibited in man of the temperate zones.

The discovery of human fossils has now become so frequent that no one who has taken the trouble to carefully investigate the facts will attempt to dispute that man did really exist at an ante-historic period, and coeval with extinct mammals.

My dear friend Dr. Morton of Philadelphia, said, in 1850 :—

"There is no good reason for doubting the existence of man in the fossil state. We have already several well authenticated cases, and we are hourly looking for more, even from the upper stratified rocks. Why may we not discover them in the tertiary deposits, and in the cretaceous beds, or even in the oolites. Contrary to all preconceived opinions, the latter strata have already afforded the remains of several marsupial animals, which have surprised geologists almost as much as if they discovered the bones of man himself."

A fossil human skeleton is in the museum at Quebec ; it was dug out of the solid schist rock in making the foundations for the Citadel. This specimen I have examined, and it corresponds in structure to the fossil bones of extinct mammalia.

To revert to the "coprolite jaw," it was found under circumstances which do not admit of a doubt, but no artificial means could have been employed so as to cause the permeation of the oxide of iron ; besides the other peculiarities of the jaw itself, all go to prove most conclusively to my mind that it belonged to a prehistoric human being, whose head was swallowed by a huge carnivore, and the jaw was excremented with other matters, the ducts of digestion.

The coprolites are unquestionably the excrementary deposition of animals who lived on sharks and whales, as we discover immense quantities of the teeth of the former and the bones of the ear of the latter, besides undigested bones of fish are discovered in many of the coprolites.

The "old woman's jaw" has had her revenge.

With true philosophic spirit, and consistent with the high character of a gentleman in the strictest sense, Professor Busk sent me the following :—

"15, Harley Street, August 19th, 1863.

"My dear Sir,—I have received the jaw from Dr. Falconer, and now forward it to you, with many thanks for the liberal use you have allowed us to make of it. I hope you will not consider that it has been much injured by the rough treatment we have submitted it to. In all essential respects it is much as it was, and it has been a great satisfaction to be able to compare its interior as well as exterior with other bones. Having thus had an opportunity of fully examining the bone, I have considerably modified the opinion I hastily expressed at the Ethnological Society. That is to say, it is *very different* from an ordinary churchyard bone, though, of course, without any relation as regards age with the fossil bones of the coprolite beds ; it is of *very*

great antiquity, and it is peculiarly remarkable for the great amount of iron it contains, though still retaining about 8 per cent. of animal matter. On the whole, therefore, though not of the portentous antiquity it would have claimed, had it been cotemporary of *Elephas meridionalis*, the "coprolite jaw" fairly claims a considerable age, and I, for one, am much obliged to you for having brought it under notice, and for the liberal way in which you have allowed it to be examined.

"Believe me, very truly,

"GEORGE BUSK.

"R. H. Collyer, Esq., M.D."

Nothing more could be expected from Professor Busk; when he says the coprolite jaw is of very great antiquity, he admits the whole question.

I have now the pleasure to add a letter from Mr. John Taylor, which completes the history of this really extraordinary specimen:—

"97, Fore Street, Ipswich, November 13th, 1866.

"DEAR DOCTOR,—I was very agreeably surprised to hear from you this morning. If I had known you were residing in Boulogne-sur-Mer, and had possession of 'the jaw,' I would have called upon you on my way to the Pyrenees last year, in order to have had another good look at the bone, which certainly must be of the same age as the coprolite in which it was found.

"The history of the matter, so far as I know, is very short.

"From what I could learn at the time, from the agricultural labourer of whom I bought it, it came from the coprolite pit on the farm of Mr. Laws at Foxhall, about four miles from Ipswich, and was thrown out at Mr. Packard's manure factory with the coprolite from a cart or tumbril, and from thence was brought to me to secure a glass of beer. I had possession of it for near three months, when Sir Thos. Beaver (whose son was then living with me) called on me, and seeing that he exhibited great interest in the inquiry as to the antiquity of the jaw, I had the pleasure of presenting him with it.

"There is no doubt the bone was obtained at some depth,* as I know the pit had been open for a considerable time when it was found.

"Having given you all the information I possess, I shall be anxious to hear the result of the investigation.

"The account of the 'Abbeville jaw' appeared in the *Times*, and I suppose yours of this jaw will also.

"Yours very truly,

"J. TAYLOR.

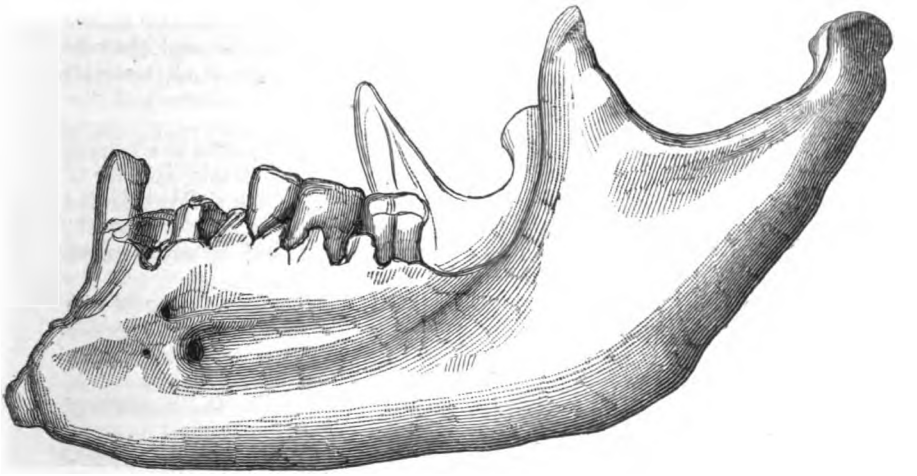
"Dr. Collyer."

It will be observed that Foxhall, where the "coprolite jaw" was found, is a few miles from Kyson, where Sir C. Lyell says the first example of a fossil quadrumanous animal was discovered in Great Britain,

* I visited the coprolite pit in 1855, immediately after it was found, and ascertained that it had been worked for over a year. The place from which "the jaw" in all probability came, was sixteen feet below the surface.

namely, the teeth and part of the jaw of a monkey, of the genus Macacus. The eocene strata, in the vicinity of Woodbridge and Ipswich, are exceedingly rich in animal remains of a prehistoric condition of the world. I see no reason whatever for doubting the antiquity of the "coprolite jaw."

These facts should at least make the sceptical pause, on the probability that man may be no exception to the rest of creation.



THE ANTHROPOLOGICAL CONGRESS OF 1867.

In the year 1865, a Congress for Archaic Anthropology was held at La Spezzia, and in 1866 at Neufchâtel. This year it is to be held at Paris, on the 17th of August. The following are the rules of the Congress:—

"The Congress cannot be held twice successively in the same country.

"All persons desirous of becoming members, who have paid their annual subscription (quota) are entitled to receive the publications of the Congress.

"At the end of each session, the Congress decides upon the locality where the next meeting is to take place; it also elects from the *savants* resident in the country fixed upon, the President of the ensuing session. It also elects several other *savants*, who are charged to

constitute, under the direction of the President, an organising (managing) Committee.

"The organising (managing) Committee are at liberty to add other *savants* of their own country to their number; they, moreover, have to request the co-operation of such foreign *savants* as may appear to them likely to obtain the greatest number of adhesions in favour of the Congress. These take the title of corresponding members of the Committee.

"The Committee fixes the time of the session, the number of sittings, and the amount of subscriptions (quota); it sends out letters of convocation, collects and concentrates the adhesions, and delivers cards of membership. It has, moreover, the charge of all material arrangements concerning the installation of the Congress and the holding of its sittings.

"It prepares, publishes, and distributes, several months in advance, the programme of the sittings; it may fix upon a certain number of questions; but it is bound to reserve a portion of the sittings for the discussion of questions not comprised in the programme, and which, under the approval of the Council, may be proposed by any member of the Congress.

"The bureau of the Committee fulfils, in the first sitting of the session, only the functions of a provisional bureau. The members of the definitive bureau are in this first sitting to be appointed by the majority, excepting the President, who has been elected in the preceding year, and the Treasurer, already appointed by the organising (managing) Committee.

"The bureau is composed, 1, of a President; 2, of six Vice-Presidents, of whom two at least must be residents; 3, of a General Secretary; 4, of four Secretaries; 5, of a Treasurer.

"The Council is composed, 1, of the members of the definitive bureau; 2, of six elected by ballot from the list. Members of the Council by right are, 1, the four foundation members of the Congress of La Spezzia; 2, all ex-Presidents, who have conserved their titles of honorary Presidents. Those members of the organising (managing) Committee who belong to neither of the preceding categories, assist at the meetings of the Council, and have a consulting vote.

"All demands concerning communications arriving during the session, and all claims, are submitted to the Council, whose decision is final. The Council is, conformably to article iv, charged to put to the vote of the Congress, 1, the designation of the locality where the next session is to be held; 2, the nomination of the President, and the members of the organising (managing) Committee of the next Congress.

"In the second sitting, the Congress nominates, on the proposition of the Council, a Publishing Committee, of which the General Secretary is President by right, and of which the Treasurer is also a member. This Committee, entirely composed of national members, has also the charge of settling the accounts.

"The surplus, if any, is to be placed to the credit of the next following session.

"The objects offered to the Congress during the session and the whole of the correspondence, belong to the country where the session is held. Their destination is determined by the Council.

"The Committee of each session establish special regulations concerning all matters not specified in the preceding general regulations.

"Every proposition tending to modify the general regulations, must be signed by, at least, ten members; it must be placed upon the table, during the session, and submitted to the examination of the Council. The latter, after due deliberation, prepares a report, which is, with the proposition, inserted in the publications of the Congress, and which is put to the vote, without any discussion, simply by yes or no, in the first sitting of the following session.

"*Programme.*—All persons taking an interest in the progress of science, may become members by paying a subscription fixed for this year at ten francs.

"The receipt of the Treasurer entitles the holder to a card of membership, and to all the publications of the Congress.

"The correspondents of the Committee and all those who earnestly desire the development of the studies pursued by the Congress are requested to procure as many adherents as possible.

"The adherents are requested to send at their earliest convenience the amount of their subscription to the Treasurer of the Congress, M. E. Collomb, Rue de Madame, 26, carefully indicating their names and surnames, profession, and residence.

"These details are indispensable for making up the list of members and preparing the cards.

"The cards and the detailed programme of the Congress will be distributed from the 10th to the 16th of August between ten and five o'clock, at the residence of the Secretary, M. G. De Mortillet, Rue de Vaugirard, 35, corner of the Rue de Madame, Paris.

"The Congress will sit from the 17th to the 30th of August.

"According to Article VII of the General Regulations, the organising (managing) committee have fixed upon the following six questions which will form the order of the day on the subjoined dates:—

"*Sunday, 18th.*—I. Under what geological conditions, and amidst which *Fauna* or *Flora* have in the different parts of the globe the most ancient traces of the existence of man been met with.

"What are the changes which might since that period have taken place in the distribution of lands and seas?

"*Tuesday, 20th.*—II. Was habitation in caves universal? Is it merely the fact of one and the same race, and does it relate to one and the same period?

"If the contrary be the case, how can it be subdivided, and which are the essential characters of each subdivision?

"*Thursday, 22nd.*—III. Are the megalithic monuments due to one population who have successively occupied different countries?

"If this be the case, what has been the march of this population? What their successive progresses in arts and industry?

"Finally, what are the relations which may have existed between this population and the lake habitations of which the industry is analogous?

"*Saturday*, 24*th*.—IV. The appearance of bronze in the west, is it the product of native industry, the result of a violent conquest, or of new commercial relations?

"*Monday*, 26*th*.—V. Which are in the different countries of Europe, the chief characters of the first iron period?

"Is this epoch anterior to historic times?

"*Wednesday*, 28*th*.—VI. What notions have been acquired concerning the anatomical characters of man in prehistoric times from the most remote epochs to the appearance of iron?

"Can, especially in Western Europe, the succession of races be proved, and can these races be characterised?

"The remaining sittings are left open for the discussion of questions proposed by various members.

"Each of these questions initiated by individual members, will as much as possible be allied to the question put by the Committee with which it is most connected.

"The members desirous of sending communications are requested to inform the Secretary to that effect before the 10th of August, so that the general programme and the order of the day in the sittings may be distributed simultaneously with the cards.

"All members possessing objects likely to throw light on any question are earnestly requested to send, if not the original, at least, casts or drawings. This request applies specially to human remains.

"Fellows of the Anthropological Society of London wishing to take part in the Congress will receive their cards of admission by application to the Secretary of the Society on or before the 1st of August.

"At the same time there will be discussed in the international Medical Congress two questions of great interest to anthropologists, and specially belonging to their science. The first is on the influence of climates, races, and various conditions of life on menstruation in different countries; and the second is on the acclimatisation of man. Dr. Paul Broca takes a very prominent part in this Congress, and Dr. Jacond, 4, Rue Drouot, is the Secrétaire Général, and Dr. Vidal, of 112, Rue Neuve des Malharens, the Treasurer. A prospectus has been issued detailing the arrangements, and the following is a translation of the remarks made on the two questions we have named.

"The age of the first menstruation and the period of menopausis vary according to climates, races, and modes of life. The object of the question proposed is mainly to determine the part of these three orders of influences by means of observations in different conditions, but reduced to comparable terms.

"The documents hitherto existing in science are, perhaps, neither sufficiently numerous nor sufficiently varied to admit of a solution of this complicated for the present; but the solution might possibly be derived from the comparison of the memoirs, which may be presented by physicians of different countries.

"Without in any degree desiring to limit the scope of their researches, the Committee nevertheless deem it their duty to indicate the chief elements of the problem.

"In order to appreciate the mode of life, it is necessary to compare

several series of females pertaining to the same race and inhabiting the same country, but living under different conditions. These series may easily be reduced to three: the women of the wealthy class, the work and poor women of the cities, and peasant women. The facts hitherto known tend to establish that the average age of the first menstruation presents in these three groups (which might, if necessary, be multiplied) very notable differences.

"The condition of comparing between themselves, women of the same race, presents itself rarely, in all its strictness, in the countries inhabited by the races of Europe. Most of the European populations of the Old and of the New World are issued from an intermixture of several races, more or less fused, a mixture which manifests itself by the variation in certain external characters, such as the colour of the eyes and hair. It would therefore be interesting to note these anthropological characters, in the observations, for the purpose of establishing in each group secondary groups composed of elements as comparable as possible.

"The influence of climates on the phenomena of menstruation may be inferred from the study of females of the same race living under different climates and in nearly equivalent social conditions.

"Finally, observers residing in countries inhabited by distinct races might, by establishing groups based both on the preceding indicated conditions and on the anthropological conditions, without neglecting the important study of women of mixed blood, be enabled to solve the problem of race on menstruation.

"It must be well understood that the study of anomalies of menstruation considered in their relations with the above-mentioned influenced enters directly into the subject proposed.*

Question VI. *The Acclimation of the Races of Europe in Hot Countries.* The facts relating to the acclimatisaton of the individual are not comprised in the question proposed. Europeans cannot esta-

* The labours undertaken with the view of answering this question, can only repose on individual observation, and can only acquire importance by the comparison which will be established between the researches of different authors. It is therefore desirable that these researches, which will be carried on under very different conditions, should be executed on an uniform plan. We therefore request the respective authors to annex to their memoirs a table of individual observations, which might easily be disposed in the following frame.

Subjects observed.	Age.	Social condition, profession.	Age at the first menstruation.	Menstruation, regular, or irregular.	Intervals between menstruation.	Duration of the flux.	Married or single.	Number of children and miscarriages.	Age at the menopausis.

Other particulars might be added, relating to stature, colour of the eyes, hair, the constitution, etc. It is to be understood, that each *bulletin* should be accompanied with particulars concerning the locality where the observations were made (longitude, latitude, altitude, temperature, etc.).

blish themselves in hot countries without exposing themselves to certain diseases which increase more or less their chances of mortality. Nevertheless, however great may be the dangers which they incur, a certain number of individuals may escape, either owing to a particular flexibility of organisation, or by a mode of life capable of neutralising the noxious influence of the climate.

"It should be avoided to confound these individual facts with such as bear upon the acclimatisation of a race. A certain number, and even a large number of acclimated individuals, is insufficient to prove the acclimatisation of the race they belong to; for it may well happen that their descendants do not so well escape as they did the action of the climate, and that their progeny may become extinct at the end of a few generations, of which there exist too many examples.

"A race is only acclimated in a country when it can maintain itself indefinitely by *itself*, without intermixture with the indigenous races, and without being more or less frequently reinforced by the mother country. The process which consists in demonstrating the acclimatisation of a race in a colony by basing it purely and simply on the increase of the population is altogether deceptive. The arrival of fresh immigrants may entirely hide the destructive effects of the climate, and show a numerical increase, where, if the colony were left to itself, it would be threatened with an approaching extinction. The comparison of births with the deaths, which is the true method to proceed by, does not entirely escape this cause of error, since most of the immigrants, having already passed the age of infancy which is the most dangerous period of life, do not generally figure upon the registers of the population until they are in a condition to procreate. Hence results the necessity of separating the group of immigrants from that of the colonists born in the country.

"In order that a race should be completely acclimated, it is not sufficient that it maintains itself by its own blood, it must also be able to subsist by its own labour, by cultivating the soil, and not by having it cultivated by individuals of another race. Acclimatisation subordinate to the subjection of an indigenous or exotic race, reduced to domestication or slavery, can only be temporary, like the political conditions upon which it depends.

"The chief aim of the question presented to the congress is to obtain documents relating to the complete acclimatisation of European races in hot countries. It nevertheless would not be without interest to study the conditions by the aid of which races although not completely acclimated, may at least, by the labours of others, maintain themselves in hot countries, where they could not, without perishing, undertake to cultivate the soil.

"Without undervaluing the utility of compendious works which may be presented to the congress on the question proposed, the committee deems it necessary to ask for special memoirs on the acclimatisation of such or such a people of Europe in any of the hot regions of the globe. The committee wishes that each of these memoirs should be accompanied with particulars as complete as possible on the medical geography, meteorology and the climatology of these regions.

In our next we hope to be able to give a report of the objects of anthropological interest in the Paris exhibition; but in the meantime, we especially invite the attention of British anthropologists to both the congresses we have mentioned, and trust that British science will be well represented at them.

PROCEEDINGS OF THE PARIS ANTHROPOLOGICAL SOCIETY.*

Dr. Pruner-Bey, on taking the chair as President, vice Dr. Gratiolet who retired by rotation, delivered an opening address.

After congratulating the Society on its steady progress, numbering now 264 numbers, and adverting to the decree by which the Society is recognised by the State as an institution of public utility, M. Pruner-Bey offered some interesting general remarks on the study of anthropology, and concluded in nearly the following words.

Every true science has for its object to trace the effects to their causes. Consequently in the same way as the theory of vital force has been demolished by substituting for it the correlation of forces and molecular actions, the attempt has been made to substitute the physiology of the brain and the nervous system for the physiology of former days. A great struggle on this subject is still going on in the fatherland of modern ideology. Its importance has been appreciated in our own discussions, and thanks to your own efforts, some light has been thrown on this subject. Let us, however, confess that the constitution and disposition of the anatomical elements of the brain in as far as they are accessible to our investigation, leave us but little hope to see the end of the struggle. Whilst, for a long time to come, we must confine ourselves to signalise and classify the manifestations of our mind, it is on the other hand only by comparative studies that we may be enabled to distinguish what is fundamental in human nature and what is the result of the culture of our faculties. I was obliged to touch on this delicate and thorny matter in order both to point out our mission in the sphere of speculation and to obviate the reproaches which might be made to anthropology, for not being as yet a science as regards the most interesting questions. We are in this respect entirely in the same position as the zoologist, who no more than the anthropologist can detect the primary springs which set the instinctive and intelligent acts of animals into action. We may even affirm that

* Continued from No. xvi, p. 128.

as regards phenomenology, man is already better known to us than the animal.

On the Relations between the Anthropoid Apes and Man, by M. Schaafhausen of Bonn, translated by M. Pruner-Bey. The scientific portion of M. du Chaillu's work has been received with distrust by the learned. There exists, nevertheless, no reason for doubting his descriptions of the mode of life of the gorilla. Some of the corrections of Mr. Reade of the remarks of Du Chaillu have no great bearing on the position which in my opinion this animal occupies in the scale of beings. But whatever may be the value of a profound knowledge of the mode of life of a gorilla, its anatomical structure shows us sufficiently the degree of his organisation, and the size of his brain, upon which depends his intelligence. In this respect the distance between the gorilla and man is immense, a difference which has not been properly appreciated by Mr. Huxley. There is no doubt that in the brain of the large anthropoid apes, no essential part of the human brain is absent; but as regards volume, the difference is very remarkable. The assertion of Mr. Huxley that men, even as regards the volume of the brain, differ among themselves more than apes, is equally erroneous; an opinion which is founded upon the arbitrary employment of measurements of crania both rare and doubtful. The brain of the Australian exceeds two or three times the volume of the brain of the gorilla, whilst the brain of a European exceeds that of the Australian only by one-fifth. Another allegation of Mr. Huxley to the effect that, as regards the volume of the brain, the inferior apes differ from the superior as much as the latter differ from man, is also without scientific value, inasmuch as this author has not taken into account the incomparable difference of size of the above-mentioned simia, whilst in this respect man and the gorilla are nearly equal. This distance between man and ape must not be ignored; in fact, one glance at the cranial cavity reveals it. I think, however, that it was less in times past, or perhaps did not exist at all. The differences of volume in organised beings of the present world are only gaps produced in the chain by time. Transitional forms will, no doubt, be found still reposing in the bosom of the earth which covers palæontological creation. Without entering into pretended developments, I shall confine myself to a single point.

In the present state of things, the distance between man and the animal increases under our own eye. Not merely the human races standing lowest in the scale, and presenting in their organisation many resemblances to animal forms, are gradually becoming extinct, but the superior apes approaching nearest to man become more rare from century to century; and will, perhaps, in a few centuries have entirely

disappeared. What is there illogical in the idea that thousands of years back the distance between the lowest man and the highest ape was less than at present, and that it would still lessen the more we ascend the past?

There is another circumstance, not owing to chance but to a natural law, namely, that the superior apes could only maintain themselves amidst inferior men; for on contact with civilised peoples they would long since have disappeared. The more that man advances, the more likely is he to break the links which ally him to brutes. There is another striking fact which deserves mention, namely, that the large apes of Asia and Africa differ from each other by the same characters which distinguish the men of these two continents, that is to say, in colour and the form of the cranium. Like the brachycephalic Malay, the orang is brown, and his head is round; the gorilla, on the contrary, is black and dolichocephalic, like the African negro. This approach of two different human races to different apes from the same countries, seems to me the most fatal objection, in our present state of knowledge, which might be made to the theory of the unity of the human genus.

M. Gratiolet thinks that there exists no reason for establishing an anatomical similitude between man and gorilla. As regards the brain, the gorilla's is the lowest of the anthropoid apes, since the brain does not cover the cerebellum, by which he approaches the cynocephali. It is not in his size and strength that we must look for human characters, but in the conformation of the hands, and just in this he differs considerably from man. The thumb is very short in the gorilla, and its muscles much reduced. The long flexor is replaced by a tendinous tract, the origin of which is lost in the tendinous sheaths of the flexors of the other fingers. It follows that the thumb has no independent movement of opposition. In the orang, though the thumb is shortened, it still is capable of an independent flexion; but this depends on a peculiar disposition which he had lately verified with M. Alix. In point of fact, the proper flexor of the thumb is entirely absent in the orang; there is not even found that tendinous tract existing in the gorilla; but by a singular contrivance, the marginal fibres of the adductor muscle of the thumb terminate in a tendon which is placed in the axis of the first terminal axis.

The fact which establishes a great relation between man and apes is, that in them the optic nerves open directly in the cerebral hemispheres, whilst in the other vertebrates these nerves reach the brain only by the intermediation of the tubercula quadrigemina. This peculiarity may explain the existence of a certain conformity in the manner in which man and ape perceive their sensations. But it does

not follow that there is an identity in the nature of their intelligence; for, though the senses are subservient to the operations of the intellect, it cannot be said that they produce it. Man must be placed by the side of the ape, but only as an animal. Man is a being apart, just as all other vertebrata must be separated, as they cannot be considered as having originated from each other.

M. Gratiolet added, that as a pupil of Blainville, with whom originated the idea of a series in natural history, he felt bound to state how much the ideas of his master had become modified. Where Blainville formerly recognised transitions from group to group, he, in the latter period of his life, only saw maxima and minima of realisation for each group. He acknowledged an ideal series between types, but not a lineal series between all beings. It is thus impossible to invoke the opinions of Blainville for the support of theories tending to reduce to a single stock the numerous species composing the animal kingdom.

M. Broca is of opinion that M. Gratiolet had misunderstood the ideas of M. Schaafhausen, who, far from supporting the theory of Darwin, on the contrary, commenced by refuting the opinions of Mr. Huxley. M. Schaafhausen is apparently a partisan of *animal series*, but there is no necessary connexion between this and Darwin's theory. It may be admitted that all families, genera, species, from the monade up to man, are disposed in series, and form a continuous scale without necessarily admitting that the higher species are by a progressive evolution issued from the lower. Darwin's theory is a bold attempt to explain the existence of this series. It is the interpretation of a fact, and, whilst accepting the fact, we may reject the interpretation which was probably M. Schaafhausen's stand-point. The views communicated to the Society by M. Schaafhausen are both new and important. He shows that man is at present constantly engaged in the extermination of species which dispute his possession of the soil, and that he was so engaged in the past. We know that the superior human races tend to increase at the expense of the inferior races, some of which have disappeared within historical times, some will disappear, and others must have disappeared in the most remote periods. May, then, asks M. Schaafhausen, this destructive intervention of man not have contributed to enlarge the interval separating man from the group of anthropoid apes? He is of opinion that the interval was less originally than at present, and is less at present than it will be in times to come. The last opinion is very probable; the former is less so, for even if it were demonstrated, the question still would remain whether the intermediate types which disappeared sufficiently differed from such now limiting the two groups, sensibly to

diminish the distance. At all events, the ingenious idea of M. Schaafhausen deserved serious consideration.

M. de Quatrefages confirmed the remarks of M. Gratiolet touching the first ideas of Blainville on the animal series.

M. Pouchet considered that the idea of a linear series on the ensemble of the animal kingdom was now abandoned, and justly so, because there existed an impassable abyss between the vertebrates and invertebrates. But in confining ourselves to the vertebrata we may imagine a series resembling the branching off from an arborescent trunk, many of the branches representing as many extinct species being wanting. He therefore believed with Mr. Darwin that we are the remote cousins of the gorilla by the intermediation of a vertebrate, the type of which is now lost.

M. de Quatrefages would not admit the ideas of Darwin as regards species, but admits them with respect to races, which are daily formed under our own eyes.

M. Sansen cannot allow this observation to pass without contradiction. M. Quatrefages would be much embarrassed to name one single race perfectly new.

M. Quatrefages replied that the number of esculent vegetables had, independent of new importations, remarkably increased since the time of Louis XIII, and he cited the sheep of Manchamp, Malnegrée, Charmoise, as examples of new races produced within a few years by the crossing of distinct races. The difference between him and M. Sansen consisted only in the definition of the word race.

M. Sansen said it was quite true that he differed with M. Quatrefages as to the definition of race. In his opinion race is a group of individuals presenting an ensemble of similar forms and capable of being transmitted; homogeneity of typical character, and hereditary transmission, being the necessary attribute of race. And here he must remark that the term of race had not yet been defined in the Society, and an understanding on that subject became requisite. As regards the examples invoked by M. Quatrefages, they cannot be considered as new races, the sheep of Manchamp are Merinos differing only from the mother race by their silky wool. This is not a race character, the same wool being found in perfectly distinct races. As to the sheep of the Charmoise, he could show him two distinct types. They only resemble each other by their aptitude for fattening, which is not a race character. And as regards some esculent vegetables they had become so by culture. When they are left to nature their characters disappear, which does not prove that they constitute new races.

[*To be continued.*]

Anthropological News.

Dr. Anton Fritsch, Director of the National Museum of Bohemia, we understand, intends to visit England this year, and will most likely contribute a paper to the Anthropological department of the British Association.

Cambridge Philosophical Society, Monday, February 18.—Professor Humphry read a paper "On some Points in the Anatomy of the Chimpanzee, and the Consideration of the Term 'Quadrumanous' as applied to that Animal." His remarks were the results of the recent dissection of two chimpanzees, and referred chiefly to the differences between their lower limbs and those of man. He pointed out that the outer condyle of the thighbone is round instead of being prolonged from before backwards, and flattened beneath, as in man. Hence there is comparatively little security afforded by the ligaments in the straight position, and little provision for the maintenance of the erect posture. The bones and joints of the ankles were shewn to be constructed so as to permit free movement rather than to bear weight. With regard to the term "hand", and the objections which have been urged to its application to the lower limb of the monkey, Professor Humphry remarked that, if we use the term to designate a certain modification of the fore limb—a certain deviation, that is, from the ordinary fore foot—we may with equal propriety apply it to a corresponding modification of the hind limb—a corresponding deviation, that is, from the ordinary hind foot. We must not expect it closely to resemble the human hand, but merely to present such a similarity to it as the special features of a hand—viz., the shortness, mobility, and opposableness of the thumb and the relative lengths of the other digits—would give it. Judging by this rule, it is as correct to speak of the "hind hand" of a monkey as of the "fore hand", though, forasmuch as both are employed in progression, it may, perhaps, be better to use some other term, such as "cheiropod", for the designation of the class, leaving the term "bimanous" to indicate the characteristic feature of man. The psychical qualities should not be omitted in considering the distinctive features of man; and the importance of the long, strong, firm great toe in this respect was pointed out. Some other peculiarities in the limbs, and in the prostate gland of the chimpanzee were described.

What is Ethnology?—Although so many different meanings have been given to this word, from "heathen" to "anthropologist", we have to chronicle yet another definition, given forth to the world by Professor Huxley. In some lectures at the London Mechanics' Institution, he is reported to have said that Ethnology "might be explained by the phrase Man Fancying, in the same way as the terms Pigeon and Dog Fancying were used to express a study of these particular varieties." Who will add another meaning to this ill-treated word? We trust that Professor Huxley's well-merited sarcasm with regard to the word Ethnology, will be the means of inducing those men of science who use that word, to do so no longer. This step we should hail as a sign of real progress in our scientific nomenclature.

Mr. Goldwin Smith has, we understand, been indulging himself at Manchester in an attack on "the anthropologists." We counsel that gentleman to take the trouble to make himself acquainted with the views of "the anthropologists," and then he would not lay himself so much open to be described as "a wild man" and "a rampant orator." Mr. Goldwin Smith

is like a great mass of the British public, who know apparently more about anthropology than he does of it. When Mr. Goldwin Smith likes to make a direct and manly attack on the opinions of some anthropologists, or even on some school of anthropologists, we shall then be ready to give both parties fair play and no favour.

Dr. Robert H. Collyer has been appointed Commissioner for the Anthropological Society of London at the Paris Exhibition. He will be happy to render any assistance to Fellows of the Society who may visit Paris during the Exhibition. His address in the Exhibition is "English Department, Class 43."

We understand that a large collection of objects from Western Africa has been presented by Mr. R. B. N. Walker to the museum of the Anthropological Society. These are now on their way to England.

It is the intention of Dr. R. S. Charnock to make a pedestrian Anthropological expedition across European Russia, and down the Volga to Astrakhan, next autumn.

M. Alexis Fedtchenko, of Moscow, Loc. Sec. A.S.L., is about to undertake an anthropological investigation of the Finns, and will be very much obliged to any English anthropologist who can facilitate his task by bibliographical indications of descriptions of the Finns in English works.

Fellows of the Anthropological Society who intend to take part in the anthropological section of the British Association at Dundee should communicate their names to the Director of the Society.

About a twelvemonth ago, whilst underpinning the walls of the Mansion House on the western side, numerous bones, both animal and human, were found, the latter chiefly skulls, leg and arm bones, lying about three feet below the surface of the level of the cellars. These remains, we understand, were buried again with great care.

Fellows of the Anthropological Society and others who wish to deliver lectures before the Society, under the provisions of Rule 47, have been invited to communicate their names to the Director.

On April 5th, at eight p.m., Mr. C. Carter Blake will deliver a lecture on the "Bone Caves of Southern Belgium" at the Geologists Association, University College, Gower Street.

Anthropology at the British Association.—The forthcoming meeting of the British Association at Dundee is looked forward to with great interest, and by many with no little dismay. A long controversy has been going on between the Rev. George Gilfillan, of Dundee, and Mr. Gillespie, of Torbanehill, respecting "modern anthropology," and the latter has just published this correspondence in the form of a pamphlet, entitled "The Modern Anthropology as Developed into an Universal Ape Ancestry: can it be held by a Christian Divine of the Straitest School?" The annual meeting of the Association will not take place until September, and in our next we shall have an opportunity of reverting to this subject. In the meantime we would especially warn anthropologists that they must be prepared not to find Dundee a bed of roses. We would counsel more than ordinary discretion on the part of anthropologists as to the subjects to be brought before the people of Dundee. Anthropology in Scotland now seems to hold the same position that it did in France and Germany about the middle of the sixteenth century.

Amongst the important anthropological events which have taken place during the past year, the destruction by fire of the statues of various savage tribes in the Crystal Palace, deserves to be chronicled. Inaccurate as these representations no doubt were, they were the only materials generally accessible to the public in London, by which the popular mind

could render itself familiar with the aspect of many of the races of man. Their loss, in an educational sense, is therefore very great; and it is to be hoped that some casts similar in character to those preserved in the Paris Gallery of Anthropology may soon take their place. These casts should in all cases be coloured with the precise tints of the original skin; and the greatest possible care should be taken, not merely to surround them with all necessary accessories of costume and furniture, but to maintain the expression of the living subject as far as possible. Masks taken from the dead face do not always indicate the true physiognomy of the individual.

Worked Stones from Zetland.—The discovery which Dr. Hunt made in the Zetland islands of worked stones, has recently attracted much attention from the Edinburgh antiquaries. A short time ago, Dr. Arthur Mitchell read a paper on this subject before the Society of Antiquaries of Edinburgh, and it was declared to be the most interesting read for a long time. We are sorry to find, however, that no light has yet been thrown on the purpose for which these curious stones were manufactured.

M. Ed. Lartet is the President of the Paris International Congress for Anthropology and Prehistoric Archæology; and M. de Mortillet, of 35, Rue de Vaugirard, the Secretary. The following is the list of corresponding members in the Committee of Organisation elected from residents in Great Britain:—Dr. Blackmore, Mr. C. Carter Blake, Mr. Busk, Dr. Carpenter, Mr. Crawfurd, Dr. B. Davis, Mr. Boyd-Dawkins, Mr. Evans, Mr. Fergusson, Mr. Franks, Dr. J. Hunt, Professor Huxley, Professor Jukes, Sir John Lubbock, Sir Charles Lyell, Professor Owen, Mr. Prestwich, Mr. Stuart, Dr. Thurnam, Mr. Tylor, Mr. Way, and Sir W. Wilde.

Science and Spiritualism.—Mr. Alfred R. Wallace, who is known to anthropologists by his advocacy of the unity origin of mankind on Darwinian principles, has become, or at least is at this moment, a zealous spiritualist, and has published his views under the title of *The Scientific Aspect of the Supernatural.* This fact cannot fail to be of interest to those who are curious respecting the idiosyncrasies of men of science. It has recently been remarked that the views held by Mr. Wallace on the past and coming unity of mankind "are about on a par in scientific value with Dr. Cumming's prophesies." But probably Mr. Wallace's views have been communicated to him by some kind departed spirit, perhaps that of the "first man." A more recent contribution to spiritualistic literature by Mr. Wallace is to be found in the *Spiritual Magazine* for February 1867. This account is to show that on December 14th last the spirits put a bouquet of flowers on Mr. Wallace's table. Deception in this case, we are told, was impossible. Lest we may do Mr. Wallace an injustice in giving an account of his researches, we print the account entire:—"On Friday morning, December 14th, my sister, Mrs. S., had a message purporting to be from her deceased brother William, to this effect: 'Go into the dark at Alfred's this evening, and I will shew that I am with you.' On arriving in the evening with Mrs. N. my sister told me of this message. When our other friends, four in number, had arrived, we sat down as usual, but instead of having raps on the table as on previous occasions, the room and table shook violently; and finding we had no manifestations, I mentioned the message that had been received, and we all adjourned into the next room, and the doors and windows being shut, sat round the table (which we had previously cleared of books, etc.) holding each other's hands. Raps soon began, and we were told to withdraw from the table. This we did, but thinking it better to see how we were placed before beginning the *séance*, I rose up to turn on the gas, which was down to a blue point, when just as my hand was reaching it the medium who was close to me cried out and started, saying that something cold and wet was thrown in her face. This caused her to tremble violently, and I took her

hand to calm her, and it struck me this was done to prevent me lighting the gas. We then sat still, and in a few moments several of the party said faintly that something was appearing on the table. The medium saw a hand, others what seemed flowers. These became more distinct, and some one put his hand on the table and said, 'There *are* flowers here.' Obtaining a light, we were all thunderstruck to see the table half covered with fern leaves, all fresh, cold, and damp, as if they had that moment been brought out of the night air. They were ordinary winter flowers which are cultivated in hot houses, for table decoration, the stems apparently cut off as if for a bouquet. They consisted of fifteen chrysanthemums, six variegated anemones, four tulips, five orange-berried solanums, six ferns of two sorts, one *Auricula sinensis* with nine flowers, thirty-seven stalks in all. All present had been engaged for some time in investigating spiritualism, and had no motive for deceiving the others, even if that were possible, which all agreed it was not. If flowers had been brought in and concealed by any of the party (who had all been in the warm room at least an hour) they could not possibly have retained their perfect freshness, coldness, and dewy moisture they possessed when we first discovered them. I may mention that the door of the back drawing room (where this happened) into the passage was locked inside, and that the only entrance was by the folding doors into the lighted sitting room, and that the flowers appeared unaccompanied by the slightest sound, while all present were gazing intently at the table, just rendered visible by a very faint diffused light entering through the blinds. As a testimony that all present are firmly convinced that the flowers were not on the table when we sat down, and were not placed there by any of those present, I am authorised to give the names and addresses of the whole party :—Miss Nicholl, 76½, Westbourne Grove, W.; Mrs. Sims, 76½, Westbourne Grove, W.; Mr. H. T. Humphreys, 1, Clifford's Inn, E.C.; Dr. Wilmshurst, 22, Priory Road, Kilburn, W.; Mr. T. Marshman, 11, Gloucester Crescent, N.W.; Mrs. Marshman, 11, Gloucester Crescent, N.W.; A. R. Wallace, 9, St. Mark's Crescent, N.W." The following appears in the *Spiritual Magazine* for March :—*The Flowers at Mr. Wallace's Séance.*—"Having received one or two inquiries from friends respecting the account appearing in the *Spiritual Magazine* of a *séance* at the house of Mr. A. R. Wallace on the 14th of December last, I write a line to say that what is stated perfectly describes the occurrences. I may add that I happened to sit nearer to the table than any other of the party, and that the table was between me and the light, the faint reflection of which was quite evident to me. Almost immediately after our having taken our seats, I noticed something dark, which partly shadowed the reflection of the faint window light, and observing this shadowing to spread over the table, I put out my hand, and to my amazement took hold of a sprig of the *Solanum* with its berry. I then exclaimed that there were flowers on the table, and we all remained quiet for a few moments further, when the light was turned on, and we found the flowers as stated. I can bear testimony to their having been covered with dew of a frosty coldness, as if they had but just passed through the air of the frosty night. It is also as well to add that on coming into the room everything that was on the table was taken off and the cloth removed, so that we sat by a perfectly bare polished table. The cold dew passed off the flowers in a very few minutes owing to the heat of the room.—H. T. Humphreys, 1, Clifford's Inn, E.C., 22nd February, 1867." We should like to hear that the Council of the Anthropological Society of London had appointed a committee to investigate this matter.

Dr. John Beddoe is, we understand, busily engaged in preparing the instructions of the Paris Anthropological Society for the local secretaries and fellows generally of the Anthropological Society.

Messrs. Trübner & Co. are about to publish an important work by Mr. George Catlin, entitled *O-Kee-Pa, or the History of Some Religious Ceremonies amongst the Mandans.* It will be copiously illustrated. An early application should be made for copies direct to the publishers.

Mr. Winwood Reade is at present studying anthropology under Professor Agassiz and Jeffreys Wyman of America.

The catalogue of books in the library of the Anthropological Society of London is now passing through the press. At the same time there will be issued by the society a list of works required by the society. Fellows are invited to send in the titles of any works that they think it will be desirable the society should possess.

We understand that the Anthropological Society of London have under their consideration the desirability of putting on their list of works contemplated to be published, a selection from the writings of the veteran anthropologist, Mr. B. H. Hodgson. Mr. Hodgson is now upwards of eighty years of age, and has done as much in behalf of descriptive anthropology as any living anthropologist.

Death of M. Boudin. It is with deep regret we have to announce the death of the distinguished anthropologist, Dr. Boudin, who was president of the Paris society in 1862. This is no less than the third ex-president of the Paris society who has been prematurely removed from their labours since the establishment of that society in 1859. Dr. Boudin's works are known to a wider circle of readers than those of many anthropologists, as he was the author of several works on medical geography and statistics.

Archaic Anthropology of New Zealand. The following is an extract from a letter just received from Thomas Tate, Esq., jun., F.A.S.L., from New Zealand. "I am about to prepare a paper for the Anthropological Society on ancient remains found in the cave on the Waiwo, where (from what I can learn) an old type of skull, older than the modern Maori, is found associated with the remains of the moa (*Dinornis giganteus*). These caves are interesting places, the human skulls being also found together with stone instruments like our celts."

Mr. Harcourt Beatty of Glasgow has just issued the following synopsis of a work, entitled *Ante-Diluvian Polities (Adamite and Pre-Adamite), or a Moral Cosmogony the True Theme of Genesis I to XI.* 1. Introduction—the formidable obstruction which scientific enterprise has encountered and is even now encountering from the fallible deductions of systematic theology. 2. Systematic theology not identical with Revelation. 3. Theology a progressive science,—wherefore much may yet remain to be extracted from Revelation. 4. False alarm of philosophically-minded Christians, owing to an identification of systematic theology with Divine Revelation. 5. The former portion of the book of Genesis one of those parts of Holy Writ least understood by theologians. 6. The total impossibility (upon the "orthodox" theory) of reconciling the two cosmogonies contained severally in the first and second chapters of Genesis—testimony of the best Hebrew critics to that effect. 7. The numerous contradictions of established scientific truths, and the general absurdities which the orthodox or literal exposition of the second and third chapters of Genesis involve, evidences either that the texts in question are not from God, or that the popular interpretation is not the true one. 8. A literal acceptation of the above-mentioned chapters being absurd and untenable, a symbolical or allegorical interpretation the only means of escape from an utter rejection of the sacred text,—so far, at least, as common sense may be concerned. 9. The whole scheme of scriptural symbols, examined with a view to avoid capricious and unjustifiable solutions of alleged allegorical passages. 10.

A general key to the symbols of Scripture, based upon a responsible principle;—a key perfectly adequate to the laying open of all symbolical Scripture, and most especially the acknowledged allegories of Daniel, Ezekiel, and St. John. 11. The first eleven chapters of Genesis thoroughly explained by the aid of this Scriptural key, and shewn to contain a complete secular and ecclesiastical history of that period, hitherto considered prehistoric; such history, however, being (like many of the most antique narratives and traditions of oriental nations), couched in a symbolical and mystical phraseology, constructed, however, upon certain fixed principles of symbolical composition formerly familiar to all the learned castes of the most antique nations of Asia. 12. The existence not only of pre-Adamite peoples, but also of pre-Adamite and of extra-Adamite polities, absolutely demonstrated. 13. A perfect harmony shewn to exist between the earliest known conditions of India, Scythia, Bactria, Media, Persia, Babylonia, and Egypt; and various facts recorded in the alleged allegorical History of Genesis.

Historical facts related in, or deduced from, the said allegorical narrative. 1. The origin of mankind referred to a vast antiquity,—an antiquity so remote and so vaguely alluded to, that almost any amount of ages may be supposed to have passed since the appearance upon earth of the first human beings. 2. The existence in the west of Central Asia of a pre-Adamite civilisation of a strictly Ethiopic, if not Nigritian ethnic character; a civilisation involving, among certain others, one particular system of morals and religion, which national system must be regarded as the parent of the most antique Egyptian economy known to the archæologist. 3 The existence in the said centre of primeval civilisation of a certain Hamito-Semitic moral and religious system of a perfectly pure and true character, wherein the worship of the true God, "THE INFINITE" (Jehovah), certainly prevailed, and to which can be traced the origin of that hitherto mysterious and strictly spiritual order of priesthood which is known in Scripture as the "order of Melchizedec;"—an order which, being certainly not proper to the race of Heber, can hardly be regarded as having appertained to the line of "Noah," or even of "Adam,"—that is, upon the supposition of the existence of extra and pre-Adamite races. 4. The parallel existence of a moral and religious system erected upon a very impure and false foundation, a system, however, of a philosophical nature, and the production of great metaphysical reasoning, whence may be traced the origin of all bloody and propitiatory sacrifices, together with those necessary accessories thereto,—an elaborate and sensuous ritual, and a hierarchy of sacrificial ministers. 5. Causes which led to the adoption of these "outward accessories" of worship by the then "elect" nations *i. e.*, the peoples, in the enjoyment of a more pure ethical and religious system. 6. The early erection of a great Scythic, or Scytho-Aryan polity, the first dynastic development of the Caucasian race;—a polity which flourished long before the establishment of the earliest Egyptian, Hindoo, or Chaldean economies known to the archæologists; a polity of which the learned have hitherto only obtained the faintest glimpse, but the existence of which had been asserted by the most far-seeing antiquarians of the last century. 7. The remarkable origin of the Medo-Persian nation, and of their priestly and philosophical order—the "Magi." 8. The origin of the primitive "Chasdim" (or Chaldæan) nation, and of the Brahmanical Hindoos; also the undoubted origin of the caste system of antiquity generally, but particularly that of the Brahmanical Hindoos. 9. The origin of "dualism" in its philosophic and its spiritual aspects, and the cause of its adoption by the Iranian nations. 10. History of Brahmanism down to the establishment of the solar and lunar dynasties, and the division of the Brahmanical priesthood into the "Gaura" and "Dravira" races,—if not down to the establishment of Buddhism in its original form. 11. Origin of the "Gomerian" nations. History of the Druidical Celtæ,

wherein a distinct account is given of their migration from east to west, *i.e.*, from Central Asia to Western Europe. 12. The Assyro-Babylonian and Hindoo "mythology" (as it is vulgarly called, but "allegory" or "mysticism" as it really is), expressive of the same moral facts essentially as is the allegorical or mystical history of Genesis, (i to xi). 13. The origin of Magian and Median "Fire worship," and the first establishment of the true Zoroastrian system.

Exegetical and other Advantages anticipated.—A final cessation of that long conflict between natural philosophers and theologians on the ground of the Biblical cosmogony, which, beginning with Copernicus and Galileo, seems to have reached its culmination in the present age,—there being, in fact (upon the allegorical hypothesis), no common ground whereon these parties could possibly meet. A redemption from that oblivion to which ages of mystical ignorance had consigned it, of the most antique history of civilisation and religion that (probably) the world ever saw ; a history treating of times which for want of sufficient light upon the symbolical records and language of antiquity, have hitherto been regarded as "pre-historic" and even "mythical." A rational, consistent, and probable explanation of all those difficult and clearly symbolical portions of the Mosaic cosmogony, and subsequent history down to the era of Abraham, the contemplation of which has staggered some of the most "orthodox" and pious ; has evoked honestly expressed scruples from some of the most candid, and has provoked infidel sneers, if not infidel derision, from some of the most thoughtless inquirers. Lastly, a most felicitous reconciliation of many of the so called Gentile "Myths" (Persian, Assyrian, Hindoo, Greek, etc.) with most of the facts recorded in the Mosaic narrative.

The Moscow Anthropological Society.—The following is the list of papers read in the first four sittings. Schrirowsky.—The Fossil Man of the Tertiary Period ; Study of the most Remarkable Crania of the Diluvian Man. Gatseck.—On Crania Found in the Tombs of Ancient Russians. Pyictorsky.—On the Measurements of Skeletons and the length of Bones in Different Races of Mankind and the Anthropomorphous Apes. Fedtchenko.—The Crania of Egyptian Mummies, and on the Researches of Pruner-Bey on the Origin of Ancient Egyptians. Gerz.—On the Processes of Preserving Bodies used in Old Egypt. Keresnitzky.—On the Principal Characters of the Negro. Bogdanoff.—On Macrocephali. Sontzoff.—On the Ancient Graves of Russia. Kertzelli.—On Buddhism. Jaenger.—Indo-European Origins after the Discussion of the Paris Anthropological Society. Fedtchenko.—On the Relations of Linguistic Anthropology, according to Broca. Fedtchenko.—On the Aztecs ; on the occasion of pretended Aztecs visiting Moscow. Sokoloff.—On the Anatomical Monstrosity of the pretended Aztecs. Belgaeff.—On the Origin of the Great Russians.

Descriptive Anthropology in Russia.—An anthropological exhibition is to be opened at Moscow on the 17th (29th) of April. It will consist of a series of figures representing the inhabitants of all the provinces of Russia and the Slavonian provinces of other countries, dressed in appropriate costume, and of a collection of the natural productions and manufactures of each province. The Russian empire alone will be represented by 265 figures. Public lectures, explanatory of the objects exhibited, are to be delivered in the beginning of May.

The following paragraph is from the *Sentinel of Freedom*, Newark, New Jersey, U.S., Dec. 11. "Traces of prehistoric civilisation have been found in St. Anthony, Minn. A trap-door, secured by a curiously shaped lock, was discovered in the floor of a cellar, and upon pushing investigation further, it was opened, and a spiral staircase, leading down one hundred and twenty-three steps, appeared. It ended in a passage which led into an

artificial cave, about which were strewn iron and copper instruments, and at one side of which was an elevated platform and rude seats. A stone sarcophagus was also found in another apartment, which on being opened disclosed a human skeleton."

ON THE SKULL OF DANTE.

To the Editor of the Anthropological Review.

Shelton, Staffordshire, Jan. 24, 1867.

Dear Sir,—I have received the following communication, which forms a postscript to his letter on the skull of Dante in your last number from my friend Professor Welcker. It is of considerable interest, and I trust you will afford it a place in the *Review*. I am yours faithfully,

J. Barnard Davis.

"Halle, 16th January, 1867.

"My highly-esteemed Friend,—Permit me to make some supplementary communications to my letter to you 'On the skull of Dante.'

"A very weighty vote for the genuineness of the mask of Dante is found in the splendid work of Charles Eliot Norton, issued in commemoration of the six hundredth year jubilee of Dante—*On the Original Portraits of Dante*, Cambridge, Massachusetts, 1865. This book, but fifty copies of which were printed, appears to have had only a late and limited distribution on this side the ocean. I have to thank the good kindness of the renowned Dante-inquirer (Danteforscher) Witte, for a knowledge of this work, whose hands it reached in October of last year, after I had sent my letter to you away. Since your equally instructive and kind letters to me contain no mention of this excellent book, I presume that it has hitherto escaped your notice. I might rejoice at finding my views, and the position I have taken in many points, repeated in this work. The very skilful author, who gives an excellent photograph of Giotto's portrait of Dante, and also a copy of the mask, placed in the same position, declares his opinion of the perfect agreement of the two.

"It is the same face with that of the mask; but the one is the face of a youth, 'with all triumphant splendour on his brow;' the other of a man burdened with 'the dust and injury of age." (P. 18.) The question I put forth, whether in Dante's time death-masks were already used, we find touched upon at p. 11. Norton also expresses himself as not being quite sure upon this point. He remarks that, according to Vasari's testimony, this art came into use in the second half of the fifteenth century, and that the death-mask of Brunelleschi, who died in 1446, is alluded to by Bottari. But Norton presumes that so simple an art might very well have been employed at an earlier period than that of Brunelleschi, and that the friend and protector of Dante, Guido Novello, in order to obtain a first draft for a bust to be executed at a later time, would have taken a death-mask.

"On the 'mask' Norton finds the definite characters of a *death*-mask. 'It was plainly taken as a cast from a face after death. It has none of the characteristics which a fictious and imaginative representation of the sort would be likely to present. It bears no trace of being a work of skilful and deceptive art. The difference in the fall of the two half-closed eyelids, the difference between the sides of the face, the slight deflection in the line of the nose, the droop of the corners of the mouth, and other delicate, but none the less convincing, indications, combine to show that it was, in all probability taken directly from nature." (P. 14.)

"We learn from Norton that three Dante masks (probably joint copies of the original mask preserved by the painter Tacca) exist in Florence. One in possession of the painter Kirkup, one with Professor Ricci, the third the

Torregianian mask. The one communicated by North in three photographic representations, is that of Kirkup's. This, so far as I can discover, agrees in all parts with the Torregianian. It is the Torregianian mask, with the omission of the cap (Focale). It has exactly as much forehead, and as much frontal and temporal hair, as in the Torregianian mask; the cap leaves uncovered.

"Thus the repeated and careful comparison of the portrait by Giotto, the mask, and the skull, leads to the result that the mask and skull are authentic. These little notes I should like to have appended to my former letter. Adieu. "Your most devoted friend,

"HERMANN WELCKER."

WAGNER ON THE OCCIPITAL LOBE OF MAN AND APES.

A LETTER TO DR. JAMES HUNT.

HONOURED SIR,—I perceive, from the reports of the Anthropological Society, which I have only lately seen, that you had undertaken the translation of Carl Vogt's *Lectures on Man*. If you share my opinion that every person should contribute his mite to the truth, then I am sure you will excuse my taking the liberty of drawing your attention to an important error in the above work, which must necessarily escape the attention of every person who has not the original treatise to compare with.

An author who criticises and sends forth his publications so rapidly cannot work with desirable correctness; and often (so say some great authorities in Germany) his sparkling arguments would fail if he had studied the views of his author more minutely. I venture, therefore, to send you a copy of a small treatise which had for its object to find out a method by which to express the size and development of the cerebral surface. My treatise is thus a sequel of that which my late father, Rudolph Wagner, has entitled, *Vorstudien zu einer Morphologie und Physiologie des menschlichen Gehirns als Seelenorgan*. You will have found the results stated in the treatise in the first part of Vogt's *Lectures on Man*.

Vogt supports his sole proof, which he gives (i, pp. 211–214) for the view that the microcephale has an occipital lobe at least as large as that of the ape, upon a false quotation from the work of my father. If you will have the goodness to read note 9, p. 12 of my treatise, you may convince yourself of the error committed by Vogt. You will perhaps kindly rectify it, should a second edition appear of your translation.

I trust you will not consider it an act of presumption to request you as President of the Anthropological Society of London to rectify this error. You will no doubt pardon the zeal of a young man who takes great interest in anthropological studies, who was favourably situated to pursue such studies both under the guidance of his father, and from having had at his disposal the rich collection of Blumenbach. The death of my father, of which such honourable mention is made in the report of the Anthropological Society, has caused a change in my position, and I have turned my attention to a different field. Fate has, in singular manner, directed me to the city in which the venerable Blumenbach was born. Some years since, the little street in which the house he was born in stands, has changed its name and is now called "Blumenbach Street."

I perceive with great pleasure that Mr. Bendyshe has translated Blumenbach's anthropological treatises into English. You will perhaps be kind enough to inform him, that if he desires to have some notices or information concerning Blumenbach's works or collections, I may be able to assist him, as I possess several of the author's editions, *e.g.*, his contributions to natural history, second edition, enriched by marginal notes in

his own handwriting. I may also state that my father was the immediate successor of Blumenbach in Goettingen (1840), and up to Easter, 1864, I myself occupied the place of assistant at the Anthropological Museum of Goettingen, and was preparing for press a catalogue of the cranial collection when the death of my father interrupted my labours. I take this opportunity of assuring you of my high consideration.

DR. HERMANN WAGNER,
Professor of Natural History at the gymnasium of Gotha.

CEREBRAL MEASUREMENTS.*—Dr. Hermann Wagner, son of the lamented Professor Rudolph Wagner of Goettingen, has lately published a treatise on this subject, in which he complains of a misstatement made by Dr. Vogt in his recent work, *Lectures on Man*. Referring to Table II, containing the results of the measurements made by his lamented father, Dr. H. Wagner makes the following remarks :—"I take this opportunity to draw attention to an error committed by Dr. Vogt, in his recent work, *Lectures on Man*. This author refers to the above table as affording a proof that the microcephalous possesses an occipital lobe as large as that of the ape. After quoting some remarks of my late father on the difference between the simian and the microcephalic brain as regards the occipital lobe, Vogt continues thus :—'Now, gentlemen, I have taken the trouble of subjecting these proportions to measurement, and as I myself have no materials at command, I have measured Professor Wagner's delineations. I have, in the engraved brains of a microcephalous and a chimpanzee, measured two distances on the left side ; the first from the apex of the brain to the vertical fissure which separates the posterior lobe, the second from the above fissure to the end of the posterior lobe. I find for these measures in the chimpanzee ; length of the anterior lobe = 76 *millimètres*, of the posterior lobe = 21 *mm.* In the microcephalous ; length of anterior lobe = 75 *mm.*, of the posterior lobe = 20 *mm.* I farther find, from Wagner's measurements of the cerebral surface, that it is to the surface of the posterior lobe : mean in eight males = 100 : 16·2 ; that, on the contrary, in the microcephalous, the proportion is = 100 : 68·5 ; that, therefore, the posterior lobe presents a surface four times greater than in the adult man ; that, therefore, the idiot has a posterior lobe at least as much developed as the ape. *Result.* The posterior lobe is in the microcephalous just as large as in the ape, etc.' Now, as regards the first point, it is well known that perspective drawings do not admit of measurements ; moreover, a glance at Table II shows at once that, in this case, the right proportions cannot be expressed by the extension of a single length. As regards the second point, we find in Table II the convex surface of the frontal lobe, 282 ; parietal, occipital, and temporal, 614 approximately ; whole brain, 896. Vogt now takes the surface of the three lobes, which, on account of the smallness of the brain could not well be divided, to represent the surface of the occipital lobe alone, simply because the number happens accidentally to stand under that heading. He thus obtains the proportion of the whole brain to the occipital lobe = 100 : 68·5, without in the least considering that there exists neither a human nor a simian brain in which the occipital lobe attains 68·5, that is to say, two-thirds of the whole cerebral surface, which would only leave one-third of the whole surface for frontal, parietal, and temporal lobes. This mistake upsets the whole of his argument." We have, in the interest of science and in justice to the late Professor Wagner, thought it right to transcribe the whole passage, feeling assured that Dr. Vogt will take the correction in good part, and rectify his error at the first fitting opportunity. As regard Dr. Wagner's treatise, to which we may recur on a future occa-

* *Maassbestimmungen der Oberfläche des grossen Gehirns.* Goettingen : 1864.

sion, we would merely observe that, though not rich in results, from the small number of brains subjected to measurements, it suggests various improvements in method, and shows the author to be a painstaking inquirer. Additional tables, rectifying some of the results previously obtained, will render the essay useful to such as possess Professor's Wagner's *Introduction to the Morphology and Physiology of the Brain*, to which it forms an appendix.

To the Editor of the Anthropological Review.

Kulladghee, June 10, 1866.

Dear Sir,—I beg your acceptance of the small pamphlet herewith forwarded. It embodies the views of a Parsee, a native of India, on the causes of the immense gulf that separates the Europeans from the Hindoos, morally, intellectually and physically, and the *rationale* thereof grounded on the principles of hereditary transmission, which are the recognised basis of the science of man, which your ably conducted periodical is established to promote.

The following extract from a letter penned about a fortnight before the receipt of the last number of your *Review*, will show how much my opinions coincide with those embodied in your article on "Race in Legislation and Political Economy," wherein the question of race as an important element in "the survey of human nature and life" is so admirably, so temperately, so ably and so convincingly argued.

"You may perhaps think that I lay more stress on the fact of hereditary transmission, that I have a stronger belief that it is through the gradual and painfully slow discipline of centuries and not in the course of a few generations that India's thorough regeneration can and will be effected, than is warranted by facts or philosophy; and that I take no account of the physical agencies, the social phenomenon, the political antecedents—in a word, all the natural causes which have contributed to bring about her degraded and lamentable condition. Without making light of, much less ignoring, the historical antecedents, the social associations and environments, and the physical causes whose operation is indisputable, I beg to assure you, Sir, that my belief is founded on several years' experience of the influence of heredity on individuals of different races, castes, and creeds, as well as of one and the same community; and I feel convinced that no native of India, whatever may be his birth, rank, caste, occupation, or religion, and however highly endowed by nature or improved by culture, has been known or may possibly be able to equal or even approach Europeans under similar circumstances, as to fortune, birth, profession, caste, colour, or creed, and that the natives of India, transplanted into foreign soils, where nature is more propitious and the artifical or natural surroundings are more favourable to their development, morally, intellectually, physically, will not be able at once to attain to the intellectual calibre, the physical stamina and moral grandeur, the strength of character and will of their neighbours; no matter how well directed be his energies, and assiduous and steady his efforts in pursuit of the ideal, the sight of which might fire him with the ambition of realising it."

Now, if the potency of race is so influential in producing such differences among cognate races, how much more puissant must be its influence on those "separated from Englishmen by such broad lines of demarcation as the Negroid and Mongolic populations of Central Africa and Eastern Asia?

But my object in troubling you with this letter is not so much to obtrude the fact of my opinions being at one with your own, as to point out how superior in this, as in some other respects, is Mr. Herbert Spencer's philosophy to Mr. Mill's. He not only recognises the power of social and moral influ-

ences, but takes into account in conjunction with these the organic conditions and the transmissible mental constitution of the races, which again he shows are susceptible of undergoing modifications under the influence of social, moral, and physical forces, which are ever changing, brought to bear on them for thousands of years, and not in the insignificant space of time which has elapsed since the dawn of authentic history. And not only in this department of the science of man does he reconcile the conflicting doctrines of the two schools of thinkers, but in psychology also is his philosophy sufficient to effect the reconciliation between the *à priori* hypothesis and the experience hypothesis, by regarding knowledge as well as character or psychical and physical peculiarities, feelings and faculties, as acquired not only by individual experiences, but also by the experiences of remotest ancestors organised in the race.

This sense of his superiority it is that lately elicited a communication from me to the address of the Secretary to the Bombay Branch of the Royal Asiatic Society, a copy of which I beg to enclose herein, and which you are welcome to make use of in any way you please. Trusting you will excuse this trespass on your valuable time. I remain, dear Sir, your most obedient Servant,

NOURAJA BYMAIJ.

"*To the Secretary to the Bombay Branch of the Royal Asiatic Society, Bombay.*

"Kaladghee, June 5, 1866.

"SIR,—In forwarding to you the accompanying copy of a letter addressed by me to Mr. Herbert Spencer, I solicit the favour of your laying before the members of the august and respectable Society of which you are Secretary, this my humble but earnest appeal to their generous disposition, as well as to their sense of duty, for according a handsome support to that distinguished philosopher, so as to enable him to continue his labours in bringing to a successful completion the work mentioned therein, which is destined to be the crowning glory of British genius, and to shed the greatest lustre on the British name, and which the author has signified his intention to discontinue for want of a sufficient number of subscribers, entailing a drain on his private purse which he can ill sustain. It cannot surely be expected that a writer should incur a continuous pecuniary sacrifice, and yet go on favouring the world with a series of works destined for immortality. It would not only be the height of presumption on the part of a native of India like myself to point out the supreme excellencies of that eminent thinker and writer, and his unequalled merits as the founder of a new system of philosophy, but it would be an insult to the intelligence of a body of the most eminent literary and scientific men that this Presidency can boast of. Equally needless and supererogatory would it be for me to urge his claims to the patronage of that body by any very elaborate piece of ratiocination. His hitherto published writings possess too conspicuous and sterling merits, and the members of the Society to which I have ventured to address this letter, have too much perspicacity and penetration to need any eulogy on my part to commend them to their favourable consideration.

"You will, I hope, agree with me in supposing, that none of the members of your Society, who is at all acquainted with Mr. Spencer's writings, would make light of the claims he has established on the esteem, admiration, and gratitude of mankind, and that it would be something akin to the discharge of a debt, if they, one and all, contributed their mite towards enabling him to add immensely to the obligations under which he has laid Englishmen and natives alike (not to speak of Europeans and Americans as well), and to his title to rank with the highest orders of minds—with an Aristotle, a Bacon, a Bentham, or a Comte.

"I beg, therefore, only to remind them of the duty they owe, not only to their illustrious benefactor, but to themselves, as the *élite* of the Bombay community, capable of appreciating and rewarding the merits and services of their greatest philosophers, and of thereby not only signalising their superiority to their brethren in England, who have to all appearance suffered him to discontinue his valuable labours, but themselves to be robbed of the most precious of gifts with which they could be blessed, and which they could easily have secured by a judicious and timely exercise of patronage, but also of rescuing the British name from the ignominy they have earned by the want of encouragement on their part which I so deeply deplore.

"In concluding this appeal to their good sense and sagacity, as well as to their generous feelings, I beg to solicit forgiveness of the Society for this piece of extraordinary liberty I have ventured to take, by addressing to such an exalted assembly, what might I fear appear to them an impertinent epistle. May I also beg their acceptance of the pamphlet alluded to in the letter which accompanies this, and to remain, Sir,

"Your most obedient Servant,

"(Signed) "NOURAJA BYMAIJ."

THE AZTECS. — In volume iv, 1856, *Transactions of the Ethnological Society of London*, there is a paper by Mr. Cull and Professor Owen on this subject. I was present when the paper was read. The children, a boy and girl, reported to be brother and sister, were at the meeting under the care of a Mr. Morris, and the general opinion was that they were little idiots. I considered them to be a Zambo-Mulatto breed, not Aztecs of America, but from Central America. Since that period they have been exhibited by Mr. Morris. In *Daily Telegraph*, January 8th of this year, there is a long account of the Aztecs, their marriage, and that a fashionable wedding-breakfast had been provided by them at the Hanover Square Rooms. The article in the *Telegraph* alludes to them as *crétins* and as *brother and sister*. Professor Owen is lugged in thus, "It is some satisfaction to know that Professor Owen has given an adverse opinion to the original hypothesis of their close consanguinity." When and where? "Maximo Valdez Nuñez and his bride Bartolo Vasquez are very much alike—especially Maximo—but they are not the children of one father and one mother." This is but a mere assertion, how about the fact? In the *Journal Encyclopédique*, par B. Lunel, Paris, 1857, article "Aztèques," tom. ii, p. 337, is a letter communicated by M. Boursier, late French Consul at Quito, which he had received from General Various, formerly Governor of San Miguel in the republic of San Salvador. The following is an extract from said letter. "When on my way," says the Governor, "to visit the district of Usuttan, I met Raymond Selva, who was going to the farm of Leon de Avila. We arrived at Jacotal, at which place I remember seeing the two children, *a brother and sister;* they were curious-looking and small. Continuing my journey, I observed to Selva, that if the mother, a poor woman, could exhibit them in Europe, or through some intelligent person, she would reap a fortune for them. On arriving at Jacotal, Selva said he would propose to the mother to give him the possession of them, and to share profits with her; that this could easily be done if I used my influence, which I did. Selva took charge of the children and prepared to leave by the river San Juan de Nicaragua, accompanied by a Yankee. Selva was concerned in an Indian outbreak at San Juan, was made prisoner, and received fifty lashes. The Yankee got away with the children to the United States. Some time afterwards, Selva told me, that wishing to get back the children and the profits for exhibiting them, the Yankee refused to comply, when Selva went to law with him. Selva subsequently sold the children to the Yankee for

£3,600, who took them to London. The mother of these children is a vigorous Mulatto, the father is a Mulatto; as to the children being Aztecs is a fable. They are idiots; they were known in the country as *monitos*, or little monkeys."—A TRAVELLER IN THE NEW WORLD.

EXTRACT OF A LETTER FROM J. S. WILSON TO W. BOLLAERT.—"Quito, Jan. 19, 1867. My journey to Canelos will enable me to send a paper to the Royal Geographical Society. I endeavoured when there to obtain information of interest for the Anthropological Society. I obtained the measurements of the heads of eight Indians of rather impure breed, who carried our baggage down to that country. On our return, we got thirteen Indians to accompany us, but the rascals deserted us before they reached the first white settlement. I intended to have taken their measurements next day. I have made a bargain with a trader in Canelos to obtain some skulls of the Jívaros. These he will buy of their enemies, the Canelos. Having seen the question mooted by the fact of Mr. Blake having extracted from an Indian tomb in Peru a skull with human hair attached, I have obtained two samples of hair at Canelos, to show that the colour of the hair of the Indians is by no means invariably black, nor invariably coarse. I shall communicate my observations as soon as I have got them in order, and send the samples of hair with them.

WHO WERE THE ANCIENT BRITONS?—The *Medical Times and Gazette* gives the following account of the Rev. W. Greenwell's recent lecture:—

"Most of our readers notice at times paragraphs in the newspapers detailing the accounts of the examination of ancient burial mounds by the Rev. W. Greenwell. They may also be interested in the controversy now going on with regard to the round and long head, and the round and long barrow question. They may, besides, wish for materials for settling the question, who were the ancient Britons? A few years since, as an eminent French archæologist says, the name Gothic was applied to almost all the buildings from the eleventh to the sixteenth century. Are we more precise in our use of the word Celtic to any pre-Roman remains in Britain and France? Are the inhabitants of these islands even more mixed than is commonly believed? Did a mixture of Berber and Basque from Africa and Spain, and of Lapp from Scandinavia, precede the mixture of Belgian, Celt, Frisian, Dane, and Norman? In order to furnish materials for thought on these topics, we propose to give some notes of a discourse delivered last Friday evening at the Royal Institution by the Rev. Canon Greenwell, in which he presented a summary of his researches. The east wolds of Yorkshire—the place where the principal explorations have been made—were described as a somewhat quadrilateral district, of moderate elevation, with its surface varied by deep waterless valleys and rounded chalk hills, like the Wiltshire downs: covered with scanty herbage, thorn, furze, and ling, little wood, and no animals; bounded on the south by the valley of the Humber, on the east by the sea, on the west by the York valley. Now, there is evidence that this district was largely cultivated in pre-historic times—evidence derived partly from the occasional discovery of the site of rude circular wigwams from fifteen to twenty feet in diameter, sometimes excavated in the ground, sometimes built above it, and sometimes still retaining vestiges of a rude stone bench around, and of a central hearthstone whence the smoke ascended through the roof. Such vestiges, however, are soon obliterated by the plough. There is no evidence of large camps; the people were probably divided into small tribelets. The trackways by which they went to the nearest stream to fetch water are yet visible; and the territory seems bounded on the north by an earthen mound with fosse, nearly twenty miles long—whether for defence or as a landmark seems uncertain. It is most likely that the people who inhabited these wolds got their food by

hunting in the swamps and thickets which bounded them, and which, whilst affording covert to animals, offered scarce any habitable or defensible positions for man. Who were these people? Without borrowing from Ptolemy the names of Brigantes and Parisii, Mr. Greenwell proposed to determine this question by examination of their remains; and has come to the conclusion that there were two races, of which one inhabited the district first and alone, whilst at a later date they existed side by side with another race which intruded itself amongst them. He is led to conclude that the earlier people were a long-headed or dolichocephalic people; that they buried their dead under barrows, tumuli, or mounds of an oblong shape—from three to four times as long as broad—generally lying east and west, with one end larger than the other, and the primary interment under the large end. By the term primary interment is meant, of course, the first body buried. Many other burials may have succeeded, the bodies being placed in part of the circumference, and the mound enlarged to cover the new bodies. Let us say, by way of parenthesis, that the general plan of mound burial seems to have been identical all over the West of Europe, England, Ireland, and Brittany. The body was placed in a square chamber, constructed in the best method available?—in some places a humble square excavation into the chalk, covered over with a pile of stones; in other magnificent instances which abound in Western Brittany, a huge chamber formed of colossal stones, one at the bottom, one at each side, and one for a cover; this chamber, too, perhaps, with a vestibule or wings added. But, in any case, the whole was covered with a huge mound of earth. These mounds are now in the farmer's way; they are perpetually levelled by the plough; thus in time the central stones (if any) become exposed; people see one huge stone atop, supported by others, tablewise; they overlook the fact of the interment; or the bones are scattered and forgotten, and the denuded stones pass with the vulgar as Druidical altars; and the solemn circles of stone set up to mark and dignify the burial-place, inspire the brains of antiquaries with notions of a primæval worship of the serpent that tempted Eve, or of some diabolical attempt to figure the signs of the Zodiac. Were the matter sufficiently medical, we should be glad to treat of *menhirs* and *dolmens;* but we must stick to ethnology. The elderhood of the long barrow, and of the long skull found therein, is, according to Mr. Greenwell, evident—first, from the total absence of metallic remains, and from the abundance and excellence of the flint implements, which are superior in finish to those found in the assumed later barrows along with bronze. Secondly, from evidence of cannibalism. This evidence consists in the discovery of bodies buried, as is believed, at the same time with the primary interment, and never disturbed since: in one case so many as eighteen bodies were found at the east end of a long barrow; of men, women, and children; the bones scattered and broken, and in such a way as could only have been done with the recent bones. In the long barrows in the wolds, the bodies had evidently been burned, although the action of the fire was in some instances very incomplete. It seemed as if the bodies had been deposited, then covered over with a layer of chalk and flint, and wood heaped on the top of this, so as to burn the body within, and weld the covering into a compact, half-vitrified mass; but in many cases the action of the fire was evidently very imperfect. In one case, over a mass of burnt chalk and bones 35 feet long and 3 feet high, had been raised a mound of chalk, rubble, and earth 140 feet long, 50 feet wide, and 7 feet high. The skulls found in the long barrows, according to Mr. Greenwell, illustrate Dr. Thurnam's alliterative axiom—long barrow, long skull. The face is upright, with no tendency to prognathism; the forehead, on the whole, narrow, but not receding; the superciliary ridges only slightly projecting, and the middle of the skull along the line of the sagittal suture assumes to some extent a keel-shaped form. The parietal prominences are ill-

developed and much rounded off, and the upper part of the occipital region is very projecting. Judging from their bones, these people were probably not more than 5 feet 5 or 6 inches in height, and probably of pleasing appearance, with soft rounded features, and an absence of ruggedness of outline in the skeleton. In Mr. Greenwell's opinion, they were the earliest inhabitants of these wolds, for no sepulchral remains of any race before them have been found. He thinks that we must look to Spain and North Africa for a people similar to them. The Basque head is decidedly dolichocephalic. The paucity of long barrows tends to show that the population at the time of their erection was but scanty. The round barrows of the later race are very abundant. They are of various sizes, ranging from 15 feet in diameter to above 100 feet, and in height from 2 feet to near 20 feet, the most common being about 50 feet in diameter and 5 feet high. In shape they are like a flattish inverted bowl; they are usually formed of surface soil and chalk rubble, and they generally crown the heights. They were, no doubt, erected only over the remains of the chiefs of the people and their families. In some cases, perhaps, the wives and children and attendants of a distinguished chief were slain and buried with him, and it is not uncommon to find a very young child occupying the central place in a large barrow. The ordinary dead were doubtless buried without barrows in cemeteries, and at one of these places (at Elton, near Beverley), in making a railway, above seventy bodies, placed in the ordinary "British" manner, were discovered. Mr. Greenwell also referred to the circles formed of stones, earth, etc., intended to preserve the barrows from desecration. These barrows also afford evidence of burial with burning and without it, the latter being the more prevalent mode, due, doubtless, to the scarcity of wood. In some cases both were adopted contemporaneously. When unburnt the bodies appear to have been interred with their clothing, with the knees to the chin, most frequently on the left side, sometimes being laid on the ground, and sometimes in a cist formed of four or more stones set on edge with covers. At Gristhorpe, a perfect skeleton was found in the hollow of a tree, which, from its colour, has been termed "the Black Prince." The remains of burnt bodies have been found in various positions in urns or small hollows. In the latter part of this discourse Mr. Greenwell gave full details of the investigation of several series of barrows containing unburnt and burnt bodies. In the former, besides the bones of persons of all ages, the investigators came upon relics of the funeral feast, broken bones of wild oxen, deer, swine, and goats, potsherds, flint chippings, etc. In the barrows containing the remains of burnt bodies they discovered, besides many flint implements, bronze daggers with bone handles, ornamented urns, food vessels, and drinking cups. The bodies of males in many cases were associated with stone weapons and implements, and those of women with stone rubbers or corn crushers, flint knives or scrapers, jet and amber necklaces, buttons, and other ornaments. Bronze celts and other weapons are also found. The skulls of the people buried in the round barrows present two distinct types, as well as a third, possessing the characters of both combined, probably descended from a mixture of the two. One type is that of the long-headed race already described; the other, that of the intruding conquerors, was of a round-headed people, with an average stature of 5 feet 8 or 9 inches, a broad head, especially square in the hinder part, and a high forehead, the parietal bosses being strongly developed, and the occiput so much flattened as to suggest the idea that it had been made so by artificial means. These people must have presented a savage appearance, as all their features were prominent, the mouth and eyebrows projecting, and the cheek-bones high and angular. With regard to their origin, Mr. Greenwell considers that we must look to the North of Europe, as they approach in the type of their skull to that of the people of the stone age buried in the chambered barrows of Denmark, who may

have been allied to the Lapps, the representatives of a race at one time probably widely spread over the North of Europe. In conclusion, Mr. Greenwell alluded to the objections made to his view of the antiquity of these people. He stated that Cæsar and Tacitus testified to the use of iron by the Britons of their time, and affirmed that no iron had been found in any of these barrows, and that hitherto no evidence of Roman influence had been discovered in them. He said that, however easy it might be to say to what period they do not belong, it is impossible to give more than an approximative date to them. With more extended researches we may be able to arrive at more certain conclusions. 'In the meantime it is safer not to lay down any specific date, but to say, what we can with confidence do, that they belong to a time which ends a century or two before the occupation of Britain by the Romans.'"

The Emancipated Negro.—Mr. Munro, the British Consul at Surinam, in a report to the Foreign Office, describes the immediate effect of emancipation on the Negro slaves in the Dutch colony. On the 1st of July, 1863, the freedom of the slaves was promulgated, and the rights and privileges of freemen were accorded to them. "The Negro population received the boon without any great signs of exultation; the day passed over even with more stillness than a Sabbath. The agricultural labourers did not so readily turn out to work, and when they did, it was only to work what they pleased, and that generally was but poorly done. Many of the people, when the time of contracting with the owners of estates was appointed, left their former homes, and took to squatting in the bush, and abandoned plantations and grounds, on the borders of creeks in the neighbourhood of towns, where they lead a life of comparative idleness, of little use to themselves and less to the community at large, returning to a state of gross heathenism, practising and enjoying the superstitious African dances, with all their immorality. Their wants being few, are easily supplied from a bountiful soil, forests teeming with game, and the rivers, creeks, and swamps abundantly stocked with fish, which require but little exertion to procure. The Negro population who have remained on the estates do as little work as possible, which tells greatly on the crops; they do little else than reap the fruits of former years' labour, planting but little for the future."

An Anti-Malthusian Family.—At Lloyds, near Ironbridge, Salop, the other day Mrs. Felton, the wife of a labouring man, presented her husband with twins, for the third time. What makes the matter more remarkable is, that two of her sisters have twice had twins.—From Eddowes's *Shrewsbury Journal*, Oct. 3rd, 1866.

A Young Mother.—The Registrar of the Park (Sheffield) district reports to the Registrar-General:—"I have registered the birth of a child in my district this quarter, the age of the mother being only thirteen years and ten months. She was employed in a cotton mill in the neighbourhood of Manchester."

Proofs of Early Civilisation in Ireland.—Lord Lifford has had a political controversy with Mr. Bright respecting the condition of Ireland. Mr. Bright proposes to revert to the land system in force before the conquest by Cromwell. Lord Lifford describes in a few forcible words the deplorable condition of the people at that time, and after showing how completely they were at the mercy of the chiefs, he says:—"As well might we compare the graceful coronation of Queen Victoria with that of an ancient Irish prince, who sat naked in a bath with the boiled carcass of a cow, which he tore with his teeth, while his nobles supped the broth in which his Highness sat."

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THE THEORY OF DEVELOPMENT, AND ITS BEARING ON SCIENCE AND RELIGION.*

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

The theory of development *versus* special fiats of creation, is not new. Darwin is but its last expounder. It is strictly not the product of any one mind, though Lamarck is more especially chargeable with its origination; it is the natural and inevitable product of an age of science, that recognises law, and, by implication, denies miracle. The fundamental idea underlying this development *hypothesis*—for this is its true designation—is by no means confined to the animal and vegetable kingdoms. It covers the origin and existence of the material universe, and is coextensive with all its suns and systems. If animals come by law, so do worlds. If all things *grow*, and nothing is made, planets and their satellites are simply embryonic suns, still in the (celestial) womb of their solar parent. And if the earth has been covered with her beautiful Flora, and animated by her varied Fauna, without the special intervention of a Creator, then we may be sure that the stellar spaces are the sphere of advancing, though apparently incipient organisation, whereof suns are but the cosmic cellules. Few of the adherents, or perhaps even the leaders, of this school, would dare to follow out their premises to such a con-

* *The Modern Anthropology, as Developed into a Universal Ape Ancestry; can it be held by a Christian Divine of the Straitest School?* In a series of Letters, by William Honyman Gillespie, of Torbanehill, to the Rev. George Gilfillan, of Dundee. Edinburgh: William P. Nimmo, and all Booksellers. 1867. Dedicated (by special permission) to John Crawfurd, Esq., F.R.S., etc., President of the Ethnological Society of London.

clusion; but such a failure on their part would be simply the result of a want of logic, or a want of courage.

Nor does the development hypothesis rest satisfied with an exposition of the past; it casts its gaze prophetically forwards into the future. Seeing the former in a state of unresting, though onward, transformation, it regards the latter as inevitably the sphere of a similar upward and onward movement in organisation. The forces which have produced the one result cannot fail to eventuate in the other; hence all existing species are regarded but as the transitory types of universal being. To this man is no exception. The product of law, he must ultimately become its victim; he began in time, he will end in it; mortality is predicable not only of individuals, but of types. Indeed, contemplated from the plane of nature, either of these facts implies the other.

Let us state this matter somewhat more explicitly. From the stand-point of law the material universe is regarded on the theistic basis, as a (necessary) emanation; the negative, that is material and temporal, pole, as contradistinguished from the positive, that is spiritual and eternal, pole of universal being. It is the sphere of effects as opposed to the sphere of causes. In a still profounder sense, it is the latter ultimated (into form) on the merely sensuous and phenomenal plane of perception. On the atheistic basis, it is regarded as so much self-subsistent and eternal material—subject matter for the operation of self-acting and invariable law—the expression of blind, unintelligent, and necessary force. It need scarcely be said that this latter is a self-contradictory scheme of baseless assumptions, whereof neither the logic nor metaphysics, the philosophy or the science, is worthy of serious consideration.

And now for the relation of the development hypothesis to Deity and his attributes. It does not, in the first place, imply his non-existence or his inaction; it simply defines the *mode* of his action in the process of (so-called) creation. It affirms this to have been one of *evolution*, or growth, in obedience to law, in place of a *making* in accordance with arbitrary volition. It does not deny the preexistence of divine ideas; it, on the contrary, in the mind of all its higher votaries, presupposes them, the process of development being simply the manner of their fulfilment. Now this manner, this mode of procedure, is in perfect accordance with all the organic processes of nature whereof we have experience. Nature knows nothing of miracle; she is utterly ignorant of all forces extraneous to herself.

And now for the relation of the development hypothesis to science. It is, in its present form, and with our existing knowledge of either past or present organic types, simply a convenient explanation of the undoubted fact of special diversity. There is not one tittle of *positive*

evidence to support it. It is possibly, and even probably, the right hypothesis, but that is all which can yet be justifiably said in its favour. It may be, and probably is, the true theory of organic being, but we yet wait for its *demonstration*. Upon this understanding, let us look at its probabilities, or perhaps, as its opponents would say, plausibilities. It excludes (needless) interference. It does not want a *deus ex machinâ* at every great turn of the celestial mechanism. As we have said, it disowns *miracle*. It does not ask for extraneous help—for foreign aid. It finds nature adequate to her own necessities. When she wants a type, she is able to provide it—a great recommendation to a man of science.

Now what *are* the vegetable and animal kingdoms? that is, what position do they hold, and what function do they discharge, in the economy of the earth—the only cosmic cellule, be it observed, with which we are at all intimately acquainted, but whose conditions we have no reason to believe exceptional. They are obviously its *organs*, in so far as such matters are susceptible of illustration by comparison, or, shall we rather say, analogy; the former for the discharge of its vascular, and the latter its muscular functions. But without insisting on the correctness of this minutiæ of explanation, to which, as we are well aware, (captious) objections may be readily taken, we will here content ourselves with simply affirming that vegetables and animals are obviously telluric organs. Now this, of course, implies not only that they are harmonious parts of the telluric organism, but that they are all thrown up like the teeth or beard of a human subject, at certain stages of its total or, shall we say, cosmic development, as the befitting and needful instrumentalities through which some of its more important and higher vital duties are effectively discharged. The moment this idea is fully realised, all thought of accidental evolution or arbitrary creation ceases. They could not be other than they are, whether as to time and place, or form and function, without a derangement of the normal condition of things, bordering on monstrosity.

This idea that vegetables and animals are organisms of the earth, of course implies that the latter is also a (cosmic) organism, in a state of (probably embryonic) growth. And if so, then these organs are no doubt adequate indications of its age and condition, had we the knowledge requisite for their interpretation. Here, then, we see the great importance of MAN, whose appearance on the telluric stage, must have synchronised with the emergence of the earth into its intellectual condition. In other words, speaking anatomically and physiologically, he represents its nervous system.

And now let us make a few remarks on man and his place in

nature, present and prospective. He is the culminating point of all existing organic life. He is the crown and glory of the animal kingdom—that to which, in a sense, all its types tend, and of which they are the embryonic incompleteness. It is here, indeed, at this stage of the inquiry that we obtain the fundamental idea, the radical conception of what the animal kingdom really is. It is, then, simply an ascending series of embryonic forms arrested at the successive stages of their development. ONE Divine idea underlies the whole, and their diversity arises from the varying degree in which they approach the bourne whither, in a sense, they all tend.

And now we seem to hear one consentient chorus of objection and denial, implying that if this be true, man must necessarily be *one* with the monkey, the bear, the frog, and the worm. But this would be a grave mistake; (remote) community of origin by no means implies congruity of character and identity of endowment, any more than similarity in organisation. The gradual evolution of species, genera, orders, classes, and kingdoms, constitutes an important part of the development programme. Hence it no more follows that man is one with the anthropoid apes because they were his more immediate progenitors, than that he is one with the frogs or the worms, because they were his ancestors at a remove somewhat more remote. All nature is one contemplated synthetically. She is multiple regarded analytically. All depends on the standpoint of the observer. Contemplated, then, from the plane of science and theosophy, the development hypothesis is possible and probable. It simply expresses the manner in which the Divine idea of creation has been fulfilled. It describes and defines the process of evolution, whereby, under the conditions of time and space, the infinite and the spiritual have been made presentable as the finite and material. But as apprehended by many of its present scientific adherents, that is a practically atheistic scheme, in which blind force is regarded as the source of beauty and order, of harmony and intelligence, it is thoroughly illogical and altogether unsatisfactory. As expressive of God's mode of working through natural law on the material plane, it is the most plausible explanation of processes and results yet propounded. But take God —that is, preexisting intelligence and will—out of the problem, and its solution becomes at once impossible. But to see this our men of science must be also logicians and metaphysicians, and to ask such qualifications in addition to their other high attainments, is perhaps to make an unfair demand upon ordinary human intelligence.

Let us now contemplate the development hypothesis in relation to (revealed) religion and the (supposed) facts of the Bible narrative. And here let us, *in limine*, protest against the principle of limiting

scientific investigation by the data of a dogmatic theology. The laws of nature have nothing to do with creeds. Science appeals to facts, not to authorities. From the anthropological standpoint, religions are simply historical phenomena, holding a certain relation to the successive stages of civilisation with which they are cotemporary, and of which they constitute a very important and salient feature. Science does not believe in the eternal duration of anything except principles. It regards all forms, even those of religion, as essentially mutable and mortal. They were born in time, and they will die in time. And this opens the great question, "Is revelation a miracle?" to which we unhesitatingly reply in the negative. Successive revelations are, even on the strictest interpretation of the Bible hypothesis, a part and parcel of the providential history of mankind. The Adamic, the Noachian, the Patriarchal, the Mosaic, and the Christian dispensations, are adequate proofs that Semitic theology comports with a gradual development of the religious idea. It is from their bigoted opposition to this element of *growth* that the Jews are the wrecks we see, stranded waifs on the sands of time, left high and dry by a tide that has swept past them laden with the priceless argosy of Christianity. But is existing Christianity final? Most assuredly not. Its Founder expressly taught the advent, first of the Comforter and them of Himself, or, in other words, of a second Messiah, for it need scarcely be said that on the spiritual plane personal identity is not corporeal. But are we right in thus limiting our views of revelation to biblical examples only? Does not such a procedure partake of the narrowness and exclusiveness of Jewish bigotry? In short, were there not *Gentile* revelations—the side branches, though not the main stem of the mystic *Ygdrasil*, the theological tree of life? Suffice it, then, that we regard revelation, or the spiritual intuitions of ecstatic seerdom, as a normal product of the human mind at certain stages, or rather crises, of its development, as normal, and therefore in a sense as natural as the *Iliad* of Homer or the *Hamlet* of Shakespeare.

No logician can fail to see that such a conception of revelation involves the idea of its *relative* perfection only. Were this perfection *absolute* it would be also *eternal*, whereas all revelations hitherto have been for a special time, place, and people. We are aware that Christians claim more than this for their scheme; but the authority of the Master is against them. He expressly limited it in time, and prophetically foretold its suppression by another system to be inaugurated by himself at his second advent. "I have many things to say unto you, but ye cannot hear them now," are not the words of a *final* teacher, but rather of one who feels that at *present* he is but the precursor of *himself*—or another.

Holding such views of revelation, it is no wonder that we regard its *quasi* scientific teachings with indifference. Its cosmogony is simply a traditional myth; its astronomy and geology are beneath the serious examination of modern science; and its anthropology will be regarded as equally baseless, whenever this—the latest of the sciences —shall have won for itself the same honourable recognition which has been accorded to other and older departments of inquiry. These are bold assertions. They sound very much like freethought, but they nevertheless express "the creed of Christendom." No one believes now in either the astronomy or the geology of the Bible; why, then, as we have said, cling to its anthropology? No one now adheres to the literal six days of creation; why, then, cling to the literal Adam and Eve. But it has been said Christ took on himself the form of man; it must therefore be eternal, a fleshly tabernacle moulded upon a divine idea.* To which we reply, that it was a temporal vesture assumed for a special purpose, and underwent transfiguration on the Mount, and transformation, or shall we say glorification, after his death. It was, then, a magnetic or, as some would phrase it, a spiritual body—luminous, imponderable, and susceptible of interpenetration by grosser matter. He could be visible or invisible at pleasure; he could enter a room with closed doors, and he could finally ascend in it to the highest heavens. Nothing more clearly demonstrates the sensuous grossness of popular Christianity than the vulgar belief that it is a common fleshly body through which the eternal Messiah is manifested in the celestial mansions. Do the people who entertain this belief know that spiritual beings must have spiritual modes of perception, and that a simply material body would

* "What next is the Christian theory of incarnation? That we had a father in the flesh, the first Adam; that the Son of God, to redeem us, took upon Him, in the fulness of time, our nature, and became man as the second Adam. This Christian theory further assumes, that not only did the men redeemed by Christ all spring from a common ancestor, but their human nature is to be perpetuated for ever in the future world. Christianity holds that the second Adam will wear our nature in heaven for ever. The consequence is, that the nature of man is a fixed thing, no piece of evanescence. It began with the first Adam, the direct creation of God, and it shall be perpetuated through eternity; the glorified second Adam being the centre point, or point of fixation, for human nature for ever. Now is it not evident that, as two and three cannot make four, so neither can the development theory and the tenets of the incarnation hang together? Is it not now manifest to the dullest intellect among my readers, that no philosopher of any kind can pretend to hold these two things in conjunction." (From fourth letter of Mr. Gillespie to the Rev. George Gilfillan, on *The Doctrine of the Incarnation, and the Theory of the Modern Anthropology Irreconcilable*, p. 20-21.)

be quite as much out of place—that is, out of harmony with its surroundings—in heaven, as a purely spiritual body would be on earth; that it would, in all probability, be, under ordinary circumstances, as imperceptible and as inefficient as its spiritual counterpart here. Every *mode* of being has its own *sphere*, and as purely spiritual manifestations are, to say the least of them, rather exceptional here, we may conclude that simply corporeal manifestations are equally exceptional there. To put this in clear and unmistakeable language, as the Christ required a corporeal vesture for his earthly mission, he must equally require a spiritual vesture for his heavenly mission; as he became a fleshly man below, we may assume that he has become a spiritual man above, returning not merely to his heavenly home, but to his celestial conditions.

Granting then for the sake of argument, that the assumption of the human form by Christ, was indicative of its perfection and finality in the scheme of creation, it is obvious that we should not rest satisfied with the opaque and ponderable man of the present, but advance in our conceptions, to the radiant and magnetic man of the future, the *transfigured* successor of the present child of sin and sorrow. If Christ was our brother in his humiliation, he was also our precursor in his glorification. What he was, we are. What he is, we shall be. There is no escape from this logic, and it covers the next great advance in organisation, the assumption by man of his true position, as the aerial and, if we may so say, papilio type of the mammalia. This demands explanation, and brings us back from theology to science, for the purpose of yet more accurately defining man's present and prospective place in the scale of being.

We have already spoken of the various types, that is Species, Genera, Orders, etc., of the animal kingdom, as the successive phases of one grand embryonic development, whereof man is the most advanced existing instance, that in which the fundamental idea of a sentient organism attains most nearly to perfection; in other words, he is *absolutely* the most matured type of organic life on the globe, while yet *relatively* he is one of the most immature. All this needs explanation. If we contemplate the great scheme of organic life on the sentient plane in its bipolar relationship to the ponderable and imponderable elements of the universe, we shall soon discover a duplex arrangement of its grander provinces, in perfect correspondence with this established division of its circumambient forces. The grub and the butterfly, the reptile and the bird, the quadrupedal mammal and bipedal man. The one terrestrial, the other aërial in its character and proclivities, in its organisation and equipments; the first emphatically embryonic, the last comparatively mature and finished, *on its own*

especial plane. In the lowest type, the individual worm is found susceptible of transformation into the glorious papilio, the thing of dirt and slime, rising into the creature of beauty and splendour. In the next grade, from the greater complexity and specialisation of the type, this individual transformation (which however is in reality nothing more than normal embryonic development transacted externally and visibly) becomes impossible, and the reptile only emerges into the bird by a change of order.

We may now understand why the mammalia, although occupying a far higher position than that of the bird, are yet inferior to it in respiration and locomotion, and even in that phase of intellectual capacity which is manifested in music. They are but the lower and terrestrial division of their (mammalian) type. Hence they are *wingless*, and not only of the earth earthy in their manner of locomotion, but even in their structure and the attitudes which it necessitates. They are *quadrupedal*, each of their extremities being used solely for locomotion, and as a result, they are *prone* in posture, *parallel* to the earth along their great spinal axis, like the reptiles, to whom their long *serpentine* tail also indicates their relationship of correspondence. Their inferiority to the bird is also manifested in this want of all *specialisation* in their extremities; they have *four* feet, while their aërial predecessor has *two* wings and *two* feet.

Between these prone and quadrupedal mammals and bipedal man we find the *transitional*, and no doubt *perishing* link of the quadrumana, the fourhanded and still imperfectly specialised monkeys, advancing through tailless baboons, and culminating in the anthropoid apes, between whose structure and that of man there are so many points of resemblance, and yet between whose mental endowments and those of humanity there is nevertheless so vast a difference. We fear indeed that this subject is still but imperfectly understood either by the supporters or the opponents of the theory of development. The former dwell with especial force on resemblances, while the latter are equally prone to emphasise differences, and thus, as in the story of the chameleon, both are right and yet both are wrong. Thus, Professor Huxley and his pupils, ignoring those facts in cerebral physiology which attach to specialisation of function in the brain, affect to see little or no inferiority in that of the gorilla to that of man, despite the fourfold magnitude and immeasurably more complex convolutions of the latter. They dwell on basilar similarities and slight coronal diversities; they are great on the instrumentalities for prehension and locomotion, and weak on those which are conducive to a manifestation of thought and principle—a procedure whereof we may safely leave the adjudgment to a more enlightened posterity. But if

some of the more ardent advocates of development, in their zeal for maintaining unbroken continuity, are thus prone to overlook or underestimate diversities, there is no doubt its opponents are equally prone to exaggerate them. It is not indeed until we have fully mastered the idea that man, though originating in the quadrupedal mammalia and transmitted through the quadrumana, is nevertheless the initial type of the new order, that we become capable of fully harmonising the fact of his "ape ancestry" with that of his undeniable moral and intellectual superiority to his brute progenitors. As the germ of a new order, his earlier types would be merely provisional, that is transitional, and so transitory. Nature would be desirous, if we may so phrase it, to emphasise and widen the gulf between him and his inferiors—a process still advancing, and yet far from its predestined completeness; the gradual extinction of the highest quadrumana and the rudest races of men, to the extent probably of the disappearance of anthropoids on the one hand and savages on the other, being obviously a mere question of historic time and circumstance.

While on this subject we may remark, that the diversity between man and the ape doubtless affords adequate data for at least an approximate admeasurement of the age of the former. To even the attempted solution of this problem we are, however, as yet quite incompetent. We have not settled even the width of the gulf, and we are utterly ignorant of the rate of change whereof it is the summation.

The development of the especially human type of organic and sentient existence, consisting fundamentally in a gradually advancing centralisation of the nervous system, and in a corresponding specialisation of structure and function, more especially in the cerebral convolutions, has probably, even in the highest races, not yet fully wrought itself out into external manifestation—that is, has not yet produced its full effect upon the proportion and disposition of the viscera, and on the configuration and arrangement of the limbs and torso, to say nothing of the form of the features and the general physiognomical character and expression of the countenance; in other words, the difference between man and the gorilla s much greater in brain and character than in merely corporeal form and function. The same remark applies indeed with equal force to the various racial types of man himself, the difference in mental endowment between an Australian aborigine and a European settler, being but faintly reflected to an ordinary observer in their general build and colour, though somewhat more perceptible to a competent phrenologist in their cranial contour and temperament. It is the same as between the various castes and even individualities of any one race or nation, whose inner and real, that is psychological diversity, is so imperfectly

represented in their structure, that it demands the trained eye and practised hand of an experienced manipulator to even remotely admeasure the diversities of thought and feeling by which they are nevertheless unmistakably characterised.

And now then, perhaps, we are somewhat prepared to estimate the true position and the relative development of man. He is the beginning of a new *Order*, the bipedal and aërial type of the mammal. But of this, he is, as we have said, obviously an immature, and merely germal specimen. His vascular arrangements are far too powerful in proportion to his muscular, and his alimentary functions are far too potent in proportion to his respiration, for a purely aërial type; the direction, however, in which he is moving is clear. The Negro is predominantly vascular, the Turanian muscular, and the Caucasian nervous in temperament; in other words, man in his higher types is less allied to the ponderable and more intimately related to the imponderable elements than in the lower. He is obviously in the process of emergence, and the only question remaining for discussion is, the stage of development at which he has now arrived.

We have said that man is still immature. Let us now proceed to prove the truth of this assertion. And first, as to his condition at birth, when he is confessedly helpless beyond almost any other creature. So incapable indeed is the baby, that during the earlier months of its existence, the duties of the mother become almost those of a marsupial, her arms being a *quasi* pouch, in which her corporeally and mentally feeble offspring is carried and protected for the first year of its faintly dawning powers. This fact alone is decisive of the question at issue, with judges competent to estimate its significance. To give the unscientific reader, however, some idea of its importance, we may mention that among birds, the young of the *Gallinæ* (hens, pheasants, etc.) can run and eat as soon as they are hatched, and, although not fully fledged, are nevertheless well covered with small feathers; while the young of the *Raptores* (eagles, hawks, etc.) that prey upon them, and are known to be more recent, are born callow, must be fed by their parents, and need the protection of the nest, not only for days but even for weeks after they are hatched. So among mammals, the young of the *Ruminantia* (ox, deer, sheep, etc.) can stand, see, and walk some distance, a few hours after birth; while the young of the *Felidæ* (lion, cat, etc.), or the *Canidæ* (wolf, dog, etc.) are blind and feeble for many days after birth, and demand the most careful maternal attention for many months. But as we have said, it is needless to multiply examples for the competent, while to accumulate them for the incompetent would be useless. Suffice that the principle is admitted, and that man is a notable instance in point.

But man is not only born callow and furless, but he remains so, more especially among the lower races, who are nearly beardless. Yet here again the direction of the line of movement cannot be mistaken. The Negro has no true hair at all; the Turanian has little, except on his head; while the robust and high caste male Caucasian, has not only a flowing beard, but also a hairy chest (the promise of his lion's mane), and is otherwise more or less hirsute over the larger part of his person. It is obvious that nature does not intend him to remain for ever naked. At the next great *racial* development of humanity we may be perfectly certain there will be an increase of vesture, and this, too, at some removes before the *radiant* man is produced.

But the distinctive feature of man as compared with the inferior mammals is in his mental endowments, or speaking anatomically and physiologically, in the development of his nervous system, more especially in the superior portion of the cerebral hemispheres. He was obviously intended to be a perfectly rational and morally responsible creature, a being in whom the animal instincts and passional impulses are to be subjected to the restraints of principle and the direction of intellect; as such, his emergence marks an epoch in telluric development, of which, probably, even the most advanced minds can form no adequate conception. Suffice it that through him earth has now a perpetually divine incarnation, a living consciousness of relationship to the celestial. Through him, as a God-appointed priest, her hills and valleys become vocal with prayer and praise,—creation thus, for the first time, in this telluric sphere, attaining to the possibility of a rational recognition and worship of her creator. Such is man, were the plan on which he is obviously constituted carried out to its appropriate fulfilment. Through the purity and elevation of his moral principles, he is related to the heavenly. Through his higher intellectual faculties, which give him the power of *abstract* thought, he rises above the tyrannical domination of the temporal and phenomenal, and lays hold on the eternal and unchangeable. In him, as we have said, the divine element, which underlies all creation, wakes up into consciousness, and Nature knows herself to be, not a senseless automaton, the mere *mechanism* of her Creator, but his spiritual bride, *vestured* with but not wholly composed of matter, a glorious spirit, draped with suns and crowned with stars, which are however, even at their best, but the casket to the gem—her interior consciousness of a divine life, with all its present dignity and yet sublimer promises, and their assured fulfilment.

Now it is only necessary to place the poor reality of actual manhood beside this picture of the design on which it is modelled, to see

that the result, thus far realised, is a miserable failure. Man, universally in the lower races, and among all commonplace individualities in the higher, is largely instinctive and passional, and very imperfectly under the control of his moral nature; while among all, save a few exceptionally endowed men of genius, the human intellect is still largely on the perceptive, that is phenomenal plane, from which it either never, or only at rare intervals, rises to the sphere of eternal law. Its habitual dwelling is with perishing facts, while it is comparatively, if not wholly, a stranger to immortal principles. But in addition to these high endowments, man was obviously intended to be creative, or if a more accurately definitive term be preferred, recreative. He is the embryo poet and artist; in truth, this is his noblest, because his most nearly godlike function, to evoke order out of chaos, harmony out of discord, and beauty out of deformity. It need scarcely be said to any matured student of theosophy, that he could only do this, or even remotely approach to the doing of it, in virtue of the divinity that is within him. But how few men in any generation are capaple of this! How few and far between are the burning lords of song, or the deathless framers of beauty, on whose immortal productions the ages have set their seal!

Man, then, as he at present exists, is NOT a fulfilment of the divine idea of humanity. He is simply a providential preparation for it. So profoundly was this deep truth felt by the seers and sages of old, that they invented the myth of the fall to account for the lamentable discrepancy which obviously exists between the actual and the ideal man, between the Adamic Son of God in the unsullied perfection of his purity and the undimmed splendour of his powers, and that miserable abortion which meets us in the streets and insults us on the highways of ordinary life. From the standpoint of science, which means *fact*, contemplated *rationally*, that is through the *higher* reason, the aforesaid myth is simply an *inversion*. On the temporal plane, man has not fallen *from* but is rising *to* Adamic perfection. His real fall was and is spiritual, namely, his descent by ordinary birth, out of the eternal into the temporal sphere, out of the spiritual into the material (corporeal) plane of being.

From the foregoing (and were there space, we might enter into yet other aspects of the subject), it must be obvious that man, as he at present exists, is not the fulfilment of a divine idea, but only the *preparation* for it. Like every other creature that has yet appeared on the earth, he constitutes a grade in the scale of being, superior to those which preceded him, but doubtless inferior to those which are to succeed him. As already remarked, he holds a peculiar position, not only as the initial type of a new Order, but from the fact that

that Order is itself contradistinguished from every other by the very important endowments of rationality and moral principle. Hence some writers, like Mr. Burke, have not hesitated to speak of him as the initial type of a new *kingdom*, as distinctly separated from the animal as the latter from the vegetable. But even such writers regard him as *initial*, not *final*.

And what a stupendous vista of progress and possibility is thus opened to our wondering gaze! Man but the unfledged *beginning* of a new Order of being, the callow nestling of the future eagle of the skies; the precursor, and in a sense the progenitor, of earth's manifold types of intelligent being. We use this term *manifold* advisedly. If man be indeed but the initial type of a new Order of being, then, according to our experience of the ways of Nature in all her other provinces, that Order must ultimately develope out into as many genera and species as the one beneath it, and of which it is, in a sense, the celestial or aërial counterpart. This is so as between grubs and butterflies, reptiles and birds, and we can see no sufficient reason why it should be otherwise as between quadrupedal and instinctive mammals and their more effectually specialised and bipedal superiors of the intellectual Order. Thus contemplated, then, we also see that existing man is not the divine idea of humanity in its final form, but only that idea in the process of realisation.

To this conclusion we are also brought by returning to the grander view of his telluric relations, as a vital organ of the earth. This planet, on the development hypothesis, is simply an embryo sun. As such it must be at the least infantile, if not still virtually embryonic in the grade of its development; and if so, then its organs, more especially such an one as we are now considering, cannot fail to present many signs of imperfection and immaturity. Thus contemplated, man, as the initial type of a new Order, correspondent to the nervous, and more especially the cerebral structure, is obviously *germal*.

We have spoken of the earth—man's material habitat—as still infantile, if not embryonic. It is attached to its solar parent, and fed, like any other embryo or suckling, from the parental fount. It is only one of a large brood, and from position most obviously neither the oldest nor the youngest. It is far inferior in complexity of organisation and multiplicity of attachments to Jupiter, Saturn, Uranus, or Neptune. It is still unvestured, and obviously in every way at a long remove from its majority. Now a cosmic cellule so decidedly immature, cannot possibly be the residence of the highest type of organic being. The radiant man will probably need a self-luminous domicile. Everything indicates that suns are the only

appropriate habitat of the mature forms of organic life, they being the only mature cosmic organisms known to us. Planetary life being dependent upon, and, as we have said, probably derivative from them, can only be the appropriate habitat of preparatory forms of life as immature and embryonic as that of the planet on which they reside. Hence the fitness of that arrangement to which we have already alluded, namely the essentially embryonic character of all terrestrial organisms,—that of man, though the most nearly mature (in absolute type, yet one of the most immature in relation to his own order), not excepted.

Thus, then, on the plane of science, we can have no doubt that man is far from manifesting the highest possible type of organic existence. He is only the highest of telluric organisms possible in the *present* condition of the earth. Of the *range* of diversity over which his future species and genera will extend, we may form some remote conception by considering that of insects and birds, as compared with the corresponding range of grubs and reptiles. From this it becomes at once obvious that the aerial type has immeasurably the larger arc of variation, so that we seem justified in concluding that the existing diversity among quadrupedal mammals is as nothing compared with the much greater diversity of type yet to be developed among their bipedal counterparts. It is only, indeed, among the latter that we can expect to find the grander correspondences of the animate scale completed. This perhaps needs some explanation.

As already remarked, the universe is a UNITY, like its divine Author, of whom indeed—with all reverence be it spoken—it is, in a sense, the material reflection cast on the expanse of space under the conditions of time. Hence one fundamental idea runs through all its organisms, repeated and varied however in a thousand ways—a very Proteus, ever the same yet always different. Thus, for example, the genera of birds are repeated in those of beasts. Thus the *felidæ* correspond to the *raptores*, the *canidæ* to the *corvidæ*, the *gallinæ* to the *ruminantia*, etc. Now it has long been remarked by our profounder naturalists that the bestial genera are wanting in many species and varieties which exist in those of birds. Thus, for instance, the *felidæ* are all nocturnal in their habits, and, with the exception of the lion, who is perhaps, after all, but a white owl, correspond not to the magnificent *diurnal raptores*, the eagles, etc., but to their nocturnal congeners, the owls, to whom, with the aforesaid exception, they are also allied by their spots and stripes. So also the *canidæ*, notwithstanding the great variety of the domestic dog, are immeasurably inferior in diversity to the *corvidæ*, who range from the common black crow to the magnificent bird-of-paradise. Now, it is

probable, nay almost scientifically certain, that the animate scale is not yet completed on the plane of the quadrupedal mammals, among whom, however, as a merely terrestrial order, it would be absurd to look for the effective reproduction of typal correspondences, existing only in the aerial order of the duplex grade below them. For such an effective reproduction we must wait till their superior grade has also been fully developed into its aerial types, which we may be sure will quite equal, both in diversity and beauty, the grandest species of the aerial orders beneath it.

We are fully aware that in the foregoing remarks we have, both in our illustrations and reasonings, so far transcended the ordinary range of scientific research and thought, that the general reader can scarcely be expected to follow such gossamer speculations to their far-reaching and somewhat startling conclusions. For his benefit, then, we subjoin a few general reflections on this subject, for the full appreciation of which no especial scientific attainments or philosophic studies are demanded as a needful preparation. We have said that the universe is a grand unity under one aspect, and we may add, that it presents an exhaustless diversity under another. If it did not do so, it would be unworthy of its Divine Author, would fail to be what it is in the process of becoming, the reflection of his thought, the material symbol of himself. Now this diversity in unity is already so far realised in the mineral, vegetable, and animal kingdoms, as to afford us, even from our limited experience on this contracted telluric area, some faint conception of the vast, nay, the *absolutely infinite*, resources of this celestial artist. Now, whether from increasing pliability of material, or perhaps, more correctly, the increasing susceptibility of their ponderable elements to the action of the imponderable forces (which are not only the motor, but the plastic powers of nature), it would seem that, allowing for inferiority in ethnic age and maturity, on the part of the higher orders, the range of diversity, the arc of variation, increases as we ascend in the scale of being. Thus vegetables are more varied than minerals, and animals present a greater diversity of structure and function than vegetables. Now this being so, is it to be supposed that in the highest of all the types of organic being yet manifested on the earth, namely, in thoroughly specialised, bipedal, rational, and moral man, the Creator will permanently fail to leave the full impress of his infinitely artistic power, in the production of that pleasing, because *harmonic*, diversity, which we see already so far advanced among the inferior grades of organic existence? We have used this term HARMONIC advisedly. Let us clearly understand that, in the works of this truly divine Orpheus, there are no *real*, but only *apparent*, discords. The pealing anthems of the morning stars of

creation may present some tremendous, and, indeed, almost deafening crashes, if you be too near the orchestra; but get to the proper distance, and they will all melt into the sweetest symphonies and sublimest marches, the faultless music of the spheres of heaven.

From the general tenor of the foregoing remarks, it will be at once understood, that we do not regard the development hypothesis as in any respect dangerous either to religion or morals. It has, in truth, no more to do with either the one or the other than the Copernican system of astronomy, or the Newtonian theory of gravitation. It is simply a question of science, not of theology. Atheists and theists may equally hold it; the latter rationally, the former irrationally. It is a mere figment of the theological imagination, that it leads to atheism. It stands aloof, as all purely scientific questions do, from doctrine. Whether it be true or false, has to be tested by facts, not dogmas; the matter awaiting decision being its congruity, not with the latter but the former. It would be premature to prognosticate its fortunes. It is more nearly possible now than when proclaimed by Lamarck, because many admitted breaks in the scale of our then known flora and fauna, have been since supplied through the fossil remains revealed by geology, and we may add geographical discovery. It is also more probable, as we now know, that the simpler organisms, as a rule, preceded the more complex, nature steadily advancing through the lapse of time in the specialisation of her types. Evidence is continually accumulating in its favour. Objections to its reception are being gradually removed. Darwin has demonstrated that the real *saltus* from lower to higher takes place, not so much in the organism of the parent, as in the process of generation. While, in his remarks on "the struggle for existence", he has shewn conclusively how the weaker and less adapted types are disposed of and extinguished.

The controversy has, indeed, advanced to such a stage, that it is really of very little importance whether the literal *development* hypothesis be established or not. All the leading facts on which it was based are now admitted; and the only question of importance still waiting decision is, the direct intervention of the Creator in the process of evolution. That the organic world began in germal simplicity, and has advanced by degrees to complexity of structure and specialisation of function, cannot be denied. All that we want to know is, the process by which this was accomplished. And when this principle of gradual evolution in the past, whether by all-pervading law or by a succession of creative fiats, has been admitted, it is simply an unwarranted assumption to assert that it has now ceased. On either hypothesis, we have no reason to suppose that this is less the day of creation than at any former period. There is nothing in either the

telluric or cosmic arrangements around us to indicate a cessation in any of the great processes, which have been in operation for thousands or even millions of years. As regards man, more especially, his indications are rather of acceleration than retardation. Never before did savage races disappear so rapidly as at present; a fact not slightly premonitory of the early appearance of higher types. Our entire experience of nature indicates that one end of the scale could not thus suffer without compensation at the other. It is the same with the larger types of her wild fauna, the lions, leopards, elephants, and tapirs of our vaster spaces of forest. These creatures merely await the reclamation of the wilderness to disappear. And are we to suppose that they will have no successors? Is there anything to indicate that nature is becoming impoverished in the wealth of her forms? in her plastic power over ponderable matter? On the contrary, everything indicates the very reverse of this; for, as the formative power of the mother over her offspring is in proportion to the development of her own nervous system, the mothers, human and brute, of to-day, are far more potent for the production of modified types, than the maternal element of previous geologic eras.

Once more we fall back upon the fundamental idea underlying this whole subject, namely, the earth as a living and growing cosmic organism, and her flora and fauna as specialised organs, for the more effectual discharge of particular functions. Of this, the races and nations of men are a most important department; in truth, as yet the most important. Nor must we, in such a connection, omit their constituent castes and individualities. A glance at society, as it exists in any civilised community, and more especially the complex communities of modern times, may suffice to convince any competent observer that humanity has in it all the elements needed for a stupendous expansion. The range from a dolt to a man of genius —from a porter to a poet—from a peasant to a philosopher, is such as exists in no other species, probably in no other genus. Again, all our experiences of nature, and, we may add, all our knowledge of the congruity ever *finally* established between the inner and the outer, the spiritual and the material, indicate that such discrepancies in mind must conclude in fully proportionate discrepancies of body. While humanity as a whole is *germal*, its special developments will of necessity be imperfect. As a collective organism, it is yet only in the process of specialisation. Most of its members are yet rudimentary. Like all other telluric productions, man, whether contemplated individually or collectively, is still embryonic, his social and organic conditions holding a most profound relation to each other. It is on this account that Negro society is simpler in its structure than that

of the Turanian race, while the social arrangements of the latter are less complex than those of Caucasian nations. But it is time we should conclude. The subject, as the reader may see, is yet far from being exhausted. It is too new and too grand, indeed, for any one man, or any generation of men, to exhaust. The evolution of organic existence involves the entire process of creation; nature herself—that is, the material universe—being but an embryo in the womb of chaos.

We have been led into these reflections by the prevalent tone of religious publications on the subject of anthropology and development, but more especially by a perusal of the *brochure* whose title appears at the head of the present paper. The author has been long and favourably known to the world of metaphysics and theology by his "*à priori* argument for the necessary existence and moral attributes of God," a work in which he manifests an ability for abstract reasoning together with a logical vigour and precision of thought which have unfortunately become somewhat rare in these latter ages of *à posteriori* fact and induction. These letters, then, of Scotland's greatest living dialectician to her most eminent literary divine, are not without significance as indications of the general tone of feeling on the science of man throughout North Britain. Perhaps the following abstract, which forms the conclusion of the introduction, will give our southern readers a clearer idea of the kind and degree of opposition to which anthropology is exposed in Scotland, than anything which we could pen in the way of description:—

"One thing gives me unbounded satisfaction, the reflection, to wit, that as the Rev. George Gilfillan was the first, so he will likely be the last clergyman in Great Britain, who shall, without renouncing his connection with a Christian church, advocate or apologise for the hypothesis adverted to. I mean, of course, the hypothesis which draws one continuous or uninterrupted line—a line, however, always increasing in volume, as it advances through the ages and millions of ages, like the widening of an isosceles triangle proceeding from its apex or vortex—a line, I say, perfectly continuous, with old Father Monad at one end, in the guise of some very simple cell-vessel, or as one of your unaccountable vibrios perhaps; and with man, man *so infinite in faculty*, at the other end. Only conditionally, however, as man is to disappear, to give place to his successor in the line of continuity, and be replaced by some flying creature, bearing a relation to man, like that which the beautiful butterfly, disporting in the beams of the sun, bears to the ugly caterpillar which crawls on the under side of yonder cabbage-blade. Yes, Mr. Gilfillan, as he is the first of the series of Developed Divines (a new sort of D.D.), so he will be the last. The whole line will happily be concentrated in

himself. And it is well for large numbers among our masses of church-goers that the evil should be so early stopped,—that, in fine, it has been nipped in the very bud. Had the folly increased, and run the round of the pulpits occupied by men anxious to show how they are quite on a level with the highest science of the day, the consequences to the unhappy hebdomadal audiences—(too often, like droves of silly sheep, too ready to meekly follow the shepherds)—the consequences might have been most dismally calamitous. In virtue of a see-saw in the development, we might have had a coming generation of reverted creatures, with ever more of the theftuous ape, or lecherous baboon—more of monkeyish cunning, at any rate,—and less and less of the man."

It would thus seem that untrammelled freedom of inquiry as to the origin of man or his place in the scheme of creation, is regarded as forbidden to the ministers, and by implication, therefore, we presume, to the elders and office-bearers of all the Scottish churches still within the pale of orthodoxy. What response they may afford to this demand on their unquestioning obedience we are not prepared to say. Suffice it, that while such ideas are generally prevalent, even among highly-educated and otherwise liberal-minded laymen, it is impossible for their clergy to enjoy that freedom of thought and manly liberty of utterance, which would seem of right the appanage of the scholar and the gentleman.

But not to do injustice to our northern friends, who with that *thoroughness* which is one of their noblest characteristics, deeming anthropological studies, when pursued independently of biblical authority, a source of error, do not hesitate to say so, with a directness from which we softer "Southrons" should perhaps weakly shrink—not, we say, to be too severe upon them as if especial offenders, it must be admitted that there is just now, both north and south of the Border, a decided set of the theological current against anthropology and the hypothesis of development, which, by a strange conglomeration of ideas are apparently regarded as identical. That there are anthropologists who do not believe in development, and advocates of development not especially prone to the study of anthropology—that, in point of fact, the great majority of anthropologists regard any formal inquiry into the *origin* of man as still premature, is even unknown to the outside public and to our theological critics among them. But letting this pass, we may remark that this theological opposition need give us no serious concern. It is nothing new in the history of science. Once it was astronomy, then it was geology, and now it is anthropology which is considered so especially dangerous and objectionable. But we need not fear; time will do for it what it has already accomplished for older and now less reprehensible

branches of investigation, and then it will excite no more doubt as to a clergyman's orthodoxy to find that he admits the possibly remote origin of man by a law of nature, than that he believes the sun to be the centre of the solar system.

THE STRUGGLE OF MAN WITH NATURE.*

An English naturalist, Darwin, has attempted to explain in a very simple way the immense variety of animals and plants surrounding us, as being the result of constant changes in the course of long periods, by the struggle for existence, which causes, that in this struggle that which is imperfect perishes, whilst what is stronger and better survives. Although such an assumption of natural selection is insufficient to explain the gradual progress which natural science must assume in the formation of plants and animals, including man, still it is unquestionably one of the many causes which have effected a gradual development and great variation in all creatures of nature. Life in nature is not so peaceable as the sight of a fine landscape at sunset might lead us to believe. Contest and rivalry prevail universally. Were not the vital force constantly called upon to resist, it would relapse into inactivity. Whatever is to persist must be in motion; the stagnant water becomes a marsh, whilst the violent torrent tolerates no life and carries off rocks.

Not animals only, plants also struggle with each other. Were not the weeds in our gardens being constantly destroyed, the wild growing plants would soon displace our nurselings; thus, the heath and the forest would overspread our acres were they not kept at a proper distance. In primitive forests, creepers surround the mighty trunk, and finally the parasite surrounding it like ivy, embraces only the dead trunk which it has suffocated.

How many plants must perish in order that an animal might live, and how do animals limit their own number! Herbivora become the booty of carnivora, by which the latter become the protectors of the vegetable world; if the carnivora are prevented from increasing, then the number of herbivora multiplies. Every living creature has its enemy. A butterfly causes much destruction in the pine forests, as the caterpillar feeds on the leaves, but upon the birch tree lives its enemy the tailed wasp, which lays its eggs in that caterpillar, in the larvæ of

* Translation of a Lecture, delivered February 1, 1867, at Düsseldorf, by Hermann Schaafhausen.

which the grubs developed from the eggs, after eating away the intestines, become crysalised, in order to reappear as young wasps.

Should man alone stand in creation not exposed to strife and struggle? Who limits him? In most cases he does it himself. Wars and battles are as old as history; man, in fact, rages against his own species as no other animal does. But even the high position man occupies as opposed to nature, and of which he considers himself the chief, is a struggle, a constant labour. In the enjoyment of a high civilisation, in the possession of that mental power, by which he has rendered the mighty forces of nature subservient to his objects—we must not forget the long and laborious path which our species, under obstructions of all kinds, had to pass over until it reached that high stage from which we now look down upon the conquered world. This consideration strengthens the feeling of human power and dignity, that man, although provided by God with the capacity of performing what he has effected, yet that the civilisation which he has reached is his own deed, the work of his own mind.

If any one doubts that human development has progressed in the course of time, the study of any part of human activity, the development of which we can trace, must convince him. The history of language, the progress of natural science, discoveries, and inventions, bear testimony to it. That in countries now inhabited by civilised peoples, savages once housed, whom the ancient historian, as it was thought in exaggeration, described as cannibals, has been recently confirmed by the finds of ancient skulls, rude stone and bone implements, all relics of the past primitive condition of our species. It strikes the student that the picture of the oldest inhabitants of Europe, that we can form from their relics, resembles that given by travellers of still existing savage tribes. We learn that one privileged portion of the human species has advanced in the path of civilisation, whilst others, who are still our brethren, have either, under the pressure of an all-powerful nature, been unable to raise themselves from want and misery; or, living under a luxuriant climate, have given themselves up merely to the gratification of the senses, and lead a life illuminated by only a feeble ray of human reason.

Has Providence indeed distributed her gifts to humanity in so unequal shares? Surely not. But the struggle of man with nature is not attended with equal success. It is as upon the race-course, all strive for the foremost place, which is only afforded to one, and many must lag behind. Many fortunate circumstances must concur before the tender plant of human civilisation can germinate, thrive, and become a stately tree, under the shade of which all people may assemble, even such as have had no share in planting the tree. Justice

is done hereby, so that the civilised man can be, and often has been, the educator and the benefactor of his miserably neglected brother.

In comparing the history of mankind to a mighty stream, political events, which for a long time have alone been considered history, are simply the ripples on the surface, which, when the storm rises, may become towering billows; but that which gives motion to the stream is the never-resting labour of the human mind. What it has effected in liberating man from thousands of chains, which nature has put upon him, will become apparent by the comparison of various degrees of culture, which he has in the course of time successively attained, with those which he still occupies in other parts of the world, and we shall then investigate his life in the different relations in which he stands as opposed to nature.

Man struggles with the elements and with animals; the plant, though it unresistingly affords him nutriment, yet may contain poison which threatens his life; or failure of crops may induce famine. Man further struggles with disease and pestilence, and how much does he labour to escape the inexorable law of nature—death!

Whithersoever we turn our gaze over the great picture of his life, we find man armed against his enemies—here he succumbs, there he is victorious. Nature at first appears like a giant opposed to man. Thunder and lightning, the roar of the tempest, the surf of the sea, will strike the rudest savage with terror: he feels himself to be in the presence of a higher power, which he fears. This fear of God is the first awakening of natural religion; for the knowledge of the goodness of God, the perception of the beneficent effects of nature, is a matured fruit of human thought. All savage peoples believe in evil spirits, who send them diseases and death; and thus the worship of a beneficent God is not found amongst many savages. It does not exist among the Tasmanians, of whom, by the way, one individual only is left;* it is equally wanting among the Mincopies, the savage inhabitants of the Andaman Islands, of whom we only possess information within the last few years. It is said of the lowest tribe of the Bosjesmen in Africa, that they believe thunder to be the voice of an evil demon, on hearing which they creep out of their caves, and reply with curses. Whilst thus the savage curses during a thunderstorm, the agriculturist blesses it, when, after the noisy demonstration of the elements, the floodgates of heaven open, and the fertilising rain pours down after a long drought.

The struggles of man against the gods are subjects of ancient myths, in which natural forces are represented by gods. And the

* "Already, in a few years, we have cleared Van Diemen's Land of every *human* aboriginal."—Knox, p. 230.

belief in a devil sprung up in heathen antiquity, pervading even the Christian period, and which, even amongst civilised nations, has given rise to the burning of witches, is nothing but misconceived nature. When a large block is found upon an extensive plain, none but the devil could have placed it there. But science has taught us that the large stones, the so-called erratic blocks, overlying the whole north-German plain, have been carried away from the glaciers of the Scandinavian mountains by the ice; that they sank to the bottom, which subsequently became dry land. Whenever a sudden pestilence carried off men or cattle, superstition ascribed it to the devil, instead of investigating the causes of the evil and removing them. The savage is still in this condition. The priests of the sun-worshippers of tropical America who, says Scherzer, are at the same time the physicians of the people, press and suck the aching part of the patient for hours; they swear, sigh, and tremble, making all the while the most grotesque gestures, until, at last, they draw from the mouth of the patient a black substance, which they pretend was the devil, who concealed himself in the body and caused the pain.

It must be acknowledged that the growing knowledge of nature is a growing knowledge of God, and that in this sense the kingdom of God is constantly expanding whilst that of the devil is contracting. A man in a higher stage of civilisation recognises a prevailing providence, which in order to preserve the whole destroys a part, so must he admire that divine wisdom, which has so ordained it, that nature should never cease calling forth man's force, which in this struggle and practice acquires new strength. This labour does not merely steel the body, the mind also is developed in this struggle with resisting nature, and the mind is the greatest force of man, it is only to his spirit that nature bends.

The spectacle, how natural forces threaten the life and the possessions of man is as manifold as terrifying. In some cases man is helplessly exposed to destruction; in others he has, with wonderful ingenuity and perseverance, succeeded in protecting himself. The cyclones which devastated India last year have, according to reports from Calcutta, destroyed 60,000 individuals, most of whom were drowned in the rivers. What devastations are caused by inundations and storms! The earth quakes, and in a few moments large cities are in ruins. Lightning may cause a destructive fire, which reduces to ashes huts and palaces; for, as the poet says, "The elements hate man's handiwork."

The savage stands powerless before natural events which the civilised man tries to overcome; but even he, the proud lord of nature, is frequently reminded of his impotence when natural forces

break through appointed boundaries. A few instances may show how man, only by slow degrees, arrives at successfully resisting a mighty natural force, such as that of water.

The North Sea incessantly advances towards the north-western coasts of Europe, threatening to engulph the land. Pliny, the Roman author, speaks of twenty-three islands between Texel and the mouths of the Weser and the Elbe; at present only sixteen of them exist. Already the Cimbri and the Teutons are said to have been driven by inundations from their northern settlements. Migrating to the south, they overran the Roman empire, which finally succumbed to the repeated invasions of the German peoples. The great floods of the thirteenth century are still remembered. Successive inroads of the sea from 1277 to 1287 produced the Dollars Bay in East Friesland, more than fifty villages were thus destroyed. The great Zuyder Zee has a similar origin. Heligoland is diminishing in circumference. At one time it was a large green island, containing seven churches, and had in 1240 three parishes; but whose country is partly below the level of the sea, has learned to construct excellent dykes, for which the Rhenish tarras provides him with good mortar. Well may it be said of him, that he snatches his land from the grasp of the sea; he even recovers what the sea has robbed him of. By means of seventeen steam-engines, the Haarlem lake has been pumped out, and 30,000 acres of land have been recovered, which some years ago already contained one hundred and sixty-four farms, and 5,000 souls. It is also proposed to proceed in the same way in other parts of the country, by which large tracts of land, now submerged, will be laid bare. Venice the magnificent, with its palaces, is built upon piles driven through the mud of the Lagune into the solid clay beneath. A mighty stone dyke, two miles long, 30′ high, 40 to 50′ broad, the Murazzi, the last work of the republic, protects the city from the sea. We know not for certain what may have induced the men of a very remote period to build their habitations on lakes, at the bottom of which we, within the last few years, have found the vestiges of an ancient culture in Switzerland, then in Italy and South Germany. Possibly they did so from fear of wild animals, or not to be surprised by enemies. But, at all events, we must admire the skill with which the pile-works have been constructed, as well as the implements: recollecting that the oldest of the latter belong to a period when the use of metals was unknown. In the Malay Archipelago a similar position has been selected for habitation, as a protection against tropical rain. Thus Venzuela is built on the lagunes of Maracaibo; and the town of Bruni, in Borneo, is also built in that manner. A. v. Humboldt has given a remarkable description of the mode of life

of an Indian tribe on the water. The people of the Gueraunas, on the Orinoko, live during times of inundation, when innumerable animals are destroyed, upon trees, upon which they hang their hammocks, and, covering them with earth, kindle fires in them, to the surprise of the by-passing navigator.

The inundation caused by streams, which the savage tries to escape, has, however, for some civilised peoples become a blessing by fertilising the land. Egypt, formed in part by the alluvium of the Nile, and, as Herodotus said, a present from it, has from the most ancient times ordained its course of life in harmony with this natural event. The whole country is intersected by deep canals, which facilitate the deflux of the waters; but the Nile mud, an excellent manure, according to recent analyses of a French chemist, fertilises to this day the fields, bringing forth plentiful crops. What destruction would not the rapid Po (in its short course from the Alps to the sea, carrying away so much gravel and mud, as annually at its mouth to drive back the sea for 250 feet) have caused, were not its course hemmed in by dykes? The river often flows eight to ten feet above the Lombard plain, which is thus readily watered, and has become the garden of Italy.

We cannot quit these observations without throwing a glance on the development of navigation, a human invention which has recently been greatly improved, and founded man's dominion over the sea.

Even a small rivulet obstructs the path of man; but he contrives to swim over. The animal does the same. Man meditates, and he finds out a better means to cross the water. We see how even the son of the wilderness contrives to make a canoe from a hollow tree; he then adds oar and plaited mat, and by allying himself with one natural force, in order to overcome another force, he sails with the wind against the stream. Still, he does not venture far from the coast into the open sea. At a later period a large ship is constructed, which, with its keel cuts through the water and is moved by the aid of oars, sails, and the helm. But how clumsy are still the ships even of the most civilised peoples of antiquity; of the Egyptians, Greeks, and Romans, the pictures of which we see on the coins, paintings, and sculptures of the ancients. Naval architecture remained for a long time in the same condition. Even among the ships with which Columbus discovered the new world, some had no deck. Navigation, hitherto chiefly confined to the coasts, progressed rapidly in the beginning of the fourteenth century by the introduction of the compass. The magnetic needle, which the Chinese, a thousand years before our era, are said to have used in their transit across the Asiatic steppes, indicates the direction the ship takes even when dark nights hide the light of the

stars. Science has greatly perfected navigation. A seagoing ship is, in fact, an epitome of all our inventions, a practical application of all our knowledge. The observation of the stars shows to navigators the degree of latitude under which he happens to be; the exactly adjusted chronometer gives him the longitude. Upon his chart he finds the direction of the prevalent winds and the gulf-streams indicated. These indications are so important that, profiting by the observations of American and English navigators, the voyage from New York to Europe has latterly been shortened about a fourth, or even a third. And what changes have been produced in navigation by steam! It was in the year 1808 that Fulton built in New York the first steamboat of twenty horse-power, which performed the one hundred and twenty knots from New York to Albany up the river in thirty-two hours. Now we possessed a vessel that, independent of wind and tide, crossed the billows; but this steamer, with its paddle-wheels, was still capable of improvement. The hammering of the paddles upon the water shakes the vessel and impedes the working of the engine; moreover, when the sea is high the paddle-wheels are not equally submerged, one may be high out of, whilst the other is under water. Paddle-wheels are besides exposed to injury, which in a man-of-war is a great drawback. It was then that Smith, an Englishman, proposed the screw for moving the vessel, an idea which had been already mooted by Du Ouet, Bernoulli, Ressel, and Sauvage. In September, 1837, the first screw-steamer made its appearance on a canal. It progressed without noise, no foam of waters on the flanks, nothing but a long circling wave behind the ship betrayed its motion. But the spirit of enterprise in seafaring nations has in other respects improved the art of navigation. England and America rival each other in rapidity of sailing. Stevenson in his yacht made the passage from New York to Liverpool in eight days.

Ships are now built like swimming palaces, with theatres and dancing rooms for five hundred persons, lit up by gas. Such a giant ship loads 18,000 tons, whilst formerly the largest ships were only of 600 tons register. The much admired and now finished *Great Eastern* is 680 feet long, and 87 feet broad. It can, besides her crew, receive three thousand passengers; it has double iron plates, and twenty-four watertight compartments, so that any injury to the ship can only involve a part. The ship crosses the highest waves without any perceptible rolling. It is moved both by paddles and screws. Four steam-engines, each of 1,000 horse power, revolve the paddles, which have a diameter of 56 feet. A fifth engine of 3,000 horse power moves the screw. The ship is intended for the East India trade, and is able to carry coals sufficient for the whole voyage. Although this gigantic structure,

which at this moment is engaged to pay out the Atlantic cable, has not altogether fulfilled expectations, the attempts will not be abandoned, but will probably be improved. The application of iron instead of wood, has rendered such structures possible; iron has also given existence to iron-clads, which for the future, as it seems, are to decide the supremacy on the sea.

Wealth, which trade brings to a seafaring people, is not the only advantage which man derives from his dominion over the element. The ship of the merchant not merely carries goods, it also carries science and art, and every means of civilisation. It carries the naturalist and the missionary to the remotest peoples of the earth, and makes them participate in the treasures of civilisation which ennobles man. And it is not unimportant to bear in mind what the history of all times has taught us, that life on the sea renders peoples free and great, for upon the high sea man is reduced to his own resources; every moment requires presence of mind. Danger does not paralyse but excites the spirit of enterprise, although many a one finds his grave in the sea. But human ingenuity has not only found means of saving life, but for the recovery of goods swallowed up by the sea. Whole ships with their cargoes have thus been raised from rivers and seas, as at Sebastopol and Cronstadt. The diving apparatus has been latterly so much improved, that man can stay and work for hours under water by the light of the electric lamp; and, by these means, rocks are blown up which render navigation dangerous. The dangers of the sea, especially near the coasts, are lessened by the establishment of light-houses, which are now provided with all the contrivances invented by science. The electric light produced by the galvanic current, has been several times employed when it was found requisite to work at night as well as by daylight, as has been done during the erection of new streets in Paris, and at the erection of the Exhibition building, and also during the construction of the bridge over the Rhine at Kehl. The lime light on the beacons, reflected by parabolic mirrors, exceeds that of the brightest stars; and, although its light does not penetrate distances so great, it still is sufficient to guide the ship through rocks and shallows to the safe port.

It is to the honour of our philanthropic age, that arrangements are in progress at all our European coasts to assist the wrecked. It forms a contrast to the treatment which the shipwrecked have to expect on the inhospitable coasts inhabited by savages. As late as 1858, it happened that some hundreds of shipwrecked Chinese, on one of the South Sea islands, Rossel, were killed and eaten by the natives. The good effected by the establishment of life-boat stations is great. According to a recent Report, published by the Danish government,

1,302 lives have been saved on the Danish coasts since 1851. In 1860 alone, two hundred were thus rescued. From the last Report of the Life-Boat Institution, founded in England in 1824, it appears that, from 1824 to 1863, not less than 13,568 lives have been saved, frequently under the greatest dangers, owing to the high seas and hurricanes. Out of 714, 417 were in 1863 saved by the life-boats of the society, and £1,308 were voted to other boats, by which the remainder were rescued. The arrangements are so admirable, that hitherto none of the crew of a life-boat have perished. Peak's life-boat, being at the same time light, strong, and self-righting, has during the last fifteen years maintained its reputation. Where a boat cannot approach, use is made of the rocket apparatus, by which a rope is thrown to the foundering ship, and the crew rescued by means of a gliding basket. Similar establishments have latterly been founded on the coasts of East Friesland, Hamburg, Bremen, and more are in course of formation.

The destruction of human life caused by the sea may be computed from the reports of a single country. In 1853, there perished on the coasts and rivers of Great Britain and Ireland not less than 989 human beings, by the foundering of 832 vessels. In 1863, the ship-wrecks on the English coast amounted to 1,602, when 568 lives were lost. It must, however, be recollected that 300,000 ships annually enter the ports of Great Britain. Mishaps on the sea also become rarer, as by the aid of the telegraph the occurrence of storms is predicted. Storm-signals are now given on both the English and the North German coasts. Though man cannot secure his life, he has contrived means to secure himself against the loss of his property. This is the fundamental idea of assurance offices, by which we are protected from losses by water, fire, hail, and lightning. Not that any of these natural forces are resisted by the insurance offices, but they simply afford compensation for damage. As our own death may leave others helpless, we have, by insuring our own life, the power of mitigating the lot of those we leave behind.

Perhaps more dreadful and unconquerable than in the element of water, nature appears to us in the element of fire. The highest god of the Greeks, Zeus, sends down lightning and thunder; the eagle hovering in the clouds, holding the lightning in its claw, is still the symbol of royal power. And, nevertheless, man learned to protect his house from the kindling stroke, which, now powerless and obeying man's will, sinks along the conductor into the earth. And yet, although the volcanic eruptions terrify mankind, burying their cities under lava streams, devastating their fields; despite the destructive power of this element, the fire that Prometheus stole from heaven,

the fire guarded by vestals, and which is still worshipped by the Persians, is to man more a beneficent than a destructive force. The fire on the hearth was to the ancients already a picture of domestic felicity; and what would human life be without the manifold uses of fire? The savage may procure it from a tree struck by lightning, or by friction of inflammable materials. In Virgil's *Æneid*, Achates strikes sparks from the flint. The facility with which we obtain this indispensable force, that furnishes us with light, cooks our victuals, melts our metals, by means of an insignificant box of lucifers, is significative of the present state of our civilisation. According to Stuart, the Southern Australians rub dry grass between two wooden sticks to make a fire. Such a proceeding is unknown to the northern tribes; who, therefore, keep the fire up, and should it by some accident be extinguished, they undertake long journeys in order to recover it from some other tribe.

Water and fire are the forces which have produced the greatest effects on nature. They have, either by deposits or by upheavals, given shape to the surface of the earth, and are still constantly at work. Moisture and heat are the most important conditions of organic life. The force which enables man to perform the most stupendous works, namely, steam, is nothing else than water transformed into air by the agency of fire. The neatly constructed locomotive engine running upon our railroads, this snorting fire-horse, does the work of three hundred steeds. What does not steam perform for us? It pumps water, drives ships, draws waggons, paints, spins, weaves, forges, hammers and rolls, presses, ploughs, sows, and reaps. The steam-engines of England and Ireland represent a muscular force of ten millions of men, or two millions of horses. Could as many horses be employed? A horse requires eight times as much land as a man for its nourishment; but, as engines are used instead of horses, it follows that sixteen millions of men more can be fed.

We are in the habit of ascribing certain inventions to certain men; but often it was a mere happy addition, by which they improved what others had long prepared for them. It is in the mental as in the corporeal world, nothing exists all at once; from a small beginning grows a whale. Just as the more perfect plants and animals require a longer time for their development, so the fruits of the human mind require centuries ere they come to maturity. The invention of the steam-engine by James Watt in 1769, was preceded by various attempts to use steam as a motor force, by such men as Blasco de Garay, Salomon de Caux, whom Richelieu sent to Bicêtre as being insane, by Worcester, Papin, Savery. The engine of the latter was improved by Newcomen, and after him by the boy Potter, who turned stop-cocks, who

contrived by attaching cords and catches to admit and cut off the steam. Watt further improved it by adding the condenser and regulator. The first steam-engines were employed to raise water from the mines. In the year 1778, Cugnot constructed the first locomotive, to run on common roads. It was then used on tramways. Blackett and Stephenson then demonstrated that a smooth wheel can run on smooth rails. Seguin diminished the size of the boiler; Pelletar increased the draught by conducting the used-up steam into the chimney. By degrees the consumption of coals was diminished by one-half. It was ascertained that steam produced by higher pressure assumes greater expansive force, and this led to the invention of the high-pressure engine. It was once thought that railroads could only be made on plains, and that they must run straight. At present the locomotive crosses the Alps, and runs in curves. Thus there is a constant progressive improvement in all human doings. Are there limits beyond which we cannot pass? That much yet remains to be done, may be inferred from the fact that even in our best engines coal is still wasted; for, according to W. Armstrong, in these engines one pound of coal produces a force which in a minute raises a million of pounds one foot, whilst from calculation ten millions of pounds ought to be raised. But suppose the supply of coal should fail us, is there another force to supplant that of steam? Perhaps electric force, or we may succeed by a simple process in decomposing water, and use its hydrogen for combustion. Ericsen has employed heated air, and Lenoir gas, as motor forces. In England, parcels and letters are despatched by condensed air.

Let us glance at another spectacle, which presents man's struggle with the animal and vegetable world. In the history of our race, we find first, man in combat with animals—a hunting life is the first stage of man's culture. This is followed by a pastoral life; after which he becomes an agriculturist, and rears plants for his nourishment. He acquires a fixed settlement, trade and industry, art and science, succeed each other; and man finally, by mental labour, reaches the highest step in civilisation, which looks out for higher objects.

The dangerous arts of the beast-tamers, which now surprise us, show the great power possessed by man over the largest and most savage beasts of prey. Even in ancient times, at the beginning of history, man issued victorious from this struggle. We hear of a Nimrod, who was a mighty hunter before the Lord, who cleared the land from wild beasts; of Hercules, who strangled the lion. Of the deeds of the heroes of our own country, whose whole life must have been in remote ages a struggle with the mighty mammals, the bones of

which are found intermingled with human implements, we possess no documents singing their praise; and yet they probably killed the last mammoth, and tamed the wild cattle. They performed the most difficult part of culture, a gigantic work for which our muscular force is scarcely adequate. The Nibelungenlied (speaking of the urus), the wisent, the elk, and the grim "Schelch", speak of a much later period. It has only lately been admitted that the wild beasts have had their share in the education of the human species. The struggle of man with beasts has essentially contributed to the development of man's physical force and beauty; it has called forth his courage and bravery. Asia, the home of lions and tigers, has first given rise to mighty peoples. The African Negroes, among whom the lion is at home, are the most powerful of savages. The Americans, compared with these peoples, seem a much weaker species, as their fights with the puma and the jaguar, the much smaller carnivora of the New World, are less apt to call forth their physical forces. Finally, the Australians, a decaying stock, had in their country no large animals dangerous to them; when Cook found them, they even did not know how to hunt the kangaroo. Man can tame all animals. Hyænas have been described as untameable; but in the oasis of Cordofan they are domesticated like the dog. The old Indians rode on the backs of lions and leopards; they still train small tigers for hunting. Frederic Barbarossa kept some which sat behind the horseman, and leaped down upon an animal on a given sign. Some North American Indian tribes hunt with trained wolves. The taming of some of our domestic animals, which certainly have not been created as such, as has been asserted, seems to have been the labour of thousands of years; for the nature of the wild beast has been almost entirely changed. The wild horse of the South Russian steppes is so savage that it seems almost impossible to tame it. The horse was but very gradually trained for our use. The pictures of Persepolis show no horsemen; even in Rome horses are only used to draw chariots for battle. Cyrus, the Persian king, first introduced horsemanship; but the tradition of Centaurs indicates that there may have been horsemen in ancient Thracia. Although at the time of Moses horses existed in Egypt, yet the Egyptians are not upon the Egyptian monuments represented on horseback, but their enemies, the Arabs and Indians, are so pictured. The finest and noblest race, according to our notions, the Arabian horse, is only the produce of the great and long continued care bestowed upon the breeding of the animal, which is, in fact, his companion in the tent of the Arab. Domestic animals have also their history. Upon an old Egyptian picture the ram is employed in tilling the land, and it is only within a few centuries that the horse has commenced supplanting the ox at the plough.

The large beasts of the forest first disappear before man; either because they are more dangerous, or because, requiring most food, they limit the supply requisite for the support of man. Thus the elephant of Northern Africa, which Hannibal led with his army over the Alps, has entirely disappeared from that part since the end of the fourth century, although lion and tiger hunting was in the Roman period an imperial privilege. Thus the bear has disappeared from Germany, where, for a long time, he was looked upon as the largest hunting animal, and styled in the old songs the king of beasts. The aurochs would long have become extinct in Europe had not the Russian government protected a herd in the Beutowitz forest. The Ibenhorst forest is the only one in Germany where the elk, the last of which was in 1746 shot in Saxony, still exists. The free chase in 1848 has almost exterminated the herd, numbering about four to five hundred. In 1858 the number again amounted to from eighty to one hundred heads. Even the whales, in the capture of which almost all seafaring people are engaged, have diminished in number, and must now be pursued in more distant regions. To the destruction of this largest of all animals the wrongly so-called weaker sex have much contributed. Blubber and whalebone are the most valuable articles of the animal. The price of the latter has greatly risen in consequence of its consumption for making stays; and if it had been used for making crinolines, whales would soon become extinct. The physical force which man wants in this unequal struggle he supplies by craft and skill. To lead large animals into traps in order to kill them is even the work of the weakly savage. Cunning and craft are used both by cultured and uncultured peoples. The Esquimaux, disguised in the skin of a seal, approach the animals lying on the shore, and kill them unaware. Abdel Kader tells us that the Arab approaches the ostrich disguised in the skin of that large bird, and succeeds in killing it. Even the most advanced art still invents new methods to overreach animals. Angle fishing has become more productive and more entertaining since the predilection of the various kinds of fishes for different insects and worms has been ascertained, so that these are artificially produced to serve as baits. In the absence of the requisite physical force to overcome the beast, nature offers another means—poison. The Indians on the Amazon river kill animals by arrows poisoned with curare, a kind of chase, which is also indulged in by Europeans travelling in these parts, and which singularly enough is not unknown among the natives of Borneo, as well as in the Himalaya mountains. This dreadful poison does not render the flesh of these animals unfit for food, and is in these countries as much an article of trade as gunpowder is amongst us. The period of preparing this poison is one of festivity just as the vintage time with us.

This battling against beasts imparts to people a feeling of self-reliance; the deeds are sung in poems and illustrated by art. Animals from all countries were collected in the Roman arenas, and attended the triumphal processions, by which the Romans acquired the consciousness that they ruled the world. Hundreds of lions, panthers, ostriches, crocodiles, giraffes, bears, and wild boars were destroyed in the circus. Even from England were exported auroxen, elks, and dogs for the use of the Roman circus. The dogs were, on account of their savageness, transported in iron cages. Passionately is the Spaniard still attached to his bull-fights, a remnant of the spectacles of the Roman circus. How soon before the progress of culture wild beasts disappear is shown by England, where, on account of its insular position, access from foreign ports was impossible. In 1680 the last wolf was shot in Scotland, where a century before wolf-hunts took place. The fox, which from its wariness frequently escapes, has, for the amusement of fox-hunters, several times been imported from France. Moreover the fox is merely hunted, not shot. Since the introduction of guns hunting animals are much more liable to destruction. If we did not protect the game in our fields and forests by sparing them during fixed periods, and by game licenses, they would soon become extinct. But some arrangements have only become requisite by the increase of the population and the progress of culture. It was only in the year 1856 that in Russia by an imperial ukase, it was forbidden, in consequence of the great diminution of game, to hunt in the governments of St. Petersburgh, Novogorod, and Pskow, from the 1st of March to June 13th. But that luxuriant and abundant nature, despite the exterminating wars of man, preserves animal life in many instances, is shown by the herring fishing, which is so extensive that the Dutch alone cure above two thousand millions. No diminution of their number has yet been observed, They come in shoals five to six English miles long, and two to three miles broad, often so close that a spear thrown upon the mass remains upright. There seems to be an increase in the number of wild elephants in India; for only last year the English government was called upon to adopt measures for their destruction in some parts of Ceylon, where they caused great devastations. And yet one hunter alone has killed more than 1,400 elephants, and in England such a quantity of ivory is worked that for its supply 8,333 elephants must be destroyed. One portion of the ivory in trade is derived from the teeth of the antediluvian mammoth found in Siberia.

Unfortunately we see the descendants of civilised peoples, when engaged in the struggle with the vegetable and animal world in regions where they form settlements, relapsing into barbarism. They

not merely exterminate the wild beasts, but also the savages who defend their hunting grounds. The Spaniards in America hunted the native Indians with bloodhounds, just as in our days the runaway slaves are tracked in North America. The natives were shot down like wild beasts in Texas, California, South Africa, and Australia. Collins states that an otherwise respectable man at the Cape assured him that within six years he and his people had captured and partly killed more than 3,200 Bushmen.

It would not be just to speak only of the large animals which attack man, and not of the smaller creatures which are a great plague to him and from which he is less able to protect himself. Man cannot effect much against caterpillars and field-mice, when they appear in large numbers. His only comfort is that these creatures appearing, from as yet recondite causes, periodically in prodigious numbers, they disappear as suddenly. Owls and sparrow-hawks, which we have nearly exterminated, and other smaller birds which we destroy, would have better limited the devastations caused by those small animals than any means devised by man. Southern countries are more exposed to such visitations; Asia Minor, Egypt, and Hungary have suffered much from locust swarms. In 1748 they also devastated several parts of Germany, and of Southern Russia. But their appearance is not everywhere looked upon as a misfortune. In the east, as well as in Chili and in the Philippines, they are eaten, and Livingstone says they are a blessing for some districts of South Africa, where animal food is scarce. One of the most dangerous animals to human culture would be the large white ant if it should spread amongst us, having already once found its way into the magazines of Rochefort. It destroys every vegetable substance, neither papers nor books can be protected from the termites; and it is stated that for this reason no manuscript can be found in India older than three hundred years. All kinds of wooden structures, such as beams, tables, and implements, are within a short time hollowed out by them; but, as they leave the outside uninjured, the internal destruction is not perceived until the whole is accomplished. The minute animal world even pursues us on the sea. There we have the ship-worm destroying the wooden walls, which we try to protect by saturating the wood with creasote or by copper-plating. This species of worm causes so much damage that the Dutch government has lately called upon naturalists to more accurately investigate the mode of life of this animal so as to render it less noxious.

When man goes into battle with animals he frequently makes an ally of such as he has domesticated either for his alimentation or for labour. To some rude peoples certain animals are more indispensable than domestic animals are to us. The Lapp could not exist in the north

without the reindeer; but a man with a small family must, according to C. Brook, possess two hundred reindeer to make the two ends meet. In summer he must leave the interior of Finland with his herds for the coast, because of the gad-fly which torments his herd. The Canadian in a snow-storm is only saved by his little dogs, which rapidly draw his sledge across the icy surface. With the swiftness of an arrow he drives through the frigid solitude, where, as in tropical deserts, thirst torments him, for snow does not quench it. Hence travellers carry kettles with them to melt the snow. If he is obliged to pass the night in the open air, he buries himself deep in the snow, his gun by his side, his dogs above him, they keep him warm, and protect him from wolves. The Tebu-nomad could not cross the Sahara without the camel, the ship of the desert. It can run twenty miles within an hour; neither does the rider on its high back feel the great heat reflected from the soil. The dromedary can live nine days without water, which it smells at a distance of three miles, and of which it can imbibe thirty quarts at once.

On passing from the animal to the vegetable world, we see man, though not exactly battling, yet working hard to derive from plants nutriment, clothing, and fuel. He also prepares from them weapons, implements, habitations, medicines, poison, and intoxicating liquors. Vegetable food and agriculture give rise to milder dispositions than animal food and a hunting life. Cotton is much more extensively used than the wool of animals; and whilst the existing forests provide us with wood, the buried forests of the past furnish the still more valuable coal. Man has as much changed the surface of countries by his influence on the vegetable world as by his dominion over animals. He clears the primitive forests, and sows cereals as he extirpates wild animals in order to graze his flock. He forces the soil to greater productiveness; but he may exhaust it, unless he finds means of compensation. Man may deteriorate the climate, and lessen the fertility of a whole region if he proceeds recklessly and clears the hills of all forests. In Switzerland it was found necessary by laws to protect the forests. They obstruct the lavines from the mountain slopes, they are a protection against the cold winds, so that fruits and cereals can better thrive on the elevated land. Under Frederick William I, the forest which covered the low ground between Pillau and Danzig was cut down for some financial reason. It realised two hundred thousand dollars; but now millions would be given if it were still existing; for the bay is filling up with sand. The destruction of the forest in Moldavia by Russian invasions has exposed that country to north-east winds, and changed many formerly fertile districts into steppes. How frequently have famines shown the dependence of man on the products

of the fields. Although the population of Europe may be double of what it is, we need scarcely much fear a famine on account of the great variety of nutritious plants now cultivated and from the increasing facility of intercourse. Where nature refuses the soil man creates one. The Phœnicians crushed the rocks of Malta, as do the Chinese now in their country to fertilise the ground; where, on account of drought, no grass can grow, man raises water from the depth. The French have in the Eastern Sahara between 1856 and 1860 dug not less than fifty artesian wells, and planted thirty thousand palm trees. When the Arabs saw this, they, who gladly renounce a nomadic life when they can settle near date-palms, fell on their knees and worshipped and called the wells "wells of peace." We also bore for wells to provide large cities. The well of Grenelles yields 5,000 cubic metres in twenty-four hours; that of Passy, 25,000; these 30,000 cubic metres, taking the population of Paris at 1,200,000 souls, furnish 25 litres to each inhabitant.

Whilst the existence of the vegetable world thus forms an indispensable basis for human culture; there are, nevertheless, minute scarcely perceptible plants which can destoy the prospects of whole countries, and even threaten the health and lives of men and animals. They effect this by becoming the causes of disease, such as the potato- and the grape-fungus.

Since 1852 the grape fungus has caused such devastation that Madeira, which formerly exported fifteen millions of bottles, exports scarcely any since 1865, so that the sugar-cane is now being cultivated, although hopes are entertained to import at some future time new vines from Cyprus. Recent researches have shown that microscopic animal life may be the cause of noxious phenomena. Liquids and aliments become corrupt by fermentation and putrefaction. Fungi appear in the former, monads in the latter. Vibriones are found in the blood of scabby sheep. Trichinasis in the swine threaten the life of man. Thus this man, who extirpates the primitive forests and the largest beasts of prey, is nearly helpless in the presence of microscopic creatures, which cause such devastations not by their strength but by their number and their great productiveness.

It is remarkable that also among the larger plants those which oppose us are mostly those of an imperfect species. Thus we try to protect our roofs and walls from mosses and lichens, and the wood from fungi. In hot zones the luxuriant growth of the vegetable world constantly, and with gigantic force, tends to the destruction of man's work. In Central America the ruins of mighty cities have after a few centuries been overwhelmed by vegetation; in fact, buried under it; and they have thus disappeared even more rapidly than the peoples who built them.

We also struggle with numerous diseases and pestilences, formerly looked upon as divine chastisements. No doubt medical science may benefit the individual affected, but taken on the whole medical science, as statistics show, has hitherto had no perceptible influence on mortality. Physicians stand helplessly before wide-spreading pestilences. We see them come, grow, and attain a climax, and then decline, and finally disappear like other natural phenomena. There is one formidable disease which, although the medical art has not been able to destroy, yet has greatly mitigated, namely, the small-pox. Of all the homages done to the noble Jenner, to whom Parliament has awarded £30,000 as a benefactor to mankind, the message from five savage Indian tribes who had suffered from the pestilence may have been most acceptable to him. We also owe to medical science the knowledge that many of these diseases are owing to causes which it is in our power to obviate. A German physician who has travelled over the globe for the purpose of investigating the causes of epidemics, says: Pestilences are not exactly the creations of nature, man himself has contributed to produce them. The large cities, over-populated and in misery and dirt, corrupting the air and the water,—these are the breeding places of contagious and deadly poisons.

We gladly turn from such lamentable pictures, the dark shades of which even the bright light of our civilisation cannot remove.

The strongest limits set by nature to human activity, by which all that we have done always lags far behind what we intended to do, are space and time. The dominion of man over nature has, indeed, not annihilated time and space as we are accustomed to boast, but it has greatly reduced them. Into what immense distances does not man penetrate, and what is time when we send our thought around the globe by the electric wire? The prediction of Fichte is near its fulfilment, who said, "When everything useful that is found in one end of the world is immediately communicated to all men, then will humanity, uninterruptedly without rest or retrogression with united power, rise to a development of which we at present have scarcely any notion." A New York paper lately said: we travel by steam, we paint with light, and write with lightning; how many other wonders does not man work!

Man in his balloon rises 34,000 feet in the air, 5,000 feet higher than the highest mountain on the globe. He casts his plumb-line 50,000 feet into the sea, and brings up the ooze. He weighs the earth, and finds that it weighs fourteen quadrillions of pounds. By the spectroscope he recognises the materials in the photosphere of the sun at a distance of 20,000 geographical miles. He fuses flint, lead, and potash, and produces a lens by which he discovers both the wonders of

the starry world and those of minute microscopic life. With improved instruments he is able to determine $\frac{1}{1000}$ degree of heat, to measure $\frac{1}{1000}$ line, to weigh $\frac{1}{10000}$ gramme. From coal-tar he prepares the most splendid colours; from shavings, brandy. He blasts rocks by means of gun-cotton; he builds machines which work better and more rapidly than human hands. But is not all science a struggle for liberty, a struggle with nature, in order to take from her what she would deny us, and to reveal to us what she has concealed from us. Whatever man knows, whatever he produces, whatever is noble in his breast, all this is merely acquired by labour; for the workings of nature are done in secret. The inert matter resists the formative power of man, and the necessities of the body always draw our senses downwards.

We have seen man in his struggle with the elements of nature, with animals and plants; but that enlightenment of our intellect by science struggling for truth, the representation of the beautiful which glorifies reality by art, and finally the moral force which subdues passion and rude instinct—these constitute the noblest victories of man over nature.

ON A HUMAN JAW FROM THE CAVE OF LA NAULETTE, NEAR DINANT, BELGIUM.

By C. CARTER BLAKE, Esq., F.G.S., Hon. Fellow of the Anthropological Society of London; Foreign Associate Anthrop. Socs. of Paris, Spain, and Moscow.

In the autumn of 1866, the Council of the Anthropological Society confided to me a mission to the Wallon district of Belgium, to investigate in co-operation with our energetic Local Secretary at Brussels, Mr. John Jones, F.G.S., the recent excavations made by Dr. Edouard Dupont, of Dinant. My report on this subject, comprising minute details of the geology of prehistoric archæology of the district, was read before the Anthropological Society on Nov. 20th last, and has been passed for insertion in the *Memoirs* of the Society. As in the meanwhile great interest has been excited with reference to the jaw from La Naulette; and, as its more or less simious character has attracted great attention, I have, with the sanction of the Council and Publication Committee, been permitted to publish that portion of the memoir which relates to the Naulette jaw in the present form, without waiting for the publication of the next volume of *Memoirs*.

Jaw from the Trou de la Naulette.—The most interesting specimen which has been derived from the Belgian bone caves is the jaw which was found in the Trou de la Naulette, not far from the little village of Chaleux, and also on the south side of the river opposite the Trou de l'Hyène. Dr. Dupont has read before the Belgian Academy a description of this jaw in detail, which contains an account of the particular circumstances under which it was found. In a future memoir, a detailed section will be given of the geological conditions presented in the Trou de la Naulette, and of the strata found therein. It is for this reason that at present I do not offer a section, merely premising the fact that it was found in undisturbed lehm, or limon fluviatile, at a depth of about three metres and a-half from the surface, in a deposit of greyish yellow sandy clay, which also contained remains of *Elephas primigenius* and *Rhinoceros tichorhinus*. This sandy clay is perfectly stratified, and above the spot where the jaw was found are two layers of stalagmite, which alternate with other equally stratified beds of clay. With the jaw was also found a human ulna, and a fragment of reindeer bone, which apparently has been bored by some sharp instrument. Two human teeth were subsequently discovered, one of which fits the alveolus of the canine tooth in the jaw; and another, which was probably an upper incisor. Each of these teeth affords striking and remarkable characters unusual in mankind, and each will be described by M. Dupont at the proper time. I am most anxious not, by any premature publication, to deprive that accomplished observer and generous *savant* from the just honour due to him for his valuable researches.

The first character which strikes the observer is undoubtedly the very slight resemblance which it bears to the jaws found by M. Dupont in the Trou de Frontal; the second is the resemblance which it also bears to the jaw of the Australian. In the words of an anonymous writer (*Reader*, July 28, 1866) :—

"Compared with the extremely 'brachycephalic' jaws which have been discovered in the caves of Arcis-sur-Aube, and from various prehistoric deposits in the south of France, this jaw represents the extreme term of a series, the other end of which is exhibited by the lowest members respectively of the Lapp and Australian races. By the quinqueracinate mode of implantation of its third true molar, by the enormous size of the canines, by the absence of any chin, by the absence of genial tubercles, by the great symphysial beak-shaped degree of prognathism which it exhibits, it affords characters which, though they may be present in different individuals of the lower races of man, have never hitherto been found united in any single specimen."

These, therefore, are the apparent characters; and it behoves us to

inquire how far they are essentially indicative of peculiar racial type, or how far they are characters which naturally come within the limits of individual variation. To do this, the jaws accessible to me in the Museum of Natural History at Paris were carefully examined and measured. The comparison that follows represents the results afforded by the examination of more than three thousand human jaws, in which I was kindly assisted by the illustrious French anthropologist, M. Pruner-Bey. The resemblance which prevails between it and certain typical "brachycephalic" jaws shall be first discussed.

The characters of the "brachycephalic" jaw* have been thoroughly worked out by my friend M. Pruner-Bey. He has placed at my disposal the principal conclusions to which he has arrived, and I am happy to say that in the main they accord very closely with those to which I have myself been led, while preparing materials for a memoir on "the form of the lower jaw in the Races of Men." This memoir I have not yet been able to lay before the Society.

M. Pruner-Bey well pointed out to me the characteristic forms which the jaw so frequently adopts amongst brachycephalic individuals. There are three several forms. One is exemplified in the jaw of a Croat in the collection of the Anthropological Society of London. Here the front of the jaw is produced forward in such a way that the mentum is almost quadrangular. The genial tubercles are large; and deep depressions extend immediately in front of the dentary foramen. I propose to call this the "eurygonic" type, from *ευρυς* and *γωνια*.

The second form is presented in a Wendic skull also in our museum. In this type, which may be called "mesepicentric," from *μεσος*, *επι*, and *κεντρον*, the mental process is much centrally elevated, a gentle ridge or elevation extending downwards from between the two central incisors to the chin; this elevation gradually becoming larger as it descends.

The third form is that which is presented by the jaws from Arcis-sur-Aube, and by that from the Trou de la Naulette. This type, in which the chin is not at all developed, may be called the "agonic" type, from *a*, privative, and *γωνια*. The mesepicentric form is frequently found in dolichocephalic skulls. The eurygonic and agonic, to my knowledge, never.

Amongst the largest series of brachycephalic skulls, we find these types of jaw widely spread over the whole area occupied by the nations who have been called *brachycephali prognathic*, by Retzius. M. Dupont has figured the most striking examples of the agonic type in his memoir, where it will be observed that the jaw from Arcis presents the essential characters afforded by the jaw from the Trou de la Naulette, although to a far less extent.

* This "Hibernism" must be permitted.

In a comparison of the jaw from the Naulette with typical human jaws, I propose to divide my remarks as follows:—1. Measurement; 2. Alveolar curve; 3. Dentition; 4. Symphysis; 5. Chin; 6. Conclusions.

In instituting a series of measurements of the Naulette jaw, I have thought it only necessary in the present case to give comparisons with a jaw from the Trou de Frontal (reindeer period) with a brachycephalic jaw from Hyères (closely resembling the celebrated Moulin-Quignon jaw), with three brachycephali of existing Eastern European races—a Croat, a Wend, and a (female) Masure, with an Australian jaw belonging to a debased individual of the tectocephalic type, with the jaw of a male English Northumbrian brachycephale from Alnmouth, and with the jaw of a recently living Englishman ("Celtic" type of M. Pruner-Bey), from Milcote, near Stratford-on-Avon. The following are the results.

Table of Measurements (Mandibular) in Millimètres

	Height of chin outside.	Ht. of jaw under first premolar.	Ht. of jaw under third molar.	Dist. of dental foramen from lower border.	Dist. of dental foramen from alveolar line.	Dist. of dental foramen from centre of chin.	Thickness of jaw at chin.
Trou de la Naulette	33	26	23	13	13	31	15*
—— **du frontal**	28	25	23	13	12	37	12
From Hyères	29	30	25	15	18	30	11
Croat.....	27	26	23	13	14	28	14
Wend	28	27	22	11	14	27	15
Masure.....	28	21	22	12	13	23	13
Australian	30	29	27	15	17	34	14
Alnmouth.....	27	25	25	14	13	27	16
Stratford	36	34	28	15	19	31	14

* It must not be forgotten that there are no genial tubercles.

Table of Measurements (Dental) in Millimètres.

	Total length of incisors outside.	Total length of incisors inside.	Length of premolar outside.	Length of premolars inside.	Length of molars outside.	Length of molars inside.	Length of premolar 1.	Length of premolar 2.	Length of molar 1.	Length of molar 2.	Length of molar 3.	Breadth of molar 3.
Trou de la Naulette	22	17	18	14	34	30	7	9	10	12	14	7
—— du frontal ...	19	17	14	12	—	—	8	6	11	11	—	—
From Hyères.....	18	16	12	12	—	—	8	6	11	10	—	—
Croat	18	17	13	13	27	27	7	7	—	9	10	—
Wend	19	17	13	12	31	29	7	6	12	10	9	8
Masure	21	17	13	12	—	—	6	—	9	10	—	—
Australian	20	17	14	13	36	33	7	7	12	11	11	9
Alnmouth	10	16	12	11	29	28	5	6	10	9	9	8
Stratford	17	16	11	10	30	29	5	5	10	9	8	8

The first character which strikes the observer is the perfect accord-

ance of the curve which the lower border of the jaw makes with the same curve in the jaw from the Trou de Frontal and the great dissimilarity which it presents with the curve of the Celtic jaw and of the Australian. This character alone, when distinctly conceived, would be entirely decisive against the hypothesis of the "pithecoid" nature of the jaw; inasmuch as not even in the young anthropoid ape, wherein the jaw presents a more equable curve than in the adult, does the curve of the lower border in the slightest way resemble that of the homologous structure in man.

Dentition. It is a source of great regret that when the jaw was discovered no teeth were in place. Since the discovery, however, an incisor and a canine tooth have been found, which present peculiar characters. As, however, M. Dupont has not yet described these, I forbear to publish any account thereof.

The characters of the dentition in the existing races of men have been well and thoroughly described, both in the "Odontography" of Professor Owen and in Dr. Webb's "Teeth in Man and the Anthropoid Apes." I shall cite from the latter work, which unfortunately is not in general circulation, a few passages, before proceeding to point out the characters afforded by the dentition, as evinced by the alveolar condition in the jaw from the Trou de la Naulette.

I first give the characters of the jaw in the leading types of anthropoid apes: "In the lower jaw, the three molar teeth of the gorilla are equal in size; in the chimpanzee they are nearly equal, the first being only slightly larger than the last. The implantation of these teeth resembles that in the human subject, except in the fact that the two roots of the second and third are never found connate in the gorilla and chimpanzee."—(*Loc. cit.*, p. 34.)

"In man, on the contrary, this bifurcation is most apparent in the third molar. As in the upper jaw the last-named tooth (the third molar) is the smallest of the true grinders, each molar is implanted by an anterior and a posterior sub-compressed fang, which are grooved along their opposed sides. It is not uncommon to find these fangs more or less connate in the second and third teeth of the series."—(*Loc. cit.*, page 33.)

"It is usual in melanous races to find the third molar in both jaws relatively larger than in Europeans, and, as we have already noticed, the fangs are most commonly distinct."—(*Loc. cit.*, page 40.)

"Professor Owen has observed, that in the melanous varieties generally the true molars are of large size, and that the fangs of the wisdom and penultimate molars are not as a rule connate or conjoined. This he finds generally to obtain, although it is most remarkable and constant in the Australian variety. The truth of this observation is not for a moment to be disputed, albeit we meet with exceptions which prove it not to be a ground of specific distinction, and as such it is not advanced by Professor Owen himself. But in

these, the lowest races of Africa, we do not find the molar series attaining a remarkable size. In the skull of our female Bosjesman we have examined, the three molars present (the dentes sapientiæ, upper jaw, were not in place) were of moderate size; neither they nor the pre-molars differed from the usual standard."—(*Loc. cit.*, page 39.)

"In the negro, the true molars are usually of large size, generally larger than in the European; the dentes sapientiæ, although smaller than the other molars, are, in the majority of instances, of greater relative and actual dimensions, and the fangs of the last-named teeth are usually distinct in both jaws."—(*Loc. cit.*, page 41.)

"We have ascertained by measurement that the antero-posterior dimensions of the true molar series in the upper jaw in eighteen negro skulls, varied one inch one-and-a-half lines to one inch four lines, the former measurement being less than is frequently attained by the same series in the civilised races. A similar result has been elicited by the admeasurement of the true molar series in the lower jaw. To show how the dimensions of the grinding teeth vary even in individuals of the same stock, we may state that we have before us, at the time of writing, three lower jaws of Anglo-Saxons, for the possession of which we are indebted to an eminent archæologist, the late Secretary to the Society of Antiquaries. In one of these the fore and aft measurement of the true molar series is one inch one-and-a-half lines, in another one inch three-and-a-half lines, in the third one inch four lines. We have seen the last-named measurement exceeded in only one African jaw; in it the lower true molar teeth measured from before backwards one inch five lines."—(*Loc cit.*, page 42.)

Dr. Webb goes on to observe: "Dr. Lund, a Danish geologist, who professes to have discovered fossil human skeletons in the Brazilian bone caves, characterises the incisor teeth of the fossils as having the upper surface oval, and of longer antero-posterior than transverse diameter. On the supposition that he has not been mistaken as to the human character of the remains in question, it is most probable that he has fallen into a similar error with Blumenbach, in confounding the worn with the natural condition. Such a configuration of the unworn incisor teeth is not to be found in any known tribe of Indians: neither, as far as our information reaches, has it been discovered in any accredited skulls of extinct races."—(Page 54.)

"The dentes sapientiæ, which of all human teeth are subject to the greatest variety, are usually in the Malayo-Polynesian of typical proportions; that is to say, they are considerably smaller than the penultimates. Differences in the complexity of their implantation are of constant occurrence. In many instances they are inserted by distinct fangs, whilst occasionally the fangs of the third molars may be found as connate as is most usual in the Celt and Saxon."—(*Loc. cit.*, page 46.)

"In the skull of a native of Erromanga, an island of the western division of the New Hebrides, preserved in the Osteological Department of the British Museum, we observed that the fore and aft measurement of the lower molar series was only one inch one-and-a-

half lines, whilst in the upper jaw the same measurement was one inch one line."—(*Loc. cit.*, page 52.)

"The dimensions of the true molar series vary in Australian crania, not only in the length of the entire series, but in the breadth of the individual teeth. In twelve Australian skulls we found the antero-posterior measurement of the true molar series in the upper jaw to range from one inch two lines to one inch four lines; in five lower jaws we found the same series measuring from one inch two-and-a-half lines to one inch five lines in length."—(*Loc. cit.*, page 49.)

"Now in the West Coast African negro, the true molar series of the upper jaw occasionally attains the length of one inch four lines, that of the lower jaw one inch five lines, in both cases equalling the extreme longitudinal measurement in the Australian. In the skulls of an Affghan, a Hindoo, a New Zealander, an American Indian of the Chinook tribe, a Patagonian, an Indian of Tierra del Fuego, and in an early English skull, the fore and aft measurement of the same series in the upper jaw was one inch three lines respectively: in the lower jaw of the Affghan it was one inch four lines; and in the Chinook Indian mandible one inch four and-a-half lines. It will be observed, that these measurements are all greater than the minimum noticed in the Australian. The greatest antero-posterior measurement of the true grinders we have noted, is in the lower jaw of an Englishman, of abnormal stature, in the Museum of the Royal College of Surgeons: it is one inch six lines."—(*Loc. cit.*, page 50.)

"The fore and aft measurement of the upper true molar series in the white races we have found to vary from one inch half line to one inch three lines; the lower, from one inch one-and-a-half lines to one inch four lines. The maximum in both cases has been obtained from crania of early inhabitants of this island. The greatest diminution of the third molars that has occurred to us has existed in modern English skulls. A complex implantation of the wisdom tooth is the exception; but as an exception it is not very rare."—(*Loc. cit.*, p. 56.)

Such being the characters presented in the principal races of men, I shall now proceed to describe the condition of the alveoli of the present jaw. The incisor teeth form an equable curve, which differentiate them strongly from the deep conically fanged canine. The socket of the first premolar, rounded and compressed from side to side, is nearly parallel to that of the canine; the socket of the second premolar is turned slightly outwards, especially in its posterior position. The first and second premolars both exhibit the normal European implantation by one fang; and the canine, so far as can be judged from the alveolar, exhibits the prevalence of the same law.

The first true molar has a squared socket, prominently and distinctly divided into two well marked fangs; the interval between which has been greater than customary in normal European lower jaws.

The second molar has also been implanted by two fangs, the an-

terior of which has perhaps shown a slight tendency to bifurcation. Its level in the alveoli is a little below that of the first molar, but there is every reason to believe that it was fully developed during life.

The third molar, the most remarkable of all, is much rounded in its posterior, and slightly angular at its anterior corners, forming outwardly, inwardly, and backwardly a quasi-circular arc. Traces are distinctly visible on the original specimen, as well as (though to a less extent) on the cast of the implantation of the tooth by three fangs into this alveolus. The internal side of the alveolus, on its anterior corner, exhibits a smoother surface, terrace-like in form, which extends around a part of its periphery. A similar condition has been noticed in several Australian jaws.

In a typical Australian jaw in the collection of the Anthropological Society, the implantation is functionally and definitely by two fangs, the anterior one having a tendency itself to bifurcate. In the other Australian skulls which I have seen, I have never yet seen any tendency to bifurcation.

The socket of the third molar, unlike its homologue in most Australian skulls, is much larger than that which contained the second molar; a similar condition is, however, presented in an Australian jaw in the British Museum. This character, however, is extremely unusual; and in this respect, as well as in the complex implantation of the third molar tooth, the jaw before us presents an exaggeration of the Australian type.

Turning to the symphysis, the first character which strikes the observer is the enormous deposit of bone, which, filling up the symphysical cavity immediately above the fossa which contains the sublingual gland, has left a bony terrace, traces of which are to be observed on the internal face of the jaw, so far back as the first premolar tooth. In the young orang (*Simia Morio*) this shelf-like structure occupies the same space, and is bounded by the same limits. This, at first sight the most strikingly simious character in the jaw, has struck all the observers who have previously seen it. Careful and diligent comparisons with the jaws of Europeans, Australians, and Esquimaux, have failed to afford me examples of a similar case. Its great and apparent resemblance with the homologous structure in the jaw of orang may lead to conclusions which bear out the "pithecoid" theory; but when we reflect that the character is purely adaptive, and that the relative and absolute great thickness of the jaw at its symphysis originates this shelf-like structure, which is solely caused by the great deposit of osseous matter around the site of the genial tubercles, a lesson of caution is impressed on us.

The mental prominence is not developed; in this respect according

with, though exaggerating the peculiarities of the jaw from Arcis sur Aube (also coeval with rhinoceros and hyæna). It will be exceedingly difficult to match this amongst any jaws either of the white or black races of man; at least, I have not yet been able to find a similar specimen. When the jaw rests upon its lower border, a vertical line let fall from the point between the two middle incisors touches the ground 4 *mm.* in front of the chin; in a well-formed European jaw, it is 12 *mm.* behind the chin; in an Australian jaw, it is 2 *mm.* behind it.

I now have to consider the variations, if any, afforded by the points for insertion of muscles on this jaw. It must always prove a source of extreme regret that the ascending ramus was broken away by some abrupt force, which has also shattered the dextral half of the jaw immediately behind the first premolar. On the left side the ascending ramus has been also broken away, but sufficient portion of it remains for us to say with certainty that the masseter muscle was not excessively marked on it. None of the muscles, in fact, have excessively pronounced points of insertion, a character which may lead to the inference that the individual was a female. This attributed character is further corroborated when we examine the close general resemblances which it presents to the jaw of the female Masure above measured. The external oblique line is not strongly marked. The mental foramen is situated in the centre of the point of attachment of the *depressor anguli oris*, instead of, as is most usual, being slightly above. In this character, as well as in the general obscuration of the external oblique line, the specimen accords more nearly with the Australian than with the European type. The insertions of the *levator menti* and *platysma myoides* do not exhibit any special characters. Turning to the internal surface of the jaw, the digastric muscle has left remarkably deep insertions, exceeding in character and depth those presented in any jaws I have yet examined. The tubercles for the attachment of the *genio-hyoideus* and *genio-hyo-glossus* muscles are absent. Their place is filled by an irregular elevation. Gray observes, "Sometimes the tubercles on each side are blended into one, or they all unite into an irregular eminence of bone, or nothing but an irregularity may be seen on the surface of the bone of this part" (page 62). The mylohyoid ridge is strongly marked; it is largest and thickest immediately above the digastric fossa. The mylohyoid groove has been normal; the mylohyoid ridge shelving strongly above it near the attachment of the *superior constrictor* muscle. The fossa for the submaxillary gland has not been deep.

Such, therefore, are the chief characters afforded by the above jaw. Many diverse opinions will probably be expressed respecting its affinity. Its undoubted resemblance to the jaw of a young ape I shall not ven-

ture to deny; nevertheless, I shall not attempt to offer any theory respecting the mental or social status of the individual, or of his or her complexion, stature, or probable appearance. In the present state of the case, we have not all the materials before us. I have intentionally refrained from stating all the characters which some of the other remains present, as M. Dupont will adequately describe them elsewhere. At present I shall merely propound the following conclusions, based solely upon the evidence I have laid before you.

1. That the deposit of stratified *limon fluviatile* under stalagmite, in the Trou de la Naulette, was due to the action of slowly operating causes.

2. That the individual whose jaw was found therein was contemporary with the elephant and rhinoceros, whose remains are embedded under like conditions.

3. That some of the characters afforded by the jaw indicate a resemblance to jaws of the Slavonic peoples of Eastern Europe, as especially exemplified by the Masures and Wends.

4. That the above character affords a distinction between the remains found in the Trou de la Naulette and those found in the Trou de Frontal, which contained during the reindeer period individuals strongly resembling the Calmucks of the present day.

5. That some of the characters indicate a strong resemblance to, and exaggeration of, the characters afforded by the melanian races of men, and especially the Australian.

PHENOMENA OF THE HIGHER CIVILISATION

TRACEABLE TO A RUDIMENTAL ORIGIN AMONG SAVAGE TRIBES.

By EDWARD B. TYLOR, Esq., F.A.S.L., F.R.G.S.

MEN have so long felt an interest in the character and habits of their own kind, they have so long practically acknowledged that nothing human is alien to themselves, that we are rich in information as to savages and peoples whose condition lies between that of savages and our own. But the positive value of this information is only now of late years beginning to be apprehended. It is only of late that we have begun to see how much a knowledge of the lower races is capable of giving us besides a mass of entertaining details and quaint stories for our amusement, and beside the means of completing the picture of mankind by taking in both its higher and lower developments. We are beginning to see that over and above all this, the study of the lower races is capable of furnishing most important knowledge about

ourselves, about our own habits, customs, laws, principles, prejudices, —and that this knowledge is, to a great extent, of a kind that we should have found it much more difficult to obtain had there not happened to exist a mass of tribes on the earth at a lower condition of life than ourselves, and records collected in past times of many more such peoples who no longer exist to be studied, for they have been swept off the earth as an incumbrance by other occupiers of the land, or enslaved, or mixed, or civilised out of their earlier and ruder state.

There are few audiences before whom such a subject as this, of the study of the lower races to explain the condition of the higher, can be brought forward with more chance of enticing new workers in this field than a section of the British Association. It is not my purpose to go at length into the details of this study, which would be far too wide a task, nor even to sketch it in outline; but to take a few examples from different departments of the subject, with the view of showing how in one branch of knowledge after another the lower races are capable of showing us in actual existence the state of culture out of which much of our own civilisation has developed itself so far that we live in the midst of it with ideas of its nature widely changed from those of the early time from which we inherited it, or simply with no ideas at all of what it means.

To begin with a branch, which is, perhaps, longest and best known, the stories of uncivilised races about their gods and heroes, cosmogonies, transformations, and origins, show us the mythologic stage which underlies the poetry and religion of the Greeks and other nations, from among whom the highest modern civilisation has grown. This stage is not only represented by its effects as inherited from past times, as it is in Homer. The very savages who live at our own day show us living and walking men whose mythologic thought and life corresponds in a great measure with that of the early myth-makers of our own Aryan race. Sir George Grey's *Polynesian Mythology*, for instance, will set before us the description of the great events of nature with only the thinnest veil of personification, just enough to show how such stories pass more and more into tales of gods and heroes, whose origin and attributes grow more and more indistinct, as one story-teller after another works up with new flourishes and graces the old familiar tales.

We have two primeval ancestors, a father and a mother, says the New Zealand myth. They are rangi and papa, heaven and earth. The earth, out of which all things are produced, is our mother; the protecting and overruling heaven is our father. Once upon a time the heaven was much closer to the earth, and their children took counsel

how to thrust it up. The god and father of cultivated food, Rongo-na-tane, tried to force up the heaven, but he was not strong enough. Then the god and father of uncultivated food, of fish, and of men, tried; but again in vain, till at last there arose Tane-Mahuta, the father of the forest trees. He set his head against his mother, the earth, he raised his feet and pushed against his father, the sky, and strained his back and limbs with mighty effort; and so he rent apart rangi and papa, forcing the earth down from beneath him, while he pushed up the sky above. What can be more transparent than this story, which embodies the insignificance of the little food-plants and the wild vegetables and men; while the forest tree thrusts its head, which is its root, against its mother earth, and pushing with its high trunk, rests its feet, which are its branches, against the clouds, and holds them apart from the earth below. Like so many imagined histories of times long past, the New Zealand mythology is, in great part, really the record of the very events which happen day after day before our eyes in the growing of the forests, the rising and setting of the sun, the battles of the winds and clouds. It goes on through one department of nature after another, telling us, under the same transparent veil of personification, how the god of winds sent his four sons to the four quarters of the world; they are the north, south, east and west winds—how the children of the fish god separated, and some went inland to be the fish of rivers and lakes, and some took up their abode in the ocean, and so forth.

It has been well said, I think, by Grote, that the mythologic history of the Greeks is the history of a past which was never present. But in another sense, much of it, much of the tales of gods and heroes is the history of a past which is ever present, the history of the daily life of nature before our eyes, only put into dim personification and assuming a claim to a historical significance which has only arisen from a profound misunderstanding of its real nature. Now it is a great thing to find the spirit of the mythology to which the world owes so much of its poetry, its philosophy, even of its religion, alive in actual being among us, and ready to be studied. But we shall find that not only the spirit, but the very details of mythology, such as in a different stage have been taken up into the classical stories of Greece, are often to be found among the lower races now, scarcely removed from the original state in which they were first engendered in the mind. The great sun myth, for instance, which recent researches have shown to have had so great an influence in shaping the higher mythologies of India, Greece, and Scandinavia is admirably represented from the contemplation of nature in an early stage of its growth among the Polynesians, and the Indians of North and South America. I will bring for-

ward one case, partly because I believe it to be new, partly because it shows in what minute details modern savage life may illustrate the later grown mythology of ancient Europe.

One of the great events of the voyage of the ship *Argo* was the passage of the Symplegades. There were two rocks which alternately opened and shut with a swift and violent collision, and between them, by the assistance of Athene, who held the rocks asunder for a moment as they shot through, the good ship passed. Now what can have put into the mind of the story-teller this strange idea? That it is not a record of real fact, that it is of no use to look through the maps for the two rocks, which, as the story relates, ceased to open and shut when the *Argo* had passed through, any modern mythologist would acknowledge. But how did the idea of such a thing enter the mind of the myth maker? To call it a quaint poet's fancy is easy but not satisfactory. The more ancient thought and savage thought are studied, the less will students be disposed to take as an explanation of the story the reply that it is a quaint fancy, for the more these things are looked into the more it appears that even the quaintest stories have an origin in something intelligible and definite; that they grew up by processes which are quite intelligible even now. The story of the Symplegades, as it is told in the *Voyage of the Argo*, is a fragment of a myth transplanted with many other wonders into the great Argonautic fable; and if we knew nothing more about it than we learn from its existence there, its meaning and origin would probably have ever remained dark to us. But if we turn to Eastern Asia we shall find the Symplegades no longer an isolated and unintelligible fragment, but a part and feature of the great sun myth. We know, in the first place, that the conception of the night as a huge monster which swallows up the evening sun, is a wide-spread and familiar one. *Evening* in Sanskrit is rajanîmukha, the "mouth of night". What this "mouth of night" which swallows up the sun may be like, with what jaws it is furnished, two Eastern peoples will tell us. Mani is the sun-god of Polynesia—he is among the fullest and most consistent bearers of the sun-myth to be found in the world. Mani is the sun, and the night is his great ancestress, Hine-nui-te, "goddess of the night." Of course she is his ancestress, for the night is the mother or producer of the sun, as well as his destroyer. Mani was told, as he approached the end of his brilliant career, that he would be conquered by his great ancestress Hine-nui-ti-po, whom you may see flashing, and as it were opening and shutting there where the horizon meets the sky. Her teeth are hard and sharp like pieces of obsidian, and her hair like the tangles of long sea-weed, and her mouth is like that of a barracuda. Mani undertook the venture, and, had he succeeded in getting into her

mouth and coming out again, she would have died and he would have lived. But as he went in she awoke and killed him, and then death came into the world, for she is the goddess of death; and had Mani passed safely through her no man would have died.

For a further description of the jaws of night we may go to the Karians of Burmah, who tell us that at the west are two massive strata of rocks continually opening and shutting, and there the sun goes in at sunset. "At the opening and shutting of the western gates of rocks thou goest in between; thou goest below the earth when the sun travels." Perhaps the most striking coincidence between these stories and the Argonautic tale is that in both, the first event is to determine the future course; yet this feature is not servilely copied, but the same idea is worked out in two converse ways. If Mani got through he would come out again at the other side and live, and the jaws of death would no more close on mankind;—if the *Argo* got through the Symplegades, they would remain for ever open for others. The *Argo* passed through, and the rocks stayed fixed open for ever; but Mani was caught, and the reign of the goddess of night and death began.

That fragments of what was once a consistent conception of mythology often survive to be taken up into future stories as mere isolated wonder-tales, is well-known. This history of the Symplegades seems to be such an incident, only explicable when we can find it in its place as a feature of a large and consistent mythological system. Such another case is the story of the great floating tortoise which the sailors mistake for an island, and land upon, and which, irritated by their digging into its back or making fires on it, plunges down into the sea. When we meet with this story isolated as in the Arabian nights, we can only treat it as another quaint fancy of the myth-maker, but an acquaintance with the cosmogony of the lower races explains it and throws it into its place at once. To a modern Polynesian, as to so many ancient races, the world he lives in is a flat plain surmounted by a vaulted roof or heaven. The idea is precisely expressed by comparing it to a dish with a dish-cover placed upon it, and equally well by calling it a tortoise, the flat under shell of which is explained in the Indian books to be the earth, while the arched upper shell is the heaven. And thus we have the wide-spread and ancient myth of the world tortoise which lies floating on the ocean; and thus when we find the idea on a smaller scale reduced to the dimensions of a mere floating tortoise-island, we recognise what was once and is now in other regions a thorough characteristic piece of the cosmogony of the lower races, reduced to a mere tale by story-tellers, whose fancy was taken by an idea the real origin and meaning of which was lost to them.

In using our records of the lower civilisation to explain the pheno-

mena of the higher, there is one plain rule above all things to be observed. When we find an opinion or a practice among the higher races which they can only explain by saying that it is a tradition, a ceremony, or an instinct, but which is not clearly explicable by the circumstances among which it is found; and then, when among a lower race we find the same opinion or practice having an intelligible meaning or a practical purpose belonging to their state of mind, we are justified in thinking that we have traced these things to near their origin. To do this is to look through seeming nonsense till we find a solid basis of sense, and past investigation proves that we may continually succeed in such search.

If we make ourselves familiar with the state of thought among lower races, if we can see with their eyes, and judge by their canons of reasoning, we shall find many things full of sense and purpose to them which it would be far more difficult to explain from the point of view of higher races, among whom similar phenomena are to be found. I will take as instances two of the great religious practices of the world, found in most known times and places—the rites of sacrifice and fasting.

What meaning and intention is applied to these rites in periods of high culture we know perfectly well. They are partly held as ceremonies or ordinances to be practised because enjoined upon men, and partly as producing an effect on the mind of the worshipper who places himself under a discipline of privation or suffering. But if we turn to study the same rites among the lower races, we shall see them in a new light—we shall find them done for what, to the mind of these people, are perfectly direct and matter-of-fact purposes. We shall find a state of thought under which it is as practical and straightforward a thing to burn or bury a sacrificial offering for a spirit, as it is to pay a debt or give a present to a living man, and as practical and significant a proceeding to fast as to eat. A modern European, who holds that he has a soul, but that even his horse or dog has not, must transport himself into an entirely different philosophical atmosphere when he begins to study savages. He will find then that not only men and dogs, and horses and birds, but even trees and corn, fruit, hatchets, and spears and boats have souls. When a man dies, his soul, which is an impalpable, usually invisible something, goes away like his body, somewhere into a future life. Therefore the slaves or wives who have attended him when he was alive, must go and attend him still, and they are, therefore, killed that their souls may follow his soul. And in precisely the same way, and for precisely the same reason, the horse and the dog are killed that their souls may go to serve their master; the corpse, the clothes, the bow and arrow, the pipe and pouch are burnt, buried, or abandoned, with the distinct understanding that

their souls or spirits are to go for the use of the spirits of the deceased. Thus, among the Indians of North America, fishing and boating tribes bury their dead with canoe and paddles ready to launch in the next world; the dead man's soul accompanies the soul of his canoe, with the souls of the paddle and the fishing spear within his grasp. Or if he belongs to a hunting tribe he will have his bow and arrow, his gun, or his horse, ready for his soul to mount in the happy hunting-grounds of the next world. It would be quite tedious to give a detailed account of these funereal rites—the lower races who do not practise them are the exception, not the rule. We find sacrificed for the use of the deceased every part of his possessions, wives, slaves, relatives, horses, house, food, weapons, boats, clothes, ornaments, provisions for the journey, the dog to guide the dead along the difficult road to the other world, the coin to pay the ferry over the gulf which separates this life from the next, or for the toll to pass the heaven-bridge. And there is not the least break in the purpose for which these things are sacrificed—it is not that the wives or slaves are sent to accompany the dead, and the horses, canoes, or weapons destroyed for some other purpose. The philosophy of the lower races is distinct and unbroken throughout; when the slave or the horse, or the bow and arrow are burnt to ascend in smoke to the sky, or buried to rot in the ground, the souls of these things are sent to follow the soul of their possessor. The wife of Eukrates comes back for her slipper. It had been left behind a wardrobe, and thus not burnt with her other things, and so she was in the other world without it. So the ghost of Melissa appeared shivering to her husband, for her clothes had not been burnt for her to wear in the other life. So in the East of our own times the native of the Sulu Archipelago buys for a great price the criminal condemned to death, that he may kill him himself and so secure the service of his soul as a slave to his own in the next existence; and so the soul of the Emperor of Cochin-China is provided with every article of furniture and luxury which belonged to him when alive, and is sent to him by burning it after his death, while supplies of food go on being prepared for him as usual for his spiritual sustenance.

When we find that in parts of South America these practices actually stop the rise of civilisation, because when a man dies everything he has, house, trees, weapons, all must be sent after him, and so accumulation of property is impossible—or when we find it specified among the customs of some North American tribes that the polished stones or bowls used in the national game are the property of the community, and so are exempted from being buried with the dead like other things; we may gain some idea of the strength of this opinion as exemplified in thousands of recorded accounts from early

and late times in most distant portions of the world. The sacrifice to the dead is, indeed, the leading branch of sacrifice among the lower races.

We follow it up into symbolism and ceremony at last, after the manner of rites in general, when they are taken up into the religion of the more advanced races.

We are all familiar with the silvered paper dollars, the paper clothes and presents which the Chinese burn with their dead; and the like transition from practical purpose to fading symbolism is well marked in the offerings to the dead kept up as a mere ceremony at Rome, in the models of toys and ornaments in early Christian graves, and the flowers thrown into graves or hung in garlands above them in our own times.

But sacrifice to other spiritual beings, to elves, wood-spirits, gods inferior or superior, is conducted in the same way and on the same principle as that to the spirits of the dead; though it is, perhaps, oftener found passed into a ceremonial ordinance among the higher races than as a matter of practical purpose among the lower. Yet we shall find no distinct demarcation between the souls of the dead, who are held to become spirits, demons, or gods, and spiritual beings in general; and we may find just the same explanation of the intention of sacrifice laid down with reference to them as to the ghosts. The Chinaman sets out his feast of the dead, waits awhile till the ghosts have eaten their fill of the soul food, and then falls to himself on the corpse. Exactly so the Fijian sets out feasts to satisfy the enormous hunger of his gods; but they are spiritual beings, and what they eat is not the visible substance of the food, but its soul which is capable of separating from it. So a sacrifice of meat and rice is set out by the Rajmahal tribes under a tent, and when the god has had time to eat his fill the worshippers uncover the tent and eat the rest themselves. This is, indeed, a most common practice throughout the world, that when an offering has been made to a god the worshippers themselves may feast on it; and this idea is perfectly reasonable when we understand the theory of souls to which it belongs.

Thus we may see among the lower races that the rite of sacrifice is not the ceremonial observance, or even the act of abnegation, that it is among the higher races who have carried it on into their religious system; but a plain and practical action done to produce what is, to their state of opinion, a plain and practical result—that of giving to the ghosts of the dead, or other spiritual beings the spirits of men animals and things acceptable to them, just as they would give a gift to a living man, or pay tribute to a king.

With the philosophy of these lower races we find associated another

widely spread rite. To the savage philosopher the whole world is swarming with spiritual beings. Every man and animal has a separable soul which can go out and come back—everything has its spirit as well as its body—every tree and river, and star and wind is animated by a presiding spirit, which is not necessarily always resident in it, but comes and goes. These spirits are mostly invisible to him in his waking hours, but in his dreams he can see them far apart from where their material bodies are: either the spirits of men and things come to visit him, or his own spirit goes forth from his body and sees them. He lives among those spiritual beings in a way which only a few modern Europeans can at all realize, he goes to them for information as to what he is to do, and for knowledge as to what has been and is. And especially when he desires to hold intercourse with the spirit world, he has learnt by experience to adopt a practice which infallibly brings him into their presence—he goes for a time without food. In a short time he becomes what we should call "light-headed," and begins to see visions. When he has stayed long enough in this spiritual company, he eats, and returns to the ordinary state of a waking man. I will quote one or two accounts of this proceeding to remove all doubt as to whether this is the real purpose of savage fasting. The following details were taken down by Schoolcraft, perhaps the best authority on the habits and opinions of the North American Indians, from the mouth of an Algonquin chief:—

"Chingwauk began by saying that the ancient Indians made a great merit of fasting. They fasted sometimes six or seven days, till both their bodies and minds became free and light, which prepared them to dream. The object of the ancient seers was to dream of the sun; as it was believed that such a dream would enable them to see everything on the earth. And by fasting long and thinking much on the subject, they generally succeeded. Fasts and dreams were at first attempted at an early age. What a young man sees and experiences during these dreams and fasts, is adopted by him as truth, and it becomes a principle to regulate his future life. He relies for success on these revelations. If he has been much favoured in his fasts, and the people believe that he has the art of looking into futurity, the path is open to the highest honours. The prophet, he continued, begins to try his powers in secret, with only one assistant, whose testimony is necessary should he succeed. As he goes on, he puts down the figures of his dreams or revelations, by symbols on bark, or other material, till a whole winter is sometimes passed in pursuing the subject, and he thus has a record of his principal revelations. If what he predicts is verified, the assistant mentions it, and the record is then appealed to as proof of his prophetic power and skill. Time increases his fame. His Ke-kee-wins, or records, are finally shown to the old people who meet together and consult upon them, for the whole nation believe in these revelations. They in the end give their approval, and declare that he

is gifted as a prophet—is inspired with wisdom, and is fit to lead the opinions of the nation. Such he concluded was the ancient custom, and the celebrated old war-captains rose to their power in this manner."

In many North American tribes every man takes to himself a guardian spirit, generally some animal. And the way he finds out what animal is to be his guardian spirit, his medium, as we often call it, is to fast till it appears to him in vision. In like manner Charlevoix tells us of the practice of making children fast while the fathers are away on hunting expeditions, for they then see in dreams the souls of the animals, and divine what has happened.

In like manner we are told of the Abipones of South America, how their conjurors fast for days till they come into a state in which they seem to see into futurity. To the Hindoo mind nothing is better known than the art of bringing on religious ecstacy and supernatural knowledge, and communication with the higher powers by fasting; and the practice is known as a rite in many higher religions. In Islam, for instance, it is a strongly-marked feature; but the great fast belonged to the time before Mohammed, and was only continued by him.

Nor is the purpose for which it is practised by the North Americans or the Hindoos entirely changed;—its effects in producing mental exaltation and supposed communication with supernatural beings are still to some degree acknowledged, or at least acted upon in Europe. Its great adversary, under whose persistent attacks it is, indeed, losing its influence, is the doctor, whose system teaches him to treat what the American Indian believes to be a state of intercourse with supernatural beings, as a morbid state of mind removable by proper food. In like manner, when he finds a civilized patient seeing visions and holding intercourse with spirits, he prescribes good food and amusement, port wine and tonics. But this new state of opinion does not alter the fact that to mankind in a lower state of culture the practice of fasting is a most intelligible and matter-of-fact proceeding. An Indian goes without food that he may see spirits, with as distinct a purpose as when he eats to satisfy his hunger.

Another of the sets of practices which, prevailing widely in different states of culture, find their ready and direct explanation in the child-like mental state of the savage, is magic. Such of its proceedings as still exist among us are mere remnants of the more serious arts of ancient times, though with, perhaps, a larger proportion of mere knavery. The astrology of Zadkiel's Almanac does not appear to me to differ from the old rules; the ordeal of the key and bible is very old and widely-spread; country people still make a heart and run

pins into it to hurt the heart of some person with whom they choose to associate it, as any savage might do. But in the mind even of the modern savage these things take a different position. To his mind they are perfectly intelligible; they belong to a crude and early system of philosophy, out of which he has not grown. His theory of ideas is something much more and deeper than ours; he has arrived at the knowledge that an idea is something belonging to an object, and thence he reasons, as we have learnt not to do, that what influences the idea in his mind acts in a corresponding way on the object out of it.

If a New Zealand war-party wish to know who of them will fall in battle, they set up a stick for each, and the owner of the stick which falls will fall too. The ordeal of the key and bible is perfectly understood by the lower races, who commonly have some plan of picking out an offender which acts on just the same principle, as, for instance, the suspended sickle of the Khonds of Orissa.

There is in the world a widely spread belief that men with tails exist and are a lower kind of men, and we have an account of a South American tribe, at whose marriages it was customary for the father of bridegroom or bride to chop a piece of wood, by which symbolic proceeding he was supposed to remove the tails of any grandchildren who might be born. This is just as intelligible a proceeding as the mediæval, or perhaps modern custom of taking a saint down to the water and wetting him, that the ground may in like manner be wetted with abundance of rain. We are apt to call these proceedings by the current name of symbolism, and to think we thereby explain them. But the study of savage tribes teaches us that what we call symbolism and treat as a light half-sincere fancy of the mind, is really part of the opinion of the savage in his most serious moments, and in the midst of his highest flights of philosophy and religion. He has a doctrine of ideas out of which all these magical practices quite consistently arise; and, though we no longer hold this theory, it is, nevertheless, present among us in its effects on our customs and opinions to a degree which only careful and extended study will enable us to realize.

Of one way in which the value of the study of the lower races has been lately turned to account as a means of explaining matters which have usually been treated in that dogmatic *a priori* way which is so intensely unsatisfactory to the modern schools of natural science, I may mention an important instance in Mr. M'Lennan's researches contained in his book on primitive marriage, in which, taking his stand simply on such facts as he could find on record, he has treated the question of the laws of marriage and inheritance as belonging to a connected and consistent development from the conditions of savage to that of civilized life through the different stages of exogamy, or the

law of marriage out of one's tribe; endogamy, or the law of marriage within one's tribe, inheritance and family relationship on the female and on the male side. I do not enter here into Mr. M'Lennan's argument, nor treat it as settling and solving this great problem once for all, but rather call attention to it as a good case, where ground has been broken for the introduction of the scientific method of induction from observed facts into a district lying before almost entirely outside the range of science.

Everyone looks upon things with regard to their bearing on himself or his particular craft. Like the engineer who considered the use of rivers as being to feed navigable canals, I may venture to account teleologically for the existence of savage tribes. Among the uses of savages one great one is, I believe, that of enabling civilized men to understand themselves and their own position in the world, to work out the problem how far their own customs, laws, opinions, prejudices are the result of inheritance, and thus to learn how to separate what is good and valuable in itself from what is only held so because we have carried on the results of early states of culture into our own more advanced age.

Instead of working out in detail any particular department of this course of investigation, I have thought it more profitable to lay before the British Association some samples of its general working and character, trusting to awaken an increased interest in a kind of investigation so important, and so likely to produce immediate fruit, and which, I venture to prophesy, will, before many more years are past, have assumed the position of a great and powerful department of natural science.

ENGLISH SUPERSTITIONS.*

WHAT would our grandfathers have said to a book of this sort being published by the state as a contribution to English history? To men like Warburton, who reviled Tom Hearne for printing our early chronicles and laughed at Bishop Percy because he was the compiler of a song-book, it would have been simply incomprehensible that anyone could derive instruction from a mass of botanical and astrological blundering as scientifically worthless as Sibly's *Astrology* or Culpepper's *Herbal*. The same sort of men laughed at Woodward for being

* *Leechdoms, Wortcunning and Starcraft of Early England.* Edited by the Rev. Oswald Cockayne, M.A. (Master of the Rolls' series.)

curious concerning twisted stones; Priestley for his nonsense about gases; and Sir Joseph Banks for neglecting his duties as a Lincolnshire foxhunter to run after butterflies. We have now pretty nearly got rid of this kind of folly, as far as physical science is concerned, though it does still exist in a dry and shrivelled form in the brains of certain adherents of ancient methods of reasoning. These persons rarely consign their ideas to the printing-press. When they do, the more intelligent part of the community seldom become acquainted with them except through the medium of presentation copies, or of Mr. De Morgan's *Budget of Paradoxes.*

Students of history are, however, not so fortunate. The Philistines are still upon them in full force; and if they are not quite so numerous as in former days, they know the arts of word-fence far better, and are, therefore, able to hinder and annoy with much of their old success.

All men and women of average intelligence now see that the more minute facts of what we call the physical sciences are worthy of attention. They do not apply this new knowledge to the lesser facts of history because they persist in regarding man and man's works as things apart, not governed by the same laws as the rest of the universe. The prediction of eclipses, the existence of railways, balloons, and telegrams have driven the sceptics who disbelieve in any order in the universe from their old arrogance of unbelief as to the laws that govern material forces; but as the like practical results cannot be pointed out as having yet arisen from the study of the nature and history of mankind, these same persons persist in their old scepticism. With them there is no room for faith. They will not believe in the action of law one jot further than they are compelled to do by the logic of events. Their ancestors scoffed at the idea of antipodes till some of their neighbours went round the earth and came back with news of what was on the other side. When the telescope and the microscope were invented they teased their discoverers and unsettled the minds of the persons who used the instruments by telling them that what they saw in the glasses were no true representations, but deceitful and fallacious visions; and even now they try not to believe in the science of meteorology because its limits are ill-defined and its results in the way of prediction—with children the great test of knowledge—are at present uncertain.

To these people, who make up a very considerable portion of the lettered public, the use of history is simply to furnish a particular kind of amusement. With them the historian is still the tale-teller only, but degraded from his half-prophetic office, as it was in the Homeric and mediæval days, to be a mere flatterer of the religious or social

phases of the moment; an advocate or a defamer, a buffoon or a preacher, as the passion or the *ennui* of the times require.

While such continues the popular view of history, those who are anxious to get as much light as possible shed upon the past are sure to be unappreciated, to be called mere antiquaries, and to be supposed not to have any power of appreciating the greatness and glory of past times because their labours are not pictorial or romantic.

It required some amount of courage on the part of those whose duty it was to carry out Lord Romilly's great scheme for publishing the materials for the history of this country, to make that series what it is. No one nowadays could doubt the propriety of printing the chronicles. They came within the conventional idea of history, and as such the least valuable of them were thought—and rightly—to be well worthy of paper and printer's ink. It was not so with the scientific works such as Roger Bacon's *Opus Tertium* and *Opus Minus*, Alexander Neckam's *De Naturis Rerum*, and the collection of works on physical science which we are about to notice. These things are not materials for history in the old-fashioned narrow sense. They are, however, far more historical than many of the chronicles. If we look at them aright, we shall find them among the best exponents of our ancestors' manner of thinking and acting in the everyday concerns of life. They are important land-marks on our journey backwards. Like raised beaches found far inland, they are marks of the country's growth more trustworthy than fragmentary details gathered from the records of individual lives, or those few and hackneyed surface facts which writers of pictorial schools have used again and again to prove that our forefathers were sunk in barbarism or paragons of knightly honour and chivalrous devotion.

One would have thought that all persons who had passed beyond the savage state and who were in consequence open to higher influences than those of noise and glitter would be far more deeply moved by what may be faintly traced here of the joys and sorrows of home life among our ancestors, their causeless fears, their simple faith and childlike trustfulness, than by the volumes of wearisome disquisition concerning the characters of Henry the Eighth's wives or the beauty and accomplishments of Charles the Second's concubines that still pass for historical studies. The experience of book-makers tells them that it is not so.

Mr. Cockayne's task has been a difficult one in several ways. In the first place, the labour of selection was one that required very great judgment; and, as a work of this kind could only be undertaken by a person who was enthusiastically devoted to the study of ancient English literature, there was a great danger that the collection might

be swelled beyond all reasonable dimensions. This certainly has not been done. In our opinion, indeed, the error, if error there be, is in giving too little rather than too much. There was, however, another and a far more irksome duty. A rule, which admits of no exception, provides that the works printed in this series must be—like the publications of the Bible Society—issued without note or comment except what is "necessary to establish the correctness of the text." Editors may say what they like in their prefaces, but must be silent elsewhere. This is a wholesome rule, but it has pressed very hardly on Mr. Cockayne. These old books of botany and medicine are written in a language of which there are, as yet, no grammars or dictionaries that approach in any way to those we are accustomed to use when reading the languages of Greece and Rome, and the manuscripts from which the texts have had to be evolved are at least as corrupt as those of an ordinary classic. In consequence, where doubts and difficulties have occurred the editor has been unable to discuss the case at the bottom of the page. The public have by this lost much knowledge of an important and little known kind. We have also suffered by Mr. Cockayne not being permitted to trace the mythological and physical superstitions to their earlier sources, and to give us various readings of the same dreams from the folk-lore books of Germany and Scandinavia.

The curious prefaces to these volumes will be read with avidity by many persons who will not care to labour through the text, even on the translated side of the leaf. The quaint form of English in which they are written certainly does not detract from their interest or their wholesomeness. We think, however, that they ought to have been longer, and that their editor should have shewn, as the materials at his disposal gave him every opportunity of doing, that the mediæval idea of nature was—whether consciously or unconsciously it matters not—a perfect unity, and that, however unscientific in its details, a far more logical and coherent belief than the greater part of the theological and metaphysical superstitions that have grown up among its ruins. Our Saxon ancestors had no knowledge of physical law, but they had not confused themselves with the strange idea of duality—one force acting on the universe and another on man—as we have done. To them there was but one law, of which the Church Sacraments, the rains of heaven, the pestilence, and the sun-light were alike expressions. They had not learned to distinguish between miracle and nature, to call the one supernatural and the other common. Their experience of phenomena was limited, and their imaginations rich with the mingled streams of Teutonic and Scandinavian legend and Semitic culture. They, therefore, believed that all life was sacramental. That the

growth of the unborn babe, of corn, and of cattle, the force of the winds, the sea-waves, and every other accident with which they came in contact were governed by or rather were themselves the same force as that which they felt acting within their own hearts when they joined in the solemn offices or partook of the rites of the Church of God. Words matter little. It is of small import whether we call their belief sacramental or their faith naturalistic, but it is important to remember, when trying to realize past times, that our predecessors were not as we are, shackled by a dual and self-contradictory belief.

When we think of the foolish superstitions that are in full blossom around us at the present time, that flood the columns of our newspapers and stare at us from shop windows, a smile may be forgiven at the tone of contempt and pity with which some persons speak of any apparent nonsense which they do not happen to believe in at the moment. Our predecessors were at least consistent, and could give an intelligible reason for the faith that was in them.

Educated people, even, have their own superstitions, not so very different from those recorded in these books, and it is this cultured class only that has in any measure changed. The untaught peasant of to-day is more densely ignorant and quite as deeply saturated with folk-lore as the Saxon hind. He still swallows spiders to cure him of the ague, sheep's dung as a remedy for dropsy, and hangs a black-beetle, sewn up alive in a linen bag, around his children's necks to cure them of the whooping-cough. Cruelty is now, as it was then, a leading part of the popular medicine. The charms in the third volume are among the most curious parts of the collection, from the fact that they so exactly tally with certain tendencies in the popular superstitions of to-day. One of them, a charm for the loss of cattle, is not more absurd than many that are used at this very hour. All anthropologists ought to be very thankful to Mr. Cockayne for his important contribution to our knowledge of English thought before the Norman conquest. He has made a very important contribution to that heap of facts which must be gathered together ere anyone, however learned or devoted, can compile for us an exhaustive work on the comparative mythology of the Indo-European races.

FLOWER AND MURIE ON THE DISSECTION OF A BUSHWOMAN.*

It is always gratifying, never surprising, to find the influence of anthropological inquiry felt beyond the circle of its devotees; to see men whose specialities attract them to objects of research interesting but inscrutable to a *profanum vulgus*, ready to inform us, though indirectly, about matters of anthropological moment. Comparative anatomists have necessarily pursued their study with reference, more or less intimate, to human construction, but, with a few brilliant exceptions, they have seen the culmination of their labours in the illustration of abstract "man"—an aim most laudable in itself, in results frequently unsatisfactory, inasmuch as a prime element in such comparisons, differentiation in man himself, has been ignored. Until late years, indeed, one would have gathered from ordinary text-books of anthropotomy that man is a creation of the most inflexible routine; that a specialised set of bones and muscles, for example, invariable in presence, constant in relations, erected and clothed his framework. The attention of many eminent anatomists, of whom it would be invidious to name but a few, is now, however, directed to the existence of numerous and important diversities in the soft structures of man, more especially in the muscles—but hitherto, observations of this kind have been empirical—scattered letters writing no language—and although Mr. Wood (*Journal of Comparative Anatomy and Physiology*, No. 1) indicates a philosophical want when he draws attention to the desirability of marking the correlation and rhythm of the "anomalies" observed in the ordinary subjects of the dissecting-room, it is a desideratum still more urgent to ascertain the range of such variations in racial forms. That of the typical Negro excepted, the recent anatomy of extra-European races, many of which, and those the most interesting, are passing away from the possibility of record, is well-nigh unknown. We would fain hope, therefore, that the minute dissection of one of the aberrant forms of South Africa, recently chronicled by Messrs. Flower and Murie (*Journal of Comparative Anatomy and Physiology*, No. 2), is the commencement of systematic research into racial structure. Should it prove so, its great intrinsic value will be enhanced.

The subject examined was, we gather, a girl of about twenty-one years of age; in life possessed of "a fair amount of intelligence";

* *Journal of Comparative Anatomy and Physiology*. Macmillan and Co. No. 2, May 1867.

"speaking English" and "playing the piano" being not the highest, we presume, of her intellectual credentials. "In general outward appearance she bore evidence of being a genuine example of the Bushman race, agreeing in all the essential particulars with the 'Hottentot Venus,' as described by Cuvier." At the time of death the gluteal hump was very subdued, "still the fat of the buttocks was fully one inch and a quarter in thickness, and the skin over it had a remarkably loose, flaccid, and wrinkled character as if at some previous time it was more fully distended." It is remarkable that Cuvier (*Mem. du Mus.*, p. 268) describes these accumulations of fat as having "a striking resemblance to those which appear in the female mandrills, baboons, etc., and which assume at certain epochs of their life a truly monstrous development." This statement, however, does not seem to have been confirmed, and in the female macaques and cynocephali that have come under the writer's observation the spareness of glutæal adeps usual in the monkeys has not been modified.

The memoir is enriched with an elaborate series of external measurements of the body and a comparison of the proportions of its projected outline with those of the figure given by Carus. Hence the authors deduce—"That in the Bushwoman the head is slightly longer, the shoulders are placed much higher, the arms are very markedly shorter (three inches), the legs slightly longer (half-an-inch), the umbilicus placed somewhat higher, the shoulder narrower, but the thorax is nearly equal in breadth, while the pelvis is considerably narrower—this disproportion of pelvic breadth, however, being less marked opposite the trochanters. The principal peculiarity then in the Bushwoman appears to be the shortness of the upper extremities, which is also well expressed in the distance from finger tip to finger tip of the outstretched arms—this distance being fully two inches less than the total height of the individual, instead of equal to it, as is commonly the case in the European." We must not, however, view this brevity of the arm as a race character, for, as might be expected from Negrine analogies, it is, on the Authors' own showing, an individual peculiarity; three Bushmen tabulated by them giving measurements of the arm as compared with the total height similar to those of the Negro. Contrasted with these, an individual contraction of the arm to the extent of one or one-and-a-half inch less than in the average European would appear stranger if we were unprepared to find that in their very deviations these races exemplify the infantile characters of higher types; "On comparing the proportions of the segments of the limbs with the mean of those of numerous individuals at various ages as given by Humphry, we are struck with the remarkable agreement between them and those of the European child between four and six years old. It would,

indeed, appear as if the proportions of a child of that age had been permanently retained." The comparative height of the shoulders deserves more notice than it obtains; from the measurements given it evidently resulted, not from the elevation of the scapula upon the ribs, but from an absolute shortening of the cervical vertebræ, an obvious simious character. A trunk tapering downwards from the chest is, moreover, suggestive of the pithecoid outline.

Another curious peculiarity presented itself in the length of the hallux. "The great toe," say the authors, "is rather the longest, but such," they add, "is the case in many individuals of the higher races, although, according to the canons of ancient art, it should be shorter." As a general rule, a short hallux is undoubtedly a retrograde character, and the difficulty thence arising in respect to the Grecian model is explicable only on the supposition that the stock of the Greek tribes, whatever or wherever it might have been, had this mammalian characteristic more pronounced than its neighbours. The salient points of artificial beauty are everywhere exaggerations of natural conformation; and it is not surprising to find even in the highest races outcrops of the archetype in directions nowise affecting the rank conferred upon them by their totality of organisation. Though the existence of a long hallux is limited by the authors to "many individuals of the higher races," it is difficult to see the grounds upon which it is rendered the exception and not the rule; as amongst ourselves, at least, it clearly appears to be. At all events, it is sufficiently obvious from the table previously referred to that the length of the great toe in the subject under examination is foreign to the race. In the three Bushmen an average femur of 27·78″, and tibia of 23·89″ (per centage of total height), give a foot of 13·78″, whereas in the woman a femur of 26·49″, and tibia of 21·08″, yield 13·87″ as the length of the foot.

Our knowledge of the physiognomy and sense organs is in many particulars rendered more precise than heretofore. On the other hand, the direct contradiction given to previous describers of the hair-growth is somewhat perplexing. "On a careful examination of the scalp, it was ascertained that the hair did not grow in distinct patches with bare intervals, as has been asserted, but the roots were evenly scattered—the aggregation into tufts being due to a peculiar tendency in the hairs themselves." The testimony of Barrow and others would be no insuperable obstacle to our acceptance of this statement, were it not confirmed by an express declaration like that of Parsons, who says that in the subject dissected by him "the hair lay in little distinct compact curly tufts twisted spirally, and in the intervals of these tufts the skin was distinctly seen." In this inconsistency of observation we must await further information. The breasts were, as usual, "soft, flaccid,

and subpendulous," their antematronal condition showing that the great length ultimately attained is of congenital derivation.

One point, at least, the authors may be considered to have set at rest. The value of the tablier as a natural character of South African Negroids has been so often depreciated that a decision of the question is of much importance, and this we seem to have obtained. "The sides of the prepuce (clitoridis) were prolonged down into the nymphæ, which formed largely developed, lax, pendulous, triangular lobes of a dark purplish brown colour, which, in a relaxed condition, measured 1·2″, but they admitted of considerable extension. The remarkable development of the labia minora or nymphæ which is so general a characteristic of the Hottentot and Bushman races, was sufficiently well-marked to distinguish these parts at once from those of any of the ordinary varieties of the human species, although they had not attained that extraordinary extent attributed to them by most authors.

"In reference to this subject, the following communication, received from a scientific friend residing at the Cape of Good Hope, upon whose testimony perfect reliance can be placed, may be of interest to the anatomist.

"Two pure-bred Hottentots, mother and daughter, were the subjects of examination. In the words of our correspondent,—'The daughter was first examined. She is about twelve years old; the glutei muscles are covered with the prominent peculiar hemispherical cushions of fat common to the tribe, and the mammary development is commencing. On standing up, two thongs of about the thickness of a cedar-wood pencil hang down from the pudendum, exactly like strips of sheep-skin slightly twisted and apparently vascular. On separating the labia these appendages are found at once to be the nymphæ elongated, the base or attachment about half the area of what they might be expected to cover, the slight twist commencing immediately at the attachment, viz., within the pudendum. The total length of the appendage from the base to the end exactly three inches and a half. The hymen perfect. The diameter of the circular aperture to the vagina about a quarter or a third part of an inch.

"The mother had the usual falling off appearance of youth of the Hottentots of thirty years old. Mammæ flaccid and elongated. She took up her appendages, leading the right one round the right side above the gluteal projection, similarly, the left one round the left side, their ends met at the spine! I am now perfectly convinced that the organisation is natural and congenital, and not produced, as has been supposed, by the degraded and filthy habits of the tribe."

The examination of the muscular system yielded some important results, notwithstanding that the authors sum up their notices of it

by saying—"On referring to the absolutely differentiating characters laid down by Professor Huxley, we find that in no case does our subject pass over the boundary line. We also find that in no one of the numerous variations does the approach to simian characteristics actually exceed that which has occasionally been met with in the white races of man." This mode of estimating differential characters is objectionable. Given a human form, evidently inferior in its general organisation, and possessing in its myology, for example, half-a-dozen simian characters, each of these, or even two or three of them together, are occasionally found in individuals of a higher type; therefore, their concentration in the lower man has no biological value. The conclusion stated or implied is a *nonsequitur*. It is an undeniable principle that in proximate affines distinguishing characters are proportionately instable. Taken as a whole, the human group is composed of members closely allied; their discriminative characters are, therefore, vacillating. It is clear, then, that as between race and race the value of differentiations depends on the majority of instances, and that this value is totally unaffected by a few instances occurring elsewhere. Again, human animalisation partakes necessarily of brute characters, but partakes of them more or less, both individually and racially. As between man and beast, therefore, our estimation of a ferine character found in any race should proceed upon its persistency in that race, or upon its association with similar or higher developments. The authors, indeed, trembled on the verge of a concession which would have been fatal to the latter part of their statement. "It is, however, interesting to observe, that in the very significant arrangement of the flexor tendons of the foot, the tendon of the flexor hallucis, giving a branch to the fourth as well as to the second and third toes, and part of the flexor brevis arising from the tendon of the long flexor, on both feet alike, the deviation from the specially human condition of these parts is as fully marked as in any case hitherto recorded;" and this case, be it observed, occurring at the bottom of the human scale, and in the single instance examined by them. "Whether this is in any way characteristic of the inferior races of the human species, or a mere coincidence, remains to be determined by future observers." We cannot help thinking that such a coincidence would be a strange vagary of chance. The omohyoid presented itself in a very interesting condition. Of this muscle, which in man generally is biventral, and preserves its intermediate tendon in the chimpanzee, but loses it in the lower cheiropods, there exhibiting but rarely a few glistening fibres, we read,—"The muscular fibres in ascending the neck had no appreciable tendinous intersection, but were enclosed and bound down by fascia so as to produce the bending or angular change of direction, which, however, was less marked than

usual." It would almost seem that the troglodyte condition of the muscle is an interpolation between that of the lower pithecoid and the lower human. The other muscles giving indications of degradation were a distinct cephalo-humeral, developed almost to its condition in the carnivora; a glutæus externus, "thin, flabby, and badly developed"; and an occipital group of noticeable strength, not by any means to be expected in such a subject.

The brain was light, weighing but thirty-eight ounces. Whether any part of the deficiency is attributable to exhaustive disease we shall, perhaps, learn from Mr. Marshall, to whom it has been committed for examination, and whose investigation we await with interest. The usual cause of death was apparent. "The whole of the left lung was firmly adherent to the thoracic walls; there were also some slight adhesions on the right side. Both lungs contained abundance of tubercular deposit; the left had several large cavities filled with purulent matter. The distinction of the lobes was completely obliterated by adhesions." The fatal strain upon the respiratory system of the imported Negro or Negroid seems generally to involve the alimentary in its effects; in the present subject the intestinal tract was pervaded by tubercular ulceration.

On the whole, Messrs. Flower and Murie's dissection amply confirms the Bushman in the rank, both racial and biological, to which he has been assigned by common consent,—that of a divergent Negroid on the very confines of humanity.

We may not, perhaps, be able to accept every observation noted in this memoir as equally valuable to comparative anthropology, but the reserve does not diminish our obligation for a laborious examination and candid record of the features presented to its authors. Such opportunities as theirs have hitherto been of angelic rarity. We can only hope that they will become more frequent and be used as thoroughly.

C. W. D.

GERMAN ARCHAIC ANTHROPOLOGY.*

We have great pleasure in bearing testimony to the zeal and ability displayed by our continental friends in their archæological researches. They are pursued not only with indefatigable industry, but with an enlightened perception of the benefits which their discoveries may confer on archaic anthropological science; and whilst enriching their public and private collections with antique objects of rare interest and value, they are accumulating data for the study of ancient races, and providing means of comparison by which their identity or diversity may be established. And this private enterprise seems to be duly appreciated and seconded by the liberal support of public bodies; not antiquarian societies alone, whose duty it would be to give their assistance, but municipalities and provincial governments liberally contribute to promote the work. This is as it should be, and England might profit by their example, and not allow researches of great interest too often to fall into neglect and abandonment, simply because in this utilitarian age, the persons who possess the means do not possess the taste and inclination necessary to induce them to afford the resources which individual enterprise has not always at its command. There are exceptions, we are glad to say, but *Cui bono?* is too frequently the answer given to a request, when a little unselfish assistance might be productive of most useful results. The Anthropological Society has in a liberal and right spirit established a separate fund for the encouragement of archæological explorations, more especially in the Celtic field, persuaded that this is the only way of arriving at definite conclusions on certain questions of racial import which are at present in a somewhat unsettled state. Our foreign *confrères* are also as fully alive to the importance of the results derived from the labours of British antiquaries, as we are from theirs, and it is by this reciprocity of interest that science must ultimately reap the benefit of more accurate definitions. We recently noticed in this Journal Mr. Warne's work on *The Celtic Tumuli of Dorset; The Revue d'Alsace* (Feb. 1867) has an article on the same work, by the author of *Tombes Celtiques d'Alsace*, who therein observes that the Dorset tumuli resemble those of the valley of the Rhine, and particularly some that were in-

* *Das Alamannische Todtenfeld bei Schleitheim und die Dortige Römische Niederlassung.* Von Dr. Martin Wanner, Staatsschreiber. Schaffhausen, Druck und Verlag der Brodtmann'schen Buchhandlung, 1867. "The Alemannic Burialgrounds and the Roman Settlement near Schleitheim". By Dr. Martin Vanner, State-Secretary, Schaffhausen, 1867. (Plates.)

vestigated by Colonel de Morlet at Mackwiller in Switzerland. Tumuli also in Saxony, and the lake settlement at Meilen in Switzerland, have produced urns, implements, and weapons corresponding with those which have been found in the tumuli of Wilts and Dorset (Keller).

The work to which we now invite attention is one of very decided ability, embracing the description of discoveries recently made in the Roman settlement, and Alemannic Cemetery at Schleitheim, near Schaffhausen. With the latter we are chiefly interested as affording some points of comparison with the Frank- and Anglo-Saxon burial grounds of France and England.

The village of Schleitheim is situated in a fertile luxuriant valley between two chains of hills that extend into the Black Forest. It seems to have been known to the Romans as the Station Juliomagus, on the road from Vindonissa (Wendisch) to the Danube; one of those important military posts of Gallia Belgica that were intended to secure their conquests on the right bank of the Rhine, and to be made the basis of their operations in the subjugation of Germania. The district was occupied by the Imperial Roman power at a very early period. In the reign of Augustus, Drusus settled the Agri Decumates, as they were called, the lands situated between the Rhine and the sources of the Danube, which, according to Tacitus, were in his day peopled by Gauls, not by Germans; and these borderlands remained under the Roman power in the time of Probus, after which they were lost. The fierce Teutonic race inhabiting the country bordering on the right bank of the Rhine, waged an unceasing warfare with the invaders from the commencement of the third century, and after a succession of defeats and victories succeeded in dispossessing them of the territory, so that by the end of the century they had established themselves in the whole of the country extending from Mayence to the Lake of Constance. In the time of Constantine the Great the lands between the Rhine and Danube were theirs, and from about the middle of the fourth century no other people but the Alemanni were settled on them, with the exception, perhaps, of a small remnant of Gallo-Roman population. These are the people whose remains have been brought to light in the cemetery at Schleitheim, the date of which may be assigned to a period from about the middle of the fourth to the end of the seventh century. Of the Alemanni we know nothing more than they were a branch of the Germanic race; their natural affinities in the genealogy of nations is one of those problems, which researches, like those of Dr. Vanner, may help the anthropologist to unravel.

This Alemannic cemetery was accidentally discovered during opera-

tions consequent on the formation of a new burying-ground for the village of Schleitheim, in 1865; and in the following year researches were systematically carried out amongst the graves. One hundred and eighty of them were thus explored, and many more left unexamined. The cemetery extends along the slope of a hill; the graves are arranged in rows, but not in the direction of the valley which is north-east, but lie due east as by compass; the skeletons which they contained belonged to both sexes and to all ages, and sometimes as many as four were found in the same grave; they lay horizontally, none deeper than 2½ feet from the surface, measured generally from 5 feet 3 inches to 5 feet 6 inches, and were so much decayed that Dr. Vanner succeeded in reconstructing ten only of the skulls, of which we shall presently give his own description. In one instance only were there any vestiges of cremation with the interments. The graves were uniformly constructed with slabs of rough or hewn stone, and some of them were covered with broad stone slabs, and the stones were laid in mortar. Some of them had floors of cement, and there were fragments of Roman bricks and tiles found. The objects deposited with the bodies, and which are now in the museum at Schaffhausen, consisted chiefly of iron knives, swords, and buckles; three iron spurs were found; a few rings and ornaments of silver; rings, armlets, earrings, belt-mountings, in bronze; beads of amber, clay, and glass; a horn comb; a few coins of Constantine, Tetricus, and Decentius. The swords were of two kinds; the short, single-edged blade, about 18 inches in length, which is known as the *scramasaxus*, of Gregory of Tours, or the *semi-spatha*, and resembles swords found in the Saxon graves of Kent, in the Frank graves of the valley of the Eaulne in Normandy, and at Selzen in Germany; probably the "breves gladii" of Tacitus. The other kind has a broad, double-edged blade, 2 feet 6 inches in length; is comparatively rare, but has been found both in France and England; the *spatha*. The knive is found in almost all the Saxon graves of Kent. The strap, or belt mountings, are of the same type as those obtained from the Kentish graves, and the Frank cemeteries of Normandy; but these are not so artistically finished, nor so richly ornamented as those from Kent, nor did the Alemannic population seemingly possess any of those splendid circular fibulæ, for which our Saxon graves are so justly celebrated. In the disuse of the custom of cremation there is an analogy with the Franks and Saxons; and since Mr. Kemble states that cremation was a universal Teutonic institution, we must infer that its discontinuance is to be ascribed to a religious influence superseding the ancient Pagan superstition. Dr. Vanner observes, that at first he considered this the cemetery of a mixed Roman and Gaulish population, but was

led to abandon this view for reasons with which we entirely coincide. There is a complete resemblance between these graves and their contents with those discovered at Bel-air, near Lausanne, described by M. Troyon; with those of Selzen, described by M. Lindenschmit; and with those of the Alemannic cemetery at Ulm, by Prof. Hasler; to which we may add their analogy with the Saxon graves of Kent, and the Frank cemeteries of the Vallée de l'Eaulne, described by M. l'Abbé Cochet; these again are assimilated by their learned explorer with the graves of Selzen and Bel-air; hence the conclusion seems inevitable that they all belong to one and the same race, widely diffused, diverse in appellation, but probably contemporaneously existing.

Now let us advert to the craniological evidence afforded by these researches. The author reminds us that four types of skull have been found in Switzerland, and named by His and Rütimeyer from the places where they were first discovered, viz., Sion, Hochberg, Bel-air, Dissentis.

"The Sion type is specially found among the few skulls of the pile buildings, the graves of the Celto-Helvetic, and the Helvetic-Roman period in the old Alemannic graves. The Dissentis skull is in majority among the skulls of the present ossuaries, in which the Sion type is but sparsely represented; but everywhere are found a moderate number of intermediate forms."

He distributes his ten skulls in four groups. The first group consists of skulls Nos. 1, 2, 7, 5, 8. They belong to dolichocephali.

"They are characterised by the gentle curve of the cranial roof; the forehead, more or less straight but not high, passes into a lightly arched vertex, which descends without abruptness into a well-developed rounded occiput, projecting supra-orbital ridges; the top of these skulls presents a broad oval form with a strongly developed occiput.

Measurements in Centimètres.

	Length.	Height.	Breadth	Ht.—length index.	Bdth.—length index.	Ht.—breadth index.
1. Cranium nearly perfect, without face	19·2	13·3	14·6	69·2	76·8	91·
2. Cranium, base wanting	18·5	13·3	14·2	71·8	76·7	93·6
7. Defective cranium	17·5	—	13·1	—	74·8	—
5. Face and base wanting	19·4	13·	13·9	67·	71·6	93·6
8. Cranium nearly perfect	18·7	13·7	13·5	73·2	72·1	101·4
Mean	18·6	13·3	13·8	70·3	74·4	94·9
Mean of Sion skull after His and Rütimeyer	18·7	14·	14·4	74·9	77·2	97·1

"The description of the form, like the measurements, gives the

characters of the Sion type (moderately dolichocephalic). No. 6 is the skull of a man of powerful osseous structure. Between the legs lay a double edged sword. The anterior part of the skull shows, in the strongly developed supra-orbital ridge, the finely arched forehead and vertex, the Sion type; but the posterior part of the head is broad, and the vertex descends with an abrupt curve, almost angular, into the occiput. This skull combines the characters of the Sion with the Dissentis type; it is a Sion-Dissentis cross. The characters of the almost cubical, pure Dissentis skull are, according to His and Rütimeyer, its shortness and breadth (brachycephalic); the flattening of the occiput and its almost rectangular dropping off from the vertex and the base.

Measurement in Centimètres.

	Length.	Height.	Breadth	Ht.—length index.	Bdth.—length index.	Ht.—breadth index.
No. 6	18·5	14·5	14·7	79·3	78·4	98·6
Dissentis skull, after His. Mean	17·	13·9	14·7	81·8	85·5	94·

"Nos. 4 and 9 much resemble each other, but differ from the rest. No. 4 is a female skull of the Sion type; No. 9 is probably the skull of an aged female.

Measurement.

	Length.	Height.	Breadth	Ht.—length index.	Bdth.—length index.	Ht.—breadth index.
No. 4	18·	14·	13·1	77·7	72·7	106·8
No. 9	18·5	14·7	13·4	79·4	72·4	109·7

"Despite some similar features these two skulls differ from the Sion type, especially by their height with moderate length; neither do they belong to the Hochberg form. For the present they are isolated among the forms found between the Rhine and the Alps. Deviations from the typical forms resting perhaps on accidental, not normal development are represented by the following two skulls.

"No. 3. The forehead ascends at first rather straight and then passes with a projecting arch into the vertex. The latter shows at the beginning of the sagittal suture a slight notch; the top of the vertex inclines a little back. The occiput much developed in length, somewhat flattened on the sides, and has therefore, viewed from above, a pyramidal facetted shape. This skull might be taken for a Hochberg skull, so much does it resemble this type; but this is contradicted by its moderate length and height; whilst the Hochberg skull is, on the contrary, distinguished by the magnitude of these two diameters in proportion to the small breadth (very dolichocephalic).

"No. 10 has a straight orthognathous face, strongly developed superciliary arches, with a strikingly long, somewhat broad and flat-

tened vertex. The height and breadth are in proportion to the length, but slight; hence the skull appears compressed. Both may be abnormal natural development.

Measurement.

	Length	Height.	Breadth	Ht.—length index.	Bdth.—length index.	Ht.—breadth index.
No. 3	18·4	12·9	13·2	70·1	71·7	97·7
No. 10	19·5	13·3	12·8	68·2	65·2	103·2

"The majority of the skulls hitherto found belong to a type which predominates among the preserved skulls of the early and earliest Helvetians, but which also are found in many Alemannic graves; therefore the Alemanni and the Celtic Helvetians in many instances present the same cranial shape. The characteristic Dissentis skull is not found in its pure form, and one form was found hitherto not met with in the graves between the Rhine and the Alps."

It would be desirable to compare these measurements and characters with those of the skulls from the Frank cemeteries of Normandy, now deposited in the Natural History Museums of Paris and Rouen, and in the collection of Dr. B. Davis. In a science like anthropology every fact is of value, but hasty generalisation should be religiously eschewed.

QUATREFAGES ON THE POLYNESIANS AND THEIR MIGRATIONS.*

In this valuable addition to the literature of comparative anthropology M. Quatrefages has undertaken the exposition of one of the most difficult problems connected with the *origines* of the dark-skinned races of the Southern Ocean. It will be remembered, and must, in fact, be borne in mind throughout the whole of our study of what M. Quatrefages now submits for our consideration, that this distinguished anthropologist has definitely given in his adhesion to the monogenistic theory. This present contribution to our knowledge he plainly states is partly made for the purpose of supporting and confirming the arguments employed in his work on the *Unity of the Human Species*; and it therefore, to some degree, assumes a polemical position, and is open to fair and proper criticism. The main question opened up in this

* *Les Polynésiens et leurs Migrations.* Par M. De Quatrefages. Paris, 1866.

volume is the "old old story" of the variability or invariability of type in man; it is again the old battle-field of human hybridity that we have to traverse, and the author, to his own satisfaction at any rate, replies with confidence, that the Polynesian races are mixed, are not indigenous to the region they occupy, that they have come from the eastern archipelagos of Asia, and that their anatomical and physiological constitution presents evident traces of intermixture of negro, white, and yellow parentage. Indeed, M. Quatrefages is so confident, that he says there is no doubt of the Polynesian race being "metisse," that is to say, "that it has been formed by the crossing of populations very different in their physical characteristics." Nay, more than this, he declares that this may be proved by reference to the skeleton of the Polynesian race, "where the negro, the white, and the yellow man appear, in turn, or simultaneously, to have left their imprint." This bold assertion is somewhat difficult to understand, as a simultaneous action of three races in producing one skeleton would lead us to compare the product with Mrs. Malaprop's definition of Cerberus, "three gentlemen at once," or, at least, with Sir Boyle Roche's celebrated bird —that occupied two portions of space at the same time.

But rather let us allow M. Quatrefages to speak for himself on this question of osteology. He observes (pp. 6-9):—

"In a head of a Tahitian belonging to the Museum, and which may be regarded as a fine type of the race, the cranium, properly speaking, is high, moderately elongated from the back to the front; the curve which it describes from the forehead to the occiput is at first regular, but is abruptly flattened behind. The parietal bones at the sides of the skull are very slightly marked. The forehead is somewhat retreating, although the frontal bone is well-developed. The orbits are moderately extended, the cheek-bones slightly salient, the bones of the nose are raised, and of a medium development. The superior maxillary is slightly projected, or, in other words, it is a little *prognathous*, and offers somewhat of a massive character; the inferior maxillary is curved beneath, and also presents a slight tendency to prognathism.

"The entire sketch (continues M. De Quatrefages) which I have here given leads us to suspect the fusion of the characteristics met with in the white, the yellow, and the black, and the result is a mutual effacement and a reciprocal softening of these features. On the other hand, in other skulls much more marked peculiarities are to be distinguished. In one appertaining to an autochthon (*indigène*) of the Marquesas group—the general form of the cranium tends to that found in the Hindoo—the forehead is high, the bones of the nose are salient, the superior maxillary retreats and the under-jaw does not project. In this the characteristics of the white race are evidently in relief. In other heads, on the contrary, coming either from the same locality or from other places, the cranium becomes longer and more retreating, the osseous promontories become more salient—the forehead is very

retreating, the brows are very marked, the cheek-bones protrude; the nasal bones, small and concave, resemble those of the Hottentots, and the projection of the jaws and of the teeth is as marked as in the purest negro. Here the predominance of the Melanesian negro type becomes incontestable. If, from osteological characteristics, we pass to those furnished by the living man, a complete concordance is to be found. The cranial region is generally high—somewhat short from back to front, and flattened in the rear. (This, however, is artificial.) The forehead, well developed, but generally rather low, often is very handsome, and the facial angle concords with that of the European. Usually the nose, although a little too short and flattened by the manipulation received by it in infancy, is straight and salient, in some islands it is almost always aquiline, a character essentially belonging to white races. The eyes are rather small and are almost always horizontal, rarely oblique; their colour is almost always black. The cheek-bones are more salient in front (as among certain white populations) than at the sides. The mouth is well marked and its expression is agreeable, although the lips are a little too thick, and usually present that peculiar basement which is evidence of an infusion of negro blood; but sometimes they are fine and small, as in the European. The chin is often protruded in an exaggerated manner, and then becomes narrow and pointed. The complexion varies from a very pale inky yellow (reminding us of Southern Europeans) to a dark brown, passing further into a copper tint. Finally, the black, or dark brown, or light brown hair has a general tendency to roll up into curls, and is often sufficiently crisp, but never woolly."

M. Quatrefages next draws attention to the fact that the traveller Quiros, who was the first to touch at Tahiti in 1606, was struck by finding a chief there with red hair. When Wallis rediscovered this island in 1767 he found individuals with red, and even fair hair—this was usually the case in children of both sexes. To these facts M. Quatrefages attributes great importance. These fair individuals, discovered in one of the most remote archipelagos of Polynesia, at the epoch of their earliest discovery, could not have resulted from a recent intermixture with Europeans. They were pure-blooded autochthones. "Now," continues the author, "all white populations belong to the most characteristic branches of the great white race, and the presence of individuals of this description at Otaheite proves that white blood had reached as far as that place; and, though it only presents itself in its most marked character among the chiefs, it is because they watch over the purity of their caste with a care pushed almost to cruelty. Here, then, we should seek the traces of the white element, as we must look for the negro or yellow elements in the inferior classes of their society."

In the Solomon Islands, Mendoza and Mindana found similar persons amongst negro populations. Quiros did the same in the New Hebrides,

and Roggeween found *white* persons at Easter Island in 1772 among mixed populations. In the Bauman Islands, Roggeween states the populations to be white, not differing *inter se* more than European individuals—probably basing his comparison upon the personal peculiarities of his own countrymen, natives of Holland. From this M. Quatrefages concludes that it is an incontestable fact that the white element existed in the islands of Polynesia anterior to European discoveries. But it is somewhat of an assumption to decide in this manner, and we should rather leave it for the investigation of anthropologists in general than draw inferences from these few isolated instances, although they may bear the authentication of eminent names. In order to properly judge of the migrations of the Polynesians, we require a far more accurate knowledge of the tidal phenomena of the Southern Ocean than we at present possess. It would seem to be very fairly established that the Malays have for long periods of time been voyagers; but in no instances of a well attested character do we find permanence of organisation resulting from chance unions. It is here that we join issue with M. Quatrefages, and at the same time declare that we have not facts enough to decide either way. Opinion would incline to plurality of races—such evidence as we possess would strengthen this opinion and render the inference incontestable—that the human races are really indigenous to their various centres of culture, and that the exceptions alone furnish anthropological instances of variation in type. Such reasoning has received the sanction of many eminent anthropologists, and is entitled to at least as much courteous consideration as the prior view, adopted by M. de Quatrefages.

When Japan was first conquered by a superior race, it was not, if we may trust historians who had no apparent interests to serve in putting forth inaccurate statements—destitute of inhabitants; the islands were found populated with a dwarf race, of inferior capabilities of mind and body. Is it not likely that these were autochthonous, and the civilisation they had accomplished was the result of their own gradual development? A recent eloquent and philosophical writer has well said, that "similar ideas and similar usages make their appearance spontaneously in the progress of civilisation of different countries; showing how little they depend on accident, how closely they are connected with the organisation, and, therefore, with the necessities of man." And he adds, speaking of the autochthonous populations of America, "with difficulty do we divest ourselves of the impression that there must have been some intercommunication; each was, however, pursuing an isolated and spontaneous progress."* These observations we may appositely apply to the question of the Polynesian populations and their *origines*.

* Draper's *Intellectual Development of Europe*, vol. ii, p. 170.

A curious question is raised in the course of the argument of M. de Quatrefages. Dr. Pruner Bey has stated "that the Polynesian language (?) is the most emasculated language in existence." In what way such a fact could aid in the elucidation of the physical origin of the races of Polynesia it would seem difficult to understand. And the assumption that the earliest settlers from Asia, as brought forward by M. Quatrefages, should rather have selected Samoa and Tonga than islands nearer the coast of Asia, does not help us; and yet M. Quatrefages assumes the existence of a different and aboriginal race in these islands. Does this not practically defeat the learned author's main argument? If in any one portion of the globe we find it admitted that there has been discovered a race possessing a definitive osteological and physiological basis of its own, the question between monogenists and polygenists must come to an end. And such an admission as this from so eminent an anthropologist seems likely to tend to such a result, although in the face of the theory adopted by him.

Science on this point is yet silent, and this most interesting of all questions remains to be elucidated by an appeal to facts, and cannot be settled except we are furnished with more evidence.

There are many important chapters in M. de Quatrefages' work, to which we have not space at present to advert; and, while it is impossible to coincide in the inferences drawn by the author, the book cannot but be considered a most valuable addition to anthropological literature.

ON THE PRIMITIVE PERIODS OF THE HUMAN SPECIES.*

We now come to the caves, where the finds are much more important. First of all, we have to thank M. Fuhlrott for having furnished us with a more correct determination of the age of the Neander skull. All the nonsensical theories propounded concerning this skull are thus upset by one blow; and the Neander skull is placed in the same category as to age with that of Engis, the antiquity of which is definitely fixed. We must, at the same time, in opposition to such anthropologists as do not pay the necessary attention to geological facts, assert that these—the oldest skulls we know of, excepting, perhaps, the Moulin-Quignon skull, not yet examined—are most decidedly dolichocephalic. Since the theory derived from the Northern stone men, that the first inhabitants of our continent were brachycephalic, has still some ad-

* *The Primitive Period of the Human Species.* By Carl Vogt. Continued from No. xvii, p. 221.

herents and defenders, it may not be superfluous to call this fact to mind which upsets that whole theory.

The geological character can mostly only be established by particular attention, and even then, but imperfectly. It is already difficult to acquire a correct notion of the mode in which the cave was filled. There is no doubt, as proved by flints, lehm, and sand in the deposits, that water has been the great agent. Most observers are, however, too much inclined to assume tumultuous water streams, even in cases when slow infiltration may have produced the same effects. The observations on infiltration into stone coffins, the dislocation of corpses from their relative position by the intrusion of sand and earth, the introduction of flints through cracks, and even into the cranial cavity as shown by Broca and others, may be applied also to caves. I already observed in my *Lectures on Man* that the filling up of the bear cave at the Stooss in Schwytz, with a light earthy material, and that at a spot where rills neither exist nor existed, that such fillings of caves may be effected by atmospheric waters, without any violent commotion, but very slowly and gradually by the imperceptible descent of earthy and pulverised particles, including even flints and rubble.

Steenstrup, with much acuteness, and assisted by the abundant materials existing in Copenhagen, has lately given us an important contribution towards the determination of the geological character by showing that a number of changes occurring in the bones found in caves, diluvial formations and osseous breccia were not, as formerly believed, the effects of the water nor of the handling of man, but are solely to be ascribed to the teeth of beasts of prey. In comparing thousands of bone fragments from kitchen-middens, caves, and breccia, Steenstrup was first surprised by the almost constant absence of vertebræ, so that amongst several thousand fragments of femoral bones not one vertebra was found, and that other bones are always injured on the same spot; the long bones, for instance, in the articular processes, while others again, the horizonal ramus of the lower jaw, for instance, are always to be found. What he had observed in the north he found confirmed in the bones of the south brought to day-light from the caves of Montpellier by Marcel de Serres and others. Here, therefore, we possess a general law, the law of injury, the cause of which is easily ascertained by experiment. All beasts of prey gnaw the bones of a mammal or bird of a certain age in the same manner, by rejecting the more solid parts, but keeping to the spongy portions which contain fat and are covered by cartilage and muscular attachments. The bones of young animals, which offer no great resistance to the teeth of the beast, of course, form exceptions. Man, on the

other hand, treats bones quite differently. He first breaks the long bones—despised by the animal—in order to get at the marrow, or he shapes them to implements. Damp air and alternating dryness effect other lesions, such as cracks and chinks, which may induce the splitting of bones. Steenstrup was thus enabled to show that the bones of the caves of Montpellier which Marcel de Serres believed to have been acted upon by the waters, had really been mutilated by beasts of prey, and that the filling of the caves had been effected by the bones being dragged in. He also showed that the bones open on both ends, which Boucher de Perthes believes to be handles to fix upon the hatchets, had been prepared by beasts of prey and not by man, and that, finally, the clefting of the bones found in the breccia of Nizza and Ortibes was the result of their long exposure to the open air. On looking at the figure of the skeleton of an ox, upon which Steenstrup by shading has represented the respective influences of man and beasts of prey upon the separate bones of the animal, it appears to me as if the mutilations of the lower jaws of bears of the cave of L'Herm which Garrigou holds to be primitive implements formed by the hand of man, and for which I then knew no better explanation, are equally the effect of gnawing, perhaps by surviving bears.

Those caves are of special importance which present a distinct stratification of their contents, and in these strata bones of distinct species of mammals. For, as already observed, it is not of so much importance what may be found in a cave, but in what position it is found. Caves may have been filled up by gradual deposits in an earlier or later epoch, entirely or partially; the deposits of earlier epochs may have been disturbed and intermixed with the deposits of later epochs. Man may himself, by inhabiting or burying his dead in caves formerly inhabited by beasts of prey, have caused such intermixtures in partially filled up caves. It also becomes necessary to note the condition of each bone, and in what position one or another piece is found. If this be neglected our labours may be in vain. Thus, a M. Bourgeois examined a crevice at Caves, near Amboise, which presented three different deposits. At the bottom, clayish marl, with many and large bones; in the middle, yellow clay, with very few bones; on the top, sand and rolled stones, with many small bones. This collection consists of bones of the cave hyæna, cave tiger, cave wolf, fox, badger, weasel, mole, horse (probably the extinct *Equus Adamaticus*), fossil rhinoceros, wild hog, urus, peat stag, and also some frog and fishbones, including some fresh-water shells. But with such a most interesting collection of bones, the unfortunate possessor cannot tell us in what stratum he found either of these species; whether the horse bones lay side by side with those of the cave tiger

or not, so by this want of attention the whole find is almost without value.

In advantageous contrast to such neglect stand the explorations of the Marquis de Vibraye in the so-called fairy grotto near Arcy, and those of MM. Filhol and Garrigou, in the cave of Maz-d'Azil (Ariège). The former points out three different beds. The lowest, in some spots 1½ metres thick, fills up the inequalities of the ground in the scooped out long and winding grotto, and contains well marked bones of the cave-bear, cave-hyæna, bos priscus, and equus adamiticus. There was also found a human jaw, of the same aspect as the bones of bears. The middle stratum consists of fragments of lime, from the roof and the walls, and are united by a red sandy-clayish cement, as is the case in all osseous breccia of Southern France. In this stratum are chiefly found bones of ruminants, specially of the reindeer in large numbers, horse and ox bones, and flint knives coloured red by the iron oxide of the covering. The uppermost stratum consists of sandy marl, and in aspect resembling löss; contains remains of animals still existing in the country, such as fox, badger, mice, etc. Besides these regular deposits, there were some individual funnel-shaped depressions, manifestly destined for hearths, filled with pieces of coal; lance and arrow heads, made of antlers and bones of deer. These could easily be demarcated from the undisturbed deposits. In the cave of Maz-d'Azel, Filhol and Garrigou also found three superposed strata; the lowest containing bones of the cave-bear and cave-tiger, but no trace of man, excepting perhaps a perforated phalanx of a bear, which was held to be an art product. The middle layer, which was used for road-making before the naturalists became aware of its contents, contained only bones of the large pachydermata. The upper stratum yielded, besides a number of rudely worked reindeer-bones, a large quantity of rude flint implements, evidently produced by percussion.

Observations of this kind, which are but rarely made—for, of all caves hitherto explored, I know, apart from the cave of Lombrive, only of the above—admit of certain inferences as regards the relative chronology of the deposits. In the grotto of Arcy is manifested a definite separation of the epoch of the cave-bear from that of the reindeer. In that of Maz-d'Azil, a bed containing elephant and rhinoceros bones intervenes, the bones of which are, in the other caves, intermixed with those of the bear. This latter observation might, perhaps, offer some basis for the separation of two periods, for the cave-bear and the mammoth; which requires, however, further confirmation, as, from its rarity, it may be looked upon as a local incident caused by peculiar conditions.

As already stated, caves with distinctly separated deposits are ex-

ceptions; whilst such caves as are filled up uninterruptedly within a single epoch form the rule. In the exploration of such caves, we must always keep in view that the filling them is a local phenomenon; that the filling up with the same material (red or dark sand-lehm, with rolled and other flints) may have taken place at very different periods; and that, even in adjoining caves, there may obtain great differences as regards the time of their being filled up. The Belgian caves afford in this respect some valuable hints. Schmerling, who more than forty years ago explored the caves of Liège, found every where the cave-bear in such quantity that its bones and teeth constituted the essential character of the contents. Last year, some Belgian naturalists turned their attention to the caves of the province of Namur, and obtained remarkable results, of which we shall speak presently. But all caves hitherto explored belong to the reindeer period, and only yield the bones of the common brown, and not of the cave-bear; and yet these caves are not so very distant from those of Liège, scarcely sixty miles off. M. Dupont undertook the geological investigation, whilst M. Beneden selected the anatomical determination of the bones. The latter told me, in conversation, that he could not explain it, and must, therefore, ascribe it to accident that Schmerling had only come to such caves the contents of which had repeatedly been disturbed and intermingled by the waters. Possibly this may be so; but I rather am of opinion that the difference arises from this, that, despite the perfect equality of the geological character in both caves—namely, the same aspect of the ossiferous lehm, the same condition of the fissures and the mountains in which they occur (carboniferous and Devonian limestone), and the similar conditions of the valleys and ravines,—I say, despite these resemblances, the filling up of the caves may have taken place at digerent periods.

If this be the case, it follows that we must be exceedingly cautious before drawing general conclusions from the geological character. On finding in any spot mud, sand, lehm with rolled stones, rubble and bones, in a cave beneath a stalactite roof, and, at a distance say of ten, twenty, or fifty miles, other caves with similar contents, we are irresistibly led to generalise, and to assume a general deluge which covered the land above a hundred meters over the present sea-level, and filled up the caves. Having the deluge, no further trouble is necessary. This may satisfy a pious soul, or natural history founded on the Old Testament; but, on closer examination, we find that sand, clay, rolled flints, and scattered bones neither prove flood nor river; and that, assuming even floods and inundations, these may have taken place in limited localities and at different times, consequent on local thunder-storms and rain-spouts. Thus our deluge is reduced to a

number of separate thunder-storms and inundations, which, as at this day, may occur in different localities, and produce there the usual effects of such events. The historian who describes the incursions of the Germans, Huns, Turks, and Cossacks into Europe as a contemporaneous phenomenon, acts like the geologist who looks upon the filling of the ossiferous caves and fissures from the tertiary period to the present epoch as a connected phenomenon. The further we advance in our investigations, the more must we descend to particulars before laying down general conclusions. We must always bear in mind that very different causes may produce the same effects; that cinnabar may be produced by either the dry or humid process; that felspar may, by crystallisation, separate from the water as from a fiery river; that land and marine plants may both give rise to coal-formations; and that caves may be filled either by water-streams, or by slow infiltration, or by means of beasts of prey and man; and that all this may occur at very different periods, and at long intervals. But, unfortunately, we are always led by the deciphering of an individual process to imagine that we have found a magic pass-key which opens all closed doors.

The palæontological character of such caves as present only deposits of one epoch determines, according to the presence or absence of the cave-bear, two well-defined groups, and enables us to pass a judgment. It has been repeatedly pointed out, that the first fauna of the diluvial formations contains already all the types of the wild mammals of Europe; but there are also found in it specimens of extinct or emigrated species. The epochs of the diluvial formation cannot, as may often be done in palæontology, be demarcated by the appearance of certain species, but, on the contrary, only by their disappearance; thus changing the character into a negative one, which can never have the same validity as a positive character. The existence of cave-bear bones thus indicates the time the cave was filled; whilst the absence of such bones can only be looked upon as a relative, not as a positive proof, that the cave has been filled at a later period. But here the contemporaneity of some species may serve to strengthen the proof. Hyæna, tiger, mammoth, rhinoceros, were contemporaries of the cave-bear, and play, in fillings of this kind, an important part; whilst wolf, badger, lynx, but especially sheep, goats, and oxen, in large numbers, are rather more commonly found associated with the reindeer, and but rarely occur in bear-caves.

In Germany we know at present only of bear-caves; occurring also almost exclusively in Central France, although they are not entirely wanting in Languedoc and the Pyrenees. England and Eastern Belgium also have only bear-caves, or those with corresponding contents,

like the hyæna-cave at Kirkdale. In the Southern Alps and the Pyrenees, which do not seem to have been crossed by the cave-bear and his contemporaries, the caves and fissures containing bones of the hippopotamus and the el. meridionalis and antiquus may correspond with the northern bear-caves. As M. d'Archiac and others have observed, the Mediterranean fauna is, from that of the North, during the diluvial formations, much more distinct than at present; so that but few species of mammals, and of these only the smaller ones, not the larger and more important ones, can be named as common to both faunæ.

I know of no fact, excepting the grotto of Maz-d'Azil, which indicates that the mammoth and the fossil rhinoceros have in Central Europe lived later than the cave-bear. As I can in the other characters find no trace of a separation of epochs, the distant periods of the cave-bear and the mammoth, as assumed by Lartet, appear to me to form but one epoch. Of this period we know only the two skulls of Engis and the Neanderthal. The sepulture of Aurignac, which might have given some clue, has, as regards anthropological investigation, been nullified by an unscientific country surgeon. A skull from a Franconian cave, which was formerly preserved in a lumber-room at Munich, admits of doubts regarding its antiquity, as it was not found in the ossiferous soil, but only in the stalagmite. It is useless as an anthropological study, from being, as Professor Oppel told me, covered within and without with a stalactite mass, so as to admit of no measurements. Other remains, such as jaws, teeth, and other bones, have no great claims to be considered as anthropological characters.

In endeavouring, from the discoveries hitherto made, to form conclusions respecting the civilisation of this long-headed (inferring from the Neander skull), powerful, tall, and strong primitive man, who lived by the side of the cave-bear and the mammoth, we perceive that already then he honoured his dead by burying them, probably in a crouching position, in grottoes closed with slabs; and that he furnished them with meat and arms for their journey into another world. He knew the use of fire, and constructed hearths, where he roasted his meat; for of pottery the traces are but few. He broke the long bones of the larger animals in a systematic manner, in order to extract the marrow; and also the skull, to obtain the brain. His implements or weapons consist of rude hatchets and knives, which were struck off from a flint block by another stone; and of worked bones, employed for handles, arrows, clubs, or awls. Such pieces as look like pike or arrow heads never show any grapple-hooks, but smooth sides. This wild primitive man, the wildness of which is indicated by his terrible superciliary arches, nevertheless endeavoured to ornament his person

with perforated pieces of coral and the teeth of wild animals. He probably dressed in skins or prepared bark of trees; for the awls and needles found may have been serviceable for patching together such materials, but not for weaved stuff. We possess no direct information respecting his food, besides that he procured from the chase. The great number of flint instruments found in the caves, since attention has been drawn to this subject, lead us to infer that this man had spread over the whole of Central Europe this side of the Alps: whether in a single or various types, will only be decided when we are in possession of a greater number of skulls.

We shall now pass on to the epoch of the reindeer, the more accurate knowledge and distinction of which may be looked upon as a recent acquisition of science, for which we are chiefly indebted to the indefatigable efforts of M. Lartet. Hitherto this epoch has been only known to us in grottoes and caves, or in a kind of kitchen refuse at Madeleine, in the department of Dordogne. The most eastern locality where reindeer bones, as far as I know, were found, is the Salène, near Geneva; the most northern, the caves in the province of Namur, in Belgium—namely, that of Furfooz, near Dinant. But most reindeer bones have hitherto been found in Central France and in Languedoc. The palæontological character of this period is at present pretty nearly defined. Mammoth and rhinoceros occur very rarely; but the large beasts of prey have disappeared, and been supplanted by the brown bear, the serval, the wolf, the lynx, the iltis, which, however, occur simultaneously with the former. The bison Europæus and the bos primigenius, the cervus elephas and the cervus pyrenaicus, the roe and the reindeer, are found together with the chamois and the ibex, both of which seem to indicate a colder temperature and the advance of the glaciers towards them. Neither are horse and ass, wild hog and hare, mole and field-mouse, altogether absent. No trace, however, of domesticated animals, either of carnivora or herbivora; and the bones of all these animals, which manifestly served man for sustenance, are split in the same manner, and the skulls by the same method, namely, by striking off the horns in the horned animals, as was done in the preceding period.

The grottoes of Eyzies and Langeries-basses, Bruniquel, Massat, Lourdes, Figeae, Bize, and Brengues, mostly situate in the south of France, and those of Furfooz in Belgium, form at present the types of the caves of the reindeer period, showing mostly only a single deposit, sometimes resting upon a bed of rolled flints or coarse sand, which, without satisfactory proof, is considered as corresponding with the period of the cave-bear.

In one only of these grottoes, that of Lourdes in the Pyrenees,

Garrigou and Marten assert to have recognised two strata. The superior stratum, which already had before been explored by Lartet and Alphonse Milne-Edwards, contains many bones of the bison and the aurochs, less of those of the reindeer and horse, but still rather numerous. On the other hand, the bones of lynx, wild hog, stag, chamois, ibex, and a small species of bovidæ, and also mole and field-mouse, goat and sheep, are rare; coals and many worked and chiselled bones, of which presently more have also been found. In the lower level, the bones of which are much older and more decomposed, the reindeer bones were in greater abundance; beside them the bison, horse, stag, a small species of oxen, ibex, a sheep, and two rodents; flint implements of all kinds, but all unpolished; bone instruments, one showing the figure of a fish engraved. The authors of the report conclude, therefore, that the strata belong to separate epochs; the upper one to the period of the aurochs or bison as assumed by Lartet, and the lower to the period of the reindeer. I confess I am unable to perceive any marked distinction. The species of animals in both strata are the same, neither do the objects of art differ; the decomposition of the bones in the lower bed may have been the result of local influences.

We possess from the reindeer period human remains in no inconsiderable number, but mostly only single pieces, phalanges, ribs, long bones, teeth, fragments of crania—of which one from the grotto of Bruniquel is sufficiently large to show that it belonged to a short head. Despite the large number of pieces we possess only four crania apt for measurements; two of the cave of Lembrive, which I have described in my *Lectures*, and two of the grotto of Furfooz, the exact measurement of which I do not possess as yet, but of which I have, by the kindness of M. Dupont, received two fine photographs. The place in which these skulls (figs. 1 to 6) were found is situated about forty mètres above the bed of the river Lesse, and contained besides human bones, some of the brown bear, ox, horse, beaver, gulo, goat, many bird and fish bones, shells of land snails still existing in the vicinity, but especially rein deer bone, some of them worked but without any markings, some were calcined, and intermixed with coals and large pieces of pottery. The human bones form a confused heap; the long bones lie horizontally, many are squeezed between the stones, the cavity of one skull is half filled with stones which can scarcely pass through the occipital foramen. Where water had access the bones are decayed, but otherwise well preserved; more than a half-dozen jaws were found, but only two crania. One cervical vertebra was pressed with such force on the scapula that the coracoid process was broken by it.

The finders conclude from all these circumstances that the cave had been filled up by means of streaming water; to me it appears, without giving my opinion for more than it is worth, that the inhabiting of the cave and slow infiltration must have produced similar effects.

I have before me the photographs of both skulls. They differ much, but still resemble each other by the flatness of the frontal region, and the considerable development of the occiput. The first (Figs. 1, 2, 3, p. 33) is very well preserved, the bones seem lustrous and firm, and look in the photograph almost like a fresh skull. It is a well pronounced shorthead, with a broad base and regularly arched vertex, the frontal line of which seen from above is faintly convex in front. The incisors are perpendicular. If such a skull were found in a South-German grave, it would unhesitatingly be ascribed to the Alemannic tribe, although the slight elevation of the forehead and its flat ascent would indicate "a stupid Suabian." It is different with the second skull (Figs. 4, 5, 6, p. 73). The surface looks carious. There is a gap on the posterior part of the top. The proportion of breadth to length, which in the first may perhaps be 83·100, is here less and amounts to about 80. On viewing it from above, the otherwise broad forehead looks as if transversely cut off, almost with a straight line, the ends of which are received by the process of the zygomatic arch. But what particularly strikes us is the dreadful prognathism so decidedly expressed in the upper jaw deprived of its incisors. The line of the upper jaw forms with the margin of the teeth an angle of only sixty degrees (measured by the photograph), and seems as in simiadæ rather convex, whilst even in the most prognathous Negro it is rather concave. Viewed from behind, the skull appears in the median line roof-shaped, and the parietal planes of the roof almost straight, and consequently, higher than the other skull, and the base narrower in proportion to the height.

Are these differences sufficient for the assumption of a difference of a race, and an intermixture of two different stocks? I hardly think so. Prognathism is here certainly more pronounced and more simious than I have ever seen in any skull; but we know that in eminently orthognathous people, individual instances of this kind occur which may perhaps be looked upon as in favour of Darwin's atavism. Neither is the difference in the frontal line, and in the proportion of height, so very uncommon. But apart from this, the view from the top, with the large breadth diameter so far pushed back, is so similar in both skulls, that I feel inclined to look upon both skulls, despite their difference, as belonging to the same race, until further finds should correct this view, and establish an intermixture of two types.

I have described the skulls of Lembrive in my *Lectures*, to which I

must refer. Their width = 100 : 82 for the child and 100 : 78 for the female, agrees well with that of the Furfooz skull, as well as the straight frontal line and the backward position of the largest breadth diameter. If such conditions manifest a race affinity, which I do not assert, we must, on the other hand, not forget, that the skulls of Lembrive, present by the form of the frontal region, the roundness and arching of the whole calvaria, and by the almost obllterated superciliary arches, a nobler form, a higher development of intelligence, a greater advance towards civilisation, than the skulls of Furfooz. This is the more remarkable, as the industrial character of the reindeer period in France and Belgium agrees with it.*

Dr. Thurnam, in his copious and valuable treatise on old British and Gaulish skulls, which appeared in the first volume of the *Transactions of the London Anthropological Society*, observes, "That there is nothing in the formation of the Lombrive skulls which might induce us to distinguish them from brachycephalous or sub-brachycephalous skulls, which are found in the old Gaulish graves and the round barrows of the old Britons." This comparison seems to be the more correct, since it is unfavourable to Thurnam's view, according to which, the long skulls have in England preceded the short skulls, because the skulls of Lombrive seem at all events older than any skulls found in England either in long or broad barrows. I would, on this occasion observe, that I was rather too hasty in parallelising, as I have done in my *Lectures*, the Lombrive skulls with those of Basques. The investigations of Broca have since that time shown that the Basques were rather dolichocephalic, and that the skulls also differed greatly from the Lombrive crania by the proportion of the frontal to the occipital region.

The final result from these rather scanty facts seems to be, that during the reindeer period a brachycephalic, not very numerous, people of weak osseous structure, inhabited Southern and Central France, and also Belgium.

This people was surrounded by wild animals, which were hunted, and their remains accumulated in and about the habitations, the caves, just as the Greenlanders at Egéde's time still accumulated the remains of the consumed animals, so that, as the worthy Bishop says :—

* M. Garrigou, according to a recently published treatise, does not consider the Lombrive skulls as pertaining to the reindeer, but to a more recent epoch. If this be so, we have only the Furfooz skulls as human remains from the reindeer time. This would still better agree with what is stated above. Garrigou, moreover, looks upon these skulls as mongrels of Celto-Iberians and some other people. Such an assertion appears to me to require great courage, when we are engaged in investigations requiring accuracy.

"Every Greenlander inhabits his own charnel house. No trace has hitherto been found of tamed animals. The reindeer, the bison, the horse, furnished most of the food; but carnivora were also consumed, and their bones split for sake of the marrow. Until then there is an almost perfect agreement with the cave-bear period. But we may nevertheless recognise an important advance in civilisation in the mode of working the weapons and implements. Pottery also greatly progresses. Vessels of various kinds are met with, rudely kneaded of clay, intermixed with sand and flints, dried in the sun or hardened on the hearth, and therefore not very fit for cooking or the preservation of liquids; still they are of an agreeable shape, and decorated with lines and drawings, or provided with handles. Then we observe an improvement in the preparation of flint implements. The reindeer men were no longer satisfied with the form of the fragments struck off from the block, but he tried to give it a better shape by further hammering it. The small narrow fragments of the so-called knives are specially noteworthy, as their edges have been worked by numberless short blows, not unlike the so-called beating the scythes."

In the working of bones, especially the antlers of the reindeer, these reindeer men seem to have excelled. Lance and arrow-heads with barbs, knives and daggers, all kinds of flat and curved shapes apt for scraping the skins and similar objects, awls and needles of considerable fineness, with ears fit for the passage of a thread; handles are found in quantity, and some unfinished specimens show the troublesome mode by which these implements were brought to a finished condition.

The art products of the reindeer people who inhabited France are of particular interest. The decorations on many pots and implements consisting of simple, straight, angular, or crossed lines exhibit a certain sense for beauty; but the drawings of animals, as discovered by MM. Lartet and Garrigou, are still more surprising. They are mostly found engraved on bones, but also on slate. Those found by M. Garrigou represent heads and tails of fishes; those in possession of M. Lartet represent large mammals, among which the reindeer is easily recognised by the antlers. Most of these drawings occupy, certainly, merely that rank in art as a schoolboy's attempts on the wall, in order, as a little nephew of mine observed, to derive pleasure from its contemplation. Many of these drawings only furnish us with the idea of horned ruminants in general, leaving to our choice to detect the difference between oxen, sheep, and goats; others, however, are sufficiently characteristic to enable us to recognise the animal at once, although the proportions are somewhat faulty. The masterpiece in Lartet's collection is a handle carved from the antlers of a reindeer, a real sculptured work, the body of the animal being so turned and twisted that it forms a handle for a boy's hand. All other drawings are in sharp and firm

outlines graved upon the surface of the bone, and it may be seen that the artist in working it turned the bone in various directions, some of the lines showing a flat inside turned surface. Many of those drawings are known to the public by the treatises of Lartet and Christy on the caves of Perigord; but I can from my own inspection assert that there exist in that collection many others, and these highly characteristic. Thus I recently saw in my friend Desor's collection two plaster casts of pieces (fig. 7 and 8) found in a heap of bones of the reindeer period, at Madeleine, near Tursac (Dordogne). It is a kind of kitchen-midden at the foot of a rock, about fifteen mètres long, seven mètres broad, and two and a-half mètres thick. In the middle some human remains were found. One of these pieces (fig. 8) is a broken off femur of a swan. The animal carved upon it has a short thick tail, a long straight back and belly, the head and the lower parts of the feet are wanting. A zig-zag line along the back, imitating somewhat rudely the aspect of the reindeer in summer, when the long winter-hair still hangs in flocks about the back, whilst the belly shows already the short dark summer hair. Some short lines before the fore-feet may represent the hair of the throat. The second is a fragment either of a femur or a tibia. It represents two reindeers following each other (?), the one being known by its indication of antlers. Further explorations will, no doubt, increase our treasury of art products of the reindeer period.

The limitation of these art efforts resting upon the observation and imitation of nature as regards time and place is specially remarkable. As regards time, for neither before nor after do we find similar tendencies. For down to the bronze period we only find geometrical figures, lines, angles, triangles, circles, etc., as models of art decoration. With the exception of the object in the collection of Colonel Schwab, in Biel, made of clay, which may represent a bird or some other animal, there has never been found an indication of plaster-imitation in the primitive period, including the beginning of the bronze period.

The artistic imitation of nature disappears as suddenly as it appeared, only to reappear at a much later period. Another fact is remarkable as regards local limitation; for it is only in the French reindeer caves that such pieces have hitherto been met with, nowhere else, not even in Belgium, although they have been sought for anxiously. Their occurrence in France is as far as known an isolated fact.

I must here refer to two points, which require further explanation. M. Gervais has, as is well-known, broached the hypothesis founded upon the presence of the reindeer in the south of France, that northern tribes, such as Laplanders and Finns, had emigrated at a very remote period, since, at the arrival of the Greeks and Romans, every trace of them had already disappeared. This view seems to me untenable for

several reasons. First, we consider that the reindeer, as a domestic animal, cannot be thought of separated from the dog, so indispensably requisite for managing the herd. Whoever has seen a reindeer will agree with me that man cannot master even a single couple, much less a herd of reindeer. But hitherto no trace has been found of the domestic dog among the bones of the reindeer period, nor, indeed, of any domestic animals, whilst in the Danish kitchenmiddens the dog occurs, and other domestic animals are met with in the pile-works, which, as shown by Rütimeyer, may, by the texture of their bones, be easily distinguished from those of the wild races. Now if men from the north, who possessed the domestic dog had, with their herds, migrated throughout the European continent, they surely would have brought their dogs with them. The northern and mountain flora which attends the reindeer is another objection against this assumption. Man usually takes with him on his migrating some few animals, and it is in this way that some wild species, especially small mammals, rodents, for instance, have spread over the earth. But that a whole fauna, chamois and ibex, musk-ox and galo, bison and lemming should have immigrated with him, is opposed to all experience. The whole was indigenous, and co-existed with man and the reindeer, just as we find in an insular climate like New Zealand a tropical vegetation almost in contact with glaciers. The condition of the skulls hitherto found also militates against this hypothesis. These skulls agree with those of the Danish stone period only in one point, namely brachycephaly, but deviate from them, as far as I can see in all other essential characters. Even the difference of the habits of the people is against M. Gervais. The stoneman of the Danish kitchenmiddens, the pile-builder, who, as Garrigou has shown, existed also at a later period in France, lives in the low lands, where he erects his habitations in marshes and waters, whilst the reindeer man selects for his habitations caves and inaccessible rocky cliffs. I will, however, attribute not so much importance to this latter point, but as regards the former grounds they seem to prove that we were perfectly justified in not accepting the hypothesis of M. Gervais.

The passage cited above from Thurnam's treatise seems to me, on the contrary, to contain a hint which well deserves consideration. Thurnam has, from his comprehensive and valuable investigations, drawn the inference that long heads are chiefly found in the long barrows, and short heads chiefly in the round barrows, and that in England, at least, the former belong to an older period than the latter. The limits of this paper do not allow me to enter upon the details upon which Thurnam founds his assertion. I cannot, however, omit drawing attention to the fact that, even among the long heads, were found by

Thurnam himself very decided short heads, registered by him as coming from long barrows; and that Thurnam himself admits that the law laid down by him as applicable to England may not apply to the continent. But, admitting that to be so, we cannot easily imagine that such a widely-spread type as the reindeer man should have left no progeny in the intermixture of peoples, and it is very possible that the few short heads occurring in the long barrows of England may have been the first immigrants who, multiplying subsequently, gradually extirpated the original dolichocephalic type of the primitive inhabitants of Great Britain. But, despite this supplantation, the long skulls are not entirely destroyed in England; and Thurnam's tables show that also in the round barrows some dolichocephalic skulls are met with.

It is only after the reindeer period that we come to the later stone-periods of the kitchenmiddens and sepulchres of Denmark, old and more recent pile-works, dolmens, the bronze period, with its attendant progress towards the breeding of domestic animals, grinding of stone weapons, agriculture, and the knowledge of metals. To enter upon these subjects must be reserved for another work for which I collect materials. Here it may be sufficient to have shown that all the characters, the significance and importance of which we endeavoured to point out for the elucidation of primitive times, combine, as regards Central Europe, in the demarcation of two chief periods: the cave-bear epoch, distinguished by large now extinct species of beasts of prey and pachydermata, rude flint implements, coarsely worked bones, and long cranial forms of a strong race of men—and the reindeer period, characterised by the northern fauna of a cold climate, by hammered stone weapons, carved and artfully decorated bones, and the short skulls of a small and more delicately constructed, but, at all events, a very intelligent art-endowed race of men.

Postscript.—Professor J. Cocchi, director of the Geological Museum at Florence, has kindly placed at my disposal, besides some Etruscan and Roman skulls, a very old skull (fig. 9 and 10), concerning which he will shortly publish particulars as regards the geological stratum in which it was found. It cannot, of course, be my object to anticipate in any way the observations of my kind colleague. I shall, therefore, merely remark that this relic, the aspect of which alone betrays high antiquity, was found deep under the soil in a bed of bluish-grey plaster clay, containing also, as usual in the Aruv valley, bones of diluvial extinct species of animals, especially of the elephant. Exact details, as regards the bed, will be given in Professor Cocchi's treatise, in which it will be shown that this Florentine skull must, as regards antiquity, be placed by the side of the Engis and Neander skulls, and that, therefore, it is the third skull of the hitherto known oldest period,

but the first found on the surface, and not as a cave deposit, in which, as far as I know, no stone weapons were yet found.

This skull is, unfortunately, not perfect, the cranial portion only being preserved, which is filled with bluish-grey plaster clay. The frontal bone is nearly perfect, wanting only a small piece of the right external canthus. The left parietal is also nearly perfect, whilst the right is badly mutilated. Of the occipital there is only the squama extant, but broken on the right; a piece of the occipital spine is also wanting. It admits of but few measurements and only approximately, as the sutures are rather separated, and many points requisite for measurement are lost.

MEASUREMENTS.

	Millimètres.	
Greatest length	197	
„ breadth	172	(Computed from half the width,
Proportion of length to breadth (Indice cephalique)	100 : 87	which can only be measured on the left, and which amounted
Frontal arc, nasal to coronal suture	130	to 86 *mm.*)
Sagittal suture	137	
Least frontal breadth	104	(Computed from the half.)
Distance of the frontal eminences	61	

The skull is consequently large both in length and breadth; the cranial bones are of the usual thickness. The superciliary arches project but little, but present a perceptible depression across the forehead. The frontal protuberances are placed remarkably low—the low forehead proceeds from them almost perpendicularly, and also ascends very flatly towards the vertex, which is situated above the strongly projecting parietal protuberances. The occiput projects considerably backwards, and its lower part is strongly bent inwards.

From these measurements and their comparison, it results that this skull has not the slightest resemblance to the Neanderthal and Engis skulls, except that it shows in the occipital part some likeness to the Neander skull. It as little resembles the Etruscan skulls which I examined in Italy; nor the three skulls of the Bronze period of Elba, which M. Raphael Foresi kindly showed me; nor the Roman and modern Italian skulls.

Prof. Bartolomeo Gastaldi has further placed at my disposal a calvaria in the Valentino museum, which was found near Mezzara Corti in the diluvium of the Po, at a depth of 7 *mètres* 3 *decimètres*, in a bed in which, 3 *mètres* deeper, a splendid skull of the megaceros was met with. The above comparatively small and delicate head belongs to the Ligurian type as distinguished by Niccolucci, and is characterised by a transverse depression of the forehead and of the vertex. The cranium of Mezzana Corti presents the following proportions:—

	Millimètres.	
Greatest length	176	
„ breadth	142	(Not quite certain, on account of
Proportion of the two measurements.	100 : 80·4	imperfect state of one side.)
Frontal breadth	100	
Frontal arc	128	
Sagittal suture	122	
Occipital arc	114	
Perpendicular circumference	364	

These measurements agree exactly with the average computed by me from four Ligurian skulls.

I must finally add, that the hope expressed above of further artistic finds of the reindeer period has been fulfilled by the discovery in the grotto of Arcy, by Lartet and Vibraye, of engravings on bones, representing a hairy long-maned elephant, *i.e.* the mammoth. The engraving on ivory, in the possession of M. Lartet, shows so characteristically all the characters of the elephant, as to admit of no doubt that the artist who engraved it must have taken a living mammoth for his model.

PROCEEDINGS OF THE PARIS ANTHROPOLOGICAL SOCIETY.*

January 19, 1865.—M. Broca presents to the Society several crania found at Maintenon, and in tumuli of Meloisy (Côte-d'Or). M. Martin de Moussy observed that the extraordinary thickness of cranium No. 2 of Meloisy reminded him of a passage in Herodotus, who relates that after a battle of the Persians with the Egyptians the crania of the latter were found to be very thick compared with those of the Persians, which were thin. Herodotus attributes this to the circumstance that the Persians covered the head whilst the Egyptians were in the habit of going bareheaded in the sun.

M. Pruner-Bey considered this theory as purely imaginary, as the thickness of the skull depended on race. The present Egyptians, who covered the head, possessed crania as thick as their ancestors, whilst modern Hindoos, who expose the head to the burning rays of the sun, had skulls as thin as the Persians, who are of the same race.

Mummification of the Brain.—M. Broca presents several cerebral hemispheres mummified for four years, and hard as pasteboard. These brains, the weight and volume of which is considerably reduced, have well preserved their form, and are more suitable for the study of

* Continued from No. XVII, p. 239.

the convolutions than fresh brains. Although the process might be applied to the whole brain it is better to separate the hemispheres in order better to examine the internal surface of the hemispheres. The pia mater being removed, the hemispheres are plunged into a bath composed of five parts water and one part nitric acid. At the end of two days the quantity of acid is doubled; the brains are removed after two days more, when they are found to be sufficiently hard, having lost about one-fourth of their weight. They are then drained on rags, which must be renewed twice or thrice the first day. Next day they are sufficiently dry, so as no longer to wet the fingers; they are then exposed to a current of air on a board in a dry place In a temperature of 20° to 25° cent. The superficial convolutions become brown within five or six days. At the end of twelve or fifteen days the brains are sufficiently solid to yield a sound when struck, nor will they break in falling. They should, however, be exposed to the air for another month, as they exhale acid vapours which stain the linen or paper in which they are wrapped. This process of mummifying is exceedingly simple, requiring little care, and not attended with expense. Brains thus prepared may be carried about in the pocket. They may be sent off without careful packing, and are well adapted for the study of the convolutions. M. Broca thought it would be useful to recommend this process in the general instructions about to be given to travellers, and specially to physicians settled among foreign races. He had tried other processes of mummification, but all have the inconvenience of considerably altering the form of the brain.

M. Pruner-Bey presents an ancient cranium from Sicily sent by M. Furuari, of Palermo, found in the environs of Castelvelrand, province of Trapani; and a cranium of the cavern of Larzac (Avignon).

M. Bonté complained that his paper "On the Classification of the Aryan Races," as it appears in the *Bulletins* of 1864, had been disfigured in an extraordinary manner, and that M. Pruner-Bey had altered some portions of the text, and had omitted several words which rendered the text intelligible. In justification of his assertion, M. Bonté quoted at length many passages of his paper, which had been so altered, and commented upon by M. Pruner-Bey, and contended that his views, as expressed in his dissertation, had not been shaken.

On the mode by which the Pelvis should be measured.—M. Alix said that in order that the different diameters of the pelvis, as given by different authors should be comparable, it is necessary that the measurements be taken from identical and well-determined points, which hitherto had not been rigorously pointed out. It might be said that this rigour exists as regards the antero-posterior diameter, called also

sacro-pubic, and the oblique diameters between the ileo-pectineal eminence and the sacro-iliac symphysis. But it is immediately seen that it does not apply to the transverse diameter. All authors say only that this diameter is drawn transversely between the inferior limit of the internal iliac fossa on one side and the inferior limit of the external iliac fossa of the opposite side. But this limit being a line composed of a number of indefinite points, the expression is extremely vague. In order properly to determine the transverse diameter, it is necessary to know the position of its extremities in relation to the following points: the sacro-iliac symphysis, the ileo-pectineal eminence, the anterior and inferior iliac spine, and also the anterior and superior iliac spine. It is impossible to compare measurements of transverse diameters, the position of which has not been determined in relation to at least one of these four points. In order to appreciate the curve of the arch formed by the pubis, the only means is to know the length of the perpendicular drawn from the symphysis pubis upon a transverse line passing through the ileo-pectineal eminences. As regards the antero-posterior diameter, the usual expression is only apparently exact. For the curved line which limits laterally the superior strait, does not always join the superior border of the body of the first sacral vertebra. This line reaches the sacrum in a point which corresponds with the union of the lateral masses of the two first vertebræ of this region. It is continued upon the lateral mass of the first of these vertebræ; but the root of this lateral mass is frequently placed at some distance below the superior border of the vertebral body. It is therefore necessary to say whether the antero-posterior diameter unites the symphysis pubis with the superior border of the vertebral body, or with an inferior border, or with an intermediate point. And so for every oblique diameter parting from the ileo-pectineal eminence to reach the sacro-iliac symphysis, it is useful to designate the precise point of the sacro-iliac symphysis through which it passes, and to say, for instance, whether that is the point which corresponds with the suture of the transverse masses of the two first sacral vertebræ, or whether it be some other point. These observations are not applicable to measurements of the inferior strait, for which most authors give fixed and well-determined points.

M. Lagneau said that the permanent Committee on the ethnography of France, appointed by the Anthropological Society, having met, considered that it would be advantageous to enter into scientific relations with the Archæological and Statistical Societies. The Committee on the ethnography of France is now composed of the following members: for statistics—MM. Boudin, Berlillen, and de Ranse; for archæology—MM. Bertrand, Leguay, and Morpain; for ethno-

graphy and anthropology—MM. Périer, Broca, P. de Remusat, and Lagneau; for geography—M. Barbié du Bocage.

Description of the Cranium of an Ancient German. By M. Schaaffhausen; translated by M. Pruner-Bey.—This cranium was found this year near *Nieder-Ingelheim*, associated with stone weapons and pottery mostly unburnt. It seems to belong to ancient Germany. The use of stone weapons and implements did not immediately cease on the introduction of metals; but continued for several centuries after, as proved by documentary evidence. As, nevertheless, Roman civilisation spread on the Rhine at an early period, we must ascribe to this cranium a high antiquity. On clearing a forest of firs near the ancient bed of the Rhine, about twenty-five feet above the present level, and about a mile from the bank, several graves were discovered. Although scarcely any other bones have been collected on account of their fragility, this cranium is nearly complete.* It corresponds to the portrait which, according to the description of Tacitus, we may imagine of the ancient Germans. A similar discovery made near *Lippstadt*, in Westphalia, has been communicated by me to the Society of the Lower Rhine in August, 1859. This cranium, though of an inferior type, has nevertheless nothing of the ignoble. It presents much harmony joined with vigour, and a certain degree of beauty. It resembles the Enghis skull, which has given rise to so many discussions. Still the forehead of the latter has a better conformation; its occipital squama is more prominent, and the summit presents a less ogive form. In both crania, however, the projection of the parietal protuberances gives to the occiput a pentagonal form. The German cranium has a length of 185·5 *mm.*, and a breadth of 135·5 *mm.* That of Enghis is nearly as wide and 8 *mm.* longer, if we deduct from the cast 3 to 4 *mm.* In both crania the greatest width is at the parietal protuberances. After giving a minute description of this skull, M. Schaaffhausen draws attention to certain furrows which are seen ramifying on the surface of the cranium. These he attributed to the action of some acid contained in the roots of vegetables, on the lime of the bones. . . . . The two stone utensils found in the grave are well polished, and, what is rare, the stones belong to the country. The small hatchet is of schist from the Taunus, whilst the other implement, eight inches long, is made of a Greywake schist. One of its surfaces is flat, the other rounded, and one end forms an edged curve. . . . .

M. Broca observed that M. Schaaffhausen's paper raised a question which he had long tried to solve, namely the origin of the innumerable

* Several data lead to the presumption that inhumation was practised by the ancient Germans, as well as cremation.

superficial small grooves found upon bones long buried in the soil. He showed several crania from the graves of Chamant and Mont-Berny, upon which these furrows were well marked. He recollected that about fifteen years ago an observer, whose name he forgot, attributed these grooves to the action of a small insect. He provisionally accepted this explanation, until he found that small filaments of roots were frequently attached to some grooves, when he was led, like M. Schaaffhausen, to assume that the furrows were caused by the action of the roots. He had, however, still doubts on the subject, for the roots left no traces upon the calcareous stones found in the sepulchre of Chamant along with the bones. Now, either the roots act on the bones by pressure, and then they should also erode and furrow the surface of the stones, the hardness of which is inferior to that of the bones, or they acted chemically by their acid, then they should decompose the carbonate of free lime of the chalk.

M. Jouvenal observed that it is not upon the carbonate of lime, but on the phosphate of lime, that the acids of the roots of vegetables acted; many plants, especially the gramineous, absorb in the soil phosphoric acid, and hence acquire the property of decomposing the phosphates. The comparison, therefore, of M. Broca between the furrowed bones and the non-furrowed calcareous stones does not militate against the explanation given by M. Schaaffhausen.

After some further discussion, in which MM. Jouvenal, Sansen, and Broca took part, the meeting adjourned.

April 6, 1865.—*On the Age of Polished Stones in the Caverns of the Ariège, Pyrenees.* By MM. Filhol and Garrigou.—M. Filhol read a memoir on the above subject, of which the following is an abstract:—

"Twelve caverns have furnished to the authors the materials necessary for determining the period. The authors have successively studied the races of animals then existing, the implements fabricated of the bones of these animals, the pottery, and the stone implements which were found in the hearths. With respect to the race of the inhabitants of these caverns, the authors, adopting the views of M. Pruner-Bey, the learned President of the Society, consider them a brachycephalic race, in whom the Turanian face predominates over the Aryan face. This race is allied to the inhabitants of the shores of the Mediterranean and the Swiss lakes. It must, in time, have preceded the Aryan race, since it has left its traces in the deluvium. From the ensemble of the facts, including the same fauna, the identity of habits, industry, and civilisation, the authors are led to conclude that the period corresponds with the age of polished stone and that of the Swiss lake habitations."

M. Bertillon presents to the Society a treatise "On the Mean Duration of Life," which is to be inserted in the *Mémoires*.

April 20, 1865.—The Secretary read a letter from M. de Khanikof, on the relative proportions of the cranial diameters, confirming to some extent the researches of M. Gaussin.

M. Rougou presents to the Society a cranium of the Gallo-Roman period, found at St. German, near Corbeil. It is very dolichocephalic, and presents at the occipital part a well-marked protuberance.

Crania from Annecy (Savoy).—M. Mortillet, in presenting to the Society four crania from Annecy, said: "There existed formerly in that city a convent of nuns of the order of St. Clara. During the French Revolution, this convent was converted into a manufactory. Some years since, on repairing the church, there were discovered a great number of graves. Happening to be on the spot, I contrived to secure eight crania, all of which presented the brachycephalic form. Seven of these crania belonged to nuns; the eighth cranium belonged to a male, probably to the almoner of the convent. The Convent of St. Clara was a retreat for poor girls, which makes these crania more valuable, as they present the pure type of the country, uninfluenced by intermixture, which always more or less obtains in the higher classes. I have shown these crania to our learned President, M. Pruner-Bey, who will give you the results of his examination."

M. Pruner-Bey accordingly favoured the Society with a detailed account of the anatomical characters of these four crania, and their measurements. These crania, continued M. Pruner-Bey, excepting No. 4, belonged to aged females; they are brachycephalic, and, for female crania, rather voluminous. The whole type differed considerably both from the Aryan and the Negro type. In his opinion, it represented the *Mongol* type of naturalists, or the *Turanian* of linguists. It is, therefore, not astonishing that Finnish, Lap, and Calmuck characters are presented in these crania. . . . There now only remains the question, To what people belonged this cranial type, considered from a geographical, historical, and palæontological standpoint? With respect to the first two points, he would unhesitatingly answer that it is the cranium of the *Ligurians*, which is clearly established by the researches of M. Nicolucci.* History teaches the high antiquity of this race, and anatomy attests the permanence of its type. Piedmont, and specially Savoy, contains amongst its inhabitants numerous representatives of this race. If it be permitted to establish a deduction from cranial characters the same type existed also in France in remote times. Such crania have, in fact, been discovered by the Duke de Luynes in the vicinity of the Uyères. M. Garrigou has found in the caverns of Ariège two faces representing in the nasal parts all the exaggerations of this type. He (M. Pruner-Bey) also had in his own

* *La Stirpe Ligure en Italia ne tempi Antichi e Moderni*, etc. Napoli, 1864.

possession numerous cranial fragments taken from tumuli at Poitou, all denoting the existence of the same type by the side of the Celtic. . . . He (M. Pruner-Bey) did not think he was far out by assigning this cranial type to a period anterior to the polished stone-age, namely to the reindeer epoch. . . . Finally, in order at once to perceive the difference between the Ligurian and the Celtic cranium, it was only necessary to throw a glance at the cranium presented by M. Rougon when placed side by side with the Savoy crania on the table; there is the Celtic type, and here the Ligurian type.

M. Alix defended at great length the late Dr. Gratiolet against the attacks made upon that eminent writer by M. Vogt in his *Lectures on Man*. In conclusion, he requested that such as are about to peruse the works of M. Vogt should not neglect to read also the works of M. Gratiolet, and then they would arrive at the conclusion that not only was M. Gratiolet an elegant writer, but one of the most profound thinkers of our age.

M. de Mortillet observed that although the French edition was published after M. Gratiolet's death, it was ready before that event took place. M. Vogt, before publishing his work, consulted two friends as to the propriety of leaving or expunging certain passages in the preface to the French edition. I, continued M. Mortillet, was one of these two friends, and we both expressed our opinion that M. Vogt need have no scruples on that account. The blame, if any, therefore, partly attaches to us, and I, for my part, am ready to take the responsibility for that advice on my own shoulders.

May 4th, 1865.—M. Broca presents to the Society bones, and marine and freshwater shells which he had extracted from a grotto about two kilomètres from Menton (*Alpes maritimes*), in the territory of Ancient Liguria. This grotto, situate on the sea-shore on the flank of a slope, which is difficult of access, had already been explored to a considerable extent by M. Faurel. It contains a considerable quantity of bones, bearing some analogy to the kitchen refuse of Denmark. These bones are split open, evidently for the sake of the marrow. From the walls was, by means of a hammer, detached a solid and compact gangue, which contained osseous fragments and shells, also fragments of apparently worked flints. M. Broca was of opinion that this grotto served as a place of refuge where the meals could be dispatched in comparative security.

M. Martin presents, in the name of M. Perier, absent from indisposition, 1, Head of an Egyptian mummy; 2, Head of an Arab, preserved by mercury and solar desiccation; and 3, Fragments of a cranium recently found near the village *Chazay d'Azergues, canton d'Anse* (Rhone).

M. Pruner-Bey, in placing upon the table Dr. Thurnam's treatise "On the two principal forms of Ancient British and Gaulish skulls," said, I ask permission to add a French literal translation of that part of the memoir which interests us most, namely, the craniology of the ancient Gauls and the conclusions arrived at by the author. Having taken an active part in the discussion, I purpose recurring to it when my craniometric tables and my communication on the cranial types of the Ligurians are printed.

M. Alix read a report on a memoir by Dr. Hermann Wagner, "On the measurements of the surface of the cerebrum."

On the pretended Asiatic origin of Europeans. By M. Omalius d'Halloy.—The author asked permission once more to return to this subject, inasmuch as his opinions had been partially misrepresented. The discussion to which his questions gave rise proved satisfactory to him from two points of view. In the first place it was recognised, that when the peoples supposed to be Asiatic entered Europe, they found it already inhabited; secondly, no historic documents were produced proving the Asiatic origin of European nations speaking the so-called Aryan languages, and that in favour of such an origin there were only invoked some linguistic, etymological, and mythical considerations. He had not much confidence in the decisions of linguists as regards the filiation of languages. . . . . Had the ancestors of the Europeans known how to write there would probably have been found another language from which our own are derived, so that instead of their being the daughters of the Zend, the granddaughters of the Vedic, and the nieces of the Sanscrit, they would only prove to be very distant relations. . . . . He would add that he was induced to believe that more probably Europeans, still in a barbarian state, had introduced their language into Bactria, were they gradually became sufficiently civilised to write the Vedas, than to assume that civilised peoples of Bactria had entered Europe and lost their civilisation to such a degree that at the time of Tacitus neither the Germans nor Slavonians knew how to write. Another point favourable to his view is the admission that the fair type is not foreign to the Aryans, and he considered that it is more probable that this type, now so abundant in Europe, was developed there. He attached little importance to etymological and mythical relations, as the resemblances are frequently forced. He would also add that the absence of any allusion in European mythologies, to elephants and camels, was counter to the idea of an Asiatic origin. He did not say, as he is represented, that the Asiatics had an European origin. In the present state of our knowledge, we had no certain notion regarding the first distribution of peoples. He merely contended that the so-called *Aryan* language had

been imported into Asia from Europe, which does not necessarily imply that the Persians and Hindoos are of European origin, just as little as it can be pretended that the Spaniards, French, and the Wallachians are of Roman origin because they speak languages imported by the Romans. . . . . To be strictly logical, the name of Europeans should be restricted to peoples of fair complexion ; such a pretension would, however, considering the intermixtures that had taken place, lead to absurdities. Anthropological researches, no doubt, have for their object to trace the elements which concurred in the formation of individuals, but an ethnographical classification must accept conditions as we find them. No classification can refuse the name of French to the French-speaking populations of the South and North of France, under the pretext that the Iberian blood predominates in the one and the Teutonic blood in the other branch. . . . . As regards another question, he is of opinion that the languages spoken by the Erso-Kymris are wrongly called Celtic; he believed that the Celts were people with light hair, who vanquished in the West and South of Europe the black-haired peoples. In this he was powerfully supported by Renard and Holzmann, who sustained that the Celts and Germans were identical. It is now pretty generally admitted that the Gaelic and Kymric languages spoken by the Irish, Scotch Highlanders, Welsh and *Bas-Bretons*, are the representatives of languages formerly spoken by the inhabitants of France and the British Isles. But there exists a divergence as regards the relations of these peoples with the Celts, and the natural group to which they belong.

Amedée Thierry and his followers think that the Celts and Gaëls are identical, and that both belong to the black-haired type, and the Kymris, who arrived later, belonged to the light-haired type. He (Omalius d'Halloy), on the contrary, was of opinion, that both the Gaëls and the Kymris were black-haired, and that they were vanquished by the Celts, a people or a confederation of peoples of fair complexion who spoke a Teutonic language. This theory accords better with the facts and historical notions, and disposes of the difficulty of supposing that so powerful a people as the Celts belonged to a family now only feebly represented in the extreme west of Europe. This explains, also, why the Greeks who knew of the conquests of the Celts, called all the Germans by that name.

That which has led to consider the Kymris as belonging to the light-haired type, is the resemblance of their name to that of *Cimbri*, a name given by the Romans to a northern people who, associated with Teutons, penetrated into the South of Europe, whence they were repulsed by Marius, people whom the Romans subsequently found again

in the vicinity of the Baltic. Nothing, however, proves that this people had any relations with the present Kymris, and it may be admitted, with Schayes and other authors, that it was a Germanic tribe, as is shown by their association with the Teutons. Speaking of classification, he would admit that the application of a single character leads to artificial results, and the colouration of the skin is a fugacious and varying character; still, he would sustain, that classifications founded on the colour of the skin, had not yielded such defective results as the cranial classification of Retzius, who placed the Negroes in his first class with the Germans, whilst he rejected the Slavonians from the second class. No member of the Society, he felt convinced, believed that there obtains a closer relation between the Negro and a German, than between a German and a Slavonian.

The most distinctive character of man, concluded M. Omalius, is his aptitude for civilisation, which must be taken into consideration in every classification. Now, it is remarkable that the coloured races have never reached the same degree of civilisation as have the whites, and that among the coloured races the least apt for forming regular states are generally the darkest in complexion. It must not be lost sight of that he spoke merely of *aptitude* for civilisation and not of the *state* of civilisation, which are two different things, the one being a natural character, resulting from organisation, the second resulting from social relations.

M. Liétard said that a complete reply to the interesting paper read by M. Omalius d'Halloy would be to re-open a discussion, which was foreign to his intention; he would, therefore, confine himself to answer a few arguments drawn by the honourable member from the variations in the opinions of scholars relative to the classification and filiation of the Indo-European languages. And first, as regards the Sanscrit. No one now maintains that it is the mother language of Indo-European idioms. This idea is a popular error; the philologist knows that the Sanscrit, Greek, Latin, and other languages, are branches belonging to a common trunk. But what is this common trunk? In this respect there is another error current, namely, that the Vedic Sanscrit, or rather the Vedic language as it is called, is considered as the mother of Indo-European idioms. The truth is, that the language of the Vedas is merely the ancient Sanscrit, so that between the language of the Vedas and the classical Sanscrit there is perhaps less difference than between the French of Rabelais and that of Voltaire. The primitive language of the Aryans, the real ancestor of the Japhetic language, is not represented by any literary document; nevertheless its reconstitution by means of comparative grammar and philology is relatively easy, for it may be obtained by a strict appli-

cation of a series of phenic laws now clearly determined. After the Zend, the filiation of which is now known, we find in chronological order the *Persian*, or the cuneiform inscriptions of Persepolis ; then the *Pehlwi*, characterised by numerous expressions borrowed from the Semitic languages ; this language became subsequently more Aryan in the *Parsi*, a dialect very poor as regards literary remains, and which, by successive degenerations, became *modern Persian.*

May 18th, 1865.—M. A. Bertrand gave an account of the results obtained from excavations at *Saint-Etienne-au-Temple*, near Chalons, undertaken at the expense of the Emperor. A cemetery was discovered, dating back to at least two or three centuries before our era, in which were found Etruscan pottery, fire-arms, and bronze objects. At some distance were discovered about thirty Gallo-Roman graves. The skeletons were well preserved, and several crania will be submitted to the inspection of the Society.

M. Broca, who, with MM. Bertrand and de Saulcy, had assisted at the excavations of Saint-Etienne, placed upon the table three crania ; one a Gallo-Roman, and two Gaulish skulls. Hitherto, said M. Broca, there existed a vexatious blank in the anthropology of France. Our museums and collections contain a certain number of crania of the stone-age and also of the bronze-age, so as to admit of the study of prehistoric types, and also of the crania of the Gallo-Roman period. But, as regards the crania of the *Gaulish* epoch, comprised between the commencement of the iron-age and the subjection of Gaul by the Romans, these were almost unknown, for the crania marked Gaulish in the various collections are partly prehistoric or of an undetermined period. The gap may, perhaps, now be filled up.

A discussion having taken place as to the proper discrimination between the prehistoric, Celtic, and Gaulish periods, M. Broca replied that, in his opinion, the Gaulish period commenced at the time when the Gaulish peoples first came in contact with Italian civilisation, and that it finished with Julius Cæsar.

M. Nicolucci sends four photographs representing two ancient crania of the Ligurian type with a manuscript notice translated and read by M. Pruner-Bey.

The two crania are brachycephalic, and present the Ligurian form, which in prehistoric times must have obtained in the Italian peninsula. The cranium No. 1 seemed to have belonged to an adult man about thirty years of age ; No. 2 to a youth of about sixteen years old. Upon the first cranium is very distinctly seen in the frontal suture a peculiarity frequently met with in the ancient crania of the valley of the Pô. There is no trace of disease or artificial deformation in these two crania. Their antero-superior portion is well-developed, and the

forehead is elevated and in harmony with the face and the rest of the cranium. The cranium of the man is orthognathic, that of the youth slightly prognathic, a character very common both in the ancient and modern Ligurian stock. The brachycephaly of No. 2 is remarkable, the cephalic-index reaching 92·60. It is also noteworthy that the antero-posterior diameter is in these crania much shorter than that seen in other ancient crania, whence M. Nicolucci inferred that their brachycephaly depended less on the extension of the transverse diameter than on the shortening of the longitudinal. A table of the principal measurements of these crania is added.

Instability of Cross-breeds in the Ovine Species. By M. Sanson.—M. Sanson said that he had often advanced that cross-breeds had no fixity, and after several generations necessarily returned to either of the primitive types which co-operated in forming them. He now had the pleasure to present to the Society aquarells painted from nature representing a certain number of individuals just exhibited at the Agricultural meeting of Versailles. Four of these animals are "Dishley-Merinos." They consequently belong to a pretended fixed cross-breed, and are descended from several generations, the results of crossing between Merino ewes and the English ram of Dishley. A single glance at the drawings shows at once that two of these individuals have returned to the Merino type. The other two have returned to the Dishley type. . . . These facts, he submitted, were of importance also to anthropology, as they may explain many questions relating to the study of human races.

M. Roujou read a paper "On the beds of the polished stone-age near Villeneuve Saint George's."

June 1st, 1865.—*On Dutch Crania*, by M. Sasse of Zaardam (North Holland), translated by M. Pruner-Bey.—Anthropology is threatened by an error which seems to take root, relative to the cranial form of the Dutch, which is deemed to be essentially dolichocephalic. The cause of this seems to be, the comparison which has been established between the Neanderthal skull and that represented by Blumenbach as the cranium of a real Batavian (*Batavi genuini*).

I had the honour of presenting lately to your notice the results of some measurements of crania of North Holland, proving, as regards that province at least, the allegations to be incorrect. Moreover, the cranium delineated by Blumenbach (table lxiii) is exceptional just in those details which should establish the resemblance, namely, the great prominence of the superciliary arches, the recession of the forehead, which is low and flattened. Among the eighty crania of North Holland, there is only one presenting a slight approach to this form.

In the photographs I submit, reduced to one-fourth of the natural

size, you will not find that this type is well marked. Moreover, my celebrated teacher, M. Vrolik, has also published in his catalogue the measurement of five crania from the islands of Marken and Schokland,* and observes that none of these crania resembles the cranium of the *Batavi genuini* represented by Blumenbach. For my part, I stoutly enter my protest against the idea that the Dutch are generally more dolichocephalic than other stocks of Germanic origin, as laid down by M. Vogt in his *Lectures on Man.* As regards the other crania, further researches are unnecessary.

I have taken much interest in the discussion in your Society relative to the Celtic question, which occupies the attention of the learned world. For my part I confess that I am inclined to think with Holzmann and Acker Strating, that the Celts, that is to say the fair-haired Gauls, were nothing but Germans. These nations cannot be distinguished except by language. Moreover, the Celtic language, especially the Kymric branch, presents many points of contact with the low German (Dutch) and low Saxon. Thus I find in Acker Strating, "Adelung (Mithridates) finds that in the Kymric of Wales nearly half the words are low German." Pelletier (*Dict. de la langue Bretonne*) entertains similar views. Finally, the Society for the literature and language of the Netherlands at Leyden possesses two vocabularies by M. Hoefft, on the concordance of Walloon and Low-Breton words with Dutch, Low-Saxon, and Low-German terms.

I cannot pass over the accord of some Welsh customs with those of North Holland. In the *Revue des Deux Mondes*, Feb. 15, 1865, M. Esquiros thus describes the marriage customs of Wales: The same customs, including the "courting in the bed," existed formerly in the Isle of Tessel, under the name of "kweesten," and even now it exists under a somewhat modified form in Holland, north of Amsterdam. The baptism of milk and lime, so dear to the Welsh, exists also as a custom in North Holland, if not generally, at least in the fertile *polders* of Beemster. The lower portion of the walls of houses and of trees is painted white, etc.

It seems to me not to admit of contradiction, that the Germans have crossed the Rhine four or five centuries before our era, and have more or less subjugated the indigenous black-haired population.

* Observation by the translator (Pruner-Bey). "M. Sasse seems to ignore the fine treatise of his countryman M. Lubach, in which the cranial forms are clearly specified according to the provinces of Holland. Anthropologists who have compared the Neanderthal skull with the Batavian cranium of Blumenbach, look upon both as exceptional. It is, therefore, not astonishing that M. Sasse found nothing like it among the eighty modern crania, possibly German, whilst the two preceding should be considered as ancient and Celtic."

They endeavoured to establish themselves as autocrats, or where they were inferior in number to intermix with the natives who have gradually absorbed them. These Germans have imported into Gaul the fair and nomadic element. Had they been long fixed in Germany? This I venture to doubt. Their appearance in Gaul was perhaps only the distant echo of the migratory movements which commenced in Asia in the fourth century before our era, down to the invasion of the Huns. In Greece I am inclined to date the existence of the Aryan element from the Doric invasion. The primitive population of Greece, as regards at least the Ionian, was perhaps Semitic.

I finally venture to suggest that there exists no impassable gulf between us and the Semitics from a linguistic point of view. There are, properly speaking, but two letters which form the root of triliettered Semitic words, etc. If the Society wishes it, I shall be glad to communicate to it my researches on this subject.

M. Pruner-Bey, in mentioning some of the concordances in the words pointed out by M. Sasse, as regards the Semitic and Aryan languages, observed that they presented nothing new and were too vague to be of value. As to the reductibility of Semitic roots, there exist volumes written on this subject by Meyer, Bunsen, Dietrich, etc. All these linguists have, despite their talent, failed in their attempts.

M. Vogt said that he had, it is true, in his *Lectures on Man*, placed the Dutch crania among the dolichocephalic, and that it was chiefly on the opinion of Welcker that he advanced that the Dutch were the most dolichocephalic people of Europe. It is known that the Island of Marken is peopled by a race which is said to be the oldest in Holland, and which does not intermix with the other races. No one at least will contest the extreme dolichocephaly of the inhabitants of this part.

M. Lagneau: Marken and Schokland are two islands of the Zuyder Zee. The first is situated to the south-west of this internal sea, near the coast of North Holland, not far from Monnikendam. It is said that it was only separated from the continent towards the end of the thirteenth century. The inhabitants, generally fair, are said to be industrious, wearing a peculiar dress, and reach an advanced age without being subject to grave diseases (see *Magasin Pittoresque*, p. 137, 1864). The second is situated east of the Zuyder Zee, opposite to the mouth of the Yssel, near the coast of the province of Over-Yssel. The chief village is Middelbuurt.

Anthropological Study on the Commune (Parish) of Batz (Loire-inférieure), and the Innocuousness of Consanguineous Marriages. By Dr. A. Voisin. This paper, which is to be published in the *Mémoires* of

the Society, contains the following conclusions:—The parish of Batz is situated in a peninsula surrounded by rocks, and contains a population of about 3,300, who, like the rest of the inhabitants of this department, have little intercourse with adjoining districts. Their intelligence is much developed; all adults can read, and their behaviour is excellent. All the children are suckled by their mothers. The alimentation is good, and chronic diseases rare. At this time there exist in this parish forty-six unions between relations: five between cousin-germans, thirty-one between the issues of cousin-germans, ten between cousins of the fourth degree. Besides these, there is a large number of marriages between cousins of the fifth and sixth degree. The above forty-six marriages have produced one hundred and seventy-four children, twenty-nine of whom died from acute diseases. All the rest are perfectly well, and, like their parents, of excellent constitution. Two unions proved sterile.

"This study," adds the author, "has convinced him that consanguinity is by no means injurious to the offspring, provided the father and the mother present no diathesis, no hereditary taint, are of good health, and live in good hygienic and climateric conditions. In such cases consanguinity, so far from being detrimental to the offspring, on the contrary, exalts the qualities, just as it would tend to perpetuate defects and other causes of degeneration."

M. Dally said that, having lately sojourned for a few days in the island of Brehat (Côtes-du-Nord), he could, from what he saw and heard, confirm the conclusions arrived at by Dr. Voisin.

M. Lagneau then offered some observations on the ethnography of Brehat and Barz, after which the meeting adjourned.

Correspondence.

VOGT ON ITALIAN CRANIA.

To the Editor of the Anthropological Review.

Sir,—On my return from a voyage, I found on my table the April number of the *Anthropological Review*, containing some strictures which concern me; namely, an article on Italian Anthropology (p. 142) signed J. B. D., and a notice by Dr. H. Wagner (p. 248). I shall first deal with the article, partly written in the name of M. Nicolucci.

I had, as it appears, the misfortune of examining some ancient Italian crania, and to write concerning them a letter to M. Gastaldi, who asked my opinion on a cranium found at Mezzana-Corti, in the alluvium of the Po. This letter is dated January 20, 1866, and relates to observations made in the months of October, November, and De-

cember, 1865. J. B. D. reproaches me for having been too "rash", and for having ignored the labours of previous observers. Now, sir, I confess that I had no intention whatever either to write an article on Italian anthropology, or a treatise on craniological researches made in Italy. My friend Gastaldi asked my opinion on the cranium of Mezzana-Corti, which I gave him, grounded on other data, which I had collected in some other museums. M. Gastaldi then asked my permission to print this letter, which I readily granted. There is no doubt that my letter was written without my possessing any knowledge of the memoirs by Messrs. Garbighetti and Maggiorani, which I have not yet been able to procure. But, what is worse, I had written my letter without having known that of M. Nicolucci on the crania of Marzabotto and Villanova, dated three months before, viz., Sept. 15, 1865. Respecting this last letter, I have to state that Count Gozzadini did not say a word to me, when on the 9th of Dec., 1865, I examined at his house these crania. He even seemed astonished when, after examining them, I told him that, in my opinion, the crania of Marzabotto were not Etruscan skulls. As I was acquainted with some previous researches of M. Nicolucci, I made inquiries after him at Turin, Florence, and Naples; but no one could inform me of his whereabouts, nor did any one tell me of his examination of the crania of Bologna. Certainly, if I had had the least suspicion that he was occupied with this subject, I should have let it alone.

Having premised this much, let us come to the facts. In a letter dated May 26, 1866, a reply to mine, M. Nicolucci takes me to task concerning the Etruscan, Ligurian, and Roman crania. With regard to the first, I gave the measurements of four crania belonging to the museums of Florence and Goettingen (the latter measured by M. His), and of a fifth found in the island of Elba. The mean cephalic index of the first four is 82—the limits of variations between 78·9 and 87; the index of the last is 77·1; the mean index of the five is 80·4. M. Nicolucci, on the contrary, finds, after the examination of many Etruscan crania, the cephalic index to be 76, and that consequently the type is sub-dolichocephalic. M. Nicolucci further says, that my error proceeded from mistaking Ligurian crania for Etruscan crania.

I have since had the curiosity of studying the indications of M. Nicolucci of the numerous Etruscan crania which he has examined. But what was my astonishment, when I found that hitherto M. Nicolucci has compared the crania of Mazabotto with no more than five crania from Perugia, Veie, Tarquinia, and Cere, exactly the same number as mine! Who of us two is right? It is very possible that after the examination of hundreds of Etruscan crania (if we could get them), the mean cephalic index will be quite different. Have we not seen Retzius classing the Germans as dolichocephalous, whilst Welcker proves that they are brachycephalic? But M. Nicolucci says that the Etruscan crania cited by me are not Etruscan. Well, not being an antiquary, I have accepted them as such on the faith of documents and the tickets attached to them. The crania of Goettingen were presented by King Louis of Bavaria to Blumenbach. The crania of

the museum at Florence, came from Volterra and Chiusi. The first was presented by Professor Parlatori, the second by the Marquis Strozzi. If these crania are not Etruscan, so much the worse; but why take me to task? Have at those who presented these crania with false indications. But I doubt much whether M. Nicolucci will undertake this campaign — these crania will therefore remain Etruscan.* M. Nicolucci adds, "M. Vogt also takes as Etruscan some crania found in the necropolis of Marzabetto, near Bologna, which is equally erroneous, as these crania are far removed from them." Now I earnestly protest against such an imputation, and I cannot understand how M. Nicolucci could make it; for I distinctly stated in my letter, that these crania in no way belonged to the Etruscan type, and I placed them in my tables among the crania of the Ligurian type; consequently, J. B. D. veils this unjust imputation of his friend.

I range the crania of Marzabotto among the Ligurian crania, the mean index of which is 81. M. Nicolucci considers them identical with the existing Bolognese, which, according to him, have an index of 78. The only measureable cranium of Marzabotto (the other is deformed artificially) has, according to M. Nicolucci, an index of 79·6; according to my computation, 80·6. It appears to me that the discrimination between the "Ligure" and "Ombrien" types is not easy, and that a single cranium is insufficient for this purpose, especially as the absolute length and width of the Marzabotto cranium agree perfectly with the measurements of Ligurian heads, as may be seen in my table.

I have, moreover, vainly searched in the writings of M. Nicolucci for the proofs demonstrating that the crania of the existing Bolognese and of "the family of the Umbri" essentially differ from the Ligurian type; and when I look upon the delineations of the crania, the photographs and the figures given by M. Nicolucci himself, it appears to me that the difference between Ligurians and Umbrians, is about equal to the differences between "Allemands" and "Germains."

M. Nicolucci also pretends that I am in error by stating "that the majority of existing Italians are brachycephalic." I cannot speak with certainty on this point, not having made the necessary researches. I found this indicated in the table of M. Welcker (*Wachsthum und Bau des menschlichen Schaedels*, p. 57), where, according to the measurements of fifteen crania, the existing Italians are ranged among the brachycephalic by the side of the Turks.

M. Pruner-Bey, after the examination of three crania (*Mém. de la Soc. d'Anthropologie de Paris*, vol. ii, p. 432), gives them an index of 76·6, and places them among the dolichocephali between the Scandinavians and the ancient Romans, the former having the same index, and the latter an index of 77. Who is right, M. Welcker who has

* Here is the copy of the original tickets in the museum of Florence :—
No. 1. "Homo sapiens. Lin. Razza etrusca o Rasena antichi sepolchri etruschi. Chiusi. Domo del Mse. Strozzi 1861."
No. 2. "Testa di antico etrosco dei Sepolchri antichi di Volterra. Dono del Prof. Partatore."

measured fifteen crania, or M. Pruner-Bey who has only measured three crania? Whilst waiting for an exhaustive work on the craniology of the modern Italians, which M. Nicolucci will perhaps some day favour us with, I may I trust be permitted to repeat the assertion of M. Welcker.

Finally, it is the Roman cranium which has given rise to stricture. I have expressed some doubts, nothing more. Blessed are those who believe! At Florence I was shown a brachycephalic head, and told that it was a Roman skull. The crania of Pompeii appeared to me (I could not examine them in detail) brachycephalic. The cranium of Alejus at Goettingen is eminently dolichocephalic (index, 72); those of the crania Britannica (4) are less so (index, 74); those of M. Pruner-Bey (*loc. cit.*, two in number) are still less so (index, 77). I think that doubts are the more permissible as the Romans were generally in the habit of burning their dead, and that exceptions to this rule are cited, as, for instance, if I am not mistaken, as regards the family of the Scipios. M. Nicolucci says that I am mistaken in believing "that the crania of Pompeii may furnish the type of the Roman cranium;" I willingly submit to be condemned on this point. Hitherto I was of opinion that Pompeii was very Roman; if I err, I err, at least, in good company.

One word in conclusion. In a recent treatise by M. Nicolucci (*Sulla Stirpe Sapigica*, Napoli, 1866), a work which I have read with the greatest pleasure, and which appears to me a model of ethnological investigation, M. Nicolucci says expressly (p. 26):—"*Non tacero che fra i teschi greci antichi, come fra i moderni, havvene di quelli si distinguone per la forma brachicefala.*" According to M. Nicolucci the brachycephalic form predominates in the ancient Greeks north of Thessaly, and the dolichocephalic form in the south. Is it then impossible that the ancient Romans should have had two forms, as had the ancient Greeks?

The brachycephalic Greeks were, according to M. Nicolucci, "barbari;" but what were the Romans at first? Nothing but a gathering of all sorts, and at a later period a constantly increasing agglomeration of all possible types. I should have liked to submit to J. B. D. the documents in support of my opinion; but not knowing the address of the writer, I beg to send you the outlines of the crania taken by the apparatus of Lucae on the objects. I have added to these drawings of natural size drawings of two figures of Ligurian crania given by M. Nicolucci himself in his memoir entitled *Popolazioni dell' Italia ne tempi antestorici*, published in 1863 in the first volume of the *Actes de l'Academie de Naples*, in order to compare them with a third drawing of the contours of a fine photograph of the cranium of Mazabotto, which is nearly of the same size. I think that the comparison of these three little figures, cannot but show the near resemblance of their forms. The other drawings are designed as in my letter to M. Gastaldi.

I now come to the complaint of Dr. Hermann Wagner. I admit having committed an error owing to the insufficiency of the text in the comparison of the occipital lobe. I am, however, glad having done so,

for it procured us an autobiography of the professor of natural history at the college of Gotha, of which otherwise we might have been deprived. But, as regards the fact, for which I criticised the elder Wagner, I am perfectly right. It even results from the measurements of M. Wagner the younger, that the occipital lobe in the brain of apes is of the same relative size as in man. I have now the honour of sending to the Society, as well as to some of its members, my memoir *Sur les microcephales ou hommes-singes*, which has just appeared in the memoirs of the *Institut Genevois*, tome 1867, and refer such as take an interest in this question to page 153, and following pages of this memoir, where the whole question is treated at length, and where my assertions are supported by measurements taken on a certain quantity of casts of the brains of men, microcephali, and of apes.

I am, sir, your obedient servant,

Geneva, May 17, 1867. C. VOGT.

The following letter to ROBERT BRUCE, Esq., Secretary to the Committee for the Reception of Anthropologists at Dundee, tells its own tale :—

MY DEAR SIR,—I have duly received the intimation that you have kindly undertaken the duties of Secretary to a Committee for co-operating with anthropologists during the forthcoming meeting of the British Association at Dundee. I have communicated this gratifying announcement to some of my colleagues who purpose attending, and they have all expressed their appreciation of your sympathy with their labours. We have no right to anticipate difficulties, but at the same time are fully alive to the important services, which, in case of need, you might render to us.

Personally I hail with the greatest pleasure the formation of your Committee, and feel sure that our friends and fellow-workers, to whom I shall not fail to communicate your good intentions towards us, will look forward to their visit to Dundee if only to become better acquainted with such kind friends and sympathisers in all our labours and struggles. I will duly inform you of our arrival at Dundee, which will be, I expect, on Tuesday, the 3rd of September, so far as we can now foresee ; we shall be glad to meet you at such time and place as may be agreeable to you.

In the meanwhile I think it would be advisable that your Committee should confine their efforts solely to bringing together such men as sympathise with our work and are desirous to extend the right hand of fellowship to us ; and that they should in no way attempt to interfere with the legitimate action of the authorities of the Association. Although, I am glad to say, we anticipate no difficulties at the present, we shall all look forward to our visit with increased pleasure from the knowledge that warm friends and allies await us, ready if necessary to do battle under our banner.

Believe me, my dear Sir, very faithfully yours,

JAMES HUNT.

August 8, 1867.

Anthropological News.

We understand that C. Carter Blake, Esq., F.G.S., etc., late Librarian and Curator to the Anthropological Society of London, and who is well known as as having been intimately connected with that Society from its commencement, has accepted an appointment in connection with the mines in Nicaragua, and will sail early in September for his destination. Mr. Blake may be congratulated on the wide field thus open to him for personal scientific research; and his fellow anthropologists will no doubt receive valuable communications from him relative to the native and mixed inhabitants of the spot he is about to visit, as well as other allied objects of anthropological interest, upon which he will have the opportunity of making original observations in his new sphere of duty. Mr. Blake was, we understand, recently elected an Honorary Fellow of the Anthropological Society of London, in consideration of his zeal and services to anthropological science.

Broca on Anthropology. — The conclusion of M. Broca's admirable article we hope to be able to insert in our next issue.

Sir William Lawrence and Dr. Nott.—Our readers will learn with deep regret the death of these distinguished anthropologists. At the anniversary of the Anthropological Society, we believe that *éloges* will be pronounced on their memory.

Anthropological Society of Spain.—We regret to have to announce that the disturbed state of politics in Spain continues to prevent the meeting of this Society. M. Delgado Jugo still, however, acts with great zeal as Secretary.

Foundation of a Museum of American Archæology and Ethnography, in connection with Harvard University, in the City of Cambridge, Massachusetts.—The munificent Mr. George Peabody, who has presented such very liberal endowments to the poor of the city of London, has with equal generosity contributed to the promotion of science in his own land. He has given 150,000 dollars to found and to maintain a Museum of the Archæology and Ethnography of America. This is excellent news in favour of anthropological science. We rejoice to hear that the distinguished Professor of Anatomy of Harvard University, Dr. Jeffries Wyman, is placed in immediate connection with this new foundation, and is already actively engaged in collecting materials for the new museum. He has lately been in Florida, making explorations in the mounds for crania, antiquities, etc. It is said that Mr. E. G. Squier has contributed to the museum the great collection of ancient Peruvian skulls made by him in his recent researches in Peru.

Discovery of Ancient Human Remains in California.—A human skull has been discovered in the pleistocene of California, in a table mountain, under gravel, volcanic ashes, and lava, along with the bones of the mastodon, extinct horse, tapir, rhinoceros, etc. It is expected the cranium will be sent to the museum of the Academy of Sciences of Philadelphia.

PHOTOGRAPHS OF HUMAN RACES.—A committee of the above Academy has been appointed to obtain photographs of North American Indians, Negroes, and other races. Such objects are of the highest interest and value, if their permanency can be secured; but they can never supersede accurate and truthfully executed *coloured* drawings.

CATALOGUE OF A RUSSIAN COLLECTION OF FOUR HUNDRED HUMAN SKULLS.—The Anthropological Section of the Société des Amis de la Nature, which is in immediate connection with the University of Moscow, has in the press a catalogue of its collection of crania, which extend to four hundred in number. We believe it is nearly ready.

Professor Pott, of Halle, is about to publish vol. i of his Dictionary of the Radicals of the Indo-German Language (*Wurzel-Wörterbuch der Indo-Germanischen Sprache*), which will contain all the class of roots which terminate in vowels. It will be hardly possible to overrate the importance of this long-expected work to all students of language; for no dictionary of reference to the ultimate Aryan source of the words of Indo-European languages in general exists, nor has any philologist ever lived of greater competence to carry out this immense undertaking.

Dr. Adolph Bastian, the anthropologist and traveller, author of "Man in History" (*Der Mensch in der Geschichte*), etc., is at present delivering lectures on Ethnography at Berlin.

NOTICES have appeared in the art criticisms of nearly all the leading journals highly commendatory of Mr. Tweedie's presentation portrait of the Founder and late President of the Anthropological Society, James Hunt, Ph.D., F.S.A., etc. The portrait is now being exhibited at the Manchester Exhibition.

M. DU NOYER has been making some interesting discoveries in the north of Ireland. He has found numerous worked flints in the undisturbed drift sand and gravel of Kilroot, near Carrickfergus. In the space of sixty yards of gravel cutting he extracted twenty-seven of these implements, with a sharpened bone of a bird and a flake of a mammal's bone. He is preparing a notice of this for the Geological Society of Dublin.

BEFORE commencing the completion of his *Principles of Psychology*, Mr. Spencer proposes to prepare a second edition of *First Principles*. The reorganisation and further development of that work will occupy several months. Probably, therefore, it will be nearly the end of the year before the first number of the *Principles of Psychology* is issued. We trust Mr. Spencer will remove the objectionable features from his principles, and thus enable the work to be accepted by men of science.

ANTHROPOLOGY IN THE ISLE OF MAN.—*The Manx Society*.—May 7th, 1867. Dr. Oliver showed the frontal bone of a skull of a large man, which had been taken from the tumulus on the Ballacroak estate in the parish of Malew. He observed that there had been several of those remarkable skulls found, thus showing that there were some very large men at one period in the Isle of Man. His Excellency: A race of giants! The skull was then handed round for the inspection of the members. His Excellency: How much larger would that be than the ordinary head now? Dr. Thomson: I don't think it would be much more than the average. Dr. Oliver said it was a very thick head. Mr. Laughton: They were all thick heads in those days!—(laughter).

His Excellency: It was a very flat head. Dr. Oliver said it was impossible to remove the whole skull, it was in such a state of decomposition. Dr. Oliver observed that there were two tumuli in one field, showing different states of burial—the one Christian and the other Pagan. The larger tumuli contained a quantity of calcined bones, of both men, women, and children, specimens of which he produced; also stone implements of war, including a maul of white quartz, spear-head, flint, and a very perfectly formed stone celt. The tumulus was fifty-one feet long and nine feet high. The stone chamber was perfect in its formation, the lid, which was of granite, weighing between two and three tons. The whole of the joinings of the stone chamber were puddled with clay, and excluded all moisture, so that the interior was perfectly dry. He also exhibited part of a vase from a cairn on Archallagan, which was found filled with calcined bones. There were two of them in the one cairn, enclosed in a kistvaen. He also showed drawings of St. Luke's Chapel, and burial-ground of the Danish Kings Cronk-na-Irey-Lhaa, the Manx Cabbal of the fifth century, the Keeil of the sixth century, and the Treen Church of the eighth century, also drawings the old churches of Kirk Braddan, Kirk German, Kirk Marown, Kirk Malew, and Kirk Conchan.

New South Wales Exhibition Commission.—Acting upon the suggestion of Professor Owen, the Australian Commissioners of the Paris Exhibition of 1867 declared their intention to have the fossil flora and fauna of Australia represented there as extensively as possible. With this view they were desirous of having the osseous breccia of the Wellington caves, and those caves generally carefully examined under the superintendence of a gentleman of adequate scientific knowledge. Mr. Gerard Krefft accordingly examined the caves, and although there for but a very few days, made an interesting collection of fossils. Of these, no less than 1393 specimens have been sent to the Paris Exhibition. They were carefully classified and assorted by that gentleman, and are particularised and described by him in an appendix attached to the New South Wales Catalogue. One, No. 216, is a portion of bone not unlike that of man in structure; and two, Nos. 266 and 267, are stated to be the "posterior part of the fifth metatarsal bone, not unlike the same bone in man." Mr. A. G. De Gyulay, Secretary to the Commissioners, states that no fossil remains, however, have yet been found in those caves which can be declared to be human. But it is to be hoped that Mr. Parkes will act on Professor Owen's suggestion. It is highly desirable for the cause of science that those caves should be thoroughly examined. They might serve to solve one of the great questions of the day, namely, the existence of the remains of man in a fossil state.

Dr. Julius Schvarcz, a Hungarian gentleman of private fortune, and one of the most rising anthropologists of Europe, whose work, published in English, *On the Failure of Geological Attempts in Greece*, received a favourable reception from the scientific world in 1862, has again visited England this season in order to publish the second volume of this work. He has at the same been collecting the most recently acquired facts in relation to the temperature of English and American mines with the view of bringing them forward in his forthcoming extensive work on *Internal Heat*, an abstract of which is to be read at Dundee. Since the year 1862, when Dr. Julius Schvarcz's anthropological and geologico-historical works were for the first time introduced to the English public, he has been continuing his researches into theoretical geology, more particularly in relation to the theory of in-

ternal heat, and has likewise paid much attention to such anthropological subjects as the theory of progressive development, the zoo-geography of the different geological periods, human fossils, and the highest traces of the historical antiquity of human races. At the same time he has been actively engaged in supporting the cause of popular education in Hungary, and has collected at his private expense entirely new tables of school statistics of Hungary, being the most complete and detailed work of the kind in Central Europe. Dr. Schvarcz has, in addition to these scientific and patriotic labours, founded a national association for the promotion of popular education in Hungary, and has brought out, besides a mass of smaller works on educational subjects, a large quarto volume entitled, *Educational Reform as a Political Necessity in Hungary*, a work which is ranked by Hungarian men of science as one of the monumental productions of Hungarian literature; not only in regard to the great influence it has already exercised and continues to exercise on the consolidation of the progress party in Hungary, but also with regard to its form, composition, and style. Dr. Schvarcz, animated by the desire to emulate, with regard to the intellectual development of his countrymen, the work already accomplished for their material interests by the late Count Szechenyi, is looked upon by the mass of the people as well as by the *literati*, as amongst the chief supporters of the national party, although still a young man. A paper by Dr. Schvarcz in relation to his views on national progress in civilisation will be read at Dundee before the British Association. His other paper, on "Internal Heat," may be expected to have great interest for geologists, as it promises to supplant the whole geological doctrine of a central fire by an entirely new argument which we must not forestall. These views, if substantiated, cannot fail to bear in an important manner on various anthropological theories. We shall communicate at a later date the results which Dr. Schvarcz has obtained in his researches into theoretical anthropology, a part of which he has already communicated to the Hungarian Academy of Sciences at Pesth.

Oxford Anthropological Society.—We announce with pleasure the formation of a young and vigorous society for the promotion of our science which has been established at Oxford. Quietly as this little society has arisen, and unostentatiously as it holds on its course—being for the most part composed of the younger members of the university whose taste has led them in a scientific direction—the subjoined list of papers read will appear highly creditable. A paper contributed by a member of this society is prevented only by want of space from appearing in our present number, but we hope to present it to our readers on a future occasion. The following notice will be read with interest:—

"*Oxford Anthropological Society.*—A society has been founded in Oxford for the furtherance of anthropological objects. Mr. A. H. Sayce, Mr. R. Robinson, and Mr. H. G. Sharp having been successively elected Presidents. Since the first meeting of the Society at the beginning of the Easter Term for 1866, the following papers have been read: 'The Influence of Wyclifism on the National Development,' by Mr. C. W. Tait; 'Comparative Mythology,' by Mr. A. H. Sayce; 'The Science of History,' by Mr. A. C. Hamilton; 'Poetry,' by Mr. W. Danks; 'Connexion between the Revolutions of the Moral and the Physical World,' by Mr. A. H. Sayce; 'Education, Ancient and Modern,' by Mr. R. Robinson; 'Law and Equity,' by Mr. J. W. Browne; 'Feudalism,' by Mr. C. W. Tait; 'The Relations of Woman to

Man,' by Mr. C. Churchill; 'The Functions of the Brain,' by Mr. H. G. Sharp; 'Comparison of the English Rebellion and the French Revolution,' by Mr. J. Greenwell; 'The Phenomena of Sleep,' by Mr. C. Babington; 'Greek Civilisation,' by Mr. A. H. Sayce; 'Government,' by Mr. H. Bromley; 'The Principles of War,' by Mr. W. Morris; 'Colonisation,' by Mr. J. Cotton; 'Rent,' by Mr. H. L. Browne; 'Scepticism,' by W. M. Hatch; 'The Relation of Poetry to Philosophy,' by Mr. H. C. James, and 'The Statistics of Crime,' by Mr. C. W. Fowler. Attention has also been drawn to the light hair and complexion of the natives of Oxford and its neighbourhood; characteristics more plainly marked than even in Saxon Somersetshire."

ANTHROPOLOGICAL SOCIETY OF LONDON.—The following appears in the last issue (No. 3) of the *Archiv für Anthropologie*, and will no doubt interest our readers. "This Society, founded in 1863, has, by praiseworthy perseverance, not merely occupied a place by the side of the much older Ethnological Society, but has wrung from the British Association the recognition of anthropology as a special branch of science. The *Transactions* extend over a larger sphere than those of the Paris Society, but have not always the incisive character of the latter. Since last year there has been added to the *Review*, which is critical, and the *Journal* reporting the proceedings of the Society, the *Popular Magazine*, having for its object the popularisation of anthropology. The London Society publishses, like the Paris Society, *Memoirs*, of which the second volume has just appeared. Particularly praiseworthy is the care taken by the London Society to publish the results obtained in other countries. In addition to regular summaries of the proceedings of the Paris Society, the London Society publishes translations of foreign works. Thus, of German works have been translated under the auspices of the Society, — Blumenbach's *Anthropologische Abhandlungen*, Waitz's *Anthropologie der Naturvölker*, C. Vogt's *Vorlesungen über den Menschen*. At the third annual meeting (January 3, 1866) Dr. Hunt, the President, delivered an address on the definition of anthropology and the division of this science. He proposed a new section, to be called archaic anthropology. This part is to embrace all that relates to the physical history of man, whilst historical anthropology should be confined to the psychical history of mankind. Besides these, Dr. Hunt also distinguishes descriptive and comparative anthropology. At the meeting of February 3, a paper by a Mr. Pike gave rise to a lively discussion, which is of special interest to us Germans. Mr. Pike spoke on the psychical characters of the English people.* Mr. Pike rejects the Teutonic descent of the English people, basing his theory chiefly on the fact that the Germans do not box, whilst boxing is a mode of fighting characteristically English. On the other hand he considers that there are a great many resemblances between the ancient Greeks and his countrymen. The Germans are said to be distinguished by a sense for 'wonder!' and they have consequently many words compound with 'wonder,' for instance, 'wunderschoen,' etc. On the contrary, it takes a great deal to make an Englishman wonder at any thing. The English are, besides their great energy, also distinguished by their morality. Even in this respect, thinks the author, the English resemble more the Greeks than the Germans and Frenchmen. In the fine arts, also,

* Appeared in full in the *Memoirs of the Anthropological Society of London*, vol. ii, 1866, p. 153.

and even in music, the Germans are nought, since some of their greatest composers were Jews. Not much is said of the English in relation to art; but at the conclusion attention is drawn to the fact that, 'Whatever their artistic skill may be, the English are certainly great lovers of beauty.' These quotations may be sufficient to give an idea of the author's views. Several members spoke energetically against an exposition both unscientific and presumptuous, whilst another member expressed the hope that the paper would not appear in the publications of the Society. The President, however, did not agree with this suggestion, and the appearance of the paper in the second volume shows that the opponents had to give in. A discussion, very interesting on the whole, took place at the meeting of the 6th of March, on the reading of papers by Messrs. Higgins and Wesley, 'On the Geometric and Perspective Delineations of the Skull.' A Mr. Brookes could, however, not see any advantage in any cranial measurements. At the meeting of the 3rd April, five papers were read on the finds at Caithness, by Cleghorn, Petrie, Anderson, Shearer, and Hunt. We may have to speak of these on another occasion."

Bibliography of Anthropological Literature.—In our next we expect to be able to publish a list of the works and papers published on Anthropology in 1866.

The Moscow Anthropological Society.—We hope to give in our next a *resumé* of the proceedings of this young Society.

Manchester Anthropological Society.—The proceedings of this branch of the Anthropological Society of London will, we believe, appear in the next issue of the Journal of that Society.

On Blood Globules in Fossil Bone.—M. Schaafhausen has recently communicated to the Paris Anthropological Society some interesting observations on the blood globules of fossil bones. "I have the honour," he writes, "of communicating to you a very curious fact, which I have found in my researches concerning the degree of preservation of the microscopic structure of fossil bones. The petrifying substance is mostly carbonate of lime. It is sufficient to remove it by hydrochloric acid to see the laminæ of the osseous tissue pierced by ramifications of osseous cells and canals. But the most interesting fact is the petrifaction of the blood itself. Under the microscope we see red clots in the traversed canals, which, as is known, serve for the distribution of the vessels in the osseous tissue. After the dissolution of the petrifying lime by the acid, the blood corpuscules are perceptible; some of which present their particular form even the bi-concavity. I first observed this fact on the interior surface of a human cranial bone of the Roman period; there was a long reddish tract, which was the petrified blood of a sinus. I recognised a similar fact in a parietal bone belonging to an ancient cranium at the house of Dr. Pruner-Bey; and after microscopic examination our honourable colleague shared my opinion."

An Operation in the Days of the Incas.—M. Broca has presented to the Academy a most remarkable anatomical preparation. It is a skull found in the tomb of the Incas, four miles from the city of Cuzco. M. Broca believes that the skull belonged to an individual who underwent at the same time a fracture and a denudation of the frontal bone. The curious part of it is, that the bone shows traces of having undergone the operation

of trephining. A circular white spot is visible, which shows necrosis of a portion of the bone; and all around it, the rarified tissue has evidently been the seat of an osteitis,the commencement of eliminative action. M. Nélaton has examined the preparation, and calculates that the patient survived the operation about fifteen days. The opening is of a lozenge-shape, and about twelve *millimètres* in diameter. M. Broca thinks that the operation was performed with a gouge.—*British Medical Journal.*

The Spring of Schussen and its most Ancient Inhabitants.—A few years since, this spring, forming a small fish-pond with some trout, and surrounded with thickets of alders, beeches, and firs, with a view over the Tyrolian Alps and the neighbouring Abbey of Schussenried, passed for a picturesque point of Upper Suabia. As elsewhere, the Cloister has become the site of a smelting furnace. A canal of twenty feet in depth has laid dry the pond; but this industrial vandalism, having brought to light a world unknown, the pilgrimages of old times have been replaced by the visits, quite as interesting, of a crowd of savans. On the border of the pond, from fourteen to nineteen feet below a tufaceous and peaty deposit, and above an alluvium of the glacial epoch, lie the witnesses of those times so far remote from us. Excavations extended over twelve square yards of this mud, have exposed quite a *boreal fauna*, mingled with knives, etc., of flint, and antlers of the reindeer. This deposit corresponds exactly with those discovered three years ago by Messrs. Ed. Lartet and Christy, in the Caves of Les Eyzies and of Laugerie, in La Dordogne. Some of the long-bones of the reindeer, from four to five feet, repose there by the side of a jaw-bone of a bear, and crests of the female reindeer, by the side of the perforated skulls of the glutton. It may be seen distinctly that all these animals have been killed by man, who has utilised them for food, as well as for the fabrication of his weapons or utensils. Silex and jasper have principally aided him in this industry. The greater part of the bones buried belong to the reindeer; that domestic inhabitant of the north, which only finds itself at ease under seventy degrees; nevertheless, it is said that the attempt to breed them on the mountains of the Grisons has succeeded. The Greenlanders and the Laplanders use the milk, the flesh, the hair, the intestines, the bladder, and, above all, the antlers of the reindeer. They make of the last spades, spits, spoons, etc.; the ancient inhabitants of Suabia made the same things of them. The fragments of antlers are innumerable, indicating individuals of all ages. The antlers are fractured at their extremities, where they have even been sawed across. The skulls have all been opened, sometimes from the frontal, sometimes from the basal portion. The brain, then, of the reindeer was then a delicacy for the gourmands as at present with the Samoiedes and Ostiaks. No mark of a cutting instrument is ever observed upon the skull, but only those of blows given with stones, sometimes furnished with a handle. Such instruments often lie by their side. Knives of flint served to cut up and flay the reindeer, whilst others were employed to break all the long bones, so as not to lose the marrow from them, with which view not even the bones of the feet were left whole. Only a few of the vertebræ have been observed to be left united together. The effects of fire are still visible, sometimes upon the bones, sometimes upon the hearth-stones; cinders and morsels of charcoal are also present. The absence of teeth is so remarkable, that we may infer with probability that they were employed as ornaments or amulets; only fifteen skeletons have afforded teeth, but half were the remains of

young animals with milk-water so-called. The man then existing knew not the use of metals, and lived after the glacial epoch. When we reflect on the difficulty of procuring instruments by means of flint, we ought to be astonished to find here together five or six hundred specimens. They may be separated into two principal classes. Some have from a few lines to several inches in length, and have served as knives, points of lances, and arrow-heads. A notch at the bottom of the flint-flakes served to attach them to wooden stems, and probably the bowels of the reindeer were used for the purpose. The small points are often as sharp as a lancet, and have but from an inch and a half, to half a line in width. Other stones have the form of saws, or plane irons. The worked flints thus would appear to be derived but in part from the white jurassic limestone, or from the granular deposits of iron of the Wurtemburgh or Bavarian Alps; but the greater part comes from Saxony, from Silesia, from the north of Europe, or even from Champagne, which is difficult to prove exactly. Some red and greenish red jaspers, remind us of certain secondary or cretaceous beds, of the south foot of the Alps (Ainergau, etc.) Nevertheless, if a good many of these objects have necessarily been imported, their conversion into instruments was a local occupation, seeing that the useless fragments of worked flints are still found there. Another occupation was that of converting the reindeer horns into pointed instruments, into shovels, awls, spits, pins, fish-hooks, etc. For that purpose they detached the horns from the skull entirely, or left attached to it a piece of the frontal or occipital bones. They made use for this purpose of pieces of quartz, of silicious schist, or of gneiss, which is still found upon the spot. The antlers were broken off. They cut out pins and awls from the rest of the reindeer horns. This weary labour is demonstrated by the remains of the commencement of like processes. For a half league around worked flints are found in the field. If it be probable that these ancient inhabitants lived about the spring of Schussen, and threw their objects of no value into the neighbouring hollows, it seems that they were ignorant of the potter's art, for no fragment of pottery is observed there, although the dwelling stations of the ancient Germans and Celts always produce them. Flakes of grit, or siliceous schists, were probably used instead, which, seeing that they bear traces of having been in the fire, may well have been employed for cooking or roasting. Human knowledge concentrated itself upon the art of fabricating utensils for the chase and fishing; meanwhile the discovery of very fine iron ochres, seems to indicate that they already employed coloured matters, to embellish the body or the visage. No remains of human bones have yet been discovered there.—J. Jones.

British Association, Dundee.—The *Dundee Advertiser* of August 24th, says: "A considerable degree of alarm has been, and is still, prevalent about the Anthropological section of the British Association, and what may be said and done there. . . . Some jokes, too, good or bad, have been cracked on the subject. Some have called the British the 'Brutish' Association. One lady is said to have remarked, that she could not believe that apes had been turned into men; but she would not have wondered though some men, for their sins, should be turned into apes! Under all this outside cachinnation there runs on, however, a deeper current of vague fear, which we must, if possible, try to modify, if not to check."

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NOVEMBER 20TH, 1866.

JAMES HUNT, ESQ., PH.D., F.S.A., F.R.S.L., PRESIDENT, IN THE CHAIR.

THE minutes of the last meeting were read and confirmed.

The following list of new members was read.

Richard Arnold, Esq., M.D., Savannah, Georgia; D. Blelloch, Esq., 5, Victoria-st., Westminster Abbey; Rev. Wentworth Bowyer, Clapham; George Calvert, Esq., M.R.C.S., L.A.C., Staff Surgeon, Gambia; John Collinson, Esq., 9, Clarendon Gardens, Maida Hill; H. Augustus Cowper, Esq., H.B.M. Consul, Puerto Rico, West Indies; F. Whittock Darby, Esq., The Priory, Earl's Court, and New Reform Club, Jermyn Street; Rev. D. I. Drakeford, M.A., Soberton Parsonage, Bishop's Waltham, Hants; Frederick Duckworth, Esq., M.D. Assist. Surgeon, H.M. Indian Army, Madras; Dr. W. N. Duggan, Army Medical Staff, Fochabers, Morayshire, Scotland; R. W. Fairbank, Esq., Stamford Villas, Bowden, Manchester; James Fischer, Esq., Shevagunga Zemindary, Madura District, Madras; Robert Fischer, Esq., B.L., Madura, Madras; S. Gaus, Esq., Bathurst, River Gambia; William Gibson, Esq., jun., Nottingham; Samuel Guppy, Esq., Broadfield, Crawley, Sussex; J. Baker Hopkins, Esq., 51, Addison Road, Kensington; H. W. Howorth, Esq., Rutland; W. A. Haserick, Esq., Oakfield, Ashton, Mersey; H. Jackson, Esq., M.A., Fellow of Trinity College, Cambridge; William Benjamin Leggatt, Esq., C.E., Chingleput, Madras; Alfred Lionel Lewis, Esq., 45, Church Road, De Beauvoir Square, N.; J. K. Lord, Esq., Elm House, Denmark Hill, S.; E. Lund, Esq., M.D., Lecturer on Anatomy, Manchester; Robert Menzies, Esq., Surgeon R.A., Barrackpore; P. S. Montosaury Modeliar, Esq., Madras Medical College, Tanjore, Madras; William Henry Morgan, Esq., M.R.C.S., Assistant Surgeon H.M. 23rd Regiment, Trichinopoly, Madras; Charles Benjamin Mosse, Esq., Surgeon, Rutland House, Carlow, Ireland; Thomas Nicholas, Esq., M.A., Ph.D., 3, Craven Street, Strand; R. W. Payne, Esq., Old Sleaford, Lincolnshire; Barnet Phillips, Esq., Savannah, United States; J. Plant, Esq., F.G.S., Peel Park, Salford, Manchester; Thomas Pritchard, Esq., jun., Deputy Collector, Madras Presidency; Dr. Henry Purdon, Clonhor House, Kilcock, co. Meath, Ireland; G. N.

Gujputter Rao, Esq., Vizagapatam, Madras; Samuel Rule, Esq., M.D., Assistant Surgeon, Madura, Madras; W. H. Scattergood, Esq., 49, Great College Street, Camden Town, N.W.; Frederick George Shaw, Esq., Veterinary Surgeon, Ossoor, Madras; W. Theobald, Esq., jun., Superintendent Geological Survey, Pegu, Rangoon; Cornelius Walford, Esq., F.S.S., Little Park, Enfield, N.E.; Edward Wood, Esq., F.G.S., Richmond, Yorkshire; Andrew Wyley, Esq., 21, Baker Street, Birmingham; Stephen Yeldham, Esq., M.D., 10, Tainton Street, Gordon Square.

Annual Subscriber.—The Library of the Corporation of London, Guildhall.

Corresponding Members.—M. L'Abbé Brasseur de Bourbourg, No. 7, Rue d'Assas, Paris; Professor Daa, Christiania, Norway; M. Dumon, Namur; M. De Khanikof, Rue de Condé, Paris; Professor Rhyg, Christiania, Norway.

Local Secretaries.—Signor Giglioli, Jesso, Japan; Dr. Koren, Bergen, Norway; Dr. Le Bret, Barèges, Pyrenees; S. Mosling, Esq., Trondhjem, Norway; S. W. North, Esq.. M.R.C.S., 31 Castle Gate, York; W. Winwood Reade, Esq., New York; W. H. Sherwood, Esq., M.D., Bathurst, Gambia; William Shipp, Esq., Blandford, Dorset; Dr. S. Stratford, Auckland, New Zealand; W. Theobald, Esq., jun., Rangoon; M. A. De Zeltner, Panama.

The following list of presents was received, and thanks were voted for the same.

TO THE MUSEUM.

From J. Bainbridge Baxter, Esq., F.A.S.L.—Disarticulated Skull.

From Dr. Ryan Tenison, F.A.S.L.—Skull of Kaffir.

From the Belgian Minister of the Interior, (Dr. E. Dupont, Corr. Member A.S.L.):—

1. Cast of jaw from the Trou de la Naulette.
2. Cast of jaw from the Trou de Frontal.
3. Cast of nasal bones from the Trou de Frontal.
4. Calcareous concretions from the "lehm."

From Dr. Pruner-Bey, Hon. Mem. A.S.L.—Cast of jaw from the sepulture at Hyères.

From M. Edouard Lartet, Hon. F.A.S.L.:—

1. Collection of bones and casts of bones, carved by cave-dwellers in Périgord, South of France, and figured in Christy and Lartet's *Reliquiæ Aquitanicæ.*
2. Flint implements, human tooth and finger bone, from Aurignac cave.

From F. Chittenden, Esq.:—

1. Four casts of Negro masks.
2. Skull of Bosjesman from Namaqua land.
3. Skull of Amatola Kaffir.
4. Head of Mozambique Negro (in spirit).

From Dr. Paul Broca, Hon. F.A.S.L.—Dried brain, illustrative of Dr. Broca's plan for dessication.

From R. W. Payne, Esq., F.A.S.L.—Skull of Kaffir.

From E. W. Bogg, Loc. Sec. A.S.L.—Two Skulls from British Columbia.

From Dr. Collyer, Loc. Sec. A.S.L.—Skull from Oregon.

From J. R. Gregory, Esq., F.A.S.L.—Casts of extreme forms of brachycephalic and dolichocephalic crania, with brains thereof.

FOR THE LIBRARY.

From J. Fraser, Esq., F.A.S.L.—Ith, Versuch einer Anthropologie. 8vo.

From the Author.—Hodder M. Westropp, Esq. F.A.S.L. On the Fanaux de Cimetières in France. 8vo.

From the Author.—Dr. Paul Broca, Hon. F.A.S.L.:—

1. Du Siège de la Faculté du langage articulé. 8vo.
2. Celse. 8vo.
3. Sur les origines des Races d'Europe. 8vo.
4. Huit crânes de la Cité. 8vo.
5. Remarques sur l'Aphémie. 8vo.
6. Photographs of Australian skull.

From the Author.—M. Pierre Gratiolet (the late). Sur la Physiognomie en general. 4to.

From the Author.—M. A. de Khanikof. Memoires sur l'Ethnographie de la Perse. 4to.

From the Author.—T. Edmondston, Esq., F.A.S.L. Etymological Glossary of the Shetland and Orkney Dialect.

From the Author.—Rev. H. Callaway, Loc. Sec. A.S.L. Nursery Tales of the Zulus. 8vo.

From the Author.—Dr. Bodichon. Sur l'humanité. 8vo.

From the Author.—Zeltner. Note sur les sepulture Indiennes en Chiriqui.

From the Author.—L. Lartet. Poterie primitive de la vieille Castille. 8vo.

From the Author.—Dr. F. C. Webb, F.S.A. Teeth in Man and the Anthropoid Apes. 8vo.

From the Author.—Hermann Welcker. Kraniologische Mitther-lungen. 4to.

From the Author.—Dr. Barnard Davis, F.S.A.:—

1. On Deformations of the Cranium. 8vo.
2. Note from Thesaurus Craniorum. 8vo.

From the Author.—Dr. E. Dupont. Etudes sur trois Cavernes de la Lesse, etc.

From the Author.—S. Phillips Day, Esq. Down South, a narrative of the American war.

From the Author.—Charles Darwin, Esq., F.R.S. Origin of Species. 4to. edition.

From the respective Societies:—

1. Proceedings of the Asiatic Society of Bengal.
2. Giornale de Scienze Naturale di Palermo.
3. The Medico-Chirurgical Carolina Institute of Stockholm. Transactions.
4. Nilsson, S. Skandinavis nordens urinvanare.

5. —— Museum Anatomicum Holmiense, Sectio Pathologica.
6. Academie Imperiale de Belgique. Transactions.
7. Nova Acta Academiæ Cæsareæ Leopoldina.
8. Smithsonian Report.
9. Report Natural Association for the Promotion of Social Science.
10. Report Museum, Cambridge, Massachusetts.
11. Journal Royal United Service Institution.
12. Journal Royal Geological Society of Ireland.

From Nicholas Trübner, Esq., F.A.S.L.—Trübner's American Record.
From B. Seemann, Esq., V.P.A.S.L.—Men of Eminence in Science, Literature and Art. [Portrait of himself.]
From Dr. R. S. Charnock, F.S.A.—Murray. Handbook for Travellers on the Continent.
From C. Carter Blake, Esq.:—
1. Machiavelli. Istoria Fiorentine.
2. Guide des Etrangers dans le Museum, Paris.

From T. Bendyshe, Esq., V.P.A.S.L.:—
1. Spiegel. Grammatik der Parsisprache.
2. C. W. R. Cooke, Esq. Moral gulf between Man and Brute.
3. J. B. Rose. Metamorphoses of Ovid.

From Professor Garbiguetti.—Craniologica Ethnografia.
From Professor Nicolucci.—Su i crani di Mazabolto e di Villanova.
From Professor Leitner.—Report of the Society for the Diffusion of Useful Knowledge.
From K. R. H. Mackenzie, Esq., F.S.A.—Anon. Theoretical Astronomy.
From J. Gowans, Esq., F.A.S.L.—Spurzheim. Physiognomical System.
From W. Salmon, Esq., F.G.S.— Photographs of Kaffirs from Natal.
From Dr. James Hunt, Pres. A.S.L.:—
1. Wonders of Human Nature. 2 vols. 8vo.
2. Transactions of the British Association, 1860–63.
3. Churchill Babington. *υπεριδου λογος επιταφιος.* Folio.
4. Petermann's Geographical Mittherlungen.
5. Medical Mirror. Complete set.

The following paper was then read:—

Report on the Anthropological Papers read at the Nottingham Meeting of the British Association for the Advancement of Science, 1866. By C. Carter Blake, Esq., F.G.S., F.A.S.L.

Gentlemen,—For the fourth year it is my duty to render to you an account of the progress of anthropological science at the British Association. This year my task so far differs from that imposed on me by the untoward events which so long delayed the recognition of anthropology, in that I have to report the successful formation of an anthropological department at the British Association.

The Fellows of the Society were informed a few days before the meeting that there was a probability that a separate department would be formed for anthropology. Based as that information was on a correct knowledge of the position of affairs, the hope then expressed was fulfilled, and it remains to be seen how far the delegates

of your Society kept their pledge of aiding to promote the best objects of anthropology.

The Council of the Association having named Professor Huxley, F.R.S., as President of the newly created section (biology), that gentleman communicated through Mr. Alfred R. Wallace his wish that a department of the new section be devoted to anthropology, the other departments being devoted to biology and to physiology, and that Mr. A. R. Wallace should preside over the department so constituted. To this arrangement your delegates acceded; and the department, anthropology, having been formed, sat in the People's College, Nottingham, the following gentlemen forming its Officers and Committee:—

Chairman, Alfred R. Wallace, Esq., F.Z.S. *Secretaries*, W. Felkin, Esq., jun.; E. Burnet Tylor, Esq. *Committee*, C. Carter Blake, Esq., F.G.S.; G. Busk, Esq., F.R.S.; Dr. R. S. Charnock, F.S.A.; John Crawfurd, Esq., Pres. E.S.; Dr. J. Barnard Davis; R. Dunn, Esq., F.R.C.S.; S. Evans, Esq.; F. R. Fairbank, Esq., M.D.; Rev. F. W. Farrar; Dr. B. Foster; Dr. James Hunt, Pres. A.S.L.; Sir John Lubbock, Bart.; D. W. Nash, Esq.; Dr. H. Rónay; H. Spencer, Esq.; W. H. Wesley, Esq.; T. Wright, Esq., F.S.A.

I shall now give a list of the papers read in the section, classifying them under our President's arrangement of Archaic, Historical, Descriptive, and Comparative Anthropology.

I. ARCHAIC ANTHROPOLOGY.

C. Carter Blake, Esq., F.G.S. "On a Human Jaw from the Belgian Bone Caves."

C. Carter Blake, Esq. F.G.S. "On Skulls from Round Barrows in Dorsetshire."

J. Plant, Esq. "On Evidences of Prehistoric Man, from Poole's Cavern."

J. W. Flower, Esq. "On a Kjökkenmödding from the Island of Herm."

Professor Tennant. "On the Traces of an Irish Lake-dwelling found by Captain L'Estrange."

J. Prigg, Esq., jun. "On Flint Implements from Drift of Little Ouse."

J. Anderson, Esq. "On Recent Explorations in Chambered Cairns of Caithness.

C. S. Wake, Esq. "On Antiquity of Man in relation to Comparative Geology."

Dr. Grierson. "On certain Celts from Dumfriesshire."

II. HISTORICAL ANTHROPOLOGY.

W. Bollaert, Esq. "On Ancient Peruvian Hieroglyphics, including the recently discovered Figurated Writing."

W. Bollaert, Esq., and Professor Raimondy. "On Ancient Engravings on Stone, Southern Peru."

A. H. W. Ingram, Esq. "On a Slate Armlet."

Sir E. Belcher. "On Stone Implements of the Esquimaux."

Professor Leitner. "Papers from Lahore."

III. DESCRIPTIVE ANTHROPOLOGY.

W. J. BLACK, Esq. "On Colonies in South Africa."

W. H. WILKINSON, Esq. "On the Races of Madagascar."

Dr. E. P. HOUGHTON, Loc. Sec. A.S.L. "On the Land Dayas of Sarawak."

Dr. J. SHORTT. "On the Marwar Tribes of India."

E. B. BOGG, Esq. "On the Fishing Indians of Vancouver's Island."

A. ERNST, Esq. "On the Anthropology of Caracas."

Dr. BROCA. "On the Anthropology of Lower Brittany."

Dr. E. LAGNEAU. "On the Sarrazins in France."

Dr. JOHN BEDDOE. "On the Stature and Bulk of the Irish, and on Degeneration of Race."

C. CARTER BLAKE, Esq. "On a Condylus Tertius."

Dr. JAMES HUNT. "On Measurements, &c., of Modern Norwegians."

Consul T. J. HUTCHINSON. "On Indians of the Paraná."

J. COLLINSON, Esq. "On Indians of the Mosquito Territory."

IV. COMPARATIVE ANTHROPOLOGY.

E. BURNET TYLOR, Esq. "On Phenomena of the Higher Civilisation traceable to a Rudimental Origin among Savage Tribes."

Dr. JAMES HUNT. "On the Principle of Natural Selection applied to Anthropology, in reply to views propounded by some of Mr. Darwin's Disciples."

Professor HUXLEY, F.R.S. "On Two Extreme Forms of Human Crania."

J. GRATTAN, Esq. "On a New Craniometer."

S. PHILLIPS DAY, Esq. "On the power of rearing Children among Savage Races."

Dr. MANN. "On the Mental and Moral Characters of the Zulu Tribe of Natal."

By the steps which I have above described all controversy in the General Committee with regard to the place of the anthropological papers was dispensed with; and the announcement by Mr. Francis Galton at the first meeting of the General Committee, that the Section Biology should comprise departments devoted to physiology and "the Science of Man," created great satisfaction to the Fellows of the Anthropological Society. The arrangement which has been entered into is, perhaps, on logical grounds, objectionable, as the term "ethnology" is still permitted to remain attached to the term "geography" in the title of Section E. I am not aware, however, that any ethnological papers were read at the Nottingham meeting of the British Association, although several independent anthropological papers were, in some cases, through mistake or misunderstanding on the part of their authors, read with geographical papers in Section E. Professor Huxley felt it his duty as President of Section D (biology) to protest formally against this confusion. It is to be hoped, however, that in future years, the present arrangements will be better understood, and that the anthropological papers will be better kept together. A mistake arising from a similar cause led some anthro-

pological papers to be read in the departments devoted to general biology and to physiology; but these, and similar inadvertencies, did not detract from the general harmony which prevailed.

The following is a classification of the papers read:—

Anthropological papers sent up by Anth. Soc. and read			... 26
,, ,, ,, ,, not read			... 12
,, ,, from independent sources:—			
	a read in Depart. Anthropology		... 6
	b ,, ,, Biology	... ...	1
	c ,, ,, Physiology	...	3
	d ,, "Section E"	... ...	9
Total Anthropological papers submitted		... ...	57

I shall not offer any analysis of these papers, inasmuch as a large number of them will be read in the Society during the forthcoming Session.

Of the character of the papers read in Section D, (department anthropology), I should perhaps say a few words. For months previous to the meeting, when the officers of the Society have asked various independent and influential members to supply papers for reading at the British Association meeting, the fear of rejection by the authorities, or withdrawal by the delegates of the Society, has led them to refuse to contribute papers. This objection is now removed, and I trust that in the anthropological department at Dundee next year, all papers sent in by our members will be forwarded at least a fortnight before the time of meeting. I trust also that next year we shall have numerous papers from gentlemen whose modesty has hitherto rendered them too silent in our Transactions.

The tone of the public mind with regard to anthropology, if the British Association can be accepted as its reflex, has certainly not deteriorated during the past year. I cannot say that it has much improved, and in common with all reflecting scientific men, I regret to see that much popular misconception prevails with regard to the objects of the Society, and even of the science. I merely allude to this, as to carry on successfully the contest which we have now commenced will require eventually a much greater amount of force than yet we have been able to bring to bear. At Dundee, next year, anthropologists will need to be firmly united, and not merely show the world that we have combined together for a common object, which it is our intention to carry on successfully, but by the excellence of their papers and the amount of positive work, to place English anthropology on the same footing that it is abroad. We must not let the pleasure of the victory, which I am far from denying that we have gained, lull us into a fancied security, and we must redouble all our efforts to render the Society firm, prosperous, and powerful. I therefore trust that the number of members who will contribute papers for the Dundee meeting will be far greater than in any previous year.

It now only remains for me to acknowledge that the thanks of

anthropologists are due in the first place to Professor Huxley, through whose exertions we owe the recognition of anthropological science. The effective support which anthropology has now received at his hands will doubtless tend to the harmonious solution of many difficulties which have arisen through a misapprehension of the objects of anthropological science, and of the aims and scope of England's biological teaching.

To the gentlemen who supported the cause of anthropology at Nottingham, and who joined in the discussions, our thanks are also due, and I have only to close this brief report with congratulating the Society for the great and important step we have at last gained.

THE PRESIDENT said he could not but look with satisfaction at the recent victory which anthropology had gained at the meeting of the British Association. It was not, however, altogether satisfactory, for the subordinate division in which anthropology had been placed was a mistake, and showed that those who had proposed that it should be classed in a department of one of the sections did not entertain a correct view of the proper position of the science of man. They had, however, met in a separate department of the Association, and all the Fellows of the Society who were at Nottingham worked hard to make their meeting a success; and it was so. Their worst enemies, if they really had any, acknowledged if that were the way in which they intended to conduct the business of their department, it would become one of the most important of the Association. Among those who expressed a favourable opinion of the amount of work done, was Prof. Huxley, and there would be no doubt that if the Fellows would bring their communications in time for the meetings, the department of anthropology would be one of the most interesting and popular of the British Association He concluded by proposing thanks to Mr. Blake for his able and lucid report.

Mr. MACKENZIE seconded the proposition, and in doing so made some remarks on anthropology generally. He said the objects of their Society had been much misunderstood out of doors, and it was of importance that those erroneous impressions should be removed. It was thought that they had no science at all, but that was a great mistake. With regard to the recognition of anthropology by the British Association, he wished that they had a section to themselves, for their position was an anomaly; but ethnology, whatever that word might mean, was no better off. They had gained a success, but it did not appear that Professor Huxley had wished to aid them. He was pleased, as a Fellow of the Society, that they had achieved so great a triumph, which he attributed in a great measure to the excellent temper and good management of the Council. He thought they mainly were indebted for the triumph to the constant assiduity and energetic conduct of the President, Mr. Blake, and other Members of the Council.

The Rev. DUNBAR I. HEATH then read the following Report on the opening of the Manchester Anthropological Society.

Report on the First Meeting of the Manchester Branch of the Anthropological Society of London. By the Rev. DUNBAR I. HEATH, M.A., F.R.S.L., Treas. A.S.L.

In obedience to the wishes of the President of the Anthropological Society of London, who attended with Dr. Beddoe of Clifton, Mr. Grattan of Belfast, and myself, at the opening meeting of the Manchester Anthropological Society, on November 1st, 1866, I have undertaken to give a brief report of what took place on the occasion.

Dr. F. R. Fairbank, our zealous Local Secretary, as Honorary Secretary of the Manchester Society, read a report on the anthropological papers submitted to the British Association at Nottingham.

The President of the Manchester Society, Mr. George Harris, F.S.A., F.A.S.L., gave an inaugural address, chiefly explanatory of the objections which had been raised against the study of anthropology. Our President, Dr. Hunt, addressed the meeting on the practical benefit to be derived from the study of anthropology, and Dr. Beddoe spoke on the same subject. Mr. Devis, B.A., F.L.S., F.A.S.L., Vice-President of the Manchester Society; Mr. J. Plant, F.G.S., F.A.S.L.; Dr. F. R. Fairbank, and myself, also addressed the meeting. I felt it my duty to confine my remarks chiefly to an account of the operations of the London Society.

On the same evening a *soirée* was held, and a large number and variety of objects of anthropological interest were exhibited. The object of this *soirée* was to introduce the subject of anthropology in an engaging aspect to the intelligent public in Manchester, as a preliminary to the full establishment of a Local Society.

Remembering that the operations of November 1st were fully understood to be a preliminary introduction to the future practical working of the Society, I cannot but report them as a very fair success, so far as any of those concerned in them have hitherto had means of judging.

The numbers of the meeting, about two hundred, the class of attendants, the equality in number of the sexes, the evident intelligent interest taken, the large proportion of clergy and other professional gentlemen present, the clearness of the President's address, and last, but not least, the effective quality of the speeches, all indicate or account for the success which I have recognised; and the presence of no less than four anthropologists from Liverpool would seem to give good grounds for hoping that other branches of our parent Society may before long be inaugurated.

The PRESIDENT proposed thanks to Mr. Heath and to those Fellows of the London Society who undertook the duty of attending the Manchester meeting. Among those who spoke on the occasion was Mr. Heath himself, Dr. Beddoe of Bristol, and Mr. Grattan of Belfast, who manifested great zeal and took much trouble to give a helping-hand to that branch from the parent Society. If other Fellows would imitate their example and go down to Manchester and give the young Society encouragement, they would wear off the antipathy which in some degree existed, and eventually they would have a strong branch Society in Manchester.

The Rev. DUNBAR I. HEATH made some remarks on the working of the branch Society, and urged the importance of giving attention to the young colony, which was well worthy of it. It was no doubt an experiment, but he trusted it would be successful. The town of Manchester was well adapted for the study of anthropology, from the communication existing there with all parts of the world; and the community were active, intelligent, and wealthy, and could well support such a society.

The votes of thanks were agreed to unanimously.

Report on the Recent Investigations of Dr. Edouard Dupont on the Bone Caves on the banks of the Lesse River, Belgium. By C. CARTER BLAKE, Esq., F.G.S., F.A.S.L.

Mr. Blake, after giving a minute account of the circumstances which led to the investigation of these caves by the Anthropological Society in conjunction with Dr. Dupont, entered into considerable details respecting the number and character of these caves; the various levels and palæontological horizons at which they were found; the characteristic fossils of each; the nature of the human remains; and the geological conditions under which the successive deposits of rolled pebbles, stratified lehm, angular pebbles, and loess were found. He gave a long account of the jaw found in the Trou de la Naulette, accompanied by measurements of many other jaws, and summed up an exceedingly long paper (which will appear in the *Memoirs* of the Society) by the following conclusions :—

I. That the deposit of stratified "lehm" under stalagmite, in the Trou de la Naulette, was due to the action of slowly operating causes.

II. That the individual whose jaw was found therein was contemporary with the elephant and rhinoceros, whose remains are imbedded under like conditions.

III. That some of the characters afforded by the jaw indicate a resemblance to the jaws of the Slavonic peoples of Eastern Europe, as especially exemplified by the Masures and Wends.

IV. That some of the characters of the jaw from the Trou de la Naulette indicate a strong resemblance to, and exaggeration of, the characters afforded by the melanous races of men, and especially the Australian.

V. That the above characters afford a distinction between the remains found in the Trou de la Naulette and the Trou de la Frontal, which latter contained the reindeer period individuals strongly resembling the Calmucks of the present day.

The PRESIDENT said it was more than a matter of form to propose that the thanks of the Society should be given to Mr. Blake for the effective manner in which he had carried out the objects of the Council in sending him to Belgium. He had entered so fully, and with so much enthusiasm, into the work, as to prove that the Council had shown sound discretion in commissioning him to examine the bone caves; and he felt assured the meeting would join unanimously in thanking him for his report.

The vote of thanks was unanimously agreed to.

Mr. Jones, the Local Secretary for Brussels, concurred in the opinion expressed in the report, that the subject is in its infancy and requires more investigation. He protested against the reservation that had been made in the report, in accordance with the wishes of M. Dupont. The part of the country where these caverns are situated is very beautiful, and had been little altered by the excavations that had been made, so that it presented attractive objects well worthy of being visited, independently of the interest attached to the caves. He trusted, therefore, that the caverns would be thrown open and thoroughly explored, without any reservation out of respect to M. Dupont, or to any one else. Every restriction had been previously removed. Mr. Jones stated that the two photographs exhibited gave no idea of the beauty of the scenery, and he produced sketches of the locality taken before the excavations commenced, and pointed out the positions in which the flint flakes and other objects were found. He said he should be against accepting the geological views taken on the report. He had visited the Lesse in company with the best geologists, and M. Dupont's views had not been implicitly adopted by them. There had been such changes in the strata that it was difficult to arrive at any general conclusion respecting them, and they might be only a local deposit. He said he had collected some matters connected with these caves which he would place before the Society at their next meeting.

Dr. F. C. Webb said, the jaw on the table, supposing it to be human, was the most remarkable specimen he had ever seen. He thought that, judging from its general contour, there could be no doubt that it was human, although in certain points it bore a decided resemblance to the jaw of the anthropoid ape; as, for instance, in the entire absence of chin, and the remarkable thickness of the fore-part of the bone. In reference to the alveoli, he did not, from their appearance, feel bound to so decided an opinion respecting the large size of the teeth as was expressed in the report. He believed that he had met with evidence that the teeth were not necessarily of extraordinary size, although in the dry skull the alveoli might appear very large. Mr. Blake stated in the report that the third molar must have had five fangs, but he was not inclined to think this by any means certain. He believed that two fangs, each bifid, might account for the appearance of the alveolus as well as five or four fangs.

Mr. Ralph Tate objected to Mr. Blake's inference as to the great antiquity of the jaw from geological considerations. From the description that had been given of the caves, from what he had read otherwise, as well as from examination, he was inclined to think that the deposit which filled the valley, and the gravel beds belong to a very recent period. The question as to the length of time required to form those deposits was an open one. Mr. Prestwich, it was true, thought the deposits in the valley of the Somme must have taken a long time to form. He (Mr. Tate) considered it most probable that the river gravels of the valleys of Central Europe and the other beds referred to were of the same date, and that the Somme valley gravels were not exceptional.

The Rev. DUNBAR I. HEATH observed, they had heard that this wonderful jaw had affinities to the Sclavonian races, to the Malay, and to apes; and it was a most interesting fact, that there were two caverns in which different relics of the human form had been found that possessed peculiarities which might lead towards important discriminations. In the Trou de Frontal there had been discovered the bone of a nose that was broad and of Turanian character. That individual lived at the time of the reindeer. If enormous ages ago Tartars were living in Belgium, were they people with Sclavonian affinities? To suppose these Sclavonians had lived in Belgium with the mammoths was contrary to the results of comparative philology, except on one condition, namely, that they were not speakers of articulate language; and the discovery would thus be found to have some bearing on that idea of his, that some of the early races of men were mutes.

Mr. PIKE protested briefly against the opinions of Mr. Heath.

Dr. WEBB explained that he did not intend to say the jaw was semisimious, but that it had some points resembling those of apes. He certainly had no intention of attributing to the jaw the character of "the missing link." All he wished to assert was, that there were certain points in which the jaw resembled that of the anthropoid apes, especially the jaw of the young orang and chimpanzee. He never before saw these characters so markedly expressed in a human jaw, but still he had no doubt the balance of evidence was in favour of its being human.

The PRESIDENT observed that cave evidence was always attended with the difficulty of ascertaining the relative antiquity of the remains found in them. The real age of these deposits was a difficult and complicated question, therefore it was not surprising that the excavations in the Belgian caves should not throw a new light on the subject. The minute description obtained of this jaw, which it was generally admitted presented very peculiar characters, was sufficient to show that it was a subject of great importance, and justified the Council in sending a commissioner to examine the bone caves wherein it was found.

Mr. JONES thought it important that the names of the gentlemen who were present when the caves were first examined, and before the contents were distributed, should be taken down. They were Dr. Dupont, Lord Talbot de Malahide, the Abbé Coumans, Mr. Clarke, and himself.

Mr. C. CARTER BLAKE, in reply to the remarks that had been made on his report, said that with regard to the observations of his friend Dr. Webb, he was glad that that gentlemen agreed with him that the jaw presents unprecedented characters. He never saw a similar case, and Professor Owen and other anatomists had said the same. As to the cast of the jaw not showing the true character of the alveoli, and the difference of opinion respecting the number of fangs of the molar teeth, he observed, that some French anatomists are accustomed to divide into five roots what we divide into three. The character of the alveolus of the third bifurcated molar showed that it had been

divided into three roots, as usual in the lower races of men. With regard to the difference of opinion respecting the geological age of the strata, as expressed by Mr. Tate, he was glad that there was a disagreement between himself and Mr. Tate upon a question of elementary geology. The authority of Mr. Prestwich (whose testimony as regards the Loess Mr. Blake thankfully accepted), however, could not be called in question with respect to the date of these remains, and that distinguished author never described the lehm of Belgium. As to the remarks of Mr. Jones, though he had made several objections in that room, he (Mr. Blake) must say that he had received much valuable information from Mr. Jones in Belgium. His excellent friend, Mr. Jones, had chidden him for not laying before the Society all the facts that came to his knowledge. It might suffice to say, that he was requested by Dr. Dupont not to make them public, and accordingly he had not done so; but he did not wish to use unkind language to those who, not being so bound to secrecy, freely disclosed all that they knew. Mr. Heath appeared to have misunderstood his observations respecting the date of the remains that had been discovered. He did not say that the epoch of the lehm was coeval with the glacial epoch, but that it belonged to a more recent period posterior to the excavations of the river valley, and he did not even attribute to it an antiquity coeval to that of the strata bearing flint implements in the valley of the Somme. As to the antiquity of the caves, he said there are some at the south of the Lesse, where, for a depth of more than twenty-five feet there are successive layers of deposits of lehm, which have been filled by the same force that produced the existing river mud, at a lower level. The whole subject of the exploration of caves is yet entirely in its infancy, and he hoped that the Belgian caves would be worked up properly. The stores of interesting remains were greater there than in the Somme valley, and the worst part of the labour had yet to be undertaken. Future explorers of the Belgian bone caves must adopt as their motto,

"Nil actum reputans dum quid superesset agendum."

The PRESIDENT proposed the thanks of the Society to the Minister of the Interior for Belgium, for presenting to them the numerous remains and interesting objects which Mr. Blake had brought home. They should also offer their thanks to Dr. Dupont and M. Dumon, also Mr. Jones, who had first directed the attention of the Society to these caves, and had produced valuable drawings of them before they were touched.

The vote of thanks having been unanimously agreed to, the meeting adjourned.

December 4th, 1866.

Dr. Charnock, V.P.A.S.L., in the Chair.

Dr. Charnock, on taking the chair, regretted that the President was prevented by illness from being present.

The minutes of the preceding meeting were read.

The following new members were elected :—W. G. Helsby, Esq., Loc. Sec. A.S.L., 34, Church Street, Liverpool; William Latta, Esq., Gaboon, West Africa; Henry Garland Matthews, Esq., 1, Furnival's Inn; George Pringle, Esq., 13, Lincoln's Inn Fields, W.C.; Sir Eardly Wilmot, Bart., 3, Elvaston Place; Thomas W. Bowman, Esq., M.A., Ph. D., South Terrace, Gainford, Darlington; Joseph J. Smith, Esq., B.A., The College, Taunton.

Local Secretaries—Charles W. Bollaert, Esq., Rosario, Argentine Republic; James Champley, Esq., M.D., F.A.S.L., Scarborough; Dallas Hill, Esq., B.A., Ahmedabad, Guzerat.

The following presents were announced, and thanks were voted for the same :—

From E. Truman, Esq.—Archives of Dentistry.

From L'Abbé Brasseur de Bourbourg—

1. Popol Vuh.
2. Grammaire de la Langue Quichée.
3. Le Livre Sacré.

The following paper was read :—

Note on certain Scandinavian Museums. By Alfred Higgins, Esq.

In July last the Council of this Society requested me to proceed to Stockholm for the purpose of conferring with M. Gustaf Retzius respecting the publication of an English edition of the anthropological works of his father, the late Professor Anders Retzius. The Council, at the same time, expressed a desire that I should visit such of the Scandinavian museums as I conveniently could, with a view to reporting to the Society the general nature of those collections.

I regret to say that the short time at my disposal was so fully occupied with matters connected with the more immediate object of my journey, that I was only able to take a hasty glance at some few of the museums of the Scandinavian peninsula, and was obliged entirely to forego my intended visit to the great museum city Copenhagen. Even such imperfect notes as I am able to lay before you will, however, perhaps not be entirely valueless, owing to the comparative rarity and inaccessibility of the objects necessary for the elucidation of our science. It is a matter of some importance to us to know where the best specimens illustrative of any particular department, in which we may be personally interested, are to be found.

The museum of which I was able to take the most complete survey was that of the Medico-Chirurgical School of Stockholm, the Caroline Institute. It naturally possessed a special interest for me as containing the valuable collection of crania brought together by the energy

and perseverance of Professor Anders Retzius, who held the chair of anatomy at the school. The more interesting specimens belonging to the collection have been described by Professor Retzius himself in papers read at various times before the principal Scandinavian scientific societies. These papers have been republished in a collected form since the death of their lamented author, and they will, I hope, be issued by this Society in an English dress early in the ensuing year. Such being the case, it will, perhaps, be sufficient if on the present occasion I confine myself to an account of the nature and general arrangement of the collection.

The centre of the apartment devoted to these race-skulls is occupied by a series of shelves, on which are exhibited some three hundred Swedish crania. Upwards of two hundred of them are recent; the rest are derived from two ancient churchyards, which formerly existed in the town of Stockholm. I was enabled, through the kindness of Professor Santerini, to take careful measurements of about forty of the latter, and I hope, with the permission of Baron von Düben, the present curator of the collection, to lay the result of my measurements before the Society during the present session. The crania of other races are contained in wall-cases fixed round the apartment. They are arranged partly geographically and partly in accordance with the now so celebrated classification originated by Retzius. The case immediately on the left hand of the visitor on entering the room bears the incription, "Brachycephalæ of Europe," and contains the following crania:—Nineteen Lapp skulls, eighteen of which are adult, and the remaining one that of a child of about two years. Twenty-five Finn skulls, one of which belonged to a child about two years old. Seventeen Russian, all adult. Eighteen marked slaves, viz.—Three Poles, two Moravians, one Morlach, two Czechs, three Bohemians, one Croat, two Bavarians, four Austrians, one Greek. Besides the skulls, this case contains some twenty casts, chiefly of well known specimens from foreign collections.

The next case contains the *Dolichocephalæ* of Europe. Here we find twenty old Swedish skulls of the same general form as those of later and recent times, also four specimens from ancient Swedish graves, which differ considerably from the recognised Swedish type, and still more so from those short or round-headed skulls supposed to have belonged to the so-called aborigines of Scandinavia. They are small narrow skulls with long sharp occiput and of much slighter and more elegant appearance than any of the Swedish skulls I have met with.

To continue the account of the contents of this case. We have two or three specimens, each of Dutch, English, Irish, and Danish, and eighteen marked Gaelis and Cirlici, four Folhungs, a noble Swediish family of the twelfth century, also thirty other Swedish skulls, chiefly of historical personages. There is also one modern dolichocephalic Greek and eight ancient Romans.

The two next cases contain crania from Africa, Asia and Polynesia. The Egyptians are represented by a fine series of seventy skulls, which seem to consist of two types; the one, possibly female, offering a

decidedly European aspect, the other with remarkably quadrangular norma lateralis, flat temples directed somewhat inward below, and occiput compressed below, so as to form an acute angle. Besides these seventy Egyptian crania, are also two derived from mummies, which present all the Negro characteristics. The further contents of these cases are one Copt, two Abyssinians, three Guanches, seven Semites (Arab, Kabyle, etc., one of the latter being a dried head), three Hindus, one Lascar, four Chinese (three adult and one boy), one Turk, one Afghan, one Tartar, three Burats, one Calmuck, five Javanese, two Malays, two Macassar (Celebes), three short-headed Papuans, one Tahitian, seven Sandwich Islanders, four Affghans, one Nicobar Islander, one Dyak, three Australians, four Caffres, three Negroes and three of uncertain origin, probably negroid. Besides these a number of casts.

The American crania are divided into dolichocephalic and brachycephalic. Of the former we have four Red Indians, one from Hudson Bay, four Greenlanders, eight Guaranis, two Aymara mummies, an Aymara skull, and the dried head of a Botocudo. The following are the American brachycephali :—Three Red Indians (Sac, Minomeni and Comanche), four flat head Chinooks, three Aztecs, six men adults and one child, three Pampas Indians, and two from Bahia. The last case to which I shall refer contains a very interesting collection of remains, chiefly of skulls and long bones, from chambered tumuli of the stone age. They were obtained two or three years since during excavations, carried out under the superintendence of M. Hildebrand, the Swedish State Antiquary, in Western Gothland, and were taken from their depositaries by Baron von Düben, and M. Gustaf Retzius, who assisted at their explorations. The crania are eighteen in number, and all of them, with a single exception, and that, perhaps, was hardly an exception, instead of possessing the usual round Lapp-like form are long or dolichocephalic, and, in fact, differ in no marked degree, except in a greater narrowness of the posterior region, from the skulls of the existing Swedes. It is, of course, quite impossible to estimate the value of this discovery in the absence of minute details, but I am assured that the interments corresponded in all respects with those of all other similar chambered tumuli containing the remains of a brachycephalic population. It is, however, not to be imagined that this is the only instance in which dolichocephalic crania have been discovered in these tumuli, but I am not aware that any such extensive discovery of almost exclusively dolichocephalic skulls is on record.

In another apartment of the museum there are set up between fifty or sixty complete skeletons. Unfortunately I have mislaid my notes on this subject, and cannot, therefore, give any complete account of these specimens. Many of them are, of course, chiefly interesting to the surgeon and pathologist. The only ones of other than ordinary European individuals, which I remember at the present moment, are an Egyptian, a genuine Indian, a Negro, two or three Lapps of the usual stature, and one a giantess between seven and eight feet high.

The magnificent national museum recently erected in Stockholm at a cost of 2,200,000 ricksthalers, and opened to the public last summer, contains a very extensive and valuable collection of pre-historic remains, second only to the unrivalled collection at Copenhagen. The director, M. Hildebrand, the State Antiquary, has wisely restricted the objects exhibited to those discovered in Sweden itself, together with a few typical specimens for other countries. As I have not myself made any special study of archæology, I am utterly unable to offer any critical remarks on this collection from the anthropological stand point. The arrangement with stone, bronze and iron periods is rigidly carried out. The stone weapons are arranged into chisels, axes, knives, spear-heads, etc., exactly in accordance with the classification given of Scandinavian weapons, etc., by Professor Nilsson in his *Skandinavisker Nordens Urinvanare.* Illustrations of the various types, copied from Professor Nilsson's works are on the table, and I need not, therefore, further allude to them. The bronze period is, as is well known, not much represented in Sweden, and seems to have been confined to the south. Those objects exhibited in the national museum present all the marked peculiarities of ornamentation so ably pointed out by Nilsson as characteristic of the bronze period. The iron age has been divided by M. Hildebrand into three periods, distinguished by the character of ornamentation, and also by the peculiar shapes of the stones used for sharpening weapons. The first period, which is supposed to have ended about the fifth century, is also characterised by an oval shaped sharpening stone, and the second period by a label shaped one. The third period is not represented in the Swedish peninsula, but is confined to the island of Gothland. It corresponds more with the first than the second period of the peninsula.

The very fine museum of the Swedish Academy of Science, lately re-opened, after a large augmentation and reorganisation, possesses a collection of so-called ethnological objects. This collection, which *is attached to the botanical department of the museum*, has not yet been arranged, and is not visible to the public, but through the kindness of Professors Loven and Sundvall I was allowed to inspect it. It consists chiefly of articles of clothing of various savage and semi-civilised peoples, together with a few specimens of weapons, etc. In its present condition it is but of very slight scientific value, and I understand there is but small chance of any sufficient space being allotted to it to admit of its being properly displayed.

The time at my disposal did not admit of my visiting the anatomical museum at Upsala, which contains some few race-skulls, and has, moreover, been recently enriched by the extensive collection of pelves of various nations, collected by the brother of Professor Anders Retzius, Dr. Magnus Retzius, Professor of Obstetrics at his Caroline Institute of Stockholm. The town of Gottenburg can boast of a somewhat extensive museum of a very miscellaneous character. The only objects of interest to the anthropologist are casts of race-skulls to the number of between fifty and sixty, and a large series of casts of individual heads taken for phrenological purposes. The latter are, I believe, chiefly English and American.

Previous to my visit to Sweden, I accompanied our President, Dr. Hunt, to Christiania. There we had an opportunity of inspecting the collection of antiquities belonging to the Norwegian University. The objects of high antiquity are divided, like those in other similar collections in the north, in accordance with the stone, bronze, and iron theory. The stone instruments present the ordinary types, and were not of any special interest, owing to the fact that hardly any of them were Norwegian, being almost entirely derived from Danish soil. There are a few implements, chiefly of bone, stated to be derived from Finnish, that is Lapponic, graves of the heathen period. The only object that struck me as peculiar was a pot-hook of reindeer horn, of which a rough sketch is on the table.

Dr. Hunt has had the privilege of visiting other of the Norwegian museums, and will, no doubt, favour us with some remarks thereon.

Mr. C. Carter Blake said he felt certain the Society had reason to congratulate themselves that one of their members, so well acquainted with Scandinavian literature, and otherwise so well qualified, had been selected by the Council to visit Sweden and collect information respecting Scandinavian anthropology. There were in some ancient Scandinavian skulls great variations. In the museum at Paris there were ten Scandinavian skulls more or less long, which had been described by M. Pruner Bey as having an index of sixty-three, some of them being very dolichocephalic. In the northern part of Sweden and in Norway round skulls were more common. Dr. Hunt, who accompanied Mr. Higgins, and went further north, found various individuals whose heads presented a cranial index far above the average, some of them being as much as ninety-six and ninety-seven, and exhibiting an extremely brachycephalic type. By examinations of this kind some fair notions might be obtained of the race character of the skulls of different nations, and when Dr. Hunt laid the results of his observations before the Society they would be able to estimate the value of such examinations. The contour of the twenty skulls he had alluded to in the Paris museum was especially Swedish. M. Pruner Bey remarked the enormous development of the cerebellum in Swedish skulls. He (Mr. Blake) should be glad to know from Mr. Higgins whether a similar large development of that portion of the skull appeared in those in the Stockholm museum, when the collection was more numerous and might be assumed to be more authentic. He should be glad to know, also, whether they bore any resemblance to the dolichocephalic skulls from the ancient peat beds, and the ancient river beds in Europe, particularly in England and Ireland.

Mr. Groom Napier observed, in reference to the length of Scandinavian skulls, that a friend of his at Bristol measured the heads of several Swedish sailors, and found that they were all of the dolichocephalic type. With respect to the size of the cerebellum, which had been mentioned by Mr. Blake, he said that the Scandinavians were remarkable for their muscular power, and the size of the cerebellum was supposed to correspond with the development of muscular power.

Mr. Higgins said, in reply to Mr. Blake, that it was his intention

to read a paper on the subject some other evening, when the points to which his attention had been directed would be noticed. He stated that there were scarcely any Norwegians in Stockholm, consequently he had no opportunity of measuring the skulls of that people, but his impression was that they were not brachycephalic. Neither were the modern Swedes extremely so, but they were so to a moderate extent. There were about 500 Swedish skulls in the Scandinavian museum, and not more than five of them were brachycephalic.

On the Great Race-Elements in Christianity. By the Rev. DUNBAR I. HEATH.

The principal divisions into which I propose dividing the subject matter of this essay are, the area in which Christianity has maintained itself in existence; the agents by whose activity it was originally propagated; the principles, moral, social, and intellectual, which it has asserted; and the imagery in which it has clothed and ornamented itself, too often, indeed, forgetting the value of this imagery as mere clothes, but not unmindful of the fact that the mass of mankind will follow after a well dressed principle, no less than a well dressed gentleman or lady.

Now, whatever may be the results at which I may arrive under these several divisions, and whether or not I may succeed in showing that a religion, which has been considered as essentially Semite, is, in fact, hardly Semite at all, I must at the outset protest that I am in search simply and solely of anthropological facts. If it shall turn out to be a fact, that the great Aryan race, the present possessors of Christianity, have received that religion at the hands of Semites, we shall admit such fact with wonderment, as the strongest known instance of the "sic vos non vobis" principle. Even as receiving wool from sheep, and eggs from hens, we are obliged to deprive these animals of that which does not reproduce itself by our taking it, so it would appear that, if we English, French, Greeks, Latins, Russians, etc., have really taken this religion from the Semites, there is none of it left for the original possessors. Such a fact, if established, would be a fact in man's nature or historical development. It would be a fact of anthropology. And if, on the other hand, the principles, the propagators, or the imagery of this religion should be Aryan, the anthropologist who establishes this to the satisfaction of his fellow students, will have established a fact of very great value, but a fact strictly within the domain of his science.

That the area now actually covered by Christianity is within that of Aryanism is no new remark, and I shall spend but little time or space in enforcing it. Here and there we may have a few outsiders, such as the Copts; but this apparently exceptional case of the Copts, seems not so in reality. Here we have a small outlying non-Aryan people embracing and retaining a sort of Christianity. Why so? Because, just at that part of the world, there happened to be a non-Aryan principle strongly developed into practice. Egypt swarmed with solitary devotional, idle, demasculated hermits; and there is nothing in the Aryan heart which nods substantial or even partial approval of the system

which won the Copts. The Copts, just outside the Aryan area, became Christians, because the Christians just in those parts were not in accordance with Aryanism. If this be so, the exception will prove the rule. The rule asserted is, that Aryan principles caused or preceded the reception of the Christian religion. The apparent exception is, that the Copts, having no preceding Aryan principles, yet received the Christian religion; and the explanation is, that the Christianity in vogue just in that part of the world, at that time, was not the Aryan Christianity which the rest of the Christians have consented permanently to receive, and under which they have flourished; while the Copts meanwhile have dwindled down to a mere handful of individuals, whom I only mention lest it should appear I wish to omit facts which might tell against me.

On the same principle on which I have mentioned the Copts, I note that I am aware of conversions in Paraguay, the South Sea Islands, China, India, and elsewhere, which may have more or less of vitality in them; but I have no doubt even the active agents in these conversions will admit that, when an anthropologist talks of a nation accepting Christianity, he means to contemplate a permanent reception, not propped up by the influence of foreign superior civilised missionaries. Among Aryans and their dependants, as, for instance, along the northern coast of Africa, Christianity maintained itself for even hundreds of years; but, the area of those parts being now no longer Aryan, the religion is no longer Christian. Armenia, on the other hand, and Georgia, being Aryan, are Christian. Hungary, it may be said, and the Basque provinces, with the Finns and Lapland, are not Aryan; but in the first place these small outlying tribes would weigh but little against the vast mass of Christian Aryans establishing the rule; then, again, for my own part, I am not moved by the apparent exception of the Basques, Finns, and Lapps, for it is to be remembered that I consider Europe was once inhabited by mute races, kindred in blood, and therefore in principles; and that those who happened to learn their languages from Turanian teachers, are not therefore necessarily alien in race or principles from those who accepted the Aryan language, modified by Grimm's law in different localities. The general co-existence, therefore, of the areas of Aryanism and Christianity I consider self-evident; and I pass now to the consideration of those apostolic personages by whose activity the religion was originally propagated.

From the evidence of the historical parts of the New Testament, supplemented by the earliest works of the Fathers, together with early liturgies, and circular letters among the Churches, it seems abundantly clear that four principal agents, whom we now call Apostles, were concerned in this mighty work. The claim of St. Paul to the title of Apostle was, indeed, denied by the Hebrew party in the Church of that day, and, in the sense that he was not one of the twelve, they were of course historically correct; but in the sense that SS. Peter, James, Paul, and John were the four principal propagators of early Christianity, there is in these days no dispute.

Now, if I admit that Peter, James, and John were Semites in race

and principles, and the advocates and active agents of a substantially Semitic view of religion, I am apparently giving up three-fourths of Christianity to the domain of Semitism, so far as the ideas of its earliest advocates can be taken as evidence of what the religion was. These apparent deductions, however, from the premises, I take to be fallacious; for, whether these three Semites laboured among their fellow Semites or among Aryans, whether their churches in Judæa, Smyrna, Philadelphia, Thyatira, Pergamos, and so on, were Semite churches or not, in either case this work of theirs has geographically and nationally vanished. Even if they preached among Aryans, still the actual localities in which they laboured are not now numbered among those localities where Christianity has maintained itself. What the number of the Christian Jews may have been, and whether they gradually intermarried and amalgamated with the Aryans, or whether their descendants gradually returned to the ancestral form of the Semite religion, it is hard to say; but it is not hard to say that the Semitic churches took no lasting root among their compatriots. If, then, I should allow that the Semite elements in early Christianity were even strenuously advocated by the earliest preachers; if I allow that those preachers claimed the peculiar privilege and advantage of intimate communication with the founder; if the character of their Semite converts was and is marked by a peculiar tenacity in these matters; and if, notwithstanding these advantages for Semitism, there are now no Semite churches in existence worth speaking of, the real deduction is that the Semitic principles of the propagators have not determined those of the religion itself. If, notwithstanding the peculiar advantages possessed by Peter, James, and John, there are now no Christian communities worth speaking of in the localities where they laboured, or among the race of men to whom they belonged; if these men, being Semites, did not substantially and lastingly convert Semites, we may suspect at once that the principles of their young community cannot have been truly Semite, else the Semites would have accepted them. What I hope presently to show is, that Aryan principles were widely spread among the Hellenistic Jews at the time of the origin of the substantially Aryan religion called by the Aryan name of Christianity. Semitism and Aryanism each had their chance; and the failure of these Semite apostles to originate a Semitic church, is a proof, in fact, that Christianity never was Semitic.

The fourth apostle was St. Paul. That he was a Hebrew by birth we need not doubt; but the large-minded gentleman of Tarsus would in his surrounding circumstances differ as much from the small-minded fishermen of Galilee, as a modern Rothschild from an ancient Essene or Ebionite. I admit that this great teacher was successful. In other words, I admit that he founded certain Aryan churches, which have maintained themselves nationally and geographically till this day. If, then, the principles of St. Paul were substantially Semitic, we must admit the general opinion to be correct, that the Aryan people, at a definite period in their development, accepted from strangers a substantially Semitic religion. But if, on the other

hand, St. Paul's principles were substantially Aryan, his nationality is immaterial.

The geographical and racial area now covered hy Christianity, and the nationality of the first promulgators of the religion, are divisions of my subject of far less importance than those to which I now proceed to direct attention. But, before I leave this part of the subject, I pause to state why, in alluding to the four apostles, I have taken no notice of the Founder himself. I take this course, partly because those who profess to reverence most deeply the character represented to us as that of the Founder, have been forced to recognise that it is non-racial. Its universality is preached as its excellence. In it there is said to be no preponderance of any of the partial elements of male or female, Jew or Greek, slave or freeman. It may, indeed, be said that this view of his character is derived to us only through St. Paul, and is opposed by the writings attributed to the Semite apostles. In morals such a view of character corresponds, indeed, to pantheism in physics. It recognises the good in the characters of all races and both sexes, just as pantheism recognises the orderly in all nature. Such a view is no doubt essentially Aryan; but what I am concerned with here, is to point out that, in the face of it, I may not attribute national deep-seated characteristics to one in whom his Aryan followers are agreed to recognise none.

Another obvious reason why I discuss the work of his apostles only is, that they alone were the translators of his language. The actual words used by him are quite unknown; and it is therefore a matter not of choice, but of necessity, to take his teaching at second hand.

And thus am I now arrived at the important question, whether the moral, social, and intellectual principles of Christianity are Semitic or Aryan.

It will be obvious that I can only enumerate a few of the greater principles which we agglutinate under the name of Christianity, nor need I be too careful as to the accuracy of distinction between moral and social. If I name those elements which strike me as most essential and vital in Christianity, and endeavour honestly to classify them according to their Semite or Aryan affinities, I shall have done what I have proposed to myself to do.

Now that Christianity, in the heart of the world, is more than mere benevolence, more than justice, more than piety, more than a hope of what is, in such strong Aryan imagery, called "going to heaven", and that it is in great degree a personal sympathy with Jesus Christ, I cannot deny as a fact; and the origin of such sympathy, whether it be Semitic or Aryan, I take to be equivalent with the origin of Christianity.

If this sympathy, then, with such an one as Jesus the Christ be Aryan; if all Aryan mythologies are based on it; if there be nothing similar to it in any known Semitic mythology, and no trace of it at all in the way the early Jews regarded their Jehovah, then is the central feeling Aryan which prompts men to be Christians. What, then, was the simple preaching which so mightily moved mankind? Undeniably, it was the story of one who did nothing but good works,

and said nothing but the utterance of a good spirit, but who incurred by such speech and action the wrath of the constituted authorities. By them he was, in their usual course of law, condemned, and to all outward appearance conquered; but returning victorious from death, he reasserts his own superiority, reassures his followers, and secures the ultimate triumph of individuals over societies, and consciences over laws.

Now I need not waste time in showing that all Aryan mythologies delight in depicting the descent of Gods upon the earth to combat evil. Nor is it, I think, unknown that the true Aryan spirit considers law to be an evil, and supports the rights of conscience, not only as the Jew did, against the heathen foreigner, but, as no true Semite would do, against his own government and his own priest.

By Semites, we mean the Arab, Assyrian, and Jewish races, with their offshoots; and I am not aware that in any legend, tradition, or sacred book of any of these races, there is any trace of the conception of a deity appearing on the earth to combat moral evil, succumbing to it for a while, and finally triumphing. The God of the Hebrew Abraham, the God of the Hebrew six days' creation, the God of the Semitic Job, the God of the Satan of the Book of Chronicles, is clearly no such a God. Nor am I aware that there was ever any conception at all among the Jews, before the days of the Alexandrian or Greek philosophy, of a God incarnate in a man, in animals, or in nature.

That on the other hand all Aryan legends were full of each of these conceptions, that of Gods incarnate, and that of Gods combating evil, enslaved to it for a while, and finally triumphing, is so well known that I need not quote examples.

It is admitted that at the time of the origin of Christianity large Semite and Aryan populations were in existence, each of them highly civilised, each of them so circumstanced as to be ready as an audience to hear, to receive, or to reject the new religion. Had the religion been a Semitic one, both its geographical origin and the nationality of its earliest preachers would have favoured its reception by that race, but the stubborn fact is that the new religion depreciated law, depreciated constituted authorities, recognised an incarnation, recognised a God becoming, in strong Aryan language, "a slave to sin," recognised that the recognised law courts could be wrong, and the crucified defendant could be right. The historical success of Christianity is undoubtedly due to the historical sympathy with Christ, and the sympathy with Christ was an Aryan sympathy with the defendant. It is so still. Each poor battered combatant in the struggle for existence considers the world to be banded against him. Let them rave, he says, let them despise me, let them ruin me. They raved against Jesus. He overcame the world. The Aryans and Semites are doubly opposed to each other, and in each respect Christianity is Aryan. The Aryan appreciates order in the physical world, and individuality in the moral or social world of mankind, but the Semite recognises interference or disorder in the physical world, and authority or constituted order, as he calls it, in the moral world. Where in the whole range of Jewish history, previous to their contact with Aryans,

do we find the slightest appreciation of the moral contest of individuals against evil. Begin with Abraham. Nothing of the kind. Family happiness, emigration, prosperity, great expectations, polygamy, willingness to take his son's life, unwillingness to protect his wife's honour—such is Semitism. Compare it with the individualism of St. Paul, the preacher of the new religion, who said, though *an angel from heaven* preach different from me, *let him be accursed.* Abraham incurred no wrath of any constituted authorities, struggled in no life-consuming works for man like Aryan Hercules, but represented the great Jewish principle of prosperity. The prosperity of Moses is equally prominent, whether as adopted in infancy by royalty, nursed in luxury and learning at mid-age, or as leader of 600,000 fighting men in a political revolution. I will not waste time by going through the history of Samson, Jephthah, or David; nowhere was there any contest against constituted authority, upon which moral contest Christianity is based, and to suppose that a true Jew could have been willing to curse an angel from heaven, would be to suppose that he disavowed the theocracy or first principle on which his national life was based.

Christianity, in its origin, was a mighty strengthening to myriads of suffering individuals in their struggles against powers and authorities around them and within them. Semitism decapitates or strikes down rulers physically, but substitutes a successor, and knows of no moral rebellion against the principle of power. The Aryan, incredible as it may seem to some of us even now, can imagine and does really more or less strive after a world without a government. The reason he can do so is doubtless that from early times he has been a monogamist, and that he has, therefore, seen with his own eyes millions of families who exist amicably in faith without law and without government. The race which from early days has been polygamist, requires power and law for the purposes of order. The Aryans, though still in the present day requiring a certain amount of law, can at least conceive and aspire after order without law which St. Paul so vehemently set before them.

Many theories might be invented to explain the apparently surprising fact that the Aryans 1,800 years ago accepted a Semitic religion, but up till the present day the world can hardly be said to have studied anthropology, and it has, therefore, not seen how surprising, how unparalleled, and how naturally impossible such a racial phenomenon would have been, had it in reality occurred. When, however, men's attention is once drawn to the existence of the deep racial furrows on the aggregate brain of humanity, when we see, for instance, that a man of one race differs as much from a man of another, as he does from a woman of his own, I ask why any one should wish to suppose that Christianity is Semite unless it really is so? Do Christians or do they not accept the dictum that in their Christ there is neither male nor female, Jew nor Gentile, bond nor free; in other words, that the distinguishing virtues and characteristics of men and women, Semites, Aryans, Allophylians, Federals and Confederates are all to find their place in a united humanity. If they do, let them become

anthropologists, and give their best attention to the subject of this paper; and if they do not, then they make their Christ to be a Semite, they make their God who created Aryans to be a Semite or favourer of Semites in the struggle for existence; they fall, in fact, into arrant one-sided absurdities, they encourage, provoke, and propagate infidelity, they disavow the actual, deny the true, and localise the absolute.

Now, if a Christian anthropologist admits fully to himself that the founder of his religion had no racial preferences, his difficulty in struggling with the question whether Christianity was really of Semite origin would be as follows: — The founder did deeds highly approved of and considered noble by Aryan instinct. These deeds are highly disapproved of, on the contrary, by Semites, and by them attributed to an anarchical, self-seeking, impure, unmanlike spirit. To assert practically that in a matter of opinion, sentiment, moral judgment, or intellectual perception, a defendant standing alone can be right, and the combined authority of Church and State can be wrong, is so monstrous to the prosperous acquiescent Semite, so vivifying to the ever struggling, ever grumbling Aryan, that the former race named Jesus at once a devil, the latter name him still a God. To the one he has been a savour of death unto death, for they are dead, and to the other, so far as Semite principles have allowed it, he has been a savour of life unto life, for they still live.

That there are certain precepts and principles of Semitic aspect written down in the sacred books of Christianity for the acceptance of Christians may not be denied, but if the Aryans have passed them all by with merely nominal recognition, and have built up systems of society on principles opposed to them, it follows simply that the Semite teachers, whether we call them Peter, James and Matthew, or whether we mean the inspirer of Peter, James and Matthew, were respectfully listened to, and their precepts recorded in documents, but it does not follow that the Aryans received their Christianity from Semites. Among the distinguishing and prominent characteristics, for instance, of Aryan populations is the predilection for building large barns when the small ones are full, and for saying to their souls— "Soul, soul, thou hast much good laid up for many years, eat, drink and be merry." The Aryans also, without apology, care for the things of the morrow, and despise very heartily those low races, or shabby members of a high one, which consider the evil of each day sufficient for it. Among the Aryans the poor are not blessed. In other words Aryan precepts in the sacred books are appreciated and followed, while Semitic precepts are read out in public on Sundays, but leave not the shadow of a trace of any influence on public week-day action. The explanation usually given for this phenomenon is that the human heart is evil and refuses to accept these essentially good precepts. But the anthropologist finds that the Semitic heart does accept them, and for that very reason incurs the contempt of the Aryans, who deny practically that the precepts are really good ones.

These Semitic precepts had a fair trial. The early Semite Christians lived in common. No one said that anything he had was his

own—none of them heaped up treasures upon earth. All that believed sold their possessions and goods, and parted them to all men as every man had need. Side by side with these precepts St. Paul was telling Christians not to be slothful in business, and that no one had a right to eat without working. These latter precepts the Aryans have followed; the former they have rejected. St. Paul over and over again tells us that he got his religion from no one, neither was he taught it, but had it by direct revelation. On the one side the Christians had the precept to take no thought for the morrow, for the morrow should take thought for the things of itself; and on the other side St. Paul told how there came upon him daily, the care of all the churches—his flesh, he said, had no rest, but he was troubled on every side, without were fightings, within were fears. Aryan and Semite teachers then took out Aryan and Semite teachings. The result being Aryan, it cannot be truly said that Christianity in the present acceptation of the term is derived to us from Semitic sources.

The same choice which Christians have had between Semitic and Aryan precepts they have also had between Semitic and Aryan doctrines of the most fundamental character, and the result has been equally characteristic. That the Semite conception of the deity, for instance, is to be found in the Hebrew Scriptures is self-evident, and that the Septuagint or Greek conception, where it differs from the Hebrew, must differ by being Aryanised, is no less so. Now Christians have unanimously and completely rejected the Hebrew and accepted the Septuagint conception. They reject the Semitic Hebrew teaching that God is a Being capable of being seen by the human eye, and, rightly or wrongly, they accept the Aryan view, that he is an invisible incomprehensible source of a spirit pervading humanity. The fundamental difference here is enormous, but the anthropological fact is undoubted. The Semite wrote, and the English are still forced by acts of parliament to hear read out to them in churches, that Moses, Aaron, Nadab, and Abihu, and seventy of the elders of Israel, saw the God of Israel; and there was under his feet as it were a paved work of a sapphire stone. Also they saw God, and did eat and drink. The Greek translators of this passage took a long step against Semitism when they altered this passage into a statement that the elders saw the place where the God of Israel had stood, and they were seen in the place of God, and did eat and drink. Traces of the same difference of racial sentiment are very visible in other parts of the two versions. In the one, for instance, Hezekiah in his sickness is made to say, "I shall not see Jehovah, even the Lord, in the land of the living." This is altered by the Aryan into, "I shall not see the salvation of God in the land of the living." So again in the famous Semitic passage of Job, we have it, "In my flesh shall I see God whom I shall see for myself, and mine eye shall behold, and not another." Here the systematic racial antipathy of the Septuagint writers betrays itself in their rendering it. "These things have been established for me by God, which things I know for myself, and my eyes have seen them and not another;" and lastly, we may compare the two versions of the well-known passage in Isaiah:—"Unto us a child is born, unto us a son is

given, and his name shall be called Wonderful, Counsellor, the Mighty God, the Everlasting Father." This in the Septuagint becomes, "His name shall be called the Angel of the Great Council."

These few instances will suffice to show us that when even a Semite preacher of even the most Semitic aspect of nascent Christianity had occasion in his missionary operations to quote the Scriptures, he was obliged, whether he knew it or not, to diffuse a considerable amount of Aryanism, for the Septuagint is well known to have been in those days the only people's edition of the Bible. Now with the Septuagint went a large body of strongly anti-Semite literature, such as the books of Wisdom, Ecclesiasticus, and Daniel, and in this latter Aryan book we have the great source of all the ideas, the imagery, and the phraseology of what in Europe now at the present day is called Christianity.

It is admitted on all hands that the Book of Daniel never was considered by the Jews as part of the canonical scriptures, and it is, therefore, a contradiction in terms to suppose that Christianity could have put Daniel into the Bible, and also could have been a Semitic religion. By the Semite doctrine we surely mean the doctrine of the Hebrew Scriptures, and if Christianity is the doctrine of the Book of Daniel, and Daniel never was in those Hebrew Scriptures, Christianity was not purely Semite in origin. If there is anything more certain than the rest in the life and preaching of Jesus, it is that he gave the whole weight of his authority to this Book of Daniel, and the acceptance of Jesus has been the acceptance of Daniel with all his imagery, his angels, his son of man, his kingdom of heaven, and all the rest of his Aryanism.

To escape from the glaring consequences of the fact that Daniel was not recognised by the Jews, and that he was, on the contrary, the prime minister of the great Aryan propagandist, Darius Hystaspes, men have invented an extra Darius, for whom, however, the chronology of those days can find no place. There is the same close connection in imagery and essential doctrine between Daniel, Wisdom, Ecclesiasticus, the Book of Enoch, and the New Testament on one side with the Zend Avesta on the other, as there is historically between Daniel and the mighty Aryan who said, "I make a decree that in every dominion of my kingdom men tremble and fear before the God of Daniel, for he is the living God, and stedfast for ever, and his kingdom that which shall not be destroyed, and his dominion shall be even unto the end."

Taking it as granted that the Book of Enoch was written after Daniel, and before Christianity, I might fill pages with characteristic extracts bearing out what I have said of it, that all the most peculiar imagery of the New Testament is derived therefrom. I will content myself with the following from chapter 48 :—

"In that place I beheld a fountain of righteousness which never failed, encircled by many springs of wisdom. Of these all the thirsty drank, and were filled with wisdom, having their habitation with the righteous, the elect, and the holy. In that hour was this Son of Man invoked before the Lord of Spirits, and his name in the presence of the Ancient of Days. Before the sun and the signs were created,

before the stars of heaven were formed, his name was invoked in the presence of the Lord of Spirits. A support shall be for the righteous and the holy to lean upon, without falling, and he shall be the light of nations. He shall be the hope of those whose hearts are troubled. All who dwell on earth shall fall down and worship before him; shall bless and glorify him, and sing praises to the name of the Lord of Spirits."

The advocate of the common view that Christianity is a Semite religion, accepted by the Aryans from the hand of the Semites, must explain this and scores of similar passages in a book quoted by St. Jude himself. The ideas here are those of Righteousness, Wisdom, Son of Man, Lord of Spirits, Light of Nations. They connect us with the Book of Wisdom, the Book of Daniel, and the Zend Avesta. Yet they are the very inmost ideas of Christianity. How is this? Simply because the great majority of the earliest preachers of Christianity were Hellenists. This fact is historically known, and were it not so the development of the doctrine of the Trinity among Christians would of itself be sufficient to show the great weight of the Aryan element in those days, for surely no conceivable doctrine could be picked out more alien to every instinct of the Semites.

Christianity then being the religion of one who was condemned by society, who considered society to be wrong and himself to be right, is a religion acceptable to Aryans. Christianity being a religion recognising that the principle of faith or mutual trust is far preferable to the dead hard power of law for the purpose of sustaining justice or order in the human race, is a religion acceptable to Aryans. Christianity recognising care, labour, anxiety, industry, and forethought, as necessary in a contest which it recognises as going on between good and evil, is a religion acceptable to Aryans. Christianity being the religion of the Book of Daniel more than of all the rest of the Old Testament put together, which Book of Daniel never was part of the Hebrew Bible, is a religion derived principally from Aryan sources. And finally, Christianity being professed by Aryans now, and not being professed by Semites now, and having at its origin been preached and propagated in Greek, and its records having been written in Greek, is in a fair and full sense of the word a truly Aryan religion.

The Rev. Dr. IRONS hoped an opportunity would be given for considering the paper more deliberately, for it touched on so many important points that it was impossible in merely hearing it read to discuss them properly. He would ask, however, what it was the author of the paper intended by the distinction he would draw between the Aryan and the Semitic races. Was it that Christianity was an Aryan religion and not Semitic? He could not see what would be gained by the admission that it was so, if made. What then? Would he tell the meeting what then? On what ground was it that he assumed that the Book of Daniel was the source whence Christianity derived its ideas? Such assumptions as that ought not to be lightly made.

Mr. BOLLAERT said that having lived a great many years among the Indians of South America, he was able to form an opinion as to the

effect of the attempts to spread Christianity among them, and he felt convinced that Christianity had no vitality among the pure Indian population. A great deal of trouble had been taken by the missionaries, but they had only succeeded in giving these people a love of the forms and ceremonies of the Roman Catholic Church, and had not inculcated among them Christian principles. The Indians had not the intellect to understand Christianity as Mr. Bollaert understood it. He spoke only of the aboriginal population of South America, of Mexico, Central America, and Peru more particularly, and among them Christianity had no vitality whatever.

Mr. PIKE said it was not the province of that Society to consider whether the Book of Daniel was authentic or not, and he objected to such questions being brought before them. He objected also to the classification of the races of men into Aryan and Semite.

The Rev. DUNBAR HEATH, in explanation, said he only used the words that had been introduced by others; it was immaterial to him what they were called.

Mr. PIKE, in continuation, observed that Mr. Heath, at all events, drew a marked distinction between them. He said that the Semites recognise divine interference in the physical world while the Aryans did not. Now, whether or not we are Aryans, we professed to be Christians, and certainly in the prayer-book of the Church there are several instances of supplications for divine interference. There were prayers for the sick, and on special occasions for individuals, and there had recently been special prayers for the removal of the cattle plague. It might, indeed, be replied by Mr. Heath that such prayers had not entered into the hearts of the people; but the same recognition of divine interference also occurs out of the church. At coroners' inquests, for instance, the verdicts of the jury were often "Died by the visitation of God." There were many differences among Christians respecting the doctrines of Christianity, and it would be difficult to say which was the Aryan belief and which the Semite. Some Christians, for example, believed in the atonement. That belief was quite as much Semitic as it was Aryan. Then again, what was said in the paper about one race believing in a visible and the other in an invisible God seemed like an inversion of the fact. Moses was stated to have seen the back part of God, and did the Aryans not suppose they have seen God? They profess, indeed, to have seen more Gods than any other race. In the Iliad the Gods are represented as continually coming down to assist in battle; in Roman history are there not Castor and Pollux? and in the dramas of the middle ages there were frequent representations of God and Christ.

Major OWEN entered at some length into a consideration of the biblical part of the question, introduced in the paper, and pointed out the difference in the teachings of Paul and Peter, between whom he said an antagonistic feeling existed. He agreed with Mr. Heath that the Book of Daniel was not recognised by the Jews, who assert that as an eunuch, Daniel could not have been dedicated to Jehovah, and that his writings contain the imagery found in the New Testament. He then proceeded to show the importance attached by

Christians to the prophesies of Daniel, whose profession was avowedly that of an astrologer, and remarked on the coincidence that the rules by which astrologers predict events by the motions of the planets, and the interpretation of the prophesies of Daniel, by Dr. Cumming and other Christian divines, agree in pointing to the year 1866, or rather 1867, as a time at which Rome should lose power, and Jerusalem become of importance, or as it is commonly termed, the coming of the millennium.

Mr. Carter Blake said that Mr. Heath, in his paper, attempted to carry out the application of two axioms, that history is part of anthropology, and that history is worthless. For notwithstanding the works of certain apostles of Christianity, he said they failed to make permanent converts, therefore Mr. Heath thought they were Semites, and their failure was owing to their race character. But how had he proved that they were Semites, and how had he proved that their mission was not successful? History recorded it as a fact that there was a church called Christian founded by the apostle James at Jerusalem; and that community exercised some influence not only on the Greek proselytes and afterwards on Alexandrian teachers, but on the Christians of the east, by whom the church founded by James was much prized. The apostle John, we were informed, founded a thriving church at Ephesus, which was brought into connection with both Aryans and Semites. St. Peter, also, at Rome founded a Christian Church, which consisted not only of pure Aryans, but of populations of various kinds. Whatever interpretation was given to these facts, it could not be denied that the Christian organisations then founded had continued to the present time. He was surprised, therefore, that Mr. Heath should say that no Christian communities were established at Rome, in Asia Minor or other places in the east; nor did he think that, prior to this new revelation, we were in the habit of believing that the apostles had no success in propagating Christianity. Some of them, it was known, exercised influence over the Ethiopians, who in the early history of the church had a workable organisation. They had liturgies in their churches, and those Christians exercised a far wider influence over neighbouring Nigritian populations, than those of Aryan or Semitic races. Christianity, he believed, was much more widely distributed in those early ages than Mr. Heath represented.

Dr. Charnock said it might be worth while to estimate the number of the "small outlying exceptions" to the proposition laid down by the author of the paper. They would probably amount to between nine and ten millions. There were 350,000 Basques, 150,000 Copts, 2,000,000 Armenians, 400,000 Georgians, 1,500,000 Finns, 60,000 Lapps, and 5,500,000 Magyars. It was impossible, indeed, that the Georgians and Armenians might not come within the exception in question. Before the time of Alexander the Great, Georgia formed a part of Armenia, and the Armenians claimed descent from Togarmah, son of Gomer, and they probably knew as much about the matter as anybody else. With regard to the Copts, the author of the paper stated that they professed only a sort of Christianity. It might be

interesting to know what sort of Christianity it was. In Great Britain alone there were at least 150 different sorts. The Rev. Dunbar Heath seemed to have fallen into a dilemma. His proposition was that only an Aryan race could accept an Aryan religion, that the Turanians of Europe were not so by race, but only by language, and that the Aborigines of Europe were probably mutes. If so, either the Aborigines of Europe were neither Aryans nor Turanians, and being such, accepted an Aryan religion, partly through Aryan, partly through Turanian teachers, or they were Aryans; and if they were Aryans, could they be mutes?

The Rev. Dunbar Heath replied to the various remarks on his paper, observing, in the first place, that the spirit of the discussion had been all that could be wished. Dr. Irons had asked what was the tendency of the paper, but he must let the paper speak for itself; for if he had any further views and saw to what his observations tended, a meeting of this Society was not the place to express them. His observations in the paper must be accepted as they were, and he would not say what was the tendency of the opinion that the Book of Daniel had been received in the Christian canon and not in that of the Jews. Mr. Pike had hit him rather hard. He had said that we accept at the present day in Christian churches many of the opinions which in his paper he had ascribed to the Semites, as distinguishing them from the Aryans. There were, no doubt, a vast variety of views taken by different people in this country, and the Semitic and Aryan principles were both struggling for supremacy, with everything else, but the stronger were the principles on which society is based, the better it would bear such a conflict; and in his paper he took merely a broad view of the race character of the people. With regard to the striking remarks of Major Owen, they must stand on their own bottom. They were highly interesting, and not adverse to the opinions expressed in the paper. Mr. Blake had put forward as objections to his views that there are communities of Christians now in Asia Minor, and that there was no evidence as to the nationality of the apostles. With regard to one of the most distinguished of those communities in former times—the church at Ephesus—its present condition certainly bore out fully all he had stated. Ephesus was now only a station of the new railway, and in the place where old Polycarp lived, that railway station is the only house. In parts of Syria, also, there are now very few Christians. As to the nationality of the apostles, it was generally supposed that they were all Jews; and if they were not, that would support his argument. As to the Armenians and Georgians mentioned by Dr. Charnock, he considered them to be Aryans. With regard to the remarks of Mr. Pike, he was aware of the dilemma about the Aryan language being spoken by people not Aryans. He admitted there was a difficulty in the matter, and as he could not explain it, let it be so. He was glad, however, that, on the whole, his views of the difference of appreciation of Christian doctrines by Aryans and Semites had not been disputed, and there seemed to be an accordance with the general sentiments expressed in the paper.

The following list of exhibitors at the Soirée on November 6th was announced, and thanks were voted for the same.

Dr. James Hunt, Pres.A.S.L.:—
- A series of Water-colour Drawings of Karnak, in Britanny, with large diagrams illustrating the same.
- A series of Flint Implements from Amiens and Abbeville.
- A series of rude Stone Implements from the Zetland Isles.

Dr. R. King, F.A.S.L.:—
- Water-colour Drawings illustrative of Natives of Tasmania, Madagascar, and the Polynesian Islands.
- Models of Boats used by Polynesian Islanders.
- Chinese Apothecaries' Scales.

David Forbes, Esq., F.R.S.:—
- Ancient Skull from Pisagua, artificially distorted.
- Modern Aymará Skull.
- "Ppassa", or clay used by South American Indians to mix with food, in natural and in prepared state.

Dr. F. C. Webb, F.L.S., F.S.A.:—
- Series of ancient Anglo-Saxon jaws from various cemeteries (pre-Christian).
- Tomahawk and Paddle from Tahiti.

Alfred Higgins, Esq., Hon. For. Sec. A.S.L.:—
- Photographs of Indian Temples in Mysore, India.
- „ Tribes of the Neilgherry Hills.
- „ Croats.
- „ Dalecarlian Peasants.

H. Prigg, Esq., jun., F.A.S.L.:—
- Collection of Flint Implements from the Gravel of the Little Ouse.

H. Leyton, Esq.:—
- Skulls found in the Bed of the Thames at Kew.

Miss Marshall:—
- Photographs of Ernst Schulz, illustrating the histrionic imitation of various races of man.

J. R. Gregory, Esq., F.A.S.L.:—
- Casts of two extreme forms of Human Crania, recently described by Professor Huxley.

William Bollaert, Esq., Hon. Sec. A.S.L.:—
1. Mexican Zodiac.
2. Muizca Calendar (N. Granada).
3. Maya Alphabet (Yucatan).
4. Photograph and fac-simile of Dresden Maya Codex (Yucatan).
5. Photographs of Paris Maya Codex.
6. Lithographs of Troanus Maya Codex of Madrid (Yucatan).
7. Peruvian Zodiac (gold). Photograph.
8. Photograph of the Sculptured Monolith of Tia-Huanaco, Peru.
9. Photograph of Peruvian Figurative Writing on Skin.
10. Enlarged Drawing of the above.

The meeting was then adjourned.

[The report of the meeting on December 18th, will be inserted after the report of the general meeting.]

ANNUAL MEETING.

January 1, 1867.

James Hunt, Esq., Ph.D., F.S.A., F.R.S.L., President, in the Chair.

The Minutes of the last meeting were read and confirmed.

The Treasurer submitted the following balance-sheet, which had been passed by the auditors:—

Income.	£	s.	d.
Balance from last year...	56	4	11
Subscriptions for 1863 ...	3	19	11
Do. 1864 ...	30	2	4
Do. 1865 ...	71	16	2
Do. 1866 ...	1023	18	8
Do. 1867 ...	16	13	3
Life compositions	161	14	9
Donations to Library and Museum Fund.....	1	1	0
Publications sold:—			
Waitz	13	3	9
Vogt	25	8	7
Blumenbach	5	0	7
Gastaldi	10	0	0
Broca.....	3	19	3
Pouchet.....	7	12	2
Books sold at office...	17	17	6
Donation to Exploring Fund.....	67	2	0
Total received...	1515	14	10
By Treasurer's loan.....	200	0	0
	£1715	14	10

Expenditure.	£	s.	d.
Rent	65	0	0
Salaries.....	262	10	0
Office expenditure	119	2	9
Stationery	56	14	0
Furniture.....	35	4	3
Postage.....	67	11	8
Advertisements	84	16	0
Library and Museum.....	18	17	3
Reporting.....	23	12	6
Memoirs	210	17	6
Anthrop. Rev. & Journal	296	0	4
Vogt	50	0	0
Blumenbach	50	0	0
Gastaldi	25	13	2
Capt. B. Pim's meeting Expenses	3	12	0
Miscellaneous printing...	142	9	6
Explorations	100	0	0
Total expended	1613	2	10
Balance in hand.....	102	12	0
	£1715	14	10

D. I. Heath, *Treasurer.*

Examined and approved.

Sam. R. I. Owen,
J. E. Villin, } *Auditors.*

January 1, 1867.

The following Report of the Council was read:—

Report of Council.

The Council of the Society, on terminating the year 1866, and entering upon the fifth year of the Society's existence, has to report the continued prosperity which has attended its operations during the past year.

Meetings.—During the year 1866, fifteen meetings have been held, at which the following papers have been read:—

J. Meyer Harris, Esq., F.R.S., F.A.S.L. "On the Gallinas of Sierra Leone."

G. W. Marshall, Esq., LL.M., F.A.S.L. "On Genealogy in relation to Anthropology."

Capt. Bedford Pim, R.N., F.A.S.L. "On the Negro, at Home and Abroad."

Hyde Clarke, Esq., LL.D., Loc.Sec.A.S.L. "On Moravian Wallachia."

H. J. C. Beavan, Esq., Hon. Sec. "Notes on the People inhabiting Spain."

Hyde Clarke, Esq., LL.D., "Observations on the Materials for Anthropology at Smyrna."

T. Baines, Esq. "On Articles of Dress and Implements of War from Africa."

L. O. Pike, Esq., F.A.S.L. "On the Psychical Characteristics of the English People."

A. Higgins, Esq., Hon. For. Sec. A.S.L. "On the Orthographic Delineation of the Skull."

W. H. Wesley, Esq., F.A.S.L. "On the Iconography of the Skull."

C. Carter Blake, Esq., F.G.S., F.A.S.L. "On certain Simious Skulls, with especial reference to a Skull from Louth, in Ireland."

Dr. Paul Broca, Sec. Gen. Soc. Anth. Paris. "On a new Goniometer, for the Measurement of the Facial Triangle."

George Petrie, Esq., Loc. Sec. A.S.L. "Notes on the Brochs and Picts' Houses of Orkney."

Joseph Anderson, Esq., Hon. Sec. A.S.L. "Report on the Ancient Remains of Caithness."

John Cleghorn, Esq. "A New Reading of Shell-Mounds and Graves in Caithness."

G. Petrie, Esq., Loc Sec. A.S.L. "On Human Remains fron Keiss."

Joseph Anderson, Esq., Loc. Sec. A.S.L. "On Human Remains from Keiss."

R. I. Shearer, Esq. "On Human Remains from Keiss."

Dr. J. Hunt, Pres. A.S.L. "On Human Remains from Keiss."

W. Bollaert, Esq., Hon. Sec. A.S.L. "Contributions to an Introduction to the Anthropology of the New World."

Capt. R. F. Burton, V.P.A.S.L. "Notes on an Hermaphrodite."

Major Samuel R. I. Owen, F.A.S.L. "On Hindu Neology."

Dr. John Shortt, F.A.S.L. "On a Living Microcephale."

E. Sellon, Esq. "On Sacti Puja."

R. B. N. Walker, Esq. "On the Fecundity of Negro Women."

Hodder M. Westropp, Esq. "On the Analogous Forms of Flint Implements."

Col. Beauchamp Walker, Lieut. Ardagh, C. Carter Blake, and W. Topley, F.G.S. "On a Kjökkenmödding at Newhaven."

Capt. R. F. Burton, V.P.A.S.L. "On a Kjökkenmödding at Santos."

Rev. W. H. Brett. "On the Opening of a Tumulus at Essiquibo."

Dr. Beddoe. "On the Head-forms of the West of England."

J. P. Morris, Esq. "Report on the Kirkhead Bone Cave at Ulverstone."

Dr. James Hunt, F.S.A., Pres. A.S.L. "On the Influence of Peat in Destroying the Human Body."

Dr. James Hunt, F.S.A., Pres. A.S.L. "On the Interpretation of some Inscriptions on Stones found in Zetland."

Dr. B. Seemann, V.P.A.S.L. "On the Resemblance between Inscribed Stones in Veraguas and in Northumberland."

Dr. Bower. "On the History of Slavery."
Dr. A. Mitchell, F.A.S.L. "On the Influence of Blood-relationship in Marriage."
C. Carter Blake, Esq., F.G.S. "Report on the Anthropological Papers read at Nottingham."
Rev. Dunbar I. Heath, M.A., Treas. A.S.L. "Report on the Formation of an Anthropological Society at Manchester."
C. Carter Blake, Esq., F.G.S., F.A.S.L. "Report on the Belgian Bone Caves."
A. Higgins, Esq., Hon. For. Sec. A.S.L. "Report on Scandinavian Museums."
Rev. Dunbar I. Heath, M.A., Treas. A.S.L. "On the Great Race Elements in Christianity."
Col. Lane Fox, F.S.A. "On the Remains of Lake Habitations in London Wall."
Rev. Dunbar I. Heath, M.A., Treas. A.S.L. "On Mute Societies of Man."

The total number of Fellows on the Society's books is at present 706.

Honorary Fellows.—No Honorary Fellow has been elected in 1866.

Corresponding Members.—The number of Corresponding Members on the Society's books amounts to forty-two.

Local Secretaries (Great Britain).—The number of Local Secretaries in Great Britain amounts to forty-nine. Your Council would especially draw your attention to the fact that many of the Local Secretaries have neglected to communicate with the Society during the past year, and that the Local Secretaries in England form, in this respect, an unenviable contrast with those abroad. Your Council submit for your consideration some rules respecting the election and retention of these officers.

Local Secretaries Abroad.—The number of Local Secretaries abroad has been now increased to fifty-seven.

Executive.—In the report of Council for last year it was stated that Mr. T. Bendyshe had thrown out a suggestion for the more effectual management of the Society's affairs by the appointment of a director as its chief responsible officer. His opinion concerning the matter had grown so strong in the early months of the present year, and so convinced was he of the great desirability, not to say necessity, for such a change, that at a meeting of Council in May last, he laid before them this resolution—"That it is expedient the executive be strengthened." Due deliberation by all the officers of the Society, and long discussion by a full Council, resulted in the endorsement of the views of Mr. Bendyshe, and in the motion of the following series of resolutions by the Honorary Secretary, Mr. Beavan:—

"1. That the Council are of opinion that it would be desirable that the offices of Honorary Secretaries and Honorary Foreign Secretary be abolished, and that the three offices be incorporated into one, under the title of Director.

"2. That this Council considers it advisable that any expenses incurred by this officer on behalf of the Society, and approved of by the Council, shall be refunded to him.

"3. That the number of Vice-Presidents be increased from four to six.

"4. That the foregoing Resolutions be referred to the Publication Committee, to be incorporated in the regulations, and that the same be submitted to the next general meeting of the Society.

"5. That this Council is also of opinion that from the time of the above Resolutions taking effect, the Assistant Secretary shall have the title of Secretary.

"6. That the Secretary and the Curator and Librarian both act immediately under the orders of the Director.

"7. That during the remainder of the present year, the President be requested to undertake the duties which will be hereafter assigned to the Director.

(Signed) "HUGH J. C. BEAVAN, *Hon. Sec. A.S.L.*

"15th May, 1866."

These Resolutions were each and all carried unanimously, and are now embodied in this Report for your approval to-day.

On recommending this change, the Council desire briefly to state the principle which has guided them in their decision. The offices of the Honorary Secretary and Honorary Foreign Secretary, however well they may be filled by gentlemen of high attainments and great energy, appear to be too limited in their range of action in respect of responsibility, and too little under immediate direction in virtue of their individual irresponsibility, to allow of the efficient discharge of the numerous and varied duties allotted to them. This undesirable complication has been much aggravated since the appointment of the salaried officers, who, under existing rules, receive their instructions from three separate Secretaries, who again are collectively, not in their individual capacities, responsible to the Council. As might be expected, such a state of ill-defined authority has resulted in a loss of executive power, and as a natural sequence the interests of the Society have suffered to some appreciable extent.

This proposed change of merging the offices of the Honorary Secretaries into that of a Director, who will be immediately responsible to the Council, is intended to remedy a defect which has been long seen and understood in the present organisation. The Curator and Secretary will in future (should this receive your sanction) be placed under the control of one officer.

It is the decided and well-considered opinion of the Council that the removal of the above defect in the manner indicated will give a strength and stability to the Society which may not have been necessary in its early years to insure the brilliant success it has attained, but which it will assuredly want in the future, when its prosperity will depend solely on the good and substantial work it accomplishes, not partly as hitherto, on the novelty of its aims and objects.

On considering the most important question that will be laid before you on this occasion, namely, the appointment of a gentleman to occupy that irksome, highly responsible, and not very enviable office of Director of the Society's affairs, the Council recognises one who possesses all the requisite qualifications, and who is able to steer us clear of any difficulties that may arise in future years, and who has the

energy and will to exercise these qualities for the complete and lasting establishment of the Society. The determined retirement of Dr. Hunt from the Presidency this year affords your Council an opportunity of placing on record a few words, inadequate though they must necessarily be, in testimony of his rare qualities and of the debt we, as a Society, owe to him.

As Founder of the Anthropological Society of London, he has earned a world-wide reputation, and his name will always be inseparably connected with the most brilliant early career of any scientific society hitherto in the history of such bodies. But only those whose lot has thrown them in association with him can possibly know, and not all those perhaps can possibly understand, how rare are the administrative ability, the keen foresight, and the admirable tact and judgment which are united in his character. In him we see an example of that individuality which is so indispensable to a successful leader; of firmness in conjunction with wise yielding, when new light is thrown on his path, and another course is to be preferred, as opposed to the stubborn will that brooks no opposition.

The difficulties attending on the successful working of a society which is almost entirely new in its scope of systematically pursued studies are enormous, and, even if it were desirable, could not be here detailed. Your President leaves the chair this day to his successor, amid our deep regret; but with such qualifications as almost turn our regrets into congratulations. It is our pleasure to announce to you that Dr. Hunt, heartily wishing for the prosperity of the Society, and holding in high esteem your earnest wish to see that prosperity extended in the future, has consented (though, your council are aware, at a large sacrifice of time and personal convenience) to fill the office of Director, should you think fit to endorse their recommendation.

That office, however, in the opinion of the council, should be made on two conditions. 1st. Of its permanency; for the complete organisation, that seems so necessary for the retention of the present number of members on our list, will be still more required when the Society has passed its early years, during which the curiosity attending most undertakings of a character entirely new, has worn off. The greatest diligence will in future be required to retain the proud position in which the President has placed us, and also to gain that useful extension of the Society which the council has in contemplation. 2nd. Of its remuneration. On this question it is anticipated there can hardly be a difference of opinion as to the wisdom of the condition. No man can be expected to undertake, and no council would presume to recommend, that work of the extent and nature involved in the management of so large a society, should be undertaken by any gentleman for a continuance on any other condition. Our President has already, during the last four years, made larger sacrifices than members can be aware of; and to those sacrifices, of personal inconvenience, we owe our present position. Our financial state does not now allow of the attachment to the new office of a salary; but your Council consider it most desirable that as soon as our treasury will permit it, an *honorarium* shall be attached thereto.

The above proposed changes have been deliberately drawn up after careful discussion in Committee and in Council, and are incorporated in the amended Rules, which are submitted to you for your consideration and approval.

Apartments.—The Society's rooms during the past year have been much frequented, and have undergone considerable improvement. The south end of the large room is now furnished with two book-cases, which it is calculated will meet all the probable additions to the Society's Library during the next six months. There is a great probability that these rooms may be required for the enlargement of the National Gallery; when this takes place, your Council earnestly recommend that application be made to Her Majesty's Ministers for suitable apartments for a society having for its object the investigation of the principles on which all good and sound government must be conducted.

Library.—The condition of the Library during the past year has been such as to call for considerable congratulation. The book-shelves above alluded to have been easily almost filled, and the books have for the convenience of arrangement been temporarily classified under the five heads, Archaic, Historical, Descriptive, Comparative Anthropology, and Periodical Publications. The state of the books themselves has been sedulously examined, and a catalogue of all works in the possession of the Society up to the end of last Session has been in the hands of the printer for more than five months. It is to be hoped that it will be soon issued to the Fellows. Donations have been received for the Library from the following gentlemen:—T. Bendyshe, Esq., V.P.A.S.L.; Dr. J. Hillier Blount; Dr. Paul Broca; C. Carter Blake, Esq., F.G.S., F.A.S.L.; Charles Blake, Esq.; Dr. Richard S. Charnock, F.S.A.; J. W. Conrad Cox, Esq., B.A.; S. Edwin Collingwood, Esq., F.Z.S., F.A.S.L.; J. Fred. Collingwood, Esq., F.G.S., F.A.S.L.; Dr. Barnard Davis, F.S.A., F.A.S.L.; J. Downe, Esq., F.A.S.L.; Dr. P. M. Duncan, Hon. Sec. G.S., F.A.S.L.; W. Eassie, Esq., F.G.S., F.A.S.L.; Dr. B. Foster, F.A.S.L.; Prof. Garbiglietti; James Gowans, Esq., F.A.S.L.; A. Higgins, Esq., Hon. For. Sec. A.S.L.; G. A. Hutchinson, Esq.; Prof. Hansen; Dr. James Hunt, F.S.A., Pres. A.S.L.; M. Louis Lartet; K. R. H. Mackenzie, Esq., F.S.A., F.A.S.L.; Prof. Möbius; G. W. Marshall, Esq.; J. E. Morgan, Esq.; Dr. Nicolucci; C. O. Groom Napier, Esq., F.G.S., F.A.S.L.; Prof. Owen, Hon. F.A.S.L.; M. Pruner-Bey, Hon. F.A.S.L.; G. N. Rankin, Esq.; B. Seemann, Esq., V.P.A.S.L.; W. Scott, Esq.; Dr. Ryan Tenison; Dr. Thurnam; W. Topley, Esq.; N. Trübner, Esq.; R. B. N. Walker, Esq.; Dr. Zeltner.

Museum.—The Council regret that, owing to the state of the Society's finances, they have not been able during the year 1866 to carry out the recommendation they made last year that a large glass case should be erected in the principal room of the Society to contain our rapidly increasing collection of crania. They trust, however, that the improved condition of the funds of the Society in 1867 may admit of the necessary expence being incurred for this very important object. Donations have been received from the following gentlemen:—J. Bainbridge Baxter, Esq., M.R.C.S.; E. B. Bogg, Esq., M.D.;

The Belgian Minister of the Interior; Dr. Collyer; F. Chittenden, Esq., M.R.C.S.; S. Edwin Collingwood, Esq., F.Z.S., F.A.S.L.; J. Fraser, Esq., F.A.S.L.; J. R. Gregory, Esq., F.A.S.L.; M. Lartet, Hon. F.A.S.L.; W. F. Lawrence, Esq.; H. Prigg, Esq., jun., F.G.S.; R. W. Payne, Esq., F.A.S.L.; W. Salmon, Esq.; Dr. Shortt, F.A.S.L.; Dr. F. Skues, F.A.S.L.; Dr. Ryan Tenison, F.A.S.L.; R. B. N. Walker, Esq., F.A.S.L.

Increase of Members.—The question of increasing the number of Foundation Fellows has on several occasions been laid before the Council during the past year. They have expressed the extreme difficulty of maintaining the Society in its present condition of working organisation with a small number of members, and have felt that a much larger number is necessary in order to carry out adequately the objects proposed in the first prospectus of the Society. After due and careful deliberation they have thought it their duty to recommend that the number of Foundation Fellows be increased to 2000, feeling that the large income required to carry out the objects of the Society and maintain its efficiency in working order, can only be attained by this increase in the number of the Foundation Fellows. In the early history of the Society it was thought possible to accomplish this object with five hundred Fellows. Your Council find, however, that to conduct the affairs of the Society on the liberal and comprehensive basis now demanded for it, requires a vast increase upon the original calculation. Your Council have expressed a wish to the President that he should touch on this subject in his Address, as it is far too extensive to be embodied in this Report.

Translations.—The Council have not been able to issue any translations during the past year, but they are happy to state that the translation of the work of Retzius, undertaken by Mr. Higgins, is in the printer's hands. Arrangements have been made for illustrating this work by a series of plates. The translation of the Paris instructions for anthropologists and travellers is also in an advanced condition, and will be issued to Fellows of the Society during the present year. The Council are happy to state that the editing of this important work has been kindly accepted by Dr. Beddoe. They hope that the importance of this work, and its appearance under such auspices, will lead to an increased amount of interest in the means by which anthropological observations are recorded.

Memoirs.—The second volume of the Society's *Memoirs* was issued during the past autumn. The Council hope that the circulation of the second volume of *Memoirs* will be equal to that of the first. In the last annual report it was announced that the first volume of *Memoirs* was nearly out of print. At the present time the number of copies is exceedingly small, and those Fellows who wish to complete their sets of the Society's works should make immediate application.

Anthropological Review and Journal of the Society.—This publication has been issued, as heretofore, quarterly to the Fellows. It is hoped that the arrangements which were made last year, by which the delivery of written speeches before the Society was prevented, has relieved the *Journal* of much superfluous matter.

The Council have received from the proprietors of the *Anthropological Review* an offer of all the back numbers in stock as a donation to the Society. This liberal offer has accordingly been accepted.

Anthropological Exploration Fund.—In June last, a circular informed the Fellows of the Society that it had been resolved to form a special fund, for the purpose of carrying on original researches in archaic anthropology, under the title of the "Anthropological Exploration Fund". This circular was promptly responded to, and the following sums received:—

	£	s.	d.
Dr. James Hunt, Pres. A.S.L.	10	0	0
Rev. Dunbar I. Heath, Treas. A.S.L.	10	0	0
W. Robinson, Esq., F.A.S.L.	5	0	0
Henry Johnson, Esq., F.A.S.L.	10	0	0
C. Carter Blake, Esq., F.G.S., F.A.S.L.	5	0	0
James Bischoff, Esq., F.A.S.L.	5	0	0
George Harris, Esq., F.S.A., F.A.S.L., Pres. Branch Manchester Society	5	0	0
John Parnell, Esq., F.A.S.L.	5	0	0
George C. Joad, Esq., F.A.S.L.	5	0	0
T. E. Partridge, Esq., F.A.S.L.	5	0	0
H. Charlton, Esq., F.A.S.L.	1	1	0
T. Wodderspoon, Esq.	1	1	0
	£67	2	0

These sums were applied as follows:—

	£	s.	d.
To Joseph Anderson, Esq., Soc. Lec. A.S.L., for Explorations in Caithness	10	0	0
G. Petrie, Esq., Loc. Sec. A.S.L., Explorations in Orkney	5	0	0
A. Higgins, Esq., Report on Scandinavian Museums	10	0	0
C. Carter Blake, Esq., Report on Belgian Bone Caves	20	0	0
Dr. James Hunt, Dorsetshire Explorations	20	0	0
	£65	0	0

It is much to be desired that additional funds should be raised.

Days of Meeting.—During the recess, some difficulty arose as to the days fixed for the meeting of the Society. Our card was drawn up on the same principle as that which has regulated it during the past three years. These days have now received the unanimous sanction of the Council of the Royal Society of Literature, and, to prevent any further misunderstanding, are now incorporated in our Rules.

Conversazione.—Our ordinary meeting-room was, however, not available for the day on which the first ordinary meeting was fixed, and your Council decided to hold a conversazione, the success of which was they considered sufficiently great to warrant a repetition of the attempt another year.

Branch Societies.—The Council have incorporated in the Rules the arrangements that have been made for the management of Branch Societies.

British Association.—The official report which has been already laid before the Society by Mr. Carter Blake has stated to you the circumstances under which a department of the British Association was created under Section D, and devoted to Anthropological Science. The

Council have felt it their duty to remind you of the fact, inasmuch as the arrangements entered into at Nottingham, being avowedly of a temporary nature, its continuance at the Dundee meeting must depend entirely on the energy and industry of Anthropologists. They, therefore, beg to urge that all papers intended for the Dundee meeting shall be sent in at least a fortnight before-hand, and hope that a far larger amount of papers will be sent in. While congratulating the Society on the successful establishment of a department for the Science of Man, your Council hope that the events of the last few years may act as an encouragement to those timid anthropologists whom the dread of being in a minority may have deterred from expressing their individual opinions.

To those gentlemen who have been chiefly instrumental in the accomplishment of this success we should tender our best and warmest thanks to Dr. Hunt, in the first place, whose leadership in the struggle with the determined and powerful opposition of the Committee of the Association has extended over four years; to Mr. Carter Blake, whose zeal and constant work in the cause is far better known in the Association than in our Society; and to Professor Huxley, whose influence with that body was largely exercised for the benefit of anthropological recognition. To the latter gentleman's honest and disinterested action in the matter of his impartial conduct as President of the Section of Biology, and his general courtesy to the delegates and members of this Society, our best acknowledgments and thanks are due.

Conclusion.—The Council have only, in concluding this report, to impress on the minds of each individual Fellow the necessity of vigorous action to attain the proper number of the Society. If each Fellow were to nominate a single friend as member, the Society would be at once doubled in number. Some Fellows have nominated a considerable number, and all can nominate at least one. United and active exertion alone can place the Society's finance in the position they must eventually occupy, and the Council hope that the next year (1867) will close with a Society at least double its present limits.

Signed on behalf of the Council,

DUNBAR I. HEATH, *Chairman.*

December 18, 1866.

Dr. KING said that the report of Council was a faithful record of the past year. A large amount had been received and a large amount expended, and the fruit of the expenditure, which was of great value, was in the hands of the Society. The publications of the Society *alone* would account for the expenditure, without mentioning original investigations conducted on a large scale. The report of the Council was so complete that there was nothing to be said on that point, but he must be allowed to say a few words as regarded Dr. Hunt, who retired that day as President of the Society. His labours, commencing with the formation of the Society, himself the Founder, were incessant and uninterrupted, and aided by his Council, the Society had reached a position both as to the number of its Members and the extent of its publications and original investigations, which has not been surpassed by any scientific society; he therefore had great pleasure in proposing that the report of Council just read be adopted.

W. C. Bonnerjee, Esq., F.G.S., in seconding the resolution, said that the report was so full and so accurate, and the recommendations which it contained were so just, that to ensure the future prosperity of the society he thought it should be adopted at once.

The motion was then put, and carried unanimously.

The newly-revised rules and regulations were then read to the meeting. The following are the new rules:—

3. The Society shall consist of a President, six Vice-Presidents, a Director, a Treasurer, Fellows, Honorary Fellows, Corresponding Members, and Local Secretaries.

4. The government of the Society shall be vested in the President, the Vice-Presidents, Director, Treasurer, and twenty ordinary Members of Council to be elected as hereinafter directed, as well as *ex-officio* all ex-Presidents of the Anthropological Society of London, and the Presidents of Local Branch Societies.

19. The Council may appoint Local Secretaries in this or in other countries, whose duty it shall be to communicate regularly with the executive, and to give the earliest intimation of any discovery relating to the anthropology of their respective localities. Every such appointment shall continue only during the pleasure of the Council. Such Local Secretaries shall be chosen as far as possible from the Fellows of this Society. Gentlemen holding this office and not being Fellows of the Society, shall be entitled to attend the meetings and to such other privileges as the Council may from time to time decide.

32. The Council shall be empowered to grant a remittal or abatement of subscription fees in a limited number of cases, when it may be found desirable to elect gentlemen to the Fellowship who are distinguished for their service to anthropological science, and to whom the usual payments may be impossible or highly inconvenient.

42. The Director shall have a general charge of all the arrangements, and of the execution of all the orders of the Council and of the Society. He shall conduct the correspondence; attend the meetings, and direct the business of the same. He shall see that a note of the papers read at the ordinary meetings is inserted in the Minutes, and that all such minutes of the proceedings, whether of the Society or of the Council, are entered in the several minute-books.

46. The Council shall be empowered, from time to time, to appoint gentlemen to deliver lectures before the Society on various branches of anthropology, under such limitation and restriction as they may deem desirable.

The Rev. Dunbar I. Heath, M.A., moved that the proposed rules be adopted.

Edouard Villin, Esq., F.R.S.L., seconded the resolution, which was carried unanimously.

The President appointed Dr. F. Royston Fairbank, and J. Mason Hepworth, Esq., to be Scrutineers for the ballot, which was declared open.

Colonel Lane Fox moved "That the thanks of the Society be given to the retiring members of Council, Messrs. Higgins, Rolph, North, and Tate for their services during the past year."

Mr. A. Ramsay, jun., F.G.S., seconded the resolution, which was carried unanimously.

Major Owen, F.L.S., moved "That the thanks of the Society be given to the President, Vice-President, and Council, for their services during the past year." He congratulated the Society on its flourishing condition, which he considered to be owing to the energy by which the affairs of the Society had been managed.

Mr. J. Lancaster, in eulogistic terms, seconded the resolution, which was carried unanimously.

Dr. Hunt, as the retiring President, and Dr. Gibb, on the part of the Council, acknowledged the honour conferred on them.

M. Robert Des Ruffières moved, and Dr. F. Royston Fairbank seconded, "That the thanks of the Society be given to the auditors."

Obituary Notices.

Dr. J. Hillier Blount, whose untimely decease the Society has to deplore, was, in early life, much connected with medicine in Paris, where, as the friend and pupil of the eminent Falret, he was the first to introduce to a British public the teachings of that celebrated medical psychologist.

In later life he resided at Bagshot, in Surrey, where he devoted himself to literature, and to the investigation of the phenomena of hybridity, heredity and atavism. In the spring of the past year he accepted a medical appointment at Assam, to which he proceeded in the capacity of local secretary to the Society; but, unfortunately, died before he was able to render the Society any essential service. On leaving England he presented the Society with the whole of his library relating to human psychology; and his genial disposition, combined with his high scientific attainments, render his loss very painful to all who knew him.

Dr. Lee, Q.C., LL.D., the celebrated patron of science, and founder of the Syro-Egyptian and Royal Astronomical Societies, died in his 83rd year, during the present spring. His early career is so connected with the process of general science, that I shall not here offer a detailed biography, but will call your attention to the fact that, at the meeting of the British Association at Birmingham, he supported the claims for the special recognition of anthropological science most warmly, and joined the society for the express purpose of vindicating the position of anthropology at the British Association. His travels during early life in Turkey, Egypt, and the Ionian Isles, had strongly imbued him with the idea that race-distinctions were of the highest possible importance in the study of man; and his vigorous support of the cause of anthropology at Birmingham should prove an example to those who, like him, may have reached an advanced age, but who, unlike him, do not possess that flexibility of mind and enlarged views which were so specially characteristic of our deceased Fellow.

Charles Groves died, on the 15th of May last, at Wareham, in Dorsetshire, aged 73. Mr. Groves was made our local secretary for the district in which he resided on the first formation of the Society. He was a man who helped forward the cause of scientific investigation

in his own humble unostentatious way, at a time when the study of natural science was not so popular as at this time. It is to his diligence that we are indebted for much of the information we possess respecting the Kimmeridge coal money, and he was well acquainted with the antiquities of his native county. He had at one time a very pretty and useful museum of antiquities found in the neighbourhood, and a very fair collection of fossils. I believe he was induced, or indeed obliged, to part with many of them before his death. The deceased will long be remembered in his district for the zeal with which he continually strove to diffuse a taste for the study of science; and, although his efforts met with little apparent success, he had the consolation of knowing that whenever an eminent antiquary or geologist visited his district, they did not fail to visit him, and there were few who could not be touched by the beautiful simplicity and modesty of the man who, if placed amongst a more congenial and intellectual people, might have done much to forward the cause of physical science.

M. Ricardo, Esq., was a member of the Society since its earliest foundation, and took the greatest interest in its welfare and progress. He died during the present year at an advanced age.

Henry Jackson, F.R.C.S., etc., only son of Henry Jackson, Esq., Surgeon, was born at Sheffield in the year 1806. His professional education, commenced under his father's superintendence, was continued at Dublin under Messrs. Cusack and Macartney, and completed in London at St. Bartholomew's Hospital. In 1830, having obtained the customary diplomas, he began to practise in his native town. Two years later he was elected Honorary Surgeon to the Sheffield General Infirmary; and from that time until his resignation a few days before his death, performed the duties of his post with unfailing interest and zeal. On the fifteenth of June last it was discovered that Mr. Jackson was suffering from an aneurism of the popliteal space. Amputation was resorted to, but without success. He died on the twenty-fifth of June.

Professionally Mr. Jackson possessed sound judgment, great sagacity, and remarkable facility of resource. He had a profound knowledge of the works of eminent surgeons of all ages and countries, and was always eager to appreciate and to welcome the discoveries and improvements of modern science. Mr. Jackson was a student of all branches of literature. It is to be regretted that professional duties allowed him no time to publish any record of his thoughts and observations on his favourite pursuits. In fact he has left a vast collection of miscellaneous notes, but no connected compositions, except a few papers read before the Medical and Philosophical Societies of Sheffield.

The President then delivered the annual address.

The President's Address.

Gentlemen,—I appear before you this day to perform my last duty as your president.

As my efforts to promote the interests of this Society during the

past four years have so often met with your approval, and as I have so often received marks of your kindness and confidence, I am tempted to ask you to bear with me for a short period while I touch on a few subjects which appear to me to deserve especial attention as bearing on the future history and working of our Society.

I had intended to give you on this occasion a succinct history of the origin and development of this Society. I feel, however, that the future is of so much more consequence than the past, that I have relinquished the design of speaking of the past, in order to be able to offer a few remarks on the present and the future of the Society. The time, too, has probably not arrived when great advantage would be gained, either to the Society or to Science, by detailing our past history. What we have done is mostly before the world, and, for the present, I must leave each one to form his own opinion of the same.

I shall endeavour to restrain a somewhat natural glow of satisfaction at what this Society has effected for anthropological science in this country. All I shall do will be to ask each Fellow to examine into and compare the state of anthropological science in England in the year 1862, and in the year 1866. The change is greater than many can well realise, and how far our Society has been instrumental in effecting this change, I must leave for your decision on some future occasion. The late illustrious President of our sister Society in Paris, Dr. Pruner-Bey, has, like many continental men of science, expressed his surprise at the progress of our Society. He writes thus:—"I must confess that I never expected such rapid and solid progress from that side of the channel, considering that even a few years ago it would have been impossible even to discuss matters there publicly which now form a starting point in your researches."

The primary principle, and most important object in forming this Society, was to endeavour to promote the study of anthropology in this country. In this we have to some extent succeeded, and I shall dwell on how we can best continue this good work. We have also to consider how we can most effectually make this Society worthy of the great science which she represents.

Gentlemen,—our past must be to some extent our guarantee for our future. What we have done badly in the past, we must in future endeavour to do well. Far be it from me to hint that our past could not be done over again with more success and with less opposition; but I do but scant justice to my colleagues when I say that if our past had to be enacted over again, I believe that more honesty of purpose could not be brought to bear on the establishment of a society by any set of men. If we have erred, it has been from want of experience rather than from any other cause. To those who think they could do better than we have done, I would only say that we did our best under the circumstances; and only those who know how adverse the circumstances have often been can fully estimate the difficulties we have overcome. I for one believe that the Anthropological Society of London has loyally and truly performed her duties to the science which she represents, and I now beg to offer a few suggestions which I think will conduce to make her continue in the same noble path she has begun.

First, then, how can we best assist to promote the study of anthropology in this country? At present we have seven hundred and six Fellows, twenty-nine honorary Fellows, forty-two corresponding members, and one hundred and four local secretaries. This makes altogether a good foundation for future work; but we have entered on such a vast field of research that this staff requires to be largely increased before we can fully carry out the enormous work which now lies before us. Some four years ago, those who had the temerity to suggest that it was possible to get even five hundred Fellows, were accused of holding entirely Utopian ideas. Now, however, the case is entirely changed. The experience of the past four years has demonstrated that our Society has only arrived at a very early stage of its development. As we proceed with our labours, our work appears to increase. For the last half century the utter neglect in this country of all genuine anthropological research has culminated in bringing disgrace on this portion of British science. While, in other branches of science, England takes a proud position amongst the nations of Europe, in the science of man, she is far behind nearly every other civilised country. The recall from public circulation of the lectures of our esteemed Honorary Fellow, William Lawrence, in the year 1820, was the signal for the downfall of all real anthropological science in this country. The sporadic efforts of Prichard and Knox were incapable of arresting the downward steps which anthropological research had first taken in England about half a century ago. Little could Dr. Prichard have imagined that the depth to which the science of man had sunk, in 1847, would have been still greater ten years later. In 1847 Dr. Prichard occupied the greater portion of his time in endeavouring to correct the misunderstanding which existed respecting his favourite pursuit in the British Association. We have been rejoicing during the past year in the success our science has obtained in that great body. But a somewhat melancholy feeling is produced by this success, and while we have cause for congratulation in having gained for our science a position which she has for a long period been consistently and perseveringly denied, our position now in the Association is only that against which Dr. Prichard protested twenty years ago. Dr. Prichard was not content that his favourite science should occupy only a subordinate position in the zoological section. Shall we follow his example, and also protest against this error? or shall we take warning from the failure of Dr. Prichard's efforts to remove this anomaly, and be content, at least for a time, with the subordinate position in which we are placed as a mere department of some other science? The authorities of the Association have, however, done what will, ere long, settle this question. They have admitted anthropology as a department, and if they will now only give us fair play, we shall not be many years in convincing them that this subordinate position of anthropology cannot be long maintained. Let us not attempt again to decide this question by argument, but let us rather show that facts speak with more influence than words. Let us convince them that anthropology is not only one of the grandest branches of natural science, but that it is also one in which the public

generally will, before long, take the most interest. During the past year we have, as it were, got in the thin edge of the wedge, and it depends on our own discretion and zeal whether we shall soon obtain the object for which Dr. Prichard contended just twenty years ago. We have now succeeded in again placing the science of man in, to some extent, its right position in the Association; it now only remains for us to show, by our genuine love and work at our science, that the time has come when anthropology should be placed in her natural position, as one great department of natural science, by the side of, and at least equal in rank to, her sister sciences, zoology and botany. The attempt to make anthropology a part of biology is certainly most ingenious, and for a few years it may suit our purpose, as the exponents of the claims of anthropological research in this country, to accept it. But let it be well understood, there are many Fellows of our Society who only look on this arrangement as temporary, and as the most satisfactory expedient under existing circumstances. Let the authorities well understand that we do not look upon the present position of anthropological science in the Association as either satisfactory or final. I believe I speak the sentiments of nearly all my colleagues when I say that we accept the position we have obtained in all good faith and sincerity, and that we do not intend to try to alter that position until we have fully established ourselves in the place which has been allotted to us.

This subject assumes an importance, because we cannot greatly increase the study of anthropology in this country until we have removed the misconception existing in the public mind respecting its scope and object. Now, what are the objects aimed at by having a society for the special study of anthropology?

I have answered that question so often, that on this occasion I must allow others to speak on it. What Dr. Prichard said twenty years ago respecting the benefits to be derived from allied branches of study can be said now with equal, if not still greater, truth and force. At that time he remarked that his favourite pursuit did not, "however, owe its late rapid extension to those only who have cultivated it for its own sake, but is, perhaps, still more indebted to the attention which has been given by the learned men and learned societies to correlative inquiries bearing more or less directly on the human race."* In other words, twenty years ago it had become advisable, in his opinion, that all the branches of study which throw light on "the past history of the human race" should be carefully studied together. Is that not the opinion of every scientific man who has investigated this subject since that time? But not to weary you with examples, let me call your attention to the formally expressed opinion of a man of science, who is, unfortunately, not yet a member of our Society. The sentiments which he has here so fully and clearly expressed, appear to me to apply not specially to the immediate paper which called forth the remarks, but is alike applicable to every paper at all bearing on the science of man which shall in future be read

* Address to E. S., 1847.

before Section E of the British Association. Professor Huxley, speaking in Section E, at Nottingham, remarked,—" It has, in the wisdom of the council of the Association, been thought proper that a department shall be instituted in Section D, of which I have the honour to be the head. It is called the Department of Anthropology, and if I have any comprehension of scientific method or arrangement, the paper we have just heard read is a purely anthropological paper, and can only be competently discussed by those persons who are familiar with all the sciences necessary for the student of anthropology." No one here, I am sure, will doubt the truth of these remarks. They are alike honourable to Professor Huxley's candour and good sense. We go a little further, and say that this is true, not only of the particular paper which called forth these remarks, but that these words might with great advantage be read aloud, after every paper bearing on the science of man which shall in future be read either in Section E of the British Association, or any other place where the whole bearing of such communication cannot be fully and freely discussed. Thus the existence of our Society, and a department for our science in the annual scientific congress of this country, is not only a scientific, but also a logical necessity. Our fiercest opponents must admit that our principles on this fundamental point are unassailable. Our existence and our success alike proclaim the truth of this law. During the past year it has fallen to my lot to make an attempt to convince some of our brother students of the truth of these propositions. In this I regret to say I have failed. Passion and prejudice are yet too strong, it may be, on both sides to allow of a unanimous agreement on this point. But the time is, most assuredly, fast approaching when the truth can be no longer ignored. The sooner that time arrives the better for the credit of British science, and especially for British anthropological science. The existence of our Society is not an isolated phenomenon; but we have sister societies springing up in all parts of the civilised world. On us devolves the task of representing anthropological science in this country. We have, on our own part, offered to make the greatest possible sacrifices, in order to make this Society more worthy of the science we desire her to represent. The officers and Council of this Society have offered to give up their places of honour and trust to any one who would come and aid them in their good and great work. These proposals on our part have met with no generous response. There are, however, some notable exceptions to this. It has always been my wish and desire to render homage where homage is due, and it gives me more than ordinary satisfaction to assure you that one of my own most bitter scientific opponents, Professor Huxley, was one of the first to come forward and consent voluntarily to sacrifice his own peace, in order to bring about so desirable an amalgamation. Nor must I omit to mention that great praise is due to Sir John Lubbock, for the generous way in which he assisted to bring this about. There are certain dark figures moving about on this planet which produce entirely opposite effects on Professor Huxley and myself. These bodies act as disturbing forces on the harmony which ought to exist between us. Pro-

fessor Huxley cannot yet bring himself to believe that I can hold my views on the negro without being influenced by the slave-holding interest; and I cannot yet convince myself that he can be a good, sound anthropologist, when he allows his name to be associated with those who wish to persecute a man for successfully putting down a negro revolt.

As, therefore, I may not again for a long time have occasion to agree with Professor Huxley, let me here be allowed the pleasure of acknowledging the important services which that gentleman has rendered to the cause of anthropological science in England by his recent bold and consistent conduct respecting anthropology at the British Association. The ever memorable division of the general committee of the Association at Birmingham paved the way for our success; but it was to Professor Huxley that we were mainly indebted for an immediate victory last year. Such conduct will be remembered by our descendants when the bitter disputes about the negro have long been forgotten. My own sentiments, however, with regard to Professor Huxley, may be best gathered from the fact that, notwithstanding my differences of opinion with him, when I was asked whom I should like to be my successor in this chair, I mentioned the name of Professor Huxley. I was further authorised by the council to request him to take this office; and, had we been successful in convincing Mr. Crawfurd that the words anthropology and ethnology had different meanings, I should this day have had the pleasure of committing to Professor Huxley the position which, by your kind indulgence, I have held during the last four years. In concluding this portion of my address, I feel it only right to say that the terms of union which we submitted for their consideration were fully agreed to by both Professor Huxley and Sir John Lubbock, and I trust that some day they may form the basis of a more successful negotiation.

In the meantime, however, our duty is plain. If we cannot, by a *coup d'état*, obtain additional strength, we must try a more certain, and, perhaps, more successful plan.

The problem before us now is how we can best promote the study of anthropology, and how our own Society may be rendered worthy of this country. We must not only promote the study of anthropology, but we must do so in such a manner as to redound to the credit of our common country. If others will not make any sacrifice to feelings of national pride, we are at least called upon to do so. If the task before us be simply that of promoting the study of anthropology, we should be at liberty to use means which at present are not admissible. We must remember that our doings are becoming to a great extent the pattern for other societies. As the second Anthropological Society established, we are looked to as an example, and we should be careful not to do that which might bring us temporary eclat, but could not be of lasting benefit to our science. This must be our maxim in the future, whatever we may have done in the past. I shall, therefore, now briefly consider these two questions at the same time, in touching upon the various objects which are contemplated in

our programme. I shall take these objects in the order in which they appear in our prospectus, and briefly touch on each.

Meetings.—It no doubt often occurs to those who attend our meetings, or read reports of the same, that they do little towards the establishment of a science of mankind. This feeling is, no doubt, greatly based on truth. The necessarily brief form of a paper, and the limited time for discussion, are alike against much being done in one evening towards the solution of any question that may be submitted to us. Our papers and the discussions thereon rather indicate what is going on than do much to assist the cause of science. All scientific men agree that it is of the greatest advantage for scientific students of any branch of science to meet together and compare notes on the various subjects which they may be investigating. It is, alone, by free and fair discussion that the truth can be obtained. Complaints have, it is true, been made that sometimes our discussions are thought to be a little too free; but no one can justly charge the Society as a body. It has been my good fortune to have listened to the discussions which have taken place in this Society during the last four years, and I am glad to know that, however free the discussions have been, they have never degenerated into either frivolity or licentiousness; nor have I often felt it necessary to request speakers to confine their remarks to the subject immediately under discussion. Experience has taught me that one branch of our science is so immediately connected with another, that it becomes frequently very difficult to decide whether the apparent foreign matter submitted to us may not have a most important bearing on the subject under discussion. The system we have adopted, of referring papers before they are read, is valuable; but it requires to be used with very great caution. The council submit each communication to some Fellow of the Society, and ask if it is suitable to be read before the Society? If the answer is in the affirmative, it is read; if in the negative, it is again referred to some one unacquainted with the decision of the previous referee. If these referees differ, the paper is then submitted to each member of the council, or to a special committee. I have said that the power thus assumed by the council to refuse to read any communication submitted to them must be used with very great caution. A tendency is sometimes felt to refuse a paper because it is thought to be too dreamy or unscientific; but it must be borne in mind that the object of the Society is not to formulate or promulgate any one set of opinions, but rather to develope the expression of opposite opinions, both in written communications and in the discussions. It must also be borne in mind that we do not feel bound to print the whole of each of the papers read before us, or the discussions on the same, at full length. Sometimes it is considered that the publication of an abstract answers sufficiently well. This point, too, requires great care, for an abstract does not often give a correct idea of the contents of a paper. I am myself inclined to think, that, with certain limitations, more will be done to advance our science by printing all the communications read before us at length, than by sending forth abstracts of them: always premising that such communications are written in a *bonâ fide*

scientific spirit. So, too, with the reports of discussion. Each speaker is wholly and solely responsible for his own remarks. It is neither the object nor the business of the council to assume the office of a scientific censorship. It is, however, necessary that the council should have this power: but it is equally necessary that they should exercise it with great caution and discretion.

Journal and Memoirs.—The publication of reports of papers and abstracts of discussions, in the form of a Quarterly Journal, forms one of the most important items contemplated in our formation. The advantage of a regularly published periodical over the issue of the same at irregular intervals, cannot, I think, be too highly estimated. Our Journal has always been associated with an independent Review; but the latter publication is in no way under the influence or control of the Society. It has hitherto been found mutually advantageous that this connection should exist, and, as long as such is the case, I presume the present arrangements will continue. The connection of the official journal of a scientific society with an independent publication is an experiment; but it is thought, by many competent judges, to be a highly successful one.

Up to this time our published Memoirs have been of very considerable value, and offer a favourable contrast to any similar publication ever issued from the English press in this form; and, as time goes on, I trust that their scientific interest and practical value will still more increase.

Local Secretaries.—During the past four years we have been enabled to make a large number of appointments of local secretaries in different parts of the world. This is all we have hitherto been able to do. It now remains for us to utilise them. This may be done to some extent by some general instructions; but still more by a personal correspondence with and encouragement of these officers. While, however, we may now be able to begin to make use of our present local secretaries, we have still largely to increase their numbers before we are able successfully to compete with the gigantic work which we have before us. It would be very advisable that a more intimate connection between these officers should be kept up, either by personal interviews, or, where that is impossible, by frequent correspondence.

Museum and Library.—In four years we have collected together one hundred and five skulls, beside a large number of flint, stone, and other weapons and implements of ancient and modern races of man. This forms a good nucleus for future collections. We have now to do the work which has hitherto fallen on one man in this country, and who, in his efforts to collect an anthropological museum, has been to a great extent successful. I allude to the anthropological collection of our colleague, Dr. Barnard Davis. If one man can accomplish so much, how much more can be done by a Society like our own?

Our Library is not only incomplete, but as yet only a nucleus of books on our science; nevertheless, it is perhaps the most valuable which has existed on this subject in this country, although only amounting to some nine hundred volumes.

Translations.—The work before us under the head of translations is

very vast indeed. We have to publish all classical works on anthropology, and at the same time we should endeavour to publish translations of modern works which represent the work that is being done by other students of science on the continent. The anthropological literature of the last century is especially deserving of reproduction. We have already sent forth to the world the works of Blumenbach; and we ought now to do the same with the writings of Camper, Herder, Soemmering, Kant, Virey, Desmoulins, and Bory de St. Vincent. We have prepared for the printer the works of Retzius, Gratiolet, and the second volume of Waitz. It is highly desirable that we should publish as soon as possible the works of Nilsson and Von Baër, so as to have the advantage of their assistance in the translation of such works.

Besides those enumerated above it would be well for us to publish translations of some of the important works issued by the continental press on our science. Our object is to increase the study of anthropology in this country, and this we cannot do by issuing only standard and classical works. We must publish works which shall have the effect of inducing persons in this country to study our science. We have to show the people of England that our science does not simply treat of anatomy and physiology, but that it includes all the sciences which throw light on the past, present, or future history of mankind.

Besides translations of foreign works it also comes within the range of our Society to publish original works. At the present time I know of more than one original work, by Fellows of this Society, the publication of which would bring credit on ourselves and be doing good to our science. This one object is sufficient to tax the whole of the energies and resources of any scientific society, and gives at once to us a speciality which does not belong to any other scientific body. But let it always be remembered that this publication of both translations and original works is one of the fundamental objects of this Society. If we cannot do it in as satisfactory a manner as we could wish, we must still attempt to do it as well as we can. There are yet hundreds of men in England who ought, and I believe do sympathise with this special object of our Society, and would have gladly joined us had we no other in view. I trust that the knowledge of the fact that our present resources will not enable us to carry out fully, and satisfactorily, this part of our programme, will induce them to aid us. What the Ray Society has done, and is doing for zoology, we are aiming to do for anthropology. As therefore it is alone by large numbers, or by large resources, we can carry out this one object, it is incumbent on all who are conscious of the surpassing benefits to be derived from the publication of such works, to come forward and assist us in this labour.

The Council have had continually before them the question as to how they could obtain the large resources necessary to carry out in a satisfactory manner all the objects conceived in the formation of the Society, and especially the one by which translations and original works on anthropology may be published; and although proposals have been

made for increasing the subscription, or introducing an admission fee, they have, in my opinion, wisely refrained from advising either the one or the other. They have decided to recommend neither the one nor the other until there are two thousand ordinary Fellows on our list. This at first sight appears a startling announcement; but the more the amount of work even at this time, before the Society is investigated, the more it will be found that we must either strive in this matter to become worthy of the high position which we are called on by the unanimous voice of scientific Europe to take, or that we must acknowledge that our organisation is unable to cope with the duty before us. If the latter alternative be true, then, without attempting to impede scientific progress and advancement, we must give place to an organisation more suited to the requirements of the time. I know, however, too well the present elements which compose this Society to even suppose such a contingency is soon about to happen. If our successors at some future day should think differently, I trust it will not be from either the precepts or examples which we shall hand down to them. The Society has already done so much that I feel sure she will not now hesitate to take the position which is expected of her; nor, I feel sure, will the Fellows of this Society generally, allow the printing-press to be stopped for lack of energy in inducing their friends to enlist in our cause.

Committees.—If more funds or more members are required for the printing of our publications, the same want is felt to nearly as great an extent for the furtherance of other objects of anthropological science generally. One of our plans is the appointment of official committees. During the past year we have felt so much the necessity for funds for special purposes, that an attempt was made to raise by private subscriptions a special fund to be applied to original researches in archaic anthropology. This has already yielded satisfactory results, and will continue to do so if we are able to continue the same. But archaic anthropology is after all but a very small part of the science of anthropology. It is no doubt quite true that the destruction which has been going on for centuries of ancient crania, both in this country and in our colonies, is not very creditable to those who have gone before us. With the exception of perhaps Norway, Englishmen may enjoy the somewhat melancholy satisfaction of knowing, that in this country there exists the most imperfect collection of ancient crania of any people in Europe. So too this country excels all others in the ruthless manner in which ancient tumuli and other objects throwing light on the past history of man have been destroyed. If we appoint some one to make an investigation of the ancient remains of this country, it is with no desire or intention of interfering with the work of the antiquary. We take this step merely in self-defence, and as a protest against the little care which they have shown in the preservation of objects of anthropological interest. Efforts have been made during the past year to awaken the archæologists of both England and Scotland to a sense of the importance of a collection of crania, and I am glad to be able to announce that a sort of treaty is

in progress between ourselves and the archæologists of both countries by which we may mutually assist each other's researches. This is so far satisfactory as regards this country; but England, or even Europe is not the whole world. Leaving this aside, we have still to insist on the importance of making collections of crania in our colonies, and indeed in every part of the world where opportunities may offer.

We want funds to repay our Local Secretaries or others any expense they incur in obtaining and transmitting to us either skulls or objects of human industry which throw light on man's past or present state and history. We want funds for increasing original work in other branches of our science. Where, for instance, have we got an authenticated series of drawings of the existing races of man? where are portraits of those peoples who have but lately become extinct? Not only have we lost their skulls, but what I hold to be of equal if not of greater importance, we have also lost their living forms. In many cases our neglect is almost irremediable. Races or tribes of men have within the last half century become utterly extinct, and the apathy of British Societies, whose duty it was to preserve these, have caused all this disgrace on British anthropological science. A like neglect on our part may bring ours to the state in which they now find themselves; while had such societies properly performed their duty, this country would have been second to none in collections of skulls of extinct races. They have neglected to insist on the preservation of portraits, of vocabularies, of traditions, or even of crania. Instead of receiving the homage of the present students of the science of man for what they have done, they only have the finger of scorn pointed at them for not being able to collect, during twenty years' existence, more than about thirty crania!

The past history of our Society has shown that we have not been so apathetic in this matter, for in four years we have collected together more than one hundred well preserved crania. We have also collected a considerable number of authentic photographs and drawings of the different races of men. It has been said that the distinguishing characteristics of scientific societies are that of ingratitude towards, and an entire want of conscience in their dealings with, those who put themselves, not only to considerable labour and inconvenience on their account, and a tardiness in returning thanks for large expenses which are frequently incurred on their behalf. We must endeavour to avoid being justly charged with such conduct. I hold that it is only right and just, that we as a society should repay all the *bonâ fide* expenses to which our Local Secretaries and others are put in procuring objects for our museum or our library. We must remember that unless we are able to do this, we shall be entirely beaten out of the field by private collectors.

I may but indicate the extent of the demands on our funds when I briefly inform you of a plan brought before the Council only this year for making a collection of authentic portraits of some of the most available African tribes. Mr. Baines, the accomplished tra-

veller and artist, submitted for our consideration a plan by which he would undertake such a duty, but we found that this alone, in the expenses to be incurred by that gentleman, would absorb more than a year's entire income; we were therefore compelled to relinquish the idea of obtaining the portraits of African races in this manner. Shall we allow them to pass away without making an effort to preserve for our own and our descendants' use some record of their form and features? Shall the form of a river or the height of a mountain be investigated at the expense of thousands of pounds, while the form and height of such fleeting objects as men and women be lost for ever, through our apathy? The anthropologist and the geographer should for the future work hand in hand; but if this is not to be, and if only one set of investigations can go on at the same time, then, I say, let investigation and description of man come first, for future generations may study physical geography, as well as we can do now.

The approaching anthropological congress at Calcutta offers to us another illustration of what we are called on to do. A communication has been made to us requesting the attendance of a committee to represent our Society on that interesting and important occasion. It would be very advisable that we should be able to send at least one anthropologist, accompanied by an artist or a photographer: but where are the funds to come from? If we cannot do this, we must leave it to chance whether we shall be able to preserve any useful records of this important event.

Local Societies.—The establishment of local or branch societies is an experiment which has been tried during the past year. Such societies will become a source of strength or weakness to us, according to the manner in which they are governed. These societies will be chiefly useful in giving Fellows of the Society and others an opportunity of meeting together to discuss certain anthropological topics of the day. If they content themselves with this, they will no doubt do good both to our Society and to science; but there is a fear that such branch societies may not be content with this much, but may become ambitious to rival the parent Society. Any attempt, however, to interfere with the legitimate action of the parent and central Society cannot but do injury. A small reference library and typical museum is all that should be aimed at, and any attempts to make a large collection of either books or specimens for a local museum should as yet be strictly avoided. Both the books and the specimens of the parent Society are at the disposal of the branch societies whenever they may be required. It is not proposed to limit these branch societies to this country. Ere long I hope to see local branches of our Society in every great city of the British dominions.

Lectures.—In the original rules of the Society the Council had no power to sanction the delivery of lectures before the Society other than in the form of ordinary papers; now, however, the Council have power to allow lectures to be delivered before the Society under such limitations and restrictions as may from time to time be thought advisable. By exercising this power they will simply be carrying out

the great object of the Society—the promotion of the study of anthropology. How many otherwise well educated men of the present day, for instance, are not ignorant of the meaning now applied by nearly every scientific man in Europe to the word anthropology? How many erroneous impressions respecting our science have we not now to remove? How many, even of our own Fellows, would not benefit by attending, or even reading a systematic course of lectures on the different branches of our science?

By the delivery of lectures we shall be able to do what is now impossible at our ordinary meetings. There are some subjects which cannot be successfully treated in one or two papers, and the time allowed for the ordinary meetings of the Society is too valuable to be given up to the enunciation of well known and undisputed facts. Our meetings are chiefly occupied with the investigation of new facts; our lectures will chiefly be confined to application and deduction from facts already known. These lectures may also sometimes take the form of oral instruction. How many of our Fellows, for instance, would not be glad to have instruction in the employment of the different craniometers now in use, or even on craniology generally? How many more would not gladly listen to a practical descriptive anthropologist, like Dr. John Beddoe, while he discoursed on his system of making observations? Or who would not be glad to attend a course of lectures by such men as Captain Burton, Mr. Eyre, Sir S. Baker, or Mr. George Catlin, on the races of man with whom they have come in contact?

Besides such subjects it would be well to have from time to time series of lectures detailing the progress being made in different branches of our science or on its practial application. With what interest and profit might we have a series of lectures on the history of anthropological science? How much might we do to preserve savage races by exciting an interest in the public mind on their behalf? The good work that might be done is vast enough, and I trust that my successor in this office will be able to announce to you that the delivery of lectures before the Fellows of the Society and the public generally, has alike proved beneficial to the Society and to the science.

I have now discharged the duty, incumbent on me, of saying a few words on each of the chief objects of the Society. I must now dwell for a short period on the general aspects of our science.

If we look around us at the present aspect and position of our science in this country, we see cause both for fear and for congratulation. We live in an age when the public mind seems to oscillate with every new doctrine that is brought before it. At the present time, many a man whose name, position, and abilities should enable him to assist the cause of our science, is wasting this good opportunity by promulgating some of the most reckless speculations and assumptions which the history of science will have to record.

Some four years ago, a shout of execration was raised against us, for daring to assert that the question of the origin of man was

one of physical science. Even some of the Fellows of the Society resigned, and others relinquished the offices they held. I thought it my duty to make that statement. We have, however, lived down opposition on this point. Our right to discuss the *modus operandi* of the origin of man is granted to us even by theologians. All they now ask is, that we should discuss the whole bearings of the case, and not promulgate crude speculations. Our right to discuss this question as our own being no longer denied, we readily acquiesce in this request. The history of our science for the last two thousand years, has shown us that all attempts to promulgate a satisfactory theory respecting man's origin have been meagre, conjectural, and, for all practical or scientific purposes, worthless. We have felt it our duty to oppose the assumptions of the theologian, when he has dictated to us on this question. But how much more does it become our duty to oppose the speculations and assumptions of our contemporaries in science, when they become guilty of doing what we so much condemn in the theologian? We must not, and ought not, to have two measures; one for the theologian, and another for the man of science. At this minute, assumptions as valueless as any of those promulgated by the theologian, are being industriously circulated by men of science, under the garb of science. Our Society has been blamed for the speculations of some modern anatomists and naturalists: but we can, as a society, justly plead not guilty. It has been our duty to be perfectly consistent with regard to different theories. To the monogenist, of whatever sort, we have had to say, yours is an assumption unsupported by fact, reason, or analogy. To the polygenist we have to say, your hypothesis is an assumption of no great scientific value; but, under all the circumstances, it is the most reasonable. A French anthropologist not long since asked the question, whether the majority of the Society were in favour of the monogenist or the polygenist theory of the origin of mankind? The reply I gave him was, that the majority would be in favour of whichever theory should eventually appear to be true, and that at present they suspended their judgment, and did not give any preference to the various theories of man's origin. I further, however, added that I thought, and I knew many of my colleagues agreed with me, that there were at present several distinct species, if not genera, of man, but we declined to assert how they originated. I, for one, think that the doctrine of the absolute intellectual inequality of the different races or species of man is demonstrated by well ascertained facts. I further consider that, without pretending to say how or when these differences originated, these species have different instincts, and that, judging from past experience, it is as difficult to get a race like the Australian to accept European civilisation, as it is to get a monkey to understand a problem of Euclid, or a cat to bark like a dog. That the instincts of races differ, I take to be an established fact, which all the erudition of a Prichard, or all the special pleading of a Quatrefages cannot invalidate. I shall make no apology for telling you on this occasion, what I take to be the tendency of our science, because I know too well that the more freely a man speaks his mind in this Society,

the more is he thanked, however much his colleagues may differ from him. As Lord Stanley well observed, "the state of the public mind is the best defence of the existence of this Society. It is something for a man who has got a word to say, to know there is a society where he will get a fair and considerate hearing; and whether the judgment goes against him or not, at least he will be met by argument, and not by abuse."*

It has been said by one of England's greatest anthropologists, Robert Knox, "that a race which admires its own inventions, despises truth", and that the theory of race was despised in this country because it ran counter to the theories of historians, statesmen, theologians, and philanthropists—whom he describes as "impostors all". Whether there be any truth that the people of England are the despisers of truth, I will not stop to inquire. It is sufficient for my purpose to know that there are some men, at least, in this country who do not despise truth, but who seek for it, and welcome it wherever and whenever it is to be found.

Dr. Knox, however, was neither the first nor the last who has seen the antipathy manifested by historians, theologians, statesmen, and philanthropists, to the theory of race; nor did his peculiar style do much to remove this antipathy. We live in different times. At present we fight with facts rather than with sarcasm or invective. To give a complete or satisfactory answer to the cause of this antipathy to admit the influence of race or diverse instincts in mankind, would take me beyond the limits of an address. I shall on this occasion content myself with offering a few suggestions for your consideration, which may perhaps assist to explain some of the extraordinary phenomena to which I have alluded.

In the first place, it appears to me that a large majority of the opponents of the theory of race may be divided into two great parties, and that their antipathy is produced by entirely opposite causes. Knox was a good anatomist, and, on the whole, a philosophical writer; but he did not understand why his teaching was objected to. He looked on his opponents as dishonest men and impostors. This explanation, I am bound to say, does not meet the requirements of the case; and I am glad, both for the sake of human nature and for the credit of my countrymen, that such is not the case. Anthropologists, I think, are no longer justified in making such sweeping charges against the large class who oppose the doctrine of diversity of race-instincts to explain human history, both past and present. Anthropologists must try to seek for some other cause; and, if they should fail in their first efforts, they must renew them whenever they have a chance, for most assuredly there must be a cause for such extraordinary phenomena. My reflection on this subject has led me to think that the cause of the antipathy to even admitting the existence of comparative anthropology, is alone to be discovered by the medical psychologist and the cerebral physiologist.

The opponents of comparative anthropology may be enumerated

* Anthropological Review, No. ix, 1865.

under different general heads. As an illustration, I will take the two largest classes who exhibit the greatest antipathy to that science. They are, first of all, persons suffering from what I will call respectively the religious mania, and the rights-of-man mania. These two classes are quite distinct, and both forms of the disease do not often attack the same person. The causes which produce religious mania, which shows itself in the manner I have indicated, compose a very large, and I think, on the whole, a harmless class. Those who have had an opportunity of examining persons suffering under religious mania, cannot but have been struck with the large number of cases which have exhibited symptoms of arrested brain-growth. Those who have watched the development of youth, must have observed certain physical signs, which I need not here enumerate, which accompany those persons who suffer to any appreciable extent from religious mania. I believe that all attempts to cure religious mania, when it is combined with either arrested brain-growth, or early closing of one or more of the sutures, have proved utterly abortive. Nor do all persons who suffer from religious mania exhibit this antipathy to comparative anthropology. In this it differs from those whom I would describe as suffering from what I believe to be an incipient form of disease, or at least mental idiosyncracy, called, for the want of a better name, rights-of-man mania. This disease afflicts alike statesmen, philosophers, and men of science. It is apparently produced in early manhood from having thoroughly assimilated in their mind the one gigantic assumption of absolute human equality, which is generally known under the title of rights of man. Persons of the greatest ability, eloquence, and mental power, are afflicted with this disease. It is always however accompanied by more or less defective reasoning power, and often by a want of harmony between the organs of sense and expression,—between the brain and the face. This assumption of human rights is often the mainspring of action, and in such cases persons become what are called philanthropists—holding a sort of mongrel philosophy, like that of which Ben Jonson speaks as certain characters' religion.

"Almanac says: I wonder what religion he is of?

"Fitton rejoins: No certain species, sure; a kind of mule that; half an ethnic, half a Christian."

This assumption of human equality was first heard of in the latter half of the last century, and since then it has been industriously taught in our universities; and at the present day it has become a part and parcel of the systems of political economy on which we rear our legislators. The mischief done by those suffering from rights-of-man mania is incomparably greater than any other. In politics these persons are necessarily and logically radicals. The late Henry Thos. Buckle imbibed this assumption from its great modern teacher, Jeremy Bentham; and his work, which was rendered nearly useless to science on this account, is, I understand, about to be edited by one who exhibits one of the worst phases of this disease. I allude to Mr. John Stuart Mill, the son of the late private secretary to Jeremy Bentham.

The case of Mr. Mill is perhaps the most painful ever recorded. It demonstrates to what absurdities the greatest minds may be driven when thus afflicted. Human equality once accepted, drives the philosopher madly forward, he knows and cares not whither. There is no such thing as a science of comparative anthropology; and all who dare deny that all men are equal, are exposed to much the sort of abuse which Mr. Abernethy applied to the teaching of Mr. Lawrence. We can only answer with the latter gentleman, "When favourite speculations have been long indulged, and much pains have been bestowed on them, they are viewed with that parental partiality, which cannot bear to hear of faults in the object of its attachment. The mere doubt of an impartial observer is offensive; and the discovery of anything like a blemish in the darling, is not only ascribed to an entire want of discrimination and judgment, but resented as an injury."

I shall do in the future as in the past, and, whenever I have a chance, shall endeavour to show that human equality is one of the most unwarrantable assumptions ever invented by man. Nay, the deduction from comparative anthropology will not enable me to stop here, but I shall have to proclaim that the theories of socialism, communism, and republicanism find not a fact in anthropological science to support such chimeras. Well did the President of the British Association, Mr. W. R. Grove, in his address at Nottingham, say: "The revolutionary ideas of the so-called rights of man, and *à priori* reasoning from what are termed first principles, are far more unsound, and give us far less ground for improvement of the race, than the study of the gradual progressive changes arising from changed circumstances, changed wants, changed habits. Our language, our social institutions, our laws, the constitution of which we are proud, are the growth of time, the product of slow adaptations, resulting from continuous struggles. Happily, in this country, though our philosophical writers do not recognise it, practical experience has taught us to improve rather than to remedy; we follow the law of nature and avoid cataclysms."*

This disease does not solely afflict philosophers. It alike renders the action of the statesman and the man of science non-subject to the dictates of reason, or to the just and legitimate influence of facts. It shocks, they say, their moral nature to be told that human races have different instincts and aspirations; and they treat such well established statements as an insult, and resent the same by applying the most abusive epithets to those who have the temerity to utter such, to them, repulsive sentiments.

Shall we hide all the facts we have at hand, and be silent, lest we shock the moral nature of these would-be philosophers; or shall we boldly come forward and declare their teaching respecting human equality to be a sham and a delusion, and its teachers mere wind-bag philosophers?

If the remarks I have quoted from Mr. Grove are allowable to the

* Grove, Address Brit. Association, p. 37.

President of the British Association, how much more does it become my duty, as your President, to come forward and avow how entirely such sentiments are supported by the science of comparative anthropology. Nay, you will expect me to go still further, and express more fully what I conceive to be the bearing of our science on the science of political economy. I shall not be accused, I hope, of holding undue conservative opinions when I go still further than Mr. Grove, and declare my emphatic opinion that the existence of a well-selected hereditary aristocracy in any country is more in accordance with nature's laws than those glittering trivialities respecting human rights which now form the stock-in-trade of some professors of political economy, and many of our politicians. In saying this, however, I ought to add that I do not think that the aristocracy of this country for instance is now, or has been, judiciously selected; but this does not alter the truth expressed by the poet:—

"Some are and must be, greater than the rest."

There is much reason to believe that peculiarities are hereditary, and if a judicious use is made of this knowledge by those who are interested in the matter, then will all cavil be answered respecting the status of any well-selected hereditary aristocracy.

During the past existence of the society we have been blamed because I and some of my colleagues have thought it to be our duty to endeavour to give a practical application of our science to political economy, and to unravel the mysteries of religion. We have had to enter on this course without having any great names, or the example of any other scientific society of a similar nature to our own for us to quote as a precedent. We have had to contend against the criticism of those who attacked us because our inductions tended to destroy castles in the air raised on their own baseless assumptions; and those who have adopted this course have found themselves opposed even by some of their own colleagues. This opposition has arisen partly from a feeling that scientific societies should have nothing to do either with politics or religion, and also because some, following the precept though not the practice, of Agassiz, think that men of science should not concern themselves with the practical application of science.

I am, however, entirely of a different opinion. I contend that the science of political economy must be based simply and solely on the facts discovered by the anthropologist. Within the last few years there has arisen an organisation for the encouragement of the study of social science; but the published proceedings of that influential body show that their so-called social science is largely impregnated with philanthropy. Now a social science cannot be based on mere philanthropic theories. In other words, social science must be based on the facts of human nature as it is, not as we would wish it to be. We cannot assist the cause of true science by attempting to establish an artificial social system which is no part of nature's laws. We are the students and the interpreters of nature's laws, and it is our duty carefully to ascertain what those laws are, and not attempt to raise up

in the name of "social science" a code of morals based on an assumption of human equality, and consequently equal human rights, because we know that human equality is a mere dream, and all systems based on it are mere chimeras.

A short time ago, at the opening of the Manchester Anthropological Society, I ventured to say to the people of that great city that I thought it would be better for the inhabitants of our globe if they were governed on scientific rather than on philanthropic principles—on facts rather than assumptions. It may interest you to know, as indicating the work before us, that the utterance of such sentiments called down upon me severe condemnation. It was even suggested by the largest circulated paper in Manchester that rather than admit such principles they would prefer to send me to the gallows! I had stated that the inductions of the anthropologist were of more value, and that their application to the government of the world would be better for mankind generally, than the assumptions of the philanthropist. On which statement it is remarked, "We begin to see Dr. Hunt's reasons for assuming that the triumph of anthropology would be the extinction of philanthropy. If he is a fair type of the science, the two cannot live together. In that case it may be a question whether we ought not to think of hanging Dr. Hunt. Anything to save us from the brutal devilism with which he threatens us."*

Gentlemen, the "brutal devilism" with which I threaten the world is the triumph of facts over assumptions. I am content here to make my stand, and to continue to teach this "brutal devilism." We live in a strange age, and I know not what organisation may arise to carry out the threat of bringing me to the gallows. The naturally savage and brutal instincts of the party from whom this threat emanates may be so much increased by the success which may result from their present pursuit of the life of a great and accomplished man, that it is quite possible that they may try to bring me to the gallows in a similar manner! If, however, I am not permitted longer to enunciate my sentiments to you, I shall have the satisfaction of knowing that there are those in the society who will not be deterred by my untimely fate from declaring, as I shall continue to do as long as I can, that facts and not assumptions ought to form the basis of the government of this world. If you wish me, gentlemen, to recant the odious doctrine of giving preference to facts over assumptions, I shall be willing to do so, if such a condition will save my life, on the agreement, however, that you will allow me to follow the example of Galileo, and exclaim, in the place of *è pur si muove*—FACTS AND NOT ASSUMPTIONS SHOULD GOVERN THE WORLD.

But before any committee is formed for bringing me to the gallows, let me ask my would-be persecutors to reflect before their thirst for blood has drowned their reasoning powers. May it not be better eventually for all classes and all races that they should be governed according to the laws of nature than according to artificial codes invented by man? Nay further—May not the anthropologists be right

* Manchester Examiner and Times, Nov. 3, 1866.

after all in the preference for facts over assumptions? Let them remember too what was taught us by Descartes, that the beginning of all real knowledge is the rejection of early prejudice, and that as long as they continue to prefer assumptions to facts they have not acquired the elements of wisdom. Let them remember too that the same philosopher insisted on the necessity of every opinion being brought to the test of individual judgment. Let them too show a firm resolution not to be influenced by the opinions of great names or old theories, and they may yet see that what they now so elegantly call "brutal devilism" will then be nothing but sound science combined with common sense. They will further see that the highest philosophy and the highest social science is that which is based on facts.

I have stated that we had no precedent to justify our attempts practically to apply our science. But in a young society like our own it will often happen that subjects will be brought before us which at first sight do not appear properly to belong to us. In some cases we may even exceed the just limits of our science. We had better, however, do this than be too rigid in our attempts to confine our science within certain assumed boundaries. Some of my colleagues have, however, thought differently, and have taken credit to themselves for their attempts to confine anthropology within such limits as will exclude all questions regarding political economy or religion. The transactions of our sister society in Paris are quoted as an example of what we should do. I am quite ready to commend the course our accomplished colleagues in Paris think proper to pursue to attentive consideration; but before we adopt their customs we must make ourselves thoroughly convinced that what they do is from choice and not from necessity. We must remember that in the year 1846 the statutes of *la Société d'Anthropologie* were drawn up, but the government of that day would not allow it to be formed. Even at this day we see a living example of the fear of anthropological science by the suppression of the sittings of the Anthropological Society of Madrid. Utterly groundless, as I believe this dread of anthropological science to be, yet the existence of a fear of its teachings is sufficient to convince us that the examples of other scientific bodies in other countries cannot justly be quoted as an argument against the course which we think it our duty to take. Our science is dreaded, not because its deductions form the basis of all genuine political economy, but because it is supposed to threaten the destruction of a system of government which has for its goal the high sounding titles of universal equality, fraternity, and brotherhood. May it be the lot of our society to show that such chimeras are not supported by the indications of our science! May our society become a living and an active power against all Utopian dreams respecting human government, whether emanating from the politician, the theologian, or the philanthropist!

But before I leave this subject, I am glad to be able to announce to you that the course we have thought it our duty to pursue has met with the sincere approbation of, perhaps, the most distinguished anthropologist in Europe, Dr. Pruner-Bey. I certainly know of no other man who combines in his own person so many of the qualifications of what

an anthropologist should be. In a letter written during the past year, he says, "I sincerely admire the extensive spirit of your inquiry in man. Indeed you do not shut yourselves up between the four walls of a THEATRUM ANATOMICUM, but the highest points of human speculation find their place in your precious works. And, indeed, can it be otherwise, when man and his characters are to form the subject of the business before you. Go always on in this way; yes, go a-head!" Most heartily do I sympathise with such sentiments, and they are all the more valuable as the spontaneous offering of a man who never writes to flatter, or to advise us to pursue a wrong path.

It would take me beyond the limits of this address to give you instances in which our science may render a service to political economy. Every fact we acquire with regard to existing races of man more or less assists to bring together what must some day become the elements of a new political economy. The great question of the acclimatisation of man must be discussed by us in all its numerous bearings, and eventually the deductions from that branch of our science would form the basis for all successful colonisation. It may be as Herder has pointed out, that we can change a man's country, but we have not the power to change his nature, and adapt it to a new order of things. In all our discussions on such important subjects, however, we must be especially careful not to rush hurriedly to conclusions. Many of the questions on which our science will be able to throw much light some day, must for the present be left in abeyance. We want more facts and more discussion of the whole question in all its legitimate bearings. Nor must we follow the dogmatic method of Dr. Prichard, and make, as anthropological inductions, such broad assertions as the following, which I find in his last contribution to one branch of our science. "Politicians," he says, "if they would condescend to receive a lesson, might learn that the mixture of races is often much more advantageous than their separation. Nothing is better established than that tribes and races of organised beings improve by the intermixture of varieties. A third stock, descended from any two races thus blended, is often superior in physical and psychical qualities to either of the two parent stems."* These statements are the last utterances of Dr. Prichard on the science of comparative anthropology, and they are good specimens of his teaching. Bearing in mind that we have to war against assumptions of all sorts, we must not be afraid to call such statements by their right names. I do not hesitate to assert that Dr. Prichard has here stated what yet remains to be proved, and that there are, perhaps, as many facts to show that pure races are superior to mixed ones, as the reverse. To assume that the races of France and England are mixed, as Dr. Prichard has done, and then deduce a general law from such an assumption, is not at all a bad specimen of his reasoning. If we would be true to the cause of genuine science, we must fight against such assumptions passing under the garb of inductive science, as we would do if like statements emanated from the politician, the theologian, or the philanthropist. We cannot

* Trans. Eth. Soc., original series, vol. ii, p. 149.

be logical and consistent, and yet be a respecter of persons. We cannot allow assumptions of any sort to be allowed to pass under a false name. If the modern anthropologist follow out this precept, he will find himself not only face to face with assumptions emanating from the legislature, the pulpit, or the lecture-room, but he will also find that he has to fight against statements which have been put forward as scientific inductions. The text book which has hitherto had the most influence in this country is the work of Dr. Prichard; but as his works are filled with assumptions, it becomes the duty of the modern anthropologist to counteract the injurious teaching which they contain. What Dr. Knox said in 1850 can be repeated with equal truth at this day. "The illustrious Prichard," he writes, "with the best intentions in the world, has succeeded in misdirecting the English mind as to all the great questions of race. This misdirection has told, as we have seen, even on the scholar and on the scientific man. As a consequence of its misdirection, in the mere mention of the word race, the popular mind flies off to Tasmania, the polar circle, or to the land of the Hottentot. Englishmen cannot be made to believe, can scarcely be made to comprehend, that races of men, differing as widely from each other as races can possibly do, inhabit, not merely continental Europe but portions of Great Britain and Ireland. And next to the difficulty of getting an admission of this great fact, has been an unwillingness to admit the full importance of *race*, militating as it does against the thousand and one prejudices of the so-called civilised state of man, opposed as it is to the Utopian views based on education, religion, government."* It is our duty to declare war against all such prejudices. Englishmen, and women too, must be made to understand the great question of race, and its importance in all human history—past, present, and future. We cannot hope to do much towards building up our science until we have succeeded in destroying both prejudice and assumption. As to the wilful ignorance with which Dr. Knox charges Englishmen, I cannot think it is well deserved. Their minds have been perverted by their teachers, whose theories and assumptions it was hoped, until lately, had died with them. During the last few years a more healthy and more logical tone has existed in the public mind, not only of this country, but throughout the world generally, on the question of race. But after nearly all scientific men who have devoted their lives to the investigation of this subject, have given up their prejudice and assumptions respecting the influence and diversity of race, we now see a small but somewhat influential party of zoologists come forward to take up the advocacy of views which I had fondly hoped, for the credit of British anthropological science, had long since been exploded. And here let me say that a mere zoologist is incapable of forming a correct estimate of the present state of the controversy respecting the diversity of races. His methods of observation and classification, applied to the rest of Mammalia, do not apply to man. His speculations and, indeed, too frequently dogmatic assertions respecting man's origin, do nothing to advance the cause of

* Races of Man, p. 24.

genuine science, but much to bring discredit on our science generally. The origin of man is a question which cannot be discussed at this time with the slightest advantage to the cause of genuine science. Let us leave the discussion of such a subject as the origin of man to those who like to waste their time and energies on so profitless a subject. Let men try and evolve man from their own moral consciousness or from an ape, as it pleases them most, but do not allow either the one plan or the other to pass as a part of anthropological science. A higher and more useful path is open to the modern anthropologist.

Let each student take up, if possible, his own special branch of research. Our subjects are so multifarious, and each question can be seen under so many aspects and from so many points of view, that every man in our Society might have his own speciality, and others still remain for our new members. But we want more than one student to pursue the same course of investigation, that they may be able to check and correct the observations and conclusions of each other.

I have spoken of two sorts of mental defects or idiosyncrasies which are now to be found rather largely prevalent in this country. I might add to these some others, only two of which I will now specify. One may be called phrenological-mania, and the other mesmeric-mania. They each, like the other forms I have named, have a certain amount of truth to support them. The world generally will not admit they have any truth at all on their side, and the world is supported by what are called "orthodox men of science". Now it unfortunately happens that many men of science are quite as full of prejudice as the rest of mankind. They make up their minds very often from *à priori* reasoning that there can be no truth in phrenology or mesmerism, and they consistently refuse to allow themselves to be influenced by any facts tending to shake their conviction. The result of this has been that both the believers in phrenology and in mesmerism are excommunicated from orthodox scientific circles, and are thus driven to associate together, until at last they too become as bigoted and as full of prejudice as the orthodox man of science. The fundamental doctrine of phrenology, or more correctly and scientifically, of cerebral physiology, is the localisation of the functions of the brain. This is a very rational *à priori* assumption. Such an hypothesis explains mental phenomena as well, perhaps better, than any other assumption. Why, then, so much antipathy to phrenology? Simply because such an assumption is foisted upon us as an induction of science. I am fully aware that Gall and Spurzheim contended that their system was based on facts empirically observed, and in a sufficient number of cases to warrant them in promulgating their system as a general law. But the difference existing amongst phrenologists at the present day is a sufficient refutation of this pretension. New organs have been discovered, a new arrangement of the mental faculties has been propounded, until at last there is only a semblance of agreement between phrenologists themselves. We want any facts which throw light on the functions of the brain. First, let us have the facts, and then let us adopt the most rational hypothesis to explain them. In the meantime we may rest assured that every

portion of the brain has a function, and we shall be under deep obligation to all who can assist in showing us how that function is performed.

After a time, I think it will be found that the study of physical anthropology will be followed by researches in psychological anthropology. The believers in mesmerism now form a class as distinct from ordinary men of science as the phrenologists. They may have some valuable facts to communicate to science, but instead of boldly coming before a scientific tribunal, they congregate together to abuse men of science, and the world generally, for not believing what they themselves consider to be true.

Not only does such a state of things do no good to the cause of science, but on the contrary it does great harm both to scientific advancement, and especially to the minds of those who by associating together seem to get their powers of belief intensified. They happen to acquire a fact themselves, and they seem then prepared to swallow any amount of absurdity that may be taught them. Let this society be free from those prejudices of other scientific bodies, and let us not care whether facts are brought to us by the believer in phrenology or mesmerism. But at the same time let it be understood by all parties that we do not wish to know what people believe, or what they think, but simply want empirically observed facts. We may be quite sure that there is some amount of truth in both phrenology and mesmerism, and to discuss how much truth without prejudice either for or against, would be what no body of men of science have yet done.

I am glad to know that there are many Fellows of this Society who are at present working on the psychological aspects of our science. In the year 1825 a book appeared in this country in which I find these words: "Association is a phenomenon of some importance in the practical part of anthropology, and when I come to speak of the modifications of the mental functions, I shall enter into its consideration at some length."* And yet at this time how little progress has been made with the practical application of the phenomena of association to psychological anthropology!

The difficulties which will beset those who in future conduct this Society will chiefly consist in giving each branch of our science only its legitimate attention. Each student now thinks his own especial branch the most important. The Society, however, as a body, is bound to be equally fair to all parties; and it will be for the benefit of all the Fellows of the Society that they should occasionally have their prejudices shaken by the discussion of subjects which they very strongly condemn and denounce, without a particle of investigation or research, as utterly unworthy of consideration.

If we look abroad in Europe, and, indeed, throughout the civilised world generally, we see much to give us hope for the future of anthropological science. In Germany it is again revived, and bids fair to flourish. The works in the different branches of anthropology, which issue from the press, are very numerous, and several attempts have recently been made to write text-books on our science.

* A View of the Physiological Principles of Phrenology, by J. Spurzheim. London, 1825, p. 28.

The time, however, has not yet come for an anthropological text-book. Materials do not exist for a history of mankind, either by the archaic or the historical anthropologist. Materials are not collected for a correct description of the existing races or species of man. Our principles of comparative anthropology can only be based on the facts we know. These I hold to be decisive as far as they go, but a load of prejudice must be removed before these principles can be discussed with much advantage to the cause of science. With regard to the general publications on anthropology I need not here enlarge or give any opinion on them. The connection of the Society with a publication specially intended to give the public the latest researches and discussions on our science renders such a task unnecessary.

I am glad to be able to announce the continued success of the Anthropological Society of Paris. They have altogether three hundred and thirty-five members.* Many facts have recently occurred to advance the Society of Anthropology of Paris as well as general anthropological science.

MM. Choiecki and Mariette have been occupied in reuniting the materials for an Egyptian exhibition of living types, and of more than four hundred ancient and modern crania, which will form part of the great exhibition of 1867, and to which the members of this Society will be admitted on the presentation of their card. A congress of archaic anthropologists will be held at the same time at Paris. The organisation has been confided to a committee of *savants*, amongst whom the Anthropological Society of Paris counts many members (MM. Bertrand, Broca, Pruner-Bey, De Quatrefages, De Mortillet).

Anthropology, Dr. Broca informs me, penetrates more and more amongst medical, historical, and archæological studies. It has received a great hospitality in the *Dictionnaire Encyclopédique des Sciences médicales* (published by Masson). It plays an important part in the questions put by the committee of the International Medical Congress, which will take place at Paris in 1867. Two of these questions, *The Acclimatisation of European races in hot climates*, and *Menstruation, according to race, climate, and description of life*, are purely anthropological.

It is, however, wonderful how small is the amount of knowledge we possess respecting man generally. What Rousseau said in his day is nearly true now:—"The most useful, and the least successfully cultivated of all human knowledge, is that of man." When shall this stigma on the good sense of civilised man be removed? When shall the time arrive when it can be no longer said with truth that we know more of the formation and the laws regulating the

* On the 31st December, 1866, the Anthropological Society of Paris comprehended 335 members, as follows:—

Honorary members	9
Subscribing members at Paris ...	157
,, ,, out of Paris	65
Foreign associates	49
National correspondents	29
Foreign correspondents	26

movements of the heavenly bodies than we do of the formation and the laws regulating mankind generally?

With these questions I might have closed my last address as President of the Society, did I not desire to add a few words of personal explanation for my past and future action, in regard to this Society, to both friends and foes. In the first place, I desire most earnestly to thank, not only my more immediate friends and supporters, but the Fellows of the Society, for the support and confidence they have reposed in me. During the past four years there have been periods in the history of the Society, when, but for the support I have received from the executive and council of the Society, I should not this day be able to announce to you that the establishment of an Anthropological Society, and the introduction of a science into this country of that name, is an accomplished fact. I must now ask those who have supported me to continue that assistance to my successors in the high office which I now resign. I have felt it no small honour to be the elected and trusted chief of so important and influential a Society as ours has now become. I relinquish this office, then, with some feelings of regret, for I can assure both friends and foes that I consider the office of President of such a Society as our own to be one of the highest offices to which any scientific man in this country can aspire. Happily, it is unnecessary for me now to enter into a justification of the policy I have thought it my duty to pursue. My policy, if such it can be called, has merely been to follow the dictates of what I have felt to be my duty, and this duty for four years has been my greatest pleasure. I am not conscious that I have ever allowed my conduct, as President, to be influenced by feelings of either personal friendship or animosity.

To those who have assisted me and the Society by their consistent and persevering opposition, I also now beg publicly[1] and sincerely to return my thanks. It would not have been natural nor desirable that such a Society as our own should have come into existence without having to pass through the fiery ordeal of criticism, opposition, and calumny. We have had our share of all these, and if it has fallen to my lot to be signalled out as the victim on whom the indignant public might vent their wrath, I do not complain, but rather thank my worst enemies, that they have never charged me with unfairness in the manner I have felt it my duty to preside over the deliberations before the Society. I can only commend to my successors the principle which has guided me, and which will, if followed, be their best safeguard. My motto, as your chairman at the meetings of the Society, has been, "Truth, not victory." It is no small satisfaction to me to be able to retire from the chair with no charge of unfairness on such an important matter.

With regard to other attacks both on myself and the Society, let me here say I do not complain of any attack on myself which has not imputed to me a sinister motive. When I have been charged with holding my views from interested motives, I have repelled such a calumny with all the scorn and contempt it deserved. Such charges have brought down upon those who used them, their own punishment. The

man who had the effrontery publicly to state that I wrote a certain paper on the Negro "in behalf of the slave-holding confederacy," is the one against whom charges are now being made that he himself is bringing forward his views "from his hatred of Christianity." With this solitary exception I have never been attacked in a manner of which I have any right to complain.

With regard to the Society, I would here remark, that all institutions of this sort must expect to have their affairs fully investigated and criticised by those whose business and duty it is to do so. No institution or society, conducted in perfect good faith and sincerity, can object to any amount of investigation or fair criticism on its affairs. During the past four years ample opportunities have been afforded for examining and criticising the affairs of the Society, and the more such a practice is continued, the better for us.

In conclusion, allow me to say, that it would have been more agreeable to my own feelings and more consonant with my own desire for peace and rest, had I this day been able to announce to you my retirement from all active participation in our affairs.

But, gentlemen, it so happens that my friends think very differently, and insist that the time has not come when I can be allowed thus to leave off working for the Society. They have urged that I can render our science good service by becoming the head of the executive, and by devoting my time to its further development.

At times I must confess I shrink from the labours, responsibility, and anxiety which the office I have been requested to take, will cause me. I can assure you that it is not a mere form of speech, which induces me to say that another course would have been more agreeable to my own feelings, and that I am alone influenced by what I believe to be my duty. You have already heard the conditions on which that office is taken, and I need hardly tell you that if I feel I cannot discharge the duties belonging to it, for the benefit of the Society, I shall not hesitate to ask you on another occasion to relieve me from the same.

In the meantime I have only to ask that the support you have accorded to me hitherto will be given to me as long as I continue to discharge my duties, whatever they may be, to the best of my ability. On my part I can only promise that my action in the future shall be guided by the same desire as it has been in the past—the success of anthropological science in the first place, and the success of the Anthropological Society of London in the second.

Mr. A. Higgins proposed that the thanks of the Society be given to the President for his address, and that it be printed.

Mr. W. H. Wesley seconded the motion. He hoped that Dr. Hunt would long continue to promote the interests of authropological science, and that the untimely fate alluded to by the Manchester press would be reserved for those who opposed facts and promulgated baseless theories. The motion was carried unanimously.

Dr. Fairbank reported that the following gentlemen were duly elected for the year 1867:—

President—Captain R. F. Burton. *Vice-Presidents*—Dr. Berthold

FIG. 1. PLAN.

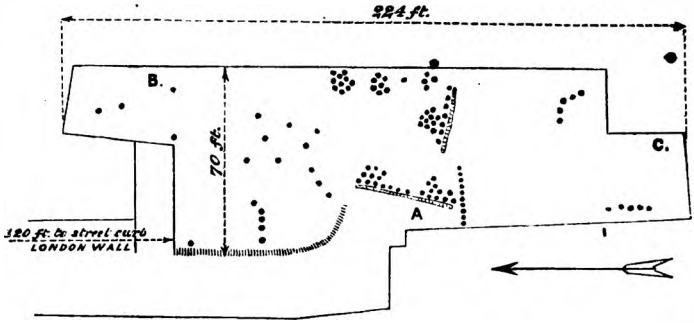

FIG. 2. SECTION at A.

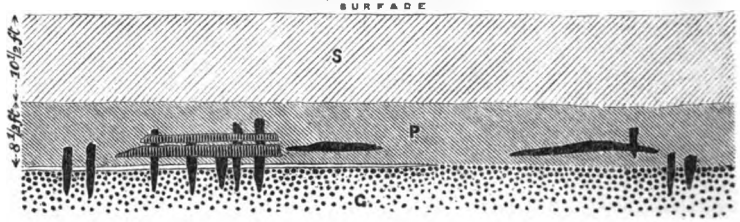

FIG. 3. SECTION at B.

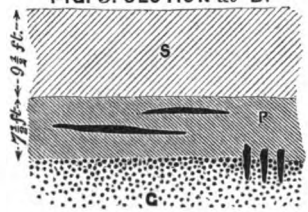

FIG. 4. SECTION at C.

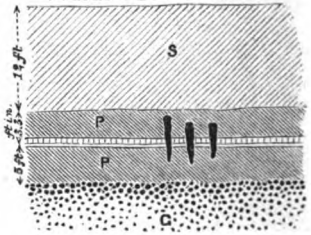

FIG. 5.

REDUCED 1/4th

FIG. 6.

REDUCED 1/4th

S-----SUPERFICIAL EARTH.
P-----PEAT.
G-----GRAVEL.
-----BLUE MUD, 6in.
-----LIME DEPOSIT, 4in.
-----KITCHEN MIDDENS.
-----PILES.

WW

A. LANE FOX DEL.

Seemann; T. Bendyshe, Esq.; Dr. R. S. Charnock; *Dr. J. Beddoe; Dr. Barnard Davis; C. Robert Des Ruffières, Esq. Director—Dr. James Hunt. Treasurer*—Rev. Dunbar I. Heath. *Ordinary Members—H. G. Atkinson, Esq.; C. Carter Blake, Esq.; W. Bollaert, Esq.; E. W. Brabrook, Esq.; J. Fred. Collingwood, Esq.;* S. E. Collingwood, Esq.; J. W. Conrad Cox, Esq.; *Dr. Langdon Down; Col. Lane Fox;* Dr. George Gibb; J. Meyer Harris, Esq.; H. Hotze, Esq.; *Dr. R. King;* the Viscount Milton; *Major S. R. I. Owen;* Luke O. Pike, Esq.; *Captain Bedford Pim, R.N.;* W. Travers, Esq.; W. S. W. Vaux, Esq.; *E. Villin, Esq.*

Edwin H. Baverstock, Esq., F.R.S.L., proposed, and J. McGrigor Allan, Esq., seconded, that the thanks of the Society be given to the Scrutineers.

The proceedings were then concluded.

December 18th, 1866.

Dr. Charnock, V.P.A.S.L., in the Chair.

The minutes of the previous meeting were read and confirmed.

The Fellows elected were announced as follows:—David Brodie, Esq., M.D., L.R.C.S.E., Larbert, Stirlingshire; F. Cooper, Esq., 131, Piccadilly, W.; J. Macgrigor Allan, Esq., 26, Park Street, Southampton Street, Camberwell, S.; Walter F. Dawson, Esq., 13, Old Quebec Street, Portman Square; W. Hunter Lyle, Esq., 41, Bath Street, Glasgow; Rev. H. F. Rivers, M.A., Loc. Sec. A.S.L., Sydney Villa, Luton, near Chatham; A. H. Pechell, Esq., B.A., Barton-on-Humber; W. J. Bustead, Esq., M.D., Zillah Surgeon, Chingleput.

Corresponding Members.—J. R. Logan, Esq., Penzance; George Catlin, Esq.

Local Secretaries.—Leopold Ferny, Esq., H.B.M. Consul at Puerto Rico; Robert Walters Moore, Esq., Adelaide, South Australia; Robert H. Collyer, Esq., M.D., 86, Rue de la Paix, Boulogne; W. Perkins, Esq., F.R.G.S., Gran Chaco, Buenos Ayres.

The following presents to the Library were announced:—

Bosanquet. Chart of Early Jewish History.

R. Walker. Ancient Shell Mounds at St. Andrews.

The following paper was read:—

A Description of certain Piles found near London Wall and Southwark, possibly the Remains of Pile Buildings. By Lieut.-Colonel Augustus Lane Fox, F.S.A., F.A.S.L.

My attention was first drawn to this locality by a short paragraph in the *Times*, of the 20th October, 1866, stating that upwards of twenty cartloads of bones had been dug out of the excavations which were being made for the foundations of a wool warehouse near London Wall.

Having visited the spot the same day, I found that the greater part of the area, a rough sketch of which is given in the accompanying plan,

fig. 1, had been already excavated to a depth of seventeen feet on the north side, and the remaining portion to a depth of from fourteen to sixteen feet.

The street which now goes by the name of the London Wall appears to occupy the site of that which originally ran along, and within the old city walls, vestiges of the wall and ditch having from time to time been discovered to the north of it.

The excavation in question commences at forty yards south of the street pavement, therefore in all probability at about seventy to eighty yards from the site of the old wall. The area excavated is of an irregular oblong form, sixty-one yards in length running north and south, and twenty-three yards wide, exclusive of the roadway down to the works, which is not yet excavated. A section of the soil is given in figs. 2, 3, and 4. It consists of

1. Gravel similar to Thames ballast at a depth of seventeen feet towards the north, inclining to twenty-two feet towards the south end.
2. Above this peat of unequal thickness varying from seven to nine feet.
3. Modern remains of London earth composed of the accumulated rubbish of the city.

When I first saw the place about two cart-loads of bones, nearly all broken and black from having laid in the peat, were heaped up in readiness to be carted away, and I was informed that several cart-loads had already been taken to the bone factory, Having secured a number of these as specimens, I showed them to Professor Owen, on whose authority I am enabled to say that they consist of the horse, or ass, the red deer, the wild boar, the wild goat (*Bouquetin*), the dog, the *Bos longifrons*, and the roebuck. The horns of the roebuck, I afterwards ascertained, were all found at a higher level. These, and also the horse and goat, entered the superficial earth, in which glazed pottery was also found ; but the remainder, including the red deer, wild boar, and *Bos longifrons*, appeared, so far as my observations enabled me to judge, to be confined to the peat. All the bones retain their animal matter. No remains of any kind have, to my knowledge, been found in the subjacent gravel.

Upon looking over the ground my attention was at once attracted by a number of piles, the decayed tops of which appeared above the unexcavated portions of the peat, dotted here and there over the whole of the space cleared. I noted down the positions of all that were above ground at the time ; and as the excavations continued, during the last two months, I have marked from time to time the positions of all the others as they became exposed to view ; the result is shown in the accompanying plan.

Commencing on the south, a row of them ran north and south on the west side, to the right of these a curved row, as if forming part of a ring. Higher up and running obliquely across the ground was a row of piles, having a plank about an inch and a half thick and a foot broad, placed along the south face, as if binding the piles together. To the left of these another row of piles ran east and west ; to the north-east again were several circular clusters of piles ; these were not

in rings but grouped in clusters, and the piles were from eight to sixteen inches apart. To the left of this another row of piles and a plank two inches thick ran north and south. There were two other rows north of this and several detached piles, but no doubt several towards the north end had been removed before I arrived.

The piles averaged six to eight inches square; others of smaller size measured four inches by three; and one or two were as much as a foot square. They appeared to be roughly cut, as if with an axe, and pointed square; there was no trace of iron shoeing on any of them, nor was there any appearance of metal fastenings in its planks; they may have been tied to the piles, but if so, the binding material had decayed.* The grain of the wood was still visible in some of them, and they appear to be of oak. The planks averaged from one to two inches thick. The points of the piles were inserted from one to two feet in the gravel, and were, for the most part, well preserved, but all the tops had rotted off at about two feet above the gravel, which I conclude must have been the surface of the ground, or of the water at the time these structures were in existence. Owing, no doubt, to similar causes, I was informed by the workmen that no superstructure of any kind was found here, a few Roman tiles from a foot to sixteen inches square, and an inch thick, were interspersed amongst the piles, but not in sufficient numbers to lead to the inference that the piles were surmounted by any platform of those materials; some of these had marks of fire on them. I only found two Roman bricks during the two months that I watched the excavations; and I therefore conclude that the superstructure, if any, must have been of wood or some other perishable materials, and that it must have rotted with the tops of the piles.

Amongst the articles of human workmanship found in the peat the vast majority are undoubtedly of the Roman era. Amongst them are quantities of broken red Samian pottery, mostly plain, but some of it depicting men and animals in relief, one specimen is stamped with the name of Macrinus. All this pottery, in the opinion of Mr. Franks, to whom I shewed it, is of foreign manufacture. Other samples are of the kind supposed to have been manufactured in the Upchurch Marshes in Kent, and upon the site of St. Paul's Church-yard. Bronze and copper pins, iron knives, iron and bronze stylus, tweezers, iron shears, a piece of polished metal mirror, so bright that you may see your face in it. This Dr. Percy has pronounced to be of iron pyrites, white sulphuret of iron without alloy, an iron double-edged hatchet, an iron implement, apparently for dressing leather, a piece of a bronze vessel, and other bronze and iron implements, which, thanks to the preserving properties of the peat, are all in excellent preservation. Amongst these were also a quantity of leather soles of shoes or sandals, some apparently much worn, and others, being thickly studded with hob nails, may be recognised as the caliga of the Roman legions; also

* This applies chiefly to the south side. Towards the north I subsequently found a plank with several Roman nails in it; and the number of loose nails found in the soil above it, showed that they must probably have belonged to some wooden superstructure which had perished.

a piece of a tile with the letters P. PR. BR. stamped upon it. Specimens of these are on the table. The coins found are those of Nerva, Vespasian, Trajan, Adrian, and Antoninus Pius.

It is very remarkable that these Roman remains are interspersed at different levels from top to bottom throughout the peat, which, as I have already said, is from seven to nine feet thick, and in the opinion of all competent judges who have seen it, is, no doubt, of natural growth. This, as regards the heavier articles of bronze and iron, might be accounted for by supposing that they had sunk to the bottom of the soft peat, but the lighter articles, such as fragments of pottery, shoe soles, and kitchen middens of mussel and cockle shells, could never have found their way to the bottom in this way. There is, moreover, distinct evidence of the gradual increase of the peat in successive ages marked by kitchen middens obviously deposited upon the surface at separate periods, with intervals of peat between, shewing that it must have grown over the lower deposits before it received those lying above, and proving also that the ground must have been occupied during the whole time that the peat was in process of formation.

I have already stated that the greater part of the ground had been excavated before I saw it, and much valuable evidence must have been lost by this means, but the sides of the cutting shewed several admirable sections in which the history of upward growth of peat has been faithfully recorded, and I am happy to say that for the accuracy of these sections I have had the good fortune to secure two excellent witnesses in Mr. Carter Blake and the Rev. Dunbar I. Heath, both of whom I am happy to see present this evening. They have carefully examined the ground, and assisted in taking the measurements detailed in figs. 2 and 3.

Section A. Fig. 2 is at the south-west end of the cutting. At a foot and a half above the gravel in the peat is a layer of oyster and mussel shells about a foot thick, with a filtration of carbonate of lime permeating through the mass. In this kitchen midden, Roman pottery and a Roman caliga were found. Close by, the point of a pile, part of which is exhibited, was found upright in the peat; it had been driven in in such a manner that the point descends to the level of the kitchen midden and no further. Now, as a pile, in order to obtain a holding, must have been driven at least two feet in the ground, it is evident the peat must have grown at least one foot above the summit of the kitchen midden before this pile was driven in. Both Mr. Blake and the Rev. D. I. Heath can corroborate the accuracy of this fact. The points of most of the other piles were, as I have stated, a foot deep in the gravel; this pile must, therefore, have been driven in subsequently; by this means we fix the first stage in the growth of the peat.

Section B, Fig. 3, is at the north-east end. About one hundred feet from fig. 2 here, in a line sloping slightly to the south, at a height averaging three-and-a-half feet from the gravel, is a kitchen midden composed of oyster, cockle, and mussel shells, and periwinkles, with Roman pottery and bones of the goat and *Bos longifrons*, etc., split lengthwise as if to extract the marrow, with the skulls broken and the

horns cut off. It is about a foot and a half thick in the centre, thinning out towards the ends as a heap of refuse would naturally do, and from twelve to fourteen feet long; above this is peat for about a foot or a foot and a half, and above the peat another kitchen midden of the same kind as the preceding.

Section c, Fig. 4, is at the south end. It consists of:—1, superficial earth, 12 feet; 2, peat, 3 feet 3 inches; 3, blue mud, 6 inches; 4, a sediment of lime and gravel, which in some parts has agglutinated into a kind of hard concrete, 4 inches; 5, peat, 5 feet; and 6, gravel. The piles in this part had evidently been driven in at a time when the sediments of mud and lime formed the bottom of a piece of water, subsequent to the growth of the lower peat. A similar stratum of lime is seen in section 2, but here it lay between the peat and gravel. Owing to the building having been conducted in detached pieces, it is impossible to connect the two sections; but as the stratum of lime is at different levels in figs. 2 and 4, it is probably not continuous.

Lastly, the soles of shoes and Roman pottery of the same kind as that found lower down have been taken out at the very top of the peat, so that the history of its growth may be read by the sections as follows:—

1. Oak piles driven into the gravel, the tops of which rotted off at the surface before the peat had grown more than two to three feet. 2. A kitchen midden deposited on peat a foot and a half thick during the Roman period. This may or may not have been contemporaneous with the first piles. 3. A growth of peat of one to two feet above this kitchen midden, and other piles then driven in. 4. A kitchen midden with *Bos longifrons* and Roman pottery at three-and-a-half feet. 5. Another growth of peat and another kitchen midden at six feet. And lastly, Roman remains at the very top. Trenches were also dug for the foundations in places where the gravel dipped as low as twenty-two feet from the surface, and still Roman pottery and other Roman remains were found everywhere in the peat.

It is certainly difficult, if not impossible, to reconcile this enormous rise of seven to nine feet peat during the four centuries of the Roman occupation with anything that has hitherto been conjectured respecting the growth of peat on the continent. Sir Charles Lyell, quoting Mons. Boucher de Perthes, gives the rate of increase at three centimetres in a century—this calculation would give little more than four inches for the period in question. It is true that he expressly states his belief that the increase is more rapid than this, and he moreover allows a large margin for the accelerated growth of loose spongy peat upon the surface; it would also appear probable that in the damp climate of England the peat would grow much more rapidly than on the continent. In the moss of Hatfield, as well as that of Kincardine in Scotland, Roman roads, coins, and implements have been found covered to a depth of eight feet by peat,* but this falls far short of the rate of increase that must have taken place in this spot during the Roman era.

* Lyell's "Principles of Geology", p. 721.

With regard to the probability of this part of London having been a marsh at that time, it appears, by reference to the city sewers office, that the centre of the London Wall Street is 31.69 feet above the mean high water mark at London Bridge, taking the average level of the gravel in the excavation at nineteen-and-a-half feet below this, the bottom of the peat would be at twelve feet above high water mark. The extreme rise of the spring tide above mean high water mark during the year is seven feet, thus leaving a margin of five feet between the bottom of the peat and the highest spring tide water mark, as at present existing, considering, however, the great probability of the river having run at a higher level in Roman times, it appears not unlikely this spot may then either have been under water or exposed to inundations.

By information which I have received from the builder's foreman and others, it appears that throughout the whole tract of ground between this and the Thames similar remains of peat, piles, bones, and Roman pottery have been found. At the new Auction Mart north of the Bank piles have been found connected by camp-sheathings, as it is technically called by builders, that is, by planks joining them horizontally. At the Mansion House, and in the line of the old Wall Brook, piles, peat, and Roman pottery were discovered last year: this latter street takes its name from a brook which ran through this district from the old wall to the Thames. Had the piles been found in lines running uniformly east and west, it might very naturally be assumed that they were laid down for the construction of dams across this brook, but they are also found to run north and south. The circular clusters could never have been so arranged for the construction of dams or wharfs, but have all the appearance of having been driven in for the support of buildings, besides which the kitchen middens prove that habitations of some kind existed here. That they were occupied during the Roman period is also evident, but it does not necessarily follow that they were of Roman origin.

In addition to the Roman relics above-mentioned, others of ruder construction remain to be described. They consist of what, in the absence of any evidence respecting their uses may be called handles and points of bone. Figs. 5 and 6. The former are composed of the metacarpal bones of the red deer and *Bos longifrons* cut through in the middle and roughly squared at the small end; the others, which are called by the workmen spear-heads, are pointed at one end and hollowed out at the other, as if to receive a shaft. Both Professor Owen and Mr. Blake concur in thinking these implements *may* possibly have been formed with flint, but I cannot ascertain that they were found at a lower level than the Roman remains, nor have any flint implements, to my knowledge, been found in the place. With them were also found the two bone skates on the table; they are of the metacarpal bone of a small horse or ass, one of which has been much used on the ice. Exactly similar skates, also of the metacarpal of the horse or ass have been found in a tumulus of the stone period at Oosterend in Friesland, a drawing of them is given in Lindenschmit's Catalogue of the Museum at Mayence, etc. Others have also

been found in Zeeland, at Utrecht, and in Guelderland, and there is a specimen in the Museum at Hanover. Professor Lindenschmit attributes all these to the stone period, but the specimens on the table are evidently of the iron age, the holes in the back having been formed for the insertion of an iron staple. Similar skates have been found in the Thames, but they have not hitherto been considered to date so early in England as in Roman times. Nearly all the animal bones found here, as also the skulls, have been split longitudinally, as if to extract the marrow and brain. Three specimens of skulls of the *Bons longifrons* are on the table all broken in the same place. Similar bones are found in nearly all lake dwellings.

On the east side the two human skulls now exhibited were found at the lowest depth of peat, viz., twenty-two feet, resting immediately upon the gravel, also three jaws, none of which belong to the skulls. One of these skulls is a remarkably fine one; the other quite the reverse, very small in the frontal region, large in the parietal and cerebellum, and somewhat pointed and low in the crown. Such a skull might very possibly have belonged to a savage, but no sound theory can be based upon it, as the Roman legion with its auxiliaries was such a heterogeneous body composed of different nations, that skulls of almost any description might be found amongst them. During the year 1862, when excavations for the adjoining building were being carried on, two other skulls were found near the same spot, but, with the exception of a shoulder-bone found in a different place, no other human bones were found in the excavations.

Mons. Troyon in his *Habitations Lacustres* observes that skulls are frequently found in the kitchen middens alone, without any other human bones, and he infers that this may be accounted for by the Gaulish practice of making trophies of the heads of their enemies; upon examining the contents of one of these skulls upon the table, which was broken at the base, I found amongst other things a mussel-shell, a cockle-shell, two or three stones of the plum or sloe, the shell of a hazel-nut, and a small piece of leather, showing that it must have been in contact with a refuse heap. The other skull, not broken, was filled with a brown silt.

Alluding to the possibility of British pile buildings being at some time discovered, Mons. Troyon draws attention to certain iron weapons found in the Thames resembling in pattern those of the bronze period found in the Swiss lakes, but he adds, "we must not, in the absence of other evidence, conclude from these implements alone that habitations upon piles have ever occupied the bed of the Thames." The only implement discovered at London Wall, which can with any probability be referred to the period of the iron age, is a kind of knife, which has all the appearance of having been the iron shoeing of some wooden implement, constructed with a view to economy of metal, and resembling by the slit at the back, in which the wood was inserted, some celts of the early iron period.

It is, however, very unlikely the Romans should have built their habitations on a marsh, but most probable the Britons may have done so. For, although no pile buildings have hitherto been discovered in

England, the Britons were surrounded on all sides by nations that built in the water. In Switzerland and in Franche Comté the Allobriges lived in lake dwellings during the iron age. In Iceland Crannoges, having the same human and animal remains that are found in this place, were in use so lately as the year 1603. In Scotland they were also used until comparatively recent times. The Britons, we know from Cæsar, built their houses after the same fashion as the Gauls; and of the fortifications of the Gauls, he says they were composed of timber mixed with layers of earth and piled into a rampart forty feet thick. We know that the Britons were familiar with the use of abatis for defensive purposes, and that they defended the passage of the Thames against the Romans by means of stakes planted in the river. Cæsar says, that after passing the Thames (at Cowey) he found himself near the capital of Cassibelaunus, and that it was situated amidst woods and marshes. A town situated in the midst of marshes could have been built on nothing else but piles. He found the town extremely strong, both by art and nature, and vast numbers of cattle were found in the place.

Upon the whole, therefore, it appears not unlikely these piles may be the remains of the British capital of Cassibelaunus, situated in the marshes, and of necessity built on piles. From the abject state in which the Romans left them, and the very slight progress the Britons appear to have made on their own account, it is easy to understand how entirely dependent they must have been upon the Romans in everything. We may, therefore, naturally expect to find them using Roman tools, weapons, and pottery, possibly wearing their old shoes, but still living in their own primitive dwellings and inhabiting the same sites as when the Romans found them.

In conclusion, I have only to add that similar piles in every respect have within the last month been discovered in New Southwark Street. The piles are of the same scantling, also of oak, but somewhat longer than those at London wall; the points are driven into the gravel; the peat is three to four feet thick; large beams of the same size as the piles have been laid across them horizontally, and Roman pottery is found at all depths in the peat. Judging from the extent over which these piles have been discovered, there can be little doubt that in digging for the foundations of the many very large warehouses and other buildings that are now being built within this district the remains of early habitations are constantly turning up and are destroyed without receiving attention.

From what has been already said in this paper it will be seen that if the evidence of pile buildings at London wall is inconclusive, it has arisen mainly from the large quantity of peat and its contents that had been carted away before the matter was made public. And, although I then endeavoured to enlist the interest of some of our leading authorities on the subject, hoping they might think it worthy of their attention, I cannot say that any great success attended my efforts until I was fortunate enough to meet with the two gentlemen before-named, who, I am happy to say, are present this evening, and from whose superior scientific attainments the society will derive much more

valuable information respecting the details of the several remains now exhibited than I am able to afford. Thus while the remotest parts of Europe are being searched for the vestiges of lake dwellings, and the most valuable reports on the same subject are received from the four quarters of the globe, similar remains are in daily process of destruction at our own doors by persons who are ignorant of their meaning, and of the importance that attaches to them. This certainly ought not to be. Matters of so much interest in connection with the prehistoric origin of our own capital, and at the same time serving so admirably to illustrate the conditions under which like structures have been erected elsewhere, are, I venture to think, well deserving of all the scientific knowledge and attention that can be brought to bear upon them.

Since the foregoing paper was read before the Society the excavations have been continued in making trenches for the concrete foundations towards the south end, and in cutting away the roadway upon the west side. As I was anxious to obtain some further evidence as to the thickness of the stratum in which the Roman remains are found, I determined to watch the workmen for four and five hours together during several successive days while they dug from top to bottom, commencing with the superficial earth and passing through the peat to the gravel below. The result of my observation is as follows:—Roman red Samian ware is found as high as 13 feet from the surface, but very rarely, and in small quantities. At 15 feet it is frequently found, and from that depth it increases in quantity till the gravel is reached at 18 to 21 feet. The chief region of Roman remains is within 2 to 3 feet of the gravel. We came upon the tops of the piles at 16 feet, they were jagged and rotten, shewing that they must have rotted off at that level. This was a point which I desired to have made clear by seeing the earth cut down from the surface until the piles were reached. The great quantities of shoe leather of all kinds found amongst the Roman remains, "caliga," "solea," "crepida," together with two iron implements, apparently for dressing leather, suggests, at first sight, the question whether this spot may have been devoted especially to the manufacture of shoes; but the whole of the specimens obtained were fragments of worn or made shoes. I found no pieces of unformed leather, which would certainly have been the case had this been a quarter for shoemakers. In more recent times the surface has no doubt been occupied as a tannery, and the small passage within twenty yards of the excavations, which is still known by the name of "leather-sellers' alley," though it has long ceased to have especial connection with the sale of leather, must no doubt have been associated originally with this tan-yard, but the bottoms of the tan-pits are nowhere found at a greater depth than 8 feet from the surface; and there is no sufficient evidence to show that the particular designation of this locality in connection with the sale or preparation of leather could have had its origin in Roman times.

Portions of fifteen human skulls have been found exclusive of those before-mentioned as having been found on the adjoining premises some

time since, all resting on the gravel; the highest, which I found myself, was 17 feet from the surface. Of these, eleven are of the type which is known as Roman, one very long one, decidedly of the "Celtic" type of Retzius, and one doubtful, the remainder are fragments.

With the skulls only three human bones have been found. That this was not the result of oversight is proved in three ways. Firstly, those skulls which I found myself had no human bones near them, and I examined all the refuse heaps; secondly, all the workmen were on the look out for them, and I desired them to keep all they found for me; thirdly, the bone contractor to whom the other bones were sold objected to receive human bones; had any been found amongst the others they would have been thrown out, and, if I had not expressed a wish to have them, they would have been thrown into the cart and taken with the peat to the shoot; so that nothing is more clearly proved than that the heads were severed from the bodies before they were thrown into the positions in which they were found.

There is only one further supposition which is for a moment worth considering, viz., whether the human bones may not have been broken and split up like those of other animals, in such a manner as to have escaped detection amongst the immense quantities of small fragments that were found in the kitchen-middens, together with oysters, cockles, and the human skulls. This, I think unlikely, as the joint ends would probably have been observed. It is true that all the skulls but three were broken, but the fragments were close by, so that I was able to restore ten of them. On the other hand, if the heads had been decapitated as trophies, and afterwards thrown away, it is curious that any human bones should have been found with them, and the question naturally arises, if a portion of the bones got amongst them, what became of the others? Upon the whole, however, viewing the *pros* and *cons*, I see no good ground for the insinuation involved in this hypothesis. Both the Celts and the Romans are known to have practised decapitation, and it is evident the inhabitants of these pile buildings could have been in no want of animal food.

The piles at the south end have been identified as elm; the remainder are oak (*Quercus Robur*).

Amongst the animal remains the excavations have brought to light a greater number of varieties than was at first supposed of the genus *Bos*. Mr. Carter Blake has identified no less than four different kinds; viz., *primigenius*, *trochoceros*, *longifrons*, and *frontosus;* these were all found together at a depth of 18 to 20 feet. Mr. Blake is preparing a detailed account of the fauna found in these excavations for the *Geological Magazine*.

The thanks of the Society were given to Col. Lane Fox for his interesting paper.

The Rev. DUNBAR HEATH, as one of the two witnesses referred to in the paper, confirmed the accuracy of the description of the excavations given by Col. Lane Fox. He said he saw one of the small piles pulled up, he saw the oyster beds, and the peat, and some of the things found imbedded in it. There were several points of interest which

arose from this remarkable discovery, but the only one on which he would make any observation was the suggestion that the name of London itself might be connected with these particular habitations. Mr. Heath considered it probable that if the habitations were built on a lake, this might have been the lake from which the name of Llyndin was derived.

The Rev. Dr. Irons said that in an old book on the history of London by Douglas Campbell, the name was said to be derived from Welsh words signifying the city of the lake.

Mr. Pike directed attention to the bone implements called in the paper, "skates." He thought one of them would be better defined as a sliding shoe than a skate, and it had evidently been much worn. The other, if an implement at all, was quite new, and had little appearance of being more than a bone.

Mr. Carter Blake bore his testimony to the accuracy with which the investigations had been described, and to the care with which they had been made; and in those respects he contrasted what had been done by Col. Lane Fox with the exaggerated representations by Troyon and others of lake habitations on the Continent, where some authors had exhibited what Mr. Pike would term lamentable absence of "shame" in their accounts. Among the bones brought from the excavation at London Wall there were on the table numerous remains of *Bos longifrons*, which appears to have been coæval with Roman remains at those periods, but which does not now exist, although its descendants may survive in some breeds of the modern ox. There were other specimens which indicated the existence of a second species of extinct ox, the *Bos trochoceros*, found in the Swiss pfahlbauten. There was also a specimen, not of the ibex of the Alps, but of the more rare species of ibex of the Pyrenees, which was also found in some pleistocene caves. There was found also at a depth of seventeen feet from the surface, immediately above one of the kitchen middens, a fragment of a common snail shell (*Helix pomatia*) imbedded in the peat, retaining its colour, which was evidence against the extreme antiquity of the deposit. There were some metacarpal bones carved in a remarkable manner, with very curious marking, for some purpose which it was difficult to define. The markings were similar to those produced by flints, but there were no specimens of flint found in the peat in the London Wall excavation. Mr. Blake thought that the marks could not have been produced by anything but a flint implement, and that bronze or iron could never have produced them. The absence of flints, therefore, became very puzzling. He hoped the investigations would be continued, and by that means some further explanations might be obtained. He was sorry, indeed, that they came to the gravel so soon. The evidence the deposit afforded of the time required for the growth of peat was also important. The geologists who have had a great disposition to exaggerate the time of man's existence have taken the growth of peat as a factor. But the growth of peat was very uncertain evidence, for it depended much on the circumstance of its exposure to the weather. On one side of a hill a peat-bed was often shallow, and on the other side it was deep; the

rapidity of the growth having been affected by the windward or leeward side of the hill. That was a caution against accepting such factors in calculating the antiquity of man. Roman pottery was found at the same depth in the peat as the kitchen middens, and under whatever conditions the peat might have been formed they could not assign to it a period of greater antiquity than the Roman occupation of this country. Among the works of human industry found were female Roman *caligæ* which showed that the Romans were settled there at the time. The most important evidence discovered consisted of the two skulls on the table. One of the skulls accords with those described by Barnard Davis and others as Roman. The other accords with the low type of the Irish skull similar in character to those described by several authorities as characteristic of the river-bed Irishmen of Louth, Borris, Blackwater, and other places in the south of Ireland. He would not call it Celtic, as much difference of opinion exists as to what is the Celtic type, but it was dolichocephalic, and belonged probably to one of the Britons by whom the piles were made, and who co-existed with the Roman invaders.

The Rev. DUNBAR HEATH inquired whether there was any difference between the animal remains found at London wall and those found elsewhere.

Mr. CARTER BLAKE said it was a very curious fact that in these remains they had a true cave species of goat (*Capra pyrenaica*) associated with human bones and Roman manufactures. But palæontology, like anthropology, was in its infancy, and he should be sorry to draw any conclusion from such an association; the fact, however, was unparalleled.

Major OWEN asked whether the specimen of the bone of the goat was found in the gravel?

Mr. CARTER BLAKE replied that nothing was found in the gravel. Similar specimens had been found in a cave in Somersetshire.

Mr. CHARLESWORTH said he had paid much attention to the mammalian remains in the drift and to those of the pliocene period, yet he had no knowledge of the species of goat of which the specimen was exhibited, having been found in those deposits. With respect to the association of the bones of extinct animals with human remains, he did not consider that it proved they were contemporaneous. The Romans or Britons might have stumbled on a fossil-bone and fashioned it into an implement, for which purpose it would serve as well or better than recent bones. It did not follow, therefore, because they were found together that they must necessarily have existed at the same time. One of the subjects in which he had taken special interest was the association of the remains of extinct and recent animals in the stratum, and he had frequently opposed the theory propounded by Sir Charles Lyell, that the relative ages of different strata might be determined by counting the percentage of recent and extinct animal remains, and thus ascertaining the chronological sequence. One great oversight he (Sir C. Lyell) committed was the omission to take into consideration that geological formations are made up from the wrecks of older formations, and thus there are

mingled together the fossil remains of different periods. That view he believed is now fully recognised, and it might be made to bear on that discussion. With respect to the fossil bones of an ass spoken of by Col. Fox, he was not aware that there is any difference osteologically between the bones of an ass and of a small horse, and he thought they were not to be distinguished in a fossil state.

Mr. Carter Blake stated that there were clear proofs of a distinct osteological difference between the ass and the horse. There was a difference in the teeth, in the long bones in the skull, and in other particulars. There is a difference also in the texture of the bones, which on microscopical examination can be immediately detected.

Col. Lane Fox said there was a gouge found in the peat, made from a bone that was evidently older than the other bones.

Dr. Charnock made some observations in answer to the remarks of the Rev. Dunbar Heath on the etymology of the name London, and the other Celtic names mentioned by him. The Welsh, *lli*, signifying a flood, flux, stream (found inverted in local names commencing with *al*, *el*, *il*, *ol*, *hul*), was liable to take the form of *lag*, *leg*, *lig*, *lug*, *lid*, *lud*, *lon*, *lun*, *lyn*; hence Londinium, Lundinium, Lyndin, or London, which was precisely the same as Leyden in Holland, and Lyon in France, both of which were anciently written Lug-dunum. He thought London did not derive its name from its situation upon the Thames, but from some stream, perhaps the Fleet Ditch (which may have been anciently called the Lug, Lud, Lun, Lon), which flowed into it, and that the name London could mean none other than a "fortress or town on the water" (*lyn-din*, *lun-din*, *lan-dun.*)

The Rev. Dunbar Heath then read the following paper:—

On the way in which large bodies of Mute Men would acquire language from small bodies of Speaking Men. By the Rev. Dunbar I. Heath, M.A., Treas. A.S.L.

The distinction generally presupposed or stated as distinguishing mutes from speaking beings, is that the latter use distinct articulation while the former use only vowel cries or inarticulate sounds, as dogs and cats do, in expressing what they have to express. A little consideration, however, will show, that the character of the sounds produced, whether clear or confused, distinguished and articulate, or indistinguishable and inarticulate, has nothing at all to do with what we really mean by the power of speech or language. It will be easily seen that large numbers of the sounds habitually made in what is usually called speech by speaking men are the same as those made by dumb brutes, and large numbers of the sounds made by dumb brutes occur repeatedly in what are called the languages of mankind.

It would also be trivial to build up so fundamental a distinction as that between mutes and speakers on so unimportant a peculiarity as the mere sorts of sounds, or other signs, made use of. For the ground of such a distinction we must seek a peculiarity in some more advanced part of human nature than man's throat and chest, or even that lower emotional nature which he shares largely with beings beneath him.

The real distinction then between mutes and speakers will, I think,

be found to lie in the fact that all sounds used by mutes arise from individual emotion, and express emotion while the language of speakers (distinct from certain cries they may utter under strong emotion) actually diminishes by its use the individual *emotion* of the speaker, and expresses the *ideas or perceptions* common to the minds of the community of the speakers.

I wish my readers to understand, then, that by mute men I mean men who may or may not use words, but who only express emotions by them, and that such emotions are the *individual emotions* of the mute being; and by speaking men I mean men who can express ideas and perceptions by words or sounds or other signs, and that these ideas or perceptions are *common to the tribe* of speakers. I also wish it to be clearly understood that I am not writing and have never yet written on the origin of language, but on the transmission of language from tribe to tribe when once it has been acquired.

I am about to bring before the reader a conception of certain kitchen-middens occupied by what I call mutes, and subjected to the rationalising influences of a further advanced set of men whom I call speakers, and, that I may be as clearly understood as possible, I begin with forestalling a part of what I have to say further on.

I lay down therefore at once that, in my view of matters, every verb expressed in the first person singular is an expression of emotion or mental movement of the person moved. I love, I am cold, I hit, I count, I remember, being each of them individual or subjective states of mind, may, according to my view, be each of them expressed by a mute. To express the first person plural seems to me a step beyond emotion, which I call semi-emotion. We love, we are cold, express a state partly internal without ratio, and partly external or rational with ratio. The second and third persons, singular and plural, I make fully rational. The expression, thou art cold, is an expression of a perception or ratio between an external being and a state of temperature. I recognise in animal nature every variety of degree between reason and emotion. Here we have the simplest emotion, without any ratio or proportion at all in it to anything else, and there we have the very essence of ratio, reason, proportion, or comparison between any thing and anything.

A consideration of the physical apparatus and mental agency used in producing sounds will show that man and the higher brutes have them in common. The emotions also are common, but many ideas and perceptions on the other hand, created and vividly rationalised by the leaders of the human race, have no existence at all in the majority of mankind, and a very emotional one only in the intermediate classes. The loving Pocahontas of Virginia, the naked Anacaona of Hayti were as fully developed emotionally as Newton or Faraday. They loved indeed but too well, but were quite unable either to form or express the ideas of electrical current, or molecular polar forces. The rationalised perceptions of the highest men are not even now common to themselves and the lowest men, still less to them and the brutes.

If I were writing on the origin of language, I should be called upon to prove this my statement that language, in the proper sense of the

word, expresses ideas and perceptions common to a race, exclusive of individual emotions. I write, however, only upon the way in which men, whom I suppose or assume to express their common *ideas and perceptions* by certain sounds, would act upon other men whom I assume or suppose only to express their individual *emotions* by sounds, and if it had not been denied at the reading of my first paper that man in his mute state could maintain himself upon the earth, it would not be incumbent on me to familiarise my readers as I am now doing with the idea that every one of man's many wants and other emotions can be perfectly and fully expressed and understood without language, sufficiently so, at least, for the purpose of his existence.

The nature of things would seem to be enough to show that in order for man to exist we need do nothing more than supply his wants. The expression of ideas as well as wants is a great step beyond this, and is no doubt essential to man's progress and civilisation, but not to his existence, for brutes clearly exist without expressing them.

The power of expressing the emotion, "I want my food," is essential to continued social existence; but not the power of saying, "your food is in the next room." A dog knowing that its puppy's food is in the next room, nevertheless does not show its knowledge but its emotion strongly, by a sound and a push, the emotion, namely, of desire, that the puppy should go there; the puppy, understanding and yielding to this emotion, feeds and lives. The human infant in the same way yields to expressed emotion, not to expressed knowledge. The man, on the other hand, is able to diminish the necessity for emotion considerably, by expressing a perception common to him and the tribe. He simply says, "the food is there." He not only lives, but progresses.

I readily admit that a social being, placed even in a Garden of Eden, with ample food around him, would soon die off unless capable of expressing his own emotions, and understanding those of others; but, granting him an apparatus for producing articulate sounds, and granting pain and pleasure to prompt him to the proper use of it, I cannot see any shadow of a reason for supposing mute man less able to prolong his social existence, under suitable outward circumstances, than mute apes or other animals.

If it be allowed, then, that mute men, expressing their emotions, may maintain and increase their numbers on the earth under favourable circumstances, the next step is that we ask ourselves whether we have reason to contemplate mankind as having actually existed over vast areas and during long periods in this mute emotional state. Traditional views constitute the only reason I know of why we should not do so. Arguments on the other hand to show that we should be right in doing so, were given by me in my former paper; and it is in accordance with all that we know of nature, that reason should have been gradually acquired among men.

The passage, indeed, from an essentially mute or emotional to an essentially speaking or reasonable state in a community of beings living on this earth, under the conditions of what we call Nature, seems to me to be the last of those three largest changes which we

can conceive of in nature between the original chaos and the present state of things. That these three steps have been actually made seems allowed on all hands; but each of the three is still very generally attributed to miracle in confession of our ignorance. Time, however, it is no less generally admitted, was required for the first two of them, and what I say is that time was also required for the third.

Divide, then, the development of nature, between the nebular chaos and the present state of things, into the three most fundamental of all possible groups or divisions, and what are they? Obviously those which are comprised in the organisation of matter will form the earliest; those which bring these early organisms into a sensationalised or emotionalised state must be the second; and the rationalising of emotions is the third; and no other such great change as either of these can be mentioned in the whole of the series. That vast time was taken in the organising of matter I take as a proven fact from the hands of geology and physical cosmogony. We mean by this that there was a vast time during which our mundane system contained matter without organism, and a further vast time during which organism was increasing in complexity before it arrived at its present state.

That there was also a vast time during which organisms existed without sensation is equally admitted. Vast is the step from unorganised matter to organism, but equally vast is that from organism to sensation. If the lowest organism is that which in the sunlight can simply decompose the inorganic carbonic acid, and appropriate to itself the carbon, there is no evidence of sensation accompanying such an act; nor have we in the whole phenomena of vegetable life any reason for supposing sensation. If, again, the lowest animal organism is that which can decompose the lowest vegetable organism, and join to itself its organic elements, there still appears in this no evidence of sensation. We admit, therefore, there was a vast period before evidence of sensation appeared, and that sensation has increased during vast periods in nature since its first appearance. Now the rationalising of sensation or emotion is, I say, a further step, distinct in kind from either of these two, and like these two I say it contains steps or stages, requiring vast periods of time for each of them, and requiring at a late stage, language. This process is still going on, and fresh conceptions are daily becoming the property of a more and more rationalised mankind, at a more rapid rate by far than at any former time in all mundane history. Now what I say is, that traditionary views have insensibly caused even those who reject the Adam and Eve theory to suppose that the first man existed in a state of emotion sufficiently rationalised as to require speech, and I argue it in these papers as far more probable that he gained the great instrument for rationalisation at a period when he had already occupied large portions of the globe in a mere emotional or partially rationalised mute state.

That I may direct the thoughts of my readers into a channel which would lead I think to profitable results, I will give two instances of what I mean by rationalisation of emotion. One shall be in low mute mammal, the other in speaking man.

I will suppose, then, a low mute mammal, such as a tame guinea pig, to be taken by the inexorable boy who owns it for a series of nice warm water baths, on the plea that it is good for the wretched animal to have a washing. Now, judging from what I hear has happened in such a case, I understand that for the first time or two the animal shows mere abject emotion, by its utterance of piteous cries or squeals. At the third, or even second time, however, the emotion diminishes. The rationalised emotion becomes an idea of a something external to be resisted. Ratio or comparison begins to take place. The cry now becomes a grunt of anger, which is a less absorbing emotion than fear; and, like General Lee, the overpowered animal at the fourth time fights, bites and scratches to its very utmost, deserving a better fate.

In the next example rationalisation has advanced still further. Let the mute mammal be a speaking man, walking along a lonely road, and the inexorable boy a highway robber. A sensible or rationalised man, when met in such a case, feels neither fear, nor even anger. He recognises the inevitable, hands out at once his purse, and politely hopes the wife and family of the depredator are salubrious. Here the power of language enables the two parties so fully to understand each other, that the natural inward individual emotion passes wholly into an external interchange of ideas common to the two.

Now it will be found that even on the common Adam and Eve theory, when we give our attention carefully to the state of the supposed Adam and Eve, we find that a certain large amount of time—say three or four years at least—is required for the rationalisation of some of the most imperious emotions. Minds moulded by the traditional view have not yet dwelt sufficiently upon the great length of time required in the very nature of things for learning speech, even though many of them now take a very liberal and wide interpretation of the tradition.

Taking the tradition in its widest sense, let us suppose fifty Adams, each with his Eve, at different points of the earth's surface, and each created millions of years ago instead of six thousand. Fix the mind on any one of these couples, and follow them in their first lesson from their creator in rationalising the emotion of love, if they had such a lesson, or in their first unaided attempts to rationalise if they were unaided.

Adam then invented, or was taught, the method of saying, or expressing by some sort of sound, his individual emotion, "I love." This step, though it seems often described as the essence of language, is by no means a great one. Turtle-doves, cats, singing-birds, and animals in general have taken it. That Eve would make the same sound as Adam to express the same emotion in herself which Adam had expressed, is again only what we see takes place in other animals. Again, that each of them should also go on to say, "we love," would be a clear step forward towards language, but not a very extraordinary or difficult one. I do not know whether any animals have taken it. I should think it probable that a single dog saying to its master, "I want my food," would fall into the use of a somewhat different ex-

pression if a dozen other dogs were always clamouring by its side, and, if so, the semirationalised emotion, "we want our food," would become distinguishable in practice by the dog community. Many of the emotions are highly contagious and social, while others are as strongly individual, and if I were searching into the origin of language I should expect that the passage from the expression of emotion to that of reason would be found to take the path through these strong social sorts of emotion, on the border ground between the subjective and the objective.

But passing by the doubtful ground of "we love," a real and most mighty step must now be recognised. That Adam should say to Eve "Thou lovest," which is no longer an emotion of his own, and that Eve should agree to say the same sound to Adam, neither of the two expressing any longer their own individual emotion; but each expressing by the same sound an external idea viewed on opposite sides by the two speakers; this—this—is man's triumph—this is language. This seems to be so enormous a step in the progress of the great kosmos, that it is generally supposed it must have happened simultaneously with another great event, namely, the very first appearance in the kosmos of the being now called man, with bigger brain, shorter arm, and stouter thigh than a set of other beings called apes, who had long been domiciled in the neighbourhood of Paradise. That the apes themselves took this step by the gradually increasing force of their own intellects, during the time that their thighs were gradually becoming stouter, is considered less likely than that the new being was instantaneously fashioned, and instantaneously taught to speak out his ideas. Let us then suppose that man was really so taught at his creation. Let the three lessons of I love, we love, and thou lovest, be supposed well and sufficiently learnt. We must now allow at the very least three years to elapse before the lesson of "they love" can have been applicable, even, in a very infantile and elementary sense; for it is indeed rather preposterous to imagine that when the eldest child was so young as only two years old, any one of the four human beings then in existence should point to two others, and say to the remaining one, "they love."

Now the ordinary view is certainly nothing at all like the supposition that the Deity took three years to teach Adam and Eve the expression by speech of the third person plural. Yet, if we employ ourselves in forming any idea at all of the supposed origin of speech, by a supposed teaching of the first man and woman by a Deity, we seem immediately met by the difficulty that either the man and woman were taught to use words to which they could attach no meaning, and which would be useless to them for at least three years; or that the use of the useful words really taught them did not differ in principle from the use of sounds by cats, turtle-doves, and singing-birds, to express simple emotion.

The same line of argument may be extended further. Supposing that the Adam and Eve were taught the expression for the third person plural before they had need for it, how is it they were not taught the expressions for such ideas as "musical vibrations" and

"electrical current"? The words "electrical current" express a clear definite intelligible conception to a small number of people in this age; who, by great mental labour have sufficiently rationalised their emotions to enable them to conceive polar molecular forces. Now the conception expressed by the words "they love," to a supposed Adam, at the supposed moment of his creation, would stand on exactly the same footing as that expressed by "electrical current" now a days. His mind was by the hypothesis a blank or unused one. In such a mind what room can be even imagined for the emotion, "I am jealous," or "I hate;" still less for the rationalisation, "they are jealous," "they hate."

The long and the short of the matter is, that all rational conceptions are the results of experience, and of a considerable activity in the rationalising mind; and that in the nature of things experience requires time; and that if this be once granted the principle of what I am contending for is granted; for it then becomes a mere matter of detail to know whether Adam took three years, or whether his race took three million years, to learn or be taught the utility of using the sounds, "they love," and "electric current," for certain rationalised emotions.

Though I have disclaimed the notion that I am writing on the origin of language, I find that I am at the present moment doubtless comparing the *à priori* difficulties in the two opposing views on the subject. The one view was derived, so far as we know, from the authors of the Persian "Bundehesh," and transmitted to Europe through the Book of Genesis. Now the Book of Genesis is a very modern book when compared with the period to which authentic history extends. In its present form it was compiled just about half way between the present time and the time when men could build the pyramids. Nor is the "Bundehesh" much older, and if we even take the earliest date ever claimed for the first Hebrew ever named, we still have an indubitable thousand years before Abraham, during which great empires, great buildings, and a large if not a great Egyptian book of the dead existed. Thus the traditionary view must be allowed to be what we may fairly call modern. The essence of it is, that at twelve o'clock on some unknown day there was no speaking man on the earth, and by twelve o'clock next day there was a man able to recognise at least animals, plants, earth, water, and God; and to use, pronouns, verbs, and nouns, inflectioned by tenses, numbers, and genders.

The scientific evidence in favour of this view being absolutely none at all of any kind whatever, I compare it therefore unfavourably with the other view now rising into public notice. This view is, that during and after the tertiary geological epoch, the highest mammals then on earth were becoming more erect in their way of walking, less hairy in their bodies, and more like in general to what the lowest men are now. Such beings are supposed during these changes to have also gradually rationalised some of their emotions, by the use of mental power, not so much beyond what the average of them possessed as to presuppose a miraculous development. Not only could a

chief among them say (as brute animals can now say) I love, I hate, I am jealous, we love, we hate, we are jealous, I kill, we kill, but once on a time it is supposed, or supposable, that such a chief, about to strike some beast of prey, with his admiring tribe around him, broke, without a miracle, into a different way of saying, "I kill," which himself and the tribe around understood to mean, "I *will* kill. This, under the excitement of the circumstances, was semi-emotional and semi-rational. Many such semi-emotional, semi-rational states can be imagined. In favour of this view we have the strict compatibility of all the suppositions involved in it with what we see continually taking place in nature; for the step of rationalisation, which I have here imagined, is not greater in proportion to the previous mental power, than many which we often see taken by intelligent creatures under strong excitement.

The subject of this paper is the way in which a community of emotional men would be rationalised by a small number of rational or speaking men. I have nowhere seen the conception clearly expressed that human beings whom we might fairly call mute (as we call animals mute) may yet be thoroughly well able to express to each other their emotions (as animals are.) The presenting this conception clearly to my readers has, I find, taken up a much larger portion of the space usually allotted to a paper than I had expected; but if we can, by this time conceive to ourselves the clever chief of two or three hundred merely emotional inhabitants of a kitchen-midden, struggling into the semi-emotional, semi-rational state of expressing, "I *will* kill," we shall now be able all the more readily to follow such a chief, and his tribe, in the circumstances under which I proceed to depict them.

The advent of the Aryans among such a tribe might be either peaceable or warlike. Tribes of progressive human races (such as the Aryans themselves) are willing to receive physical or mental novelties at the hands of other tribes, but such tribes of men as belong to the unprogressive races are distinguished by their bigoted refusal to accept even benefits at the hands of strangers. Now the two hundred kitchen-middeners I am describing, I assume to be of progressive tendencies, and it is immaterial whether we suppose war, commerce, or philanthropy to have brought into the neighbourhood these half dozen, well-armed strangers whom, in imagination, we now see approaching.

Now see what the leader of these six Aryans is going to do among these two hundred kitchen-middeners, and see how no theory, except that of the mute condition of the kitchen-middeners will allow us to account for his success.

If each party had its own language, it is evident the six strangers would only do just what six Englishmen would do now among 200 Chinese or New Zealanders, viz., each would learn a very small smattering of the other's language, and a lingo would spring up for mere temporary communication; but as to the six imposing their language on the 200, no such event has ever happened in the history of the world. Court terms, warlike terms, scientific terms, and so on, might be imposed, but not the words of daily life.

Now what the six men did was not the mere imposing their words of daily life on the 200, but their words of daily life modified by Grimm's law.

We have in the history of the world many instances where special words (proper names, for instance, and ecclesiastical terms) have undoubtedly been imposed by one speaking race upon another, which has received them with considerable modification of the tongue force or breath force. Episcopus, bischoff and bishop is an example; but in no instance has any law for these variations been evolved at all approaching to Grimm's law in magnitude, complexity, or universality.

It is very obvious that if the supposed 200 men were mutes, then whatever linguistic influence the supposed six men had on them would take place cleanly and completely at once, say in a week or in a month, at the outside, the essence of the work would be completed; but if each side were speakers, at least a hundred years would be required, and no such clean result, as is shown by the universality of Grimm's law can be imagined as possible. When the commonest words of all in the invaders' language had been adopted, with a wrong amount of tongue force and breath force, no reason at all would exist for wrongly pronouncing other words not quite so common, and not only pronouncing them wrongly, but with an error following certainly clear and definite rules.

But now assume the 200 to be mutes, and follow the leader of the Aryans in his first lesson to the crowd around him.

Naturally he would get the crowd to pronounce after him some short syllables such as pa, ta, ka, to illustrate the use of lips, palate, and throat, and very naturally the four or five men (or women more likely) just in front of him would pronounce them rightly, but not one man in fifty can tell the real effect of his work on a crowd. On their returning to their wigwams much would be the emotion of risibility and imitativeness displayed that night among the natives; and next morning the chances are that the majority who stood some distance from the speaker would have fixed for ever upon the whole nation the wrong utterance of ba, da, ga. The main point of my whole argument is that such a result would most naturally follow among mutes, but would never happen among speaking men.

It is obvious that only among mutes such a mistake at the beginning would have consequences spreading over every root in the language in which the tenues letters were initial; for speakers would of course differ from mutes in paying their principal attention to the meaning, and in being more able to correct each other. Mutes alone would have first to learn the sounds. If a speaking man happened to say father for his teacher's pater, that would no be reason for his also saying fish for his teacher's piscis; but a mute saying in the first day's lesson f for his teacher's p, would turn all his teacher's p.s afterwards into f.s without exception.

Now we may very readily allow that the leader of the six Aryans discovered early in his second lecture the mistake of his pupils, but we form a very exaggerated notion of the power of human persuasion,

when exerted against savage obstinacy or love of fun, if we think the teacher could undo next morning the result of the previous day's performance. Granting even great nicety of perception in some of the pupils, and great nervous determination to co-ordinate afresh the muscles of the mouth, throat, and chest, in opposition to a twenty-four hours' habit, yet such qualities would never be manifested in the great mass of the crowd. The best thing the leaders could do when their teacher tried to show them their error of tongue force would, no doubt, be done by them. They would screw their faces amidst shouts of laughter into the nearest approach they could manage into what was right, but as to correcting yesterday's error, once irretrievably made, even if they did so themselves it would be too late. Every word which the Aryans began with a tenues would be henceforth and for ever pronounced by the tribe with a medial, and it being necessary to discriminate the Aryan's own medials from the tribe medial too hastily adopted, the natural way would be to give a little variety to the throat force, so that the Aryan medial became an aspirate. Ba, ga, da, became fa, cha, tha.

I can hardly conceive Grimm's law to have arisen except at once, in a day, at a stroke. If a nation saying pater, pulex, pullus, pecus, duo, dens, frater, and fui, came among another nation speaking their own language, and the aborigines, repudiating their own words, should intend to take the new words, and by some chance said father instead of pater, this seems to me no reason why, as they gradually went on to learn all the new words, they should also, in strict accordance with a law of error, say flea, fowl, fee, two, tooth, brother, and be. If, however, the aborigines, wishing not so much to say at first certain words, as to use their organs of speech aright in pronouncing certain sorts of words, should at starting make a mistake in the use of their organs, this, and this alone, seems to me an origin from which Grimm's law would arise.

To sum up. I assume it as now recognised, that Europe contained a considerable population, spread over considerable areas, in the days of woolly elephants and rhinoceroses. These men had musical instruments, needles, fish-hooks, and many weapons. They could draw on ivory. I have argued, that, in order to exist, these people must, of course, have had some means of expressing their wants and emotions. But articulate language is by no means requisite for this; however indispensable it may be towards expressing ideas and the ratio of ideas, articulation, I say, is an instrument of the intellect, but not of the heart. My second argument is that these people must have learnt language not by slow degrees, but in a day, at once, at a single step. Else I say the phenomena of Grimm's law could not have arisen, and I have endeavoured very briefly and imperfectly to indicate how a few speaking men coming among these primitive people might have set about the task of getting speech into them. Let some better theory than my own be propounded. At present there seems none other which professes to account for Grimm's law.

The CHAIRMAN proposed that thanks be given to Mr. Heath for his very learned and humorous paper.

Mr. Pike said he had listened to the paper with mingled pleasure and pain. It presented two aspects, one literary, the other scientific. In its literary aspect he was charmed with the paper; in the other, he was sorry that it had been read. Regarded as a literary production every sentence was clear and delightful, and he could not help wishing that Mr. Heath had confined himself to writing a romance on the "murmurings of the mutes," for as a scientific hypothesis it would not bear examination. It was expected from a scientific hypothesis that it should explain something, but it did nothing of the kind. Mr. Heath wished them to believe in the existence of mute races of mankind, because there was said to be a law called Grimm's law, with which such an hypothesis would agree. But all the phenomena of variations of language might be explained on the supposition that different races of men taught their languages to other men who had a language of their own. As an illustration of the changes which a language may undergo when spoken by a foreigner, Mr. Pike repeated an English sentence as pronounced by a bookseller from whom he recently made a purchase, in which nearly every consonant had a different sound from its English pronunciation. This man, he said, might possibly have been one of Mr. Heath's mutes, but he believed him to be a German; and when it is found that foreigners at the present day with a language of their own, make such alterations in the pronunciation of English words, he could not see why other speaking men at more early periods should not have made similar alterations in what Mr. Heath called the Aryan language. It would be very difficult, consistently with his theory, to explain how the Basque language came to be spoken in the Basque country. Then, with regard to the progressive steps by which, according to Mr. Heath's hypothesis, reasoning power was acquired by man after vast periods of time, there was a contradiction because, though it was said to require an immensity of time to develope the reasoning power of man, Mr. Heath would have them believe that mutes would be able to speak in a day. How could the Aryans have taught the mutes such words as "mind," "one hundred," or any words expressing abstract ideas. Modern travellers find great difficulty in teaching savages things much less difficult than those. It was hard to believe in the six Aryans who were supposed to have taught their language to two hundred mutes. It was a charming picture, but he was compelled to reject it as altogether improbable. It was as unlikely as that a ship's crew landing on the Coast of Africa should attempt to teach gorillas to speak English. Neither was there any tradition to support such a notion of the teaching of language. In the only traditions on the subject the communication of the knowledge of language was attributed to some kind of God; an instance of which occurred in Horace, which passage he recited. There was no story extant about six Aryans having imparted language to mutes, but all traditions of the kind referred to some one God. He considered the paper to be of no value in a scientific point of view. It said nothing about the origin of language, and referred principally to Grimm's law. But there were other things to be considered of more importance than Grimm's laws. He would not say that he was inclined to think the paper a hoax, but

that it was intended to satirise certain philologists who are not yet sufficiently advanced to give up language as a test of race. The fact that Mr. Heath had read such a paper at a meeting of the Anthropological Society showed that there was a strong reaction against prejudice, and in such reaction there was great danger of its being carried too far; for unorthodox rashness was as dangerous to the progress of truth as orthodox conventional timidity. Therefore, he raised his voice against Mr. Heath's hypothesis for the purpose of showing that that Society was not ready to receive any theory merely because it was unorthodox.

Mr. Mac Grigor Allan agreed with Mr. Heath in thinking that the first men must have been mutes, and must have learned speech, as everything else, by slow degrees.

Major Owen moved the adjournment of the discussion, which was seconded by Mr. Carter Blake, and carried.

The debate was then adjourned to the 15th of January.

January 15th, 1867.

T. Bendyshe, Esq. V.P., in the Chair.

The minutes of the last meeting were read and confirmed.

The names of the following gentlemen who had been elected Fellows of the Society were read:—Henry Leighton, Esq., 53, Upper Seymour Street, W.; Henry Coates, Esq., Civil Service, Chelsea.

Local Secretary.—J. G. Taylor, Esq., H.M. Consul at Erzroom.

The presents to the Library and Museum were announced as under:—

From K. R. H. Mackenzie, Esq., F.S.A., F.A.S.L.—Documents relating to Puritanism in New England.

From an anonymous Donor:—

The Natural History of Man.

Man a Machine. By La Mettrie.

Histoire naturelle de l'homme et de la femme. By Debay.

Reflections on Polygamy. Philaleutherus.

From the Author.—Über art und race des Zahmen Europäschen rindes. By Prof. Rütimeyer.

From Mr. J. Ayres.—Map of Africa.

The Director stated that a letter had been received from their recently elected President, Capt. Burton, now in Brazil, and they would be glad to know he was working for the Society in that country. Dr. Hunt also announced that he had received a letter from Mr. J. Meyer Harris, from Liberia, where he had procured a large collection of skulls for their museum, which he hoped to be able to bring in the course of the summer. A letter had also been received from Mr. Walker, dated November 14th, from the Gaboon, where he had collected a large number of specimens for the museum, which were expected in March next, and would then be exhibited.

Extracts from the letters of Captain Burton, Mr. Harris, and Mr. Walker, were then read as follow :—

"Santos, S. Paulo, Brazil, Dec. 2, 1866.

"Sir,—I have the honour to enclose extract from the *Anglo-Indian Times*, published at Rio de Janeiro ; and I should be much indebted to any members of the Society who could assist in forwarding my views.

"The preliminary studies of Brazilian anthropology have been too severe to allow me leisure for travelling. Having now, however, mastered the theoretical part of the subject, I hope without delay to visit the wild Cayaras in the valley of the Tieti, and at no distant period the Amoris or Botocudos, near Bahia.

"I am, sir, your obedient servant,

"Richard F. Burton.

"The Secretary, A.S.L."

"Monrovia, Liberia, Dec. 10, 1866.

"My dear Doctor,—I have been some time in the Bush, but hope to be home by the February mail. I have not forgotten the Society since I have been away. I have seven or eight different skulls, and am in hopes of getting a complete skeleton for the museum. I have been in a splendid country for collecting specimens ; they have been having a great go in at chopping one another up. I have been trying to get a skull of a tribe of cannibals that live in the interior near here, but have not been successful ; they are too careful of their precious craniums. I have heard lately of a monkey, which I am led to believe is the gorilla, or something like him. They go in tribes of twenty to thirty, walk on their hind legs, occasionally use a stick, and are not afraid of a man ; they are to be found on the Cape Mount, a hill of some height. I intend having a crack at one if I can make their acquaintance. There is also something else on the top of the mount, that may perhaps prove more interesting to the Society and yourself ; that is, some graves that are said to be fifteen feet long. I cannot imagine what they contain. They are very old, as the oldest man in the country, who is quite a century old, remembers them, when a boy, being spoken of as the old people's graves. I intend to dig one up on my return that way ; and if I find a mare's nest, you shall have it as a set-off against Du Chaillu's 3 ft. 6 in. men, which Mr. Crawfurd could not digest. I trust the Society is as prosperous as it deserves to be ; and I am happy to say I think the anthropos are beginning to be appreciated in Africa.

"I am, yours very truly,

"John M. Harris.

"Dr. James Hunt."

Extracts from a letter from R. B. N. Walker, Esq., F.A.S.L., Loc. Sec. A.S.L. for Gaboon.

"Glass, Gaboon, West Africa, Nov. 17, 1866.

"My dear Sir,—I deeply regret to say that I fear a second, and far more serious, loss has occurred ; one, in fact, quite irreparable. Finding

a vessel at Camma upon my arrival there in August from the interior, I immediately shipped the majority of my best and rarest specimens, collected in the interior, by her; she had to call at Benin, and was there wrecked, and I fear that my case must have been lost. Luckily I retained a few, and also the articles procured for the Society's museum, which will be despatched by the *Minerva*, and reach home about March next. I am obtaining the aid of every one whom I can press into the service to collect skulls, etc. Hitherto I have had but little success; but I hope that next year may produce a better harvest than this has done.

"I have not yet found it possible to prepare a paper for you, but may hope to send one to accompany the articles for the museum.

"I have addressed a complaint to the French admiral concerning the conduct of the carriers who plundered and deserted me last February. He has left here to-day, but has given instructions to the commandant to act in the matter; and, as the people are French subjects, and a steamer can reach their village, I hope in my next to be able to give you the news that they have been punished, and perhaps made to hand over some ivory as a recompense for the loss of my goods. The ruin of my expedition is now past recall, but I shall try again.

"Believe me, my dear sir, very truly yours,

"R. B. N. WALKER.

"James Hunt, Esq., Ph.D., 4, St. Martin's Place, London."

The CHAIRMAN observed, in reference to the letter from the President, that the Society might be assured that what Captain Burton said he would do, would be done. It was satisfactory to find that the science of anthropology was spreading rapidly over the world, though it was but of yesterday.

The DIRECTOR announced that the Council had determined to put in force a resolution passed some time since, to appoint Lecturers in various departments of science, and to advertise that they were ready to receive propositions for lectures. He hoped, therefore, that they should soon have popular lectures delivered before the Society. The Council had also thought it desirable that, as a month had elapsed since the reading of the Rev. Dunbar Heath's paper on "Mute Societies of Man", which was to be discussed that evening, that he should be requested to give a short account of the principal features of his paper.

The Rev. DUNBAR I. HEATH then gave a *resumé* of his paper, read at the ordinary meeting on the 18th ult., and contended that his theory was the only one by which Grimm's law could be explained.

Mr. MCGRIGOR ALLAN said: I am desirous of supporting the main hypothesis of the Rev. Mr. Heath's paper, as I understand it—that the first men must have been mutes; that the use of language (like all other human arts and inventions) was gradually acquired by man himself, without any external supernatural aid. This, I conceive, follows logically and inevitably from the Darwinian theory as applied to the origin of man. If we derive man from an animal, and suppose

his primitive condition barbarous, I think it self-evident that he had at first no language, and could, indeed, have had no use for language, until the "struggle for existence" had raised him above the meaner creatures, given him sufficient time to observe and think, to collect ideas more complex than those which many animals are capable of forming and conveying to one another. This grand, most interesting, most important question as to the primitive condition of mankind, is assuredly not to be settled by an off-hand sentence like this: "If placed in the beginning in the savage state, could man ever have escaped from it?" I should like an answer to this question. If placed originally in the civilised state, how and why has man so obviously retrograded from it, that we can see in the present condition of humanity every phase of the long scale from barbarism up to high civilisation? It is absurd to attempt to base an argument on tradition carrying us back to a time of "idyllic innocence and intellectual supremacy." What are traditions of three or four thousand years, compared with the actual period of man's duration upon earth?—not even as yesterday in the life of an aged man! We have no records of the beginning of civilisation, for the very satisfactory reason that man must have advanced tolerably far in civilisation before any such records could commence. No man can record from personal experience the history of his own infancy; and, in this respect, all mankind resemble the individual. When we reflect on the progress of nations from a condition of barbarism, and observe the grand strides man has made and is making in every department of science, art, mechanics, simply by the use of his own faculties, why should we find it impossible to conceive that man (who may be still unconscious of his latent abilities) was able to raise himself from the condition of a savage without external aid? The doctrine of special creative fiats to account for the enormous variety of species, is rapidly giving way before that of development, of transmutation of species, of continuity, ably displayed by the President of the British Association, who, in his address at Nottingham, observed: "The more the gaps between species are filled up by the discovery of intermediate varieties, the stronger becomes the argument for transmutation, and the weaker that of successive creations; because the former view thus becomes more and more consistent with experience, the latter more discordant from it." The weight of scientific testimony seems now tending towards the opinion that man has not originated by a method apart and distinct from that of other animals, but that he owes his origin to secondary causes, and is as much the outcome of the orderly working of natural law as the meanest weed, zoophyte, or insect. Why, then, should we be perplexed at the origin of speech, or have recourse to a special intervention of supernatural agency to account for that phenomenon? Mr. Allan then proceeded to quote Lawrence, Hobbes, and Gibbon, in support of his argument. Language, in its most comprehensive sense, the communication of ideas, is by no means confined to man. As the animals preceded man, there was language on the earth for an immense number of ages before man existed. The greater number of animals have a silent language, by which, in addition to their vocal

organs, they can communicate with, and apparently thoroughly understand others of their respective species, besides making their wants, wishes, and emotions known to man. As men who live much with animals, and study their habits, soon learn to read the language of their various cries denoting pleasure, pain, surprise, grief, anger, etc., it may be said that we see among the lower animals an approach towards articulate language. The fact that some animals can be taught to pronounce words and sentences by rote, only proves the possession of the physical capacity of speech. Let us admit that the faculty of rational articulate language is the characteristic of man alone. But human speech is broken up into some thousands of languages, and the vast majority of human beings are confined to the use of one—that which each individual learned *unconsciously* in childhood. To such a person all written or spoken words of all other languages, except his native tongue, convey no ideas whatever. If he desired to hold communion with a foreigner, he must do so through an interpreter, or by picture-writing (which probably preceded all written characters) or have recourse to that language common to man and animals, the language of the eye, of gestures, and inarticulate cries. When we remember the "six plans of language," amongst which no sort of community can be shown—the many and great distinctions between the full and copious language of highly-civilised nations, and the jargon of low cannibal savages; also that some human beings are born dumb, that others stammer, and have various natural and artificial imperfections in speaking, so that *articulate* speech is *not* a characteristic of *all* men; we possess indirect evidence that man has acquired the use of speech gradually, and that man probably descended or ascended from what is called a dumb animal—that is, an animal not having the faculty of articulate speech. I confess that I am astonished at the attempt to beg the question of the method of man's origin by representing his primitive mute, barbarous, ape-like condition, or even his transmutation from an ape, as being in the slightest degree degrading to man. What is man that he arrogates the right of sitting in judgment on his fellow animals, and assuming as a self-evident proposition an origin utterly distinct and apart from theirs? Man's lowly origin is not only quite consistent with his present acquired superiority to the rest of the animal kingdom, but actually favours by analogy the orthodox theory of the glorious destiny awaiting him. "Human beings," observes Dr. Carpenter, "existed long before the religious sentiment could be developed—when man had no sense of duty, no shrine for worship, no knowledge of God, no thoughts of heaven or hell."

Dr. CHARNOCK said the paper was comprehensive, embracing, as it did, philology, physiology, anatomy, theology, humour, and romance. Mr. Heath had omitted, in his *résumé*, to notice one of the most remarkable points of the paper, viz. the story of the six Aryans who were supposed to have taught language to two hundred mutes. Where the Aryans came from was not known. They were found at the kitchen-middens in Denmark, where there were two hundred middeners, who lived upon oysters, and were mutes. We were led

to suppose that the six Aryans there set up a school to teach language to these mutes, and that when the Aryans said *a*, *b*, *c*, the middeners called *x*, *y*, *z*; upon which the Aryans said it was good, and it was good. He thought it much more reasonable, when the middeners made an error, that their masters should have endeavoured to correct them, than that they should have perpetuated such error. But why should not the middeners have had ideas and perceptions before the advent of the middeners; and if so, why should they not have taught themselves? He thought the theory was wrong; for it was more probable that the Aryans and their language would have become merged with the middeners and their language; and if so, there never could have been an Aryan heresy at all.

Mr. Charlesworth observed that it was a question which involved an extreme amount of speculation; and that he must be a bold man who attempted to grapple with it. Nevertheless, there were one or two points in the paper on which he desired to say a few words. The author of the paper had omitted to consider the condition of language in its present state among people of the lowest type; among the Andaman islanders, for example, and the aborigines of Ceylon. If anything were known of language there, how far did it elucidate the theory of Mr. Heath? Was it in its original state, or was it degenerated? With respect to the emotional sounds of the lower animals, the author of the paper might have gone further into the subject. An opposite theory had formerly been propounded, according to which all creatures were originally gifted with speech. Dr. Adam Clarke, for instance, conceived that the larger apes had once that gift, and he inferred that the reason why they do not speak now was that it was an ouran-outan and not a serpent that tempted Eve, and that the gift of speech was, therefore, taken from apes as a punishment. It was, indeed, a curious fact that the lower animals which approximate most to man in form recede farthest from him as to the power of speech. Canaries speak more perfectly than any other creatures, parrots and other birds are also well-known to articulate, but the anthropoid apes make noises utterly unlike human speech. He suggested that an effectual way of determining the question whether man was naturally mute would be for the Anthropological Society to bring up a colony of infants before they could articulate; that no words should be spoken within their hearing, and then it might be seen whether the development of speech was natural or supernatural.

Mr. C. Carter Blake said he was not aware of any anatomical difference between man and ape that could affect the power of speech; and, therefore, that question must be put aside. With respect to the theory of Adam Clarke which had been disinterred by Mr. Charlesworth, in which Satan was metamorphosed into an anthropoid ape and put into Paradise, the facts of natural history were directly against it. Anthropoid apes do not exist in Arabia nor in Persia, but exist naturally only in tropical regions. There was no geological evidence from which it could be inferred that there were ever any apes approaching man more nearly than the fossil gibbons of the Miocene

strata which existed in Europe, Asia Minor, and two small species in the south of France.

Dr. BELL thought Mr. Heath's theory was not quite new, and he referred to Howell's *Cambrian Mythology* as indicating the existence of mutes in Wales. It was therein stated that the Welsh were much troubled with ouran-outans, and that the English with their guns caused much slaughter among them, and the Welsh for their protection determined to wear a leek to distinguish them from the ourans. With respect to the notion of bringing up infants without allowing them to hear the human voice, that was not a new experiment. It had been tried in Egypt by Psammitichus, who had two infants fed by goats and not allowed to hear human speech. The first articulate sound they uttered signified bread in the Egyptian language, and it was, therefore, inferred that that was the original language of man.

Mr. A. L. LEWIS suggested that the Society should establish a colony of ouran-outans, and that Mr. Heath should teach them to speak. He thought his theory was not in accordance with known variations in pronunciations among different people. The peculiar pronunciation of English by the Yankees, for example, could be accounted for by other means than by supposing them to have been originally mutes; and he thought that other changes of language might be similarly accounted for. Mr. Heath had also said that Adam, not having sufficient of his own species to talk to, must have been at least three years before he could have arrived at the third person plural; but he had forgotten that Adam could speak *to* the animals in the second person, and *of* them to Eve in the third plusal. The statements made in the book of Genesis were therefore not inconsistent upon this point.

The CHAIRMAN observed that there was this objection to the opinion of Adam Clarke respecting the tempter of Eve being an ouran-outan, —that the serpent was said to have crawled on its belly, whereas apes go along upon their arms and legs. As to the story about Psammitichus bringing up infants, he believed that the words children would utter under such circumstances would be imitations of those made by the goats that fed them. If such an experiment as suggested by Mr. Charlesworth were tried it would be necessary to get mute women to suckle the infants, to render it at all satisfactory. The chairman said ironically that he should be happy to subscribe to a mutual bastard society, in the hope that the children of the Anthropological Society might be made the nucleus of a new race. With respect to the proposal that Mr. Heath should bring up a colony of ourans, he should say, first catch them.

Dr. MANN, of Natal, mentioned a circumstance bearing on the subject under discussion. He said he had occasion to see a clever girl of the Zulu Caffre race who refused to learn to speak English because she said it would turn her tongue crooked. Having been among the Caffres for a considerable time, he took much interest in watching their various expressions. He felt convinced that the rude languages of man are connected with their wants, and thus in the course of time those languages rise higher and higher. He had much doubt about the theory that human babies are mutes. He thought they had a

language of their own, and that much might be learned respecting the origin of language by observing infants in their early state. The progress of language he considered was naturally upwards instead of having a downward tendency.

Dr. DONOVAN said that a very narrow view of the subject appeared to have been taken. The question was, has man the faculty of speech or has he not? The author of the paper had committed a grand physiological error. He said the organs of speech are the palate, including the teeth, and the moveable parts of the throat. He (Dr. Donovan) denied that these are the organs of speech, or that they have anything to do with the origin of the power of speech. They have the same relation to speech that the trumpet has to the tune that it plays. The power of speech depends on the faculty of speech which is a natural power, without which all other powers would be given to man in vain. Infants if they never heard any words uttered would find a language of their own, and the experiment was made daily before our eyes. There are communities of people who were born deaf and speechless; but they generate a kind of speech to communicate with one another. The faculty of speech is so irrepressible, that it stands forth and asserts its power. This faculty is clearly and distinctly traced to the brain, and without it no art could communicate speech to man any more than to a dog. If Mr. Heath would acquire a knowledge of mind, and study the mind and brain of man, he would not have misspent so much time in writing on a subject which might be made as plain as the day. Man is a speaking animal. All men have language, and it was as irrational to ask whether a man has the natural power of speaking as it was to ask if he had the natural power of seeing. Dr. Donovan also made some remarks about phrenology having been neglected and despised by the Anthropological Society.

Dr. HUNT said the discussion of the subject brought before the Society the most difficult question of the origin of language, on which science threw little light. In the remarks of Dr. Donovan he confined his views of language to the power of speech. That was distinct from the subject of the paper, which related to the causes of the different languages in Europe. The consideration of the circumstances of the changes of language had nothing whatever to do with the general faculty of language. That there is a peculiar faculty of language situated in the brain was perhaps a fact, for tumours and other affections of the brain sometimes took away the power of utterance, and showed that there were certain organs in the brain, the injury of which affected speech; but that did not affect the general question. The question before them was, how to explain the origin of the differences of language according to Grimm's law. The paper of Mr. Heath was an attempt to explain it. He (Dr. Hunt) had no opinion to offer on the subject, for it was one of the most difficult that could be brought before them. He thought, however, that the discussion had not done justice to the paper. Professor Max Müller thought the explanation it afforded of Grimm's law was very ingenious, and he had nothing himself to offer in explanation of it; nor had any other gentleman

offered one. Mr. Heath brought before the Society his theory which he said explained the facts, and the meeting ought to feel much obliged to him. He (Dr. Hunt) protested against the remark of Dr. Donovan that he belonged to the despised class of phrenologists. On the contrary, he thought phrenology was a subject which ought to be thoroughly investigated, and Dr. Donovan was not right in saying it was despised by the Anthropological Society. If the advocates of phrenology founded those arguments on facts they were deserving of all respect; but if they brought forward assumptions as facts they might be laughed at, but it did not follow that therefore phrenology was despised.

Dr. DONOVAN rose to explain. He said it was well known that he had devoted much of his time to the study and practice of phrenology, and that when he offered himself as a candidate for election as a Fellow of the Anthropological Society he was black-balled.

The CHAIRMAN objected to the introduction of such a subject. He said there might have been personal or various other reasons which influenced Fellows to vote against Dr. Donovan, and not because they despised phrenology. He himself had great respect for phrenology. He did not despise it any more than he despised religion.

The Rev. DUNBAR HEATH then replied briefly to the remarks of the various speakers. With respect to Dr. Charnock, that gentleman did not deny that there was an enormous tract of country inhabited by a people who had a language in which the commonest words of life were identical, but the whole of whose consonants have been changed. That would explain how a superior race with the practice of speech might impart it to those who had not that practice. With regard to the remark that the teachers would have put them right when they pronounced incorrectly, he observed that a civilised being who wants to make use of a rude people would not be very careful whether his pronunciation was correctly acquired by the crowd, and he could not put them right. The word "pisces," for instance, might be pronounced "fisces," and all other words beginning with "p" might be pronounced "f." He was disappointed with Mr. Blake's speech. What he wanted to know was, are the higher lobes of the brain connected directly or indirectly with the sensory nerves? He admitted the existence in the brain of the germ of the faculty of speech. Dr. Bell had supposed that the Aryans might have come from the west and not from the east, but that was a point altogether indifferent; he did not know where they came from. Certain peculiarities of pronunciation of individuals which had been mentioned did not affect the general question. They were little changes of no consequence, but the changes to be accounted for by Grimm's law were changes in the roots of words themselves. As to the Zulus and the question whether language progresses upwards or is deteriorated, neither view would militate against his notions regarding the kitchen-middeners. Then it was asked why, if the middeners had the faculty of speech, they did not speak? It might as well be asked why, if a man has the faculty of understanding musical vibration and the meaning of electrical currents, he did not know about them 1800 years ago. Musical vibration was a highly

rationalised idea, and the mind might gradually advance to other and higher rationalisations.

Thanks were then given to the Rev. Dunbar Heath for his paper, and the meeting adjourned.

FEBRUARY 5TH, 1867.

DR. CHARNOCK, V.P.A.S.L., IN THE CHAIR.

THE minutes of the preceding meeting were read and confirmed.

The following Fellows were elected :—Charles Donald Maclean, Esq., Mus. Doc., B.A., Madras Civil Service ; John Leigh Wilson, Esq., C.E., Piddington House, Warrington, and Madras ; Robert Reid Kirkwood, Esq., Gaboon, West Africa, and Glasgow ; George Harcourt, Esq., M.D., F.R.C.S., Chertsey, Surrey; Luke Burke, Esq., 5, Albert Terrace, Church Road, Acton ; David Mackintosh, Esq., F.G.S., Taunton, Somerset ; Hector Maclean, Esq., Ballygrant, Islay, North Britain.

The following presents were received, and thanks were voted for the same.

FOR THE LIBRARY.

From T. Bendyshe, Esq., M.A., V.P. A.S.L.—Bibliothèque Universelle des Voyages. Six vols. By BOUCHER DE LA RICHARDERIE.
Conservation, revolution, et positivisme. By E. LITTRÉ.
La chimie enseignée par la biographie. By F. HOEFER.
Histoire naturelle de l'homme et de la femme. By A. DEBAY.
Histoire des sciences naturelles au moyen age. By F. A. POUCHET.
Histoire des progrès des sciences naturelles. By G. CUVIER.
Philosophie zoologique. By J. R. LAMARCK.
The Pedestrian. By C. J. LATROBE.
Evidences of Christianity. By W. PALEY.
Fables. By LOKMAN.
Eunapii Vitæ Sophistorum. By BOISSONADE.
Principle of Population. By T. R. MALTHUS.
Libanii Sophistæ Epistolæ. By WOLFF.
Works of Philostratus. By OLEARIUS.
JULIANI imperator opera et S. Cyrilli contra eundem libri 10.
Gerusalemme liberata. By T. TASSO.
Recherches sur le climat et la vegetation du pays tertiaire. By OSWALD HEER.
Journal of the Ethnological Society of London, vol iv.
On the Plurality of Worlds. By WHEWELL.
Trattato della pittura. By LIONARDO DA VINCI.
Crania Britannica (V Decade only). By DAVIS and THURNAM.
Wonders of the little world. By NATHANIEL WANLEY.
Alabaster Sarcophagus of Oi Menephthah. By BONOMI & SHARPE.
Versuch die metamorphose der Pflanzer. By J. WOLFGANG GOETHE.

The British People. ANONYMOUS.
Catholic Missions in Southern India. By STRICKLAND & MARSHALL.
Theoretical Astronomy. By COMMON SENSE.
Life of Julius Cæsar. VANINI.
Catalogus diversarum craniorum gentium. By VAN DER HOEVEN.
The Glacial Period in North America. By THOMAS BELT.
Documents relating to the endowments of King's College, Cambridge.
Bulletin de la Société Ethnologique de Paris, 1846-47.
Die Allgemeine naturlehre des menschen. By E. REICH.
Catalogue of Library. By W. VROLIK.
Ethnological Society Transactions. Vol. iv.
Société d'Anthropologie de Paris, various vols. of bulletins and memoirs.
British Association Report, Birmingham.
Food, Use, and Beauty of British Birds. By C. O. GROOM NAPIER.

From C. Carter Blake, Esq., F.G.S., F.A.S.L.—Essays on Scientific Culture. By Dr. YOUMANS.
Geological Sketches. By L. AGASSIZ.
Physical Geography. By Professor ANSTED.

From the Author.—Journey to Ashango Land. By DU CHAILLU.

From K. R. H. Mackenzie, Esq., F.S.A., F.A.S.L.—Philosophiæ totus institutio. By P. PEDRO GALTRUCHIO, S. J.

FOR THE MUSEUM.

From Dr. Hunt, Director A.S.L.—Skull and Pelvis of European.
From the Museum of Christiania.—Photographs of Norwegian Skulls.

The CHAIRMAN, in proposing that thanks be given to the donors, said that a special vote of thanks was due to Mr. Bendyshe for his very liberal contributions to the library.

Dr. HUNT said he had received several letters which he wished to communicate to the meeting, but, as there was much business before them that evening, he should postpone their consideration for the next meeting. He announced that several gentlemen had applied in consequence of the resolution of the Council regarding the delivery of lectures before the Society, and that there was a book for entering such applications, and he hoped that some of the lectures would be soon delivered. He also announced that a list of the large number of books now in the library of the Society was about to be prepared for the press, and it would be issued as soon as possible. As the Council were anxious to make the list as perfect as possible, he hoped that gentlemen who intended making any contributions to the library would do so without delay. It was also proposed to print a list of books which it might be thought desirable should be added to the library of the Society, and he invited gentlemen to send in the names of such books.

The following paper on the antiquity of man was then read :—

On the Antiquity of Man and Comparative Geology. By C. S. Wake, Esq., F.A.S.L. Abstract. [The paper will appear at length in the *Memoirs*.]

Mr. Buckle states that "climate, food, and soil have originated the most important consequences in regard to the general organisation of society, and from them there have followed many of those large and conspicuous differences between nations which are often ascribed to some fundamental difference in the various races into which mankind is divided." It cannot be denied that there is great truth in this theory so far as it applies to the *development* of civilisation, but it may be doubted whether Mr. Buckle has touched the real question of its *origin*. The climate and soil of a country are dependent on its geographical configuration, but this configuration has a deeper connection with the civilisation of a people than Dr. Buckle's theory allows. Certain physical conditions of nature are necessary for civilisation to flourish, but they must be preceded by another condition which renders both civilisation and the causes of its development possible.

The origin of civilisation has relation to the configuration of continents, and if we would know the cause of the varying capacities of different races for civilisation, we must go to geology to tell us how that configuration had its origin, and how long the influences which are ever acting on the external formation of a continent have been operating. In this we may find some explanation of the influence of *time* as an element in civilisation.

All great alterations in the climate and soil of a country have probably originated in geological change. If, however, there has not been for a long period any such change sufficient to effect an alteration of climate and soil, and if these conditions of existence are unfavourable to civilisation, the people subject to them must, the longer such conditions continue, show less and less capacity for civilisation. We may say, therefore, that a relation subsists between the age of all the great continents and the capacity for civilisation of the aboriginal races which inhabit them. If we compare the physical and mental condition of the various races of mankind with the ages of the continents they inhabit, we find that Australia and its aboriginal inhabitants are equally effete. On the American continent, the *Fauna* and *Flora* of which agree with a still later geological epoch than those of Australia, we find an aboriginal race, which, by its savage nature and the persistence of its incapacity for civilisation, shows itself to be much inferior to the Negro. In the scale of civilisation the Negro may be placed between the American and Turanian races, agreeing with the age of that portion of the African continent he inhabits. Asia, older than Europe, is a younger continent than Africa, and its aboriginal peoples must be placed next below those of Europe in intellectual culture. Of Europe it may be affirmed that, not only has it, in its present geological formation, had a later origin than any other continent, but that its inhabitants have a physical organisation and intellectual development relatively superior to that of any other race.

If it be true that the continent of Australia is the oldest portion of

the earth's surface, it can be well understood how it is that its aboriginal inhabitants are the most uncivilised of the races of mankind. It is not, however, the mere want of civilisation, but the apparent *incapacity* for improvement which has to be explained, and this can be done only by supposing the Australian aborigines to have continued for a vast period of time under the influence of conditions of soil and climate totally unfitted for intellectual development. If these conditions had been improved at an early stage of the race existence, probably the germ of civilisation would have been further developed, but no such change having taken place, the physical structure, and consequently the mental faculties gradually became so fixed in their degradation that it is impossible they can now regain their original capacity. On all the other great continents except Europe we see analogous phenomena, although in the case of their aboriginal inhabitants the arrest of development has not occurred at so early a stage of the race existence.

If there be such a relation between the age of a continent and the condition of its inhabitants, then on the hypothesis of the unity of man's origin, the antiquity of mankind must be enormous. A period of time prior and in addition to that necessary to give fixity to the physical and intellectual state to which a people had arrived when its mental development was arrested—in other words, to enable its race characteristics to be formed—must be allowed sufficient to enable the primitive people to have overspread the globe. If, however, this be done, there is nothing in the physical or intellectual peculiarities of races to require the supposition of their having had several centres of origin.

How far back in time it is since man first appeared on the earth we can hardly hope to be able to calculate. If we may judge from the place in the human scale occupied by the aboriginal inhabitants of Australia, and from the agreement of its *Fauna* with that of the oolitic period, we may suppose man to have existed from the beginning of the great tertiary period. The peculiar distribution of the races of mankind in the Southern hemisphere would indeed lead us to believe that man had already appeared before the southern continents attained their present geographical configuration.

Thanks were given to the author of the paper.

The Rev. DUNBAR HEATH said that he considered the paper to be one of great interest, and that the subject had been treated methodically, inductively, and scientifically. It was an inquiry, in fact, into the question whether man was derived from one or from many original sources; and the author, in a half-apologetic manner, endeavoured to carry them to believe in the theory of a common origin. To support that hypothesis he employed two implements —time and plasticity. When he took such enormous periods of time as had been named for the accomplishment of his theory, it must be borne in mind that by so doing he totally rejected the common traditionary view of the subject quite as much as if he said that man was derived from fifty origins. The field, therefore, was clear from the mists of

tradition, and the consideration of the question was placed on a scientific basis. By the aid of an enormous lapse of time and great plasticity among the early races of man, the author of the paper arrived at the idea that somewhere or other there must have been an uniform race uniformly spread over the world. One great objection to the theory was that Mr. Wake required that the plasticity should have been greatest when man was nearest to his origin, and that if men were changed at one period more quickly than at another, they must have changed at "the beginning." Now if this "beginning" was itself merely a change from an anthropoid into a human period well and good, but if it was a "creation" no hereditary plasticity could have existed as required by Mr. Wake's theory. They were next introduced to the idea of a continent inhabited by uniform people and by uniform *Fauna* and *Flora*. But then it was supposed that certain variations of climate and conditions produced variations of races; and that change of race power was owing to geological development. It was asserted that after the tertiary period climatic zones appeared, and that in consequence of differences of climate men were developed differently; but there were three or four objections to that idea. If there had existed in Australia that uniform race, and Australia was then joined to South America and to other countries, he could not conceive the remotest scientific reason why the Australians who went into Africa should become Negroes, and those who went into a similar climate in the Indian Archipelago and other parts of Asia should become Malays or Chinese, nor why those who went farther north should become Aryans or Esquimaux. Another objection to the theory was, that assuming the geological facts to be as stated in the paper, the author would have them understand that during the tertiary epoch such causes were in operation as to increase the size of the mammals in South America until they became gigantic, and that afterwards they became diminished to their present size; but it was not explained why man did not change in size after the example of the other mammals. There was another difficulty to be accounted for by this theory. It was asserted that all forms of life were the same in the same strata in widely separated parts of the world; but if that were the case in former times, why was it not so with all forms of life now existing; and why at the same period were there such differences as are now observed between Englishmen and Chinese?

Mr. Mackenzie considered that the author of the paper deserved the best thanks of the Society, for it was written in a high philosophic tone, though there were some points on which he disagreed. According to Mr. Wake's theory Australia was the oldest continent of the world, and that the climate was suddenly changed by nature. He assumed, indeed, an original uniformity of climate and a continuity of land, but the latter was not possible, for with a continuity of land there could have been no water, and it was known that in remote periods islands had risen from the sea and formed continents. Mr. Mackenzie expressed dissatisfaction with the term aborigines, which was derived from a small place in Italy, and he thought it would be preferable to adopt the term autochthones, a people who were sup-

posed to be the original inhabitants of any country. If Australia were the earliest centre of civilisation they must adopt the doctrine of unity of species, but in that case the causes of the existing differences among the races of man would remain to be explained. He thought that in regard to intellectual capacity there was little difference between the Negro and the Australian savage; perhaps the Negro was the worse of the two, and the Australian did not smell, which was a fact to be accounted for. He thought, also, that the supposition that Australia was the oldest continent was contradicted by the experience of the earliest naturalists and voyagers. The accounts given by the Dutch naturalists and sailors, who took with them the most accurate instruments then made, stated that they sailed over that part of the world now occupied by the continent of Australia in the seventeenth century. He was not, therefore, disposed to regard Australia as the oldest country in the world. With regard to Negroes, it was a known fact recorded by Schmerling, that in 1833 skulls presenting the Negro peculiarities were found in the bone caves of Engis and Engihoul, near Liège, in Belgium, which had been contemporaneous with the mammoth and other extinct animals. He agreed with the author of the paper in assigning an enormous period to the existence of man, but he could not understand how the various changes observable could have been produced in any length of time. As to the Aryans, he was at a loss to understand how they had been civilised, and whence they came. With respect to Japan being considered the Great Britain of Asia, it was stated that the first emigrants to that island found these men covered with hair, inhabiting caves, and that they were an excessively small people. If the first men were small, what became of the theory that all men originally possessed similarity of physical structure and equality of intellectual capacity?

Mr. Carter Blake said the remarks of Mr. Heath afforded a severe crucial test of the merits of the paper, as he had examined it methodically, inductively, and scientifically; but what was the value of the facts? In his consideration of the paper he should regard it from three points of view, palæontological, stratigraphical, and anthropological. In the first place, then, with regard to Australia, and to the assertion that the southern continents have the same *Fauna* and *Flora* as in the tertiary period, that theory belonged to the time of Drs. Mantell; and Page and others had since demolished it. Australia does not possess the same *Fauna* as that of the oolite, or even that of the tertiary. Certain characters are the same, but there is no veritable identity of species. It was so with the organic remains found in corresponding strata in England and in other parts of the world. The genera were not always the same, and the species never so. It was stated in the paper that Southern Asia lost during the tertiary period the giraffe and the hippopotamus, which are now confined to Africa; but such was not the fact. There was, indeed, in Northern India a kind of hippopotamus (*Hexaprotodon*) distinct from that of Africa; but there are no indications that the giraffe ever lived in Asia, although its representative the *Sivatherium* did. On a stratigraphical view of the paper, it was still more open to objection. Various geological catastrophes were men-

tioned as having occurred at different periods; and a large portion of the geology of the paper appeared to have been derived from the work of M. Elie de Beaumont, which modern geologists had not accepted. Such catastrophes were not now recognised; and that there had been a continuity and uniformity of action was the opinion of geologists of the present day. If the paper were looked at anthropologically, it was equally open to objection. The assertion that there was ground to believe in a common birth-place of man was not warranted by the facts. It would have been better to have seen, in the first place, whether the differences which exist among the various races of mankind are such as could have taken place on the assumption of an enormous length of time being allowed for the change, and to have considered what could reasonably have been expected to have been done by the operation of time. Reference was made to M. Guyot's work, to the effect that the most degraded forms of man are found at the most southern limits of the continents of Asia, Africa, and America. That assumed fact was not true. In Africa the most civilised of the tribes of Negroes are the Hottentots of the south. In Ceylon and Malacca the natives are not inferior to those of a more northern locality; and in America the exemplification was yet more unfortunate. In Mexico and Peru the people were in an advanced state of civilisation compared with the Indians in the northerly part of America, and the Esquimaux. It was true that in a recent work (he alluded to Mr. Kingsley's *Roman and Teuton*) the contrary opinion was expressed, but no facts were adduced in support of this wild chimera. The southern natives were, in fact, superior; and the inhabitants of Southern Europe had yet to learn that they were less civilised than those of the north. In his opinion the civilisation of the north was derived from the south of Europe.

Mr. Wesley observed, with respect to the comparative intellectual faculties of the European and the Negro, that it seemed to him that the capability of civilisation was the one character by which the European was raised above the Negro. He disagreed with the author of the paper in his statement that the difference between the two consists in physical structure and not in mental faculties.

Major Owen said, in reference to the term species which had been used by Mr. Heath, that a wider term seemed to be wanted to express similarity of the *Flora* and *Fauna* which existed at the same geological periods. There were two distinct similarities to be indicated; one being a similarity of kind, the other a similarity of times.

Mr. Charlesworth observed that they all agreed that the paper was one of high interest, but discursive. It treated of several subjects, and if there were a weak point in the paper it was the palæontological part. If that part of the paper were printed, he thought it would commit the Society, for the observations and the conclusions drawn from them were diametrically opposed to the present state of the science of geology, and they ought to be cautious about admitting such statements into their Transactions. With respect to the alleged identity of species in the tertiary epoch in various parts of the earth's surface, he observed that there is no identity in the organic remains of

the eocene of this country and America. There was as much specific difference as there is in the living forms; therefore, the generalisations on that point were fallacious. The assertion that the temperature of the tertiary period was tropical to its close was contrary to fact, for in the latter portions of the miocene and pliocene periods boreal forms of life existed, and though there was the elephant, yet it had a shaggy covering of hair very different from the elephant of the tropics. All the reasoning in the paper, founded on there having been a tropical temperature during the tertiary period, therefore, required revision. Then, with regard to the marsupials, which were stated in the paper to have existed in Europe in the early tertiary period; there was only one known instance of a specimen of a marsupial having been found in the tertiary strata of Great Britain. Again, as to the remains of supposed monkeys; there was a jaw found at the same time as the specimen of a marsupial, supposed at first to be that of a monkey, but it has lately been ascertained to have more relation to a pig than to a monkey. He was sorry to see a paper containing matter of so much interest marred by the assertion of facts opposed to what is known at the present day. Mr. Wake should have stated more of the reasons on which he based the relative ages of different continents and their respective periods of elevation. There was great discrepancy of opinion among geologists on those points, and many contradictions. The assumed elevation of the western line of coast of South America by continual rising was very speculative. The attempt to identify the character of a people with the geological character of the country they inhabit was another part of the paper which would not bear examination. As regarded Egypt, for instance, the periodical inundations of the Nile, it might be supposed, must have an effect on the character of the people, but the changes produced by those inundations could not be called geological. That part of the subject should have been treated more in detail.

Dr. HUNT, after complimenting Mr. Charlesworth for his remarks, which he said constituted the speech of the evening, said there was enough in the paper for a fair discussion on a very philosophical subject, and it was one of such difficulty that allowance should be made to any gentleman writing on the question. However unsatisfactory some parts of the paper might be, they were indebted to the author for coming forward to give the explanation of his views. With regard to the alleged antiquity of man, the author, Mr. Wake, said it must be admitted; but there were no facts stated whereon to claim that admission. Then, with respect to the explanation by Mr. Buckle of the origin of civilisation, the whole of his explanation was that the development of civilisation depended on the bounty of nature. But that was the whole question in dispute. Mr. Buckle contradicted himself, and if he was incorrect in assigning the origin of civilisation to the climate, food, and soil, he was not correct in attributing the development of civilisation to those causes. The explanation of the origin of race-character was the same as of the development of the civilisation of races. But they could not tell either one or the other, and the whole argument had no basis to rest upon. As to whether

geology had any connection with civilisation, that was so large a subject that it would be impossible to enter into it in that discussion. Then, with regard to the assertion that Asia was the origin of civilisation, Mr. Wake said it could not be denied; but on what evidence was that asserted? He (Dr. Hunt), for one, denied it; and he had no doubt there were many others who held the same opinion. What claim had Asia to be called the originator of civilisation? He did not know where it originated, though, perhaps, Mr. Wake did. As to Australia being the centre of man's creation, the same might be said of England or anywhere else. There had been about one hundred and twenty different spots selected for the origin of man; from the Shetland Islands down to Borneo, and for equally good reasons. Then, as to the origin of the Caucasian and Turanian races, no doubt they were different, but he did not see how that helped the argument. Dr. Hunt then read some sentences from the paper relating to the effect of long persistence of unfavourable conditions of life in arresting mental development, and to the equality of the inherent capacities of the Negro and the European; and he proceeded to observe that that assertion proved nothing. It was well-known that the differences had long existed, but the remarks in the paper did not explain the cause; they explained nothing. As to the assertion that there is no ground for saying that the intellectual faculties of the European are in no way different from those of the Negro, it was the exact opposite of what had been often stated in that room. The difference consists in their different instincts. He contended that it had been admitted that the European and the Negro have different instincts.

Dr. Hyde Clarke observed that there was no evidence adduced in the paper to show the connection between geological and anthropological facts; and he thought that in the present state of knowledge they were unable to deal with that question. With respect to the assumed influence of climate on physical and mental development at the present moment, the author of the paper had not brought forward any facts to substantiate his assertions, and it was all assumption that difference of climate could produce such effects. What, for instance, had been the influence of climate on the various races that have inhabited this island? Various races had inhabited the country, and great varieties of race characters were to be observed; but, according to the author of the paper, they ought all to be the same. It was so, also, in other countries. The same country was found to be occupied by nomad tribes and by civilised people; and the movements of nomad tribes to different parts of the globe recorded in history produced no physical nor mental changes in them. If the population of Australia were the primeval inhabitants of the earth he could not understand how other people, exposed to the same influences, could be so different.

On the motion of Mr. Bendyshe, seconded by Mr. J. F. Collingwood, the discussion was adjourned to the next meeting.

February 19th, 1867.

T. Bendyshe, Esq., M.A., V.P., in the Chair.

The minutes of the last meeting were read and confirmed.

The following members were elected:—Joseph Agnew, Esq., 47, Bath Street, Glasgow; Thomas William Craster, Esq., Middlesborough-on-Tees, Yorkshire; E. B. Hodges Curtis, Esq., Leasam Park, Rye, Sussex; Augustus E. G. Perrot, Esq., United States Consul, Gaboon, West Africa; H. G. Williams, Esq., 2, Torrington Grove, Frierne Park, Whetstone, N.

Local Secretaries.—John Grattan, Esq., M.R.C.S., Mervue, Belfast; C. O. Groom Napier, Esq., F.G.S., F.A.S.L., Southwell Cottage, Kingsdown, Bristol; H. C. Williams, Esq., Ceará, Brazils.

The following presents were announced, and thanks voted for the same.

For the Library.

From the Königlich Sächsische gesellschaft der Wissenschaften (Königsberg). Bestimmung der Langen unterscheide. By Hansen.
Elektrische untersuchungen. By Hankel.
Bericht der mathem. phys. dasse, 1865-6.

From the Science and Art Department, South Kensington.—Report on Chemical Laboratories. By Hoffman.

From T. Bendyshe, Esq., M.A., V.P.A.S.L.—Chart of Mohammedan Inheritance. By Alaric Rumsey, Esq.
Cathay and the way thither. By Colonel Henry Yule.
The Science of Moderation. By W. Cave Thomas.
Fourteenth Annual Report Public Free Library, Massachusetts.
Le Rôle de Jésus et des apôtres. By Rabbinowicz.

From the Society.—Leipsig Berichte über die verhandlungen der K. sachsischen gesellschaft.

From Norge Konigliche societät Christiania.—Recherches sur la syphilis. By W. Boeck.
Om Spedalskhed. By Daniellssen and Boeck.
Aarsberetnig, 1857-8. By Hoegh and Lobeig.
Norge officielle statistik, 1861-4.
Inversio vesicæ urinariæ og luxationes femorum congenitæ. By Lector Voss.

From the Society.—Transactions of Ethnological Society.

From the Author.—Ueber einige menschliche ueberreste aus der stein periode. By Rudolf Müller.

From the Author.—Extract from the transactions of the Niederhessen gesellschaft zu Bonn. By Prof. Schaafhausen.

For the Museum.

From Sir Charles Nicholson, Bart., D.C.L., LL.D., F.A.S.L.—Collection of Australian photographs,

From J. P. Morris, Esq., F.A.S.L.—Cast of skull from Ulverstone.

From R. B. N. Walker, Esq., F.A.S.L.—Cast of skull of largest gorilla known.

The discussion on Mr. Wake's paper having been renewed,

Dr. CHARNOCK said, it had been asserted that Europeans who settle in America approximate to the aborigines. But there were several types in America, and to which of these types did they approximate? The theory of the arrest of mental development might be applicable to the Australians, the American Indians, and the Negroes, who appeared to have always remained the same, but he doubted whether the term was usually or properly applied to nations that had once been great; the Hindoos, for example. The author of the paper stated that the peoples of Europe were the most civilised, because that part of the globe was best adapted to civilisation; but was that the case? Again, if civilisation were based upon intellect and morality, then assuredly the Asiatics were quite as civilised as the Europeans. Why, the Hindoos were acquainted with algebra, geometry, metaphysics, and logic, 2,000 years before the Europeans knew their A, B, C. The Hindoo intellect was perhaps the highest in the world. He considered the Turks a civilised people; they were without doubt the most honest, the most humane, the most hospitable, and the most religious people of Europe; and they set a great example to most other nations. But could the Lapps, the Finns, the modern Italians, Spaniards, and Greeks, be called civilised nations? Could the term civilised be applied to a nation of brigands in Northern Germany, a nation the most selfish, the most mendacious, and the most jesuitical in Europe; or to a certain insular nation, that had not yet learnt the sublime art of gastronomy, the most important of all the arts and sciences?

Mr. FRED. COLLINGWOOD wished to ask a few questions, and in doing so he should not touch upon the geological, palæontological, physiological, and psychological points raised during the discussion. He would have liked a definition of the terms used by Mr. Wake which appeared to him somewhat confused. That gentleman had, for example, defined civilisation to be the "final product of human intellectual activity," but that definition conveyed nothing to his mind. Did civilisation consist of the cultivation of the arts and sciences? Was it social science? was it material comfort? or was it simply the occupation of the human mind and the full development of all its faculties? Mr. Wake had compared the Red Indian and the Negro, and considered the latter "superior." If civilisation were simply imitation, then certainly the Negro was the higher. But was that a proper definition? And he had assumed a theory of arrested development to support his theory of the age of the human race. He had wandered over five continents in search of evidence to suit his theory that the earliest races were the lowest. He had argued that the "convulsions" of the earth's surface were conducive to civilisation, the fact being that he was fascinated by analogies, coincidences, and resemblances from which he had made statements not borne out by facts. Mr. Collingwood would remind him that, according to one of the profoundest thinkers and naturalists of the day, "analogy may be a deceitful guide." He was sure it had proved a very deceitful guide to Mr. Wake, and would recommend him to exercise more caution in future speculations. The

paper was of considerable interest and some ability, but he trusted that riper years, a wider research, and more mature judgment would lead the author to reject it altogether.

Mr. WAKE remarked, before addressing himself in reply to objections raised on the former occasion, that Mr. Collingwood had himself nearly given the definition he sought when he asked if civilisation consisted of the arts and sciences. In his opinion, the highest phase of civilisation was now to be found in England. He did not think it necessary to reply to Dr. Charnock, because that gentleman had peculiar notions, and, he continued, "I will pass on to consider the objections to the paper read by me at the last meeting of the Society, which may be classified as *general*, *geological* or *palæontological*, *physiological*, and *psychological*. It is not correct that the aim of the paper is, as Mr. Dunbar Heath supposes, to enforce the unity of man's origin, and by inference, the doctrine of "special creation." Its aim is to prove the necessary antiquity of man by considerations arising from the existence of *race*, for which Mr. Buckle's theory does not account. The unity of man's *nature* must, however, be insisted on, as there is really no ground on which it can be disputed. The doctrine of "creation" does not concern the question discussed. We have no evidence of Australia being the original birth-place of man; and, therefore, although its aboriginal inhabitants are doubtless the oldest representatives of the human race, mankind must, on the hypothesis of the unity of man's origin, be much older than any particular people now existing. As to the origin of civilisation, if it could be proved that the civilisation of Europe and Asia had different beginnings, it would furnish no evidence of difference of race origin; as civilisations would, doubtless, be developed after peoples became separated. It is true, as Dr. Hunt asserts, that history does not tell us of a period when races did not exist—but this really proves nothing as to the origin of man, seeing that races must have been found long before the period over which history extends. Dr. Hunt says, however, that "long persistence of unfavourable conditions of existence" proves nothing as to the origin of race. It may be so, but to my mind it is the only way of accounting for the phenomena, unless we suppose a primitive difference of type. But *present* is not proof of *primitive* difference. The highest races were at one time in a state of barbarism, and if we could trace the progress of every race to its fountain head we might find that the Negro and the European were originally on a par. The remains of primitive man discovered in Europe support this notion. In relation to the *geological* and *palæontological* part of the subject, it is objected by Mr. Dunbar Heath, Mr. Charlesworth, and Mr. Carter Blake, that the *Fauna* found in similar strata in different parts of the world are not of the same species. This is of no importance so long as they have a generic relation. Difference of species does not prove non-contemporaneity, nor even difference of origin, but only, according to the theory of Mr. Darwin, separation for a long period from a common progenitor. I ought to have placed the existence of British marsupials in the oolitic period; and, therefore, instead of carrying the present formation of Australia back only to the

early tertiary it should have been referred to the secondary era, which gives that continent a much greater antiquity. Lyell, after mentioning the existence of marsupials in the British oolite, says, "there must have been a vast extension in space of the same marsupial forms during that portion of the secondary epoch which has been termed 'the age of reptiles.'" But Mr. Charlesworth objects that the facts contained in the paper do not agree with the present state of palæontological science, and that the relative ages of the several continents are not sufficiently established. This objection is so important that I shall be justified in re-stating the evidence on which the conclusions of the paper are founded. The test of age I have used is the agreement of the present fauna and flora of a continent with those of a past geological age. If we apply this test to *Australia*, we have the testimony of Sir Charles Lyell that its present fauna and flora greatly resemble those of Europe during the oolitic period. As to *South America*, its fauna and flora have the same general character as those of its latest deposits, which are referred to the early tertiary, and also much in common with the eocene of Europe. The analogy between the present flora, and, it may be added, between the present marine shells, corals, and insects of *North America*, and those of miocene Europe, is so great as to give rise to the idea of the two continents having been united during that geological period. The present formation of *South Africa* appears, from its general character, to be of great antiquity; and it is curious that its flora, although it differs widely from that of all other continents, has great affinity with the flora of Australia. Its fauna resembles generally that of the pliocene, and the same may be said of *Asia*. The Sewalik Hills of Northern India are a miocene range, but the latest Indian deposits are represented by the pliocene alluvium of the Doab, while the table lands of Central Asia appear to be of comparatively recent formation. Notwithstanding the general pliocene character of the Asiatic fauna and flora, those of the southern part of the continent have some affinity with the fauna and flora of Australia and South America; while those of Siberia have a general Arctic character. As to *Europe*, there can be no question but that it has undergone great changes since the pliocene period, and there has been a consequent alteration in its animal and vegetable forms. Turning now to the *physiological* objections, Mr. Dunbar Heath asks, referring to the hypothetical connection between Australia and Africa, why, when those continents were separated, should the primitive Australians have become Negroes. This does not, however, fairly state the case. I do not assert that the Australian aborigines perfectly represent the primitive race of man. I merely say that they and the Negro *may* have descended from a common stock, which was probably less civilised than either of them. But I suppose the Negro to have been derived from the primitive people only through some intermediate type. The Negro has probably originated in Northern Africa, and I should look for the nearest approach to the primitive type among the African peoples in the Hottentot, who may have been connected with the Australian Negroes by a submerged continent. It is hardly within the scope of my paper

to show how races have originated, but the impossibility of doing so, except on the supposition of the non-unity of man's origin, has been so often reiterated, that I would offer the following considerations in support of the notion of race development out of a primitive type :— 1. We see in different peoples of the same stock such diverse physical characters, that we may suppose the causes to which they are due may have resulted in still more important differences, when active through a much longer period. 2. A chief cause of the formation of physical peculiarities is, doubtless, due to the "correlation of growth" pointed out by Geoffroy St. Hilaire, and insisted on by Mr. Darwin. 3. There is a relation between the development of the mind and that of the brain, and, therefore, between that of the mind and of other portions of the organism. 4. This co-action of mind and organism is probably stimulated by the physical conditions of life by which Mr. Buckle accounts for the development of civilisation. 5. A superior race can never have more than approximated to an inferior type, as the former must have diverged before the inferior type became fixed. 6. When a type has become fixed, it is a proof that the race has long continued in one condition. As to the *psychological* objections—it is, no doubt, true that the fact of the European intellect being capable of higher cultivation than that of the Negro, proves their mental faculties to be different, *if*, as Mr. Wesley asserts, those faculties are the result of the organisation of the brain. In this case, however, there is no such thing as "mind," but merely phases of brain condition. Without some such principle of being as the "mind," however, it is impossible to explain the difference between the animal and the vegetable organisms. Much of the difficulty on this subject has arisen from the inaccurate application of the word "mind," which really refers only to the sum of the results of the activity of the thinking principle, and not to this principle itself. The mind cannot exist without preceding thought, or, therefore, without the organ of thought; but the thinking principle must precede all these, and it is that which is called the *soul*. But how there can be a difference between the "thinking principle" or *soul* of a Negro and that of an European I cannot understand. The difference can only be one of development, which, being dependent on the condition of the brain and other external influences, is not absolutely inherent. The sameness of the thinking principle in all mankind is evident from the phenomena of the child life, which are similar up to a certain stage in all races. It is said, however, by Dr. Hunt that the instincts of the Negro and of the European differ, from which he infers that their intellectual faculties also differ. I suppose by this is meant that the natural tendencies of the European and Negro minds are not the same. This is true to a certain extent, but these tendencies are not inherent, except so far as they have become so as the result of education and habit, which, accumulating strength throughout the race existence, finally become instinctive. They are, in fact, only part of the characteristics which are gradually developed during the race formation. In conclusion, I cannot accept Dr. Hunt's statement that it has been *agreed* that the Negro is naturally inferior to the European. This has certainly been asserted, but this proof has gone no further

than to the *present* mental inferiority of the Negro. This, I admit to be great; but before we can say that the Negro is naturally incapable of improvement, we must try the effect of improved conditions of life for a period equal to that during which he has existed in a state of degradation, and even then the proof would not necessarily be conclusive.

The CHAIRMAN (Mr. Bendyshe) said that Mr. Mackenzie had, at the last meeting, objected to the term "aborigines" as being derived from a small place in Italy, and had substituted for it the word "autochthones." Now, as the latter meant "made of the earth," while the old term involved no theory but merely a fact, he preferred the former. He then proceeded to thank Mr. Wake in the name of the meeting for his paper and able defence of peculiar opinions.

The following paper was then read :—

On the Condylus Tertius occasionally found in Indian skulls. By C. CARTER BLAKE, Esq., F.G.S., F.A.S.L., Curator and Librarian A.S.L.

The skull which I now exhibit is that of a Yanadi, from Strihurreecottah, in Southern India. It presents the character which the late Dr. Halbertsma, of Leyden, termed *condylus tertius*. I believe it will be found that this character is better developed in the present skull than in the ordinary cases cited in the text books.

The researches of Dr. Halbertsma are chiefly known to English anthropologists by an excellent article signed J. B. D. in the *Anthropological Review* for May, 1865, from which I must quote a few passages :—

"Professor Halbertsma,* says the celebrated anatomist, J. F. Meckel, the third of the name, was the first to fix attention upon a third articular process of the occipital bone in man, occurring on the lower surface of the *pars basilaris*, between the two condyles and behind the so-named *tuberculum pharyngeum*.† The anomaly was not unimportant, since it admits of comparison with the single occipital condyle of birds and scaly reptiles, placed in the median line. Since the appearance of Meckel's Memoir in 1815, the *condylus tertius* has been so frequently observed as to have obtained a sort of citizenship. Meckel noticed it in 1 out of 400 skulls, which does not express the just proportion of its occurrence. Dr. Halbertsma says that he found in 876 skulls, in the Leyden collections, not less than 7 well developed cases, not including those in which there is merely an articular groove for the tooth of the *epistropheus*, or *processus dentatus* of the second cervical vertebra. Of these seven cases, six were in crania from the East Indian Archipelago, and only one in a European. As Meckel's observations must have been made almost entirely upon European skulls, and not oriental ones, it seems likely that the existence of this condyloid process is more frequent in some peoples than in others."

The following are Professor Halbertsma's conclusions :—

* "De derde Gewrichtsknobbel (Condylus Tertius) van het Achterhoofdsbeen", door H. J. Halbertsma, 1865.

† "Meckel's Archiv," 1815, Band i, s. 644.

"I. That the *condylus tertius* occurs more frequently in inhabitants of the East Indian Archipelago than in other peoples.

"II. That the *condylus tertius*, in the rule, arises in the further development of a process occurring in the median line; but equally, although more rarely, it may owe its existence to the fusion of the two protuberances by him designated *processus papillares* of the *pars basilaris* of the occipital bone.

"III. That the condyle arising in the last named manner should be viewed as a hypapophysis."

I now proceed to describe the present specimen.

The skull measures as follows:—Greatest length, 170 *mm.*; greatest breadth, 121 *mm.*; facial angle, ·78 *mm.*; cephalic index, ·711 *mm.*; horizontal circumference, 4450 *mm.* Between the occipital condyles arises an elevation 2 *mm.* high, 11 *mm.* in transverse diameter, and 6 *mm.* in an antero-posterior direction. The edges of this elevation are slightly rugose, and it is centrally flattened. The surface has been clearly articular for the reception of the head of the axis or second cervical vertebra. The lateral occipital condyles are normal in their direction, size, and form. The pharyngeal tubercle is not developed. There are no par-occipital processes, and the pneumatic process is not developed.

Dr. Barnard Davis, in reply to a letter I addressed him on the subject, writes as follows:—

"Shelton, June 26, 1866.

"My dear Sir,—In reply to yours of yesterday, I may say that the *condylus tertius* of the Yenadie skull from Streehareecotta Island, or *Strihurreecottah*, is the fullest representative of this process I have yet seen, and is more perfect than any figured by Halbertsma, or any in my collection. It appears to have a wide base and to be condyloid in its form, or flattened, not elevated; but, perhaps, in this particular I may mistake your sketch. Has the surface been an articular one? Many examples of the anomaly are quite remote from a true condyle. Yours appears to be closely allied to such."

The occurrence of this abnormality in another individual of East Indian origin is a most remarkable fact. I have elsewhere* called attention to the resemblances which *e.g.* skulls of Philippine Islanders and those of the Veddahs of Ceylon present *inter se* in their minute osteology. It must not be forgotten, however, that several cases are on record of the discovery of this tubercle in European, Chinese, North American Indian, and Polynesian skulls. The percentage of occurrence of these cases is, however, not yet on record. I have been, therefore, led to communicate this short notice in order to induce anthropologists to record all similar cases; for experience has taught us the results which accrue from the publication of each several case of abnormity. When the "*os épactal*" was first noticed, it was considered to be rare and characteristic of the Peruvian race of men; the moment public attention was directed thereto, similar instances were found to occur in every race. I hope that the exhibition of the present most interesting specimen may lead to a similar result, and one equally beneficial for the progress of philosophical anthropology.

* "Medical Times and Gazette", 1862.

After a few remarks from the Chairman and Mr. Mackenzie,

Mr. Alfred Higgins said he considered the paper most interesting, as it treated of a great peculiarity in the formation of the condyles. It was known to be not unusual in Indian skulls, though, to speak positively of the extent to which it prevails, would require a larger collection of specimens than had yet been made. The present one was the fullest development of the phenomenon he had seen.

The following paper by Mr. Groom Napier was then read :—

On the Proportion that Numbers of the Sexes of Offspring bear to the Ages of Parents. By C. O. Groom Napier, F.G.S., F.A.S.L.

I have been for a length of time collecting statistics, with a view to ascertain the proportion of male births to that of female, in relation to the ages of their respective parents. Sadler in England, and Hofacker on the Continent, have worked at this subject, and their researches seem to establish that the predominance of age in either parent tends to the production of offspring of its own sex in proportionate numbers. Their extent of facts and conclusions are less detailed than mine, and do not lead to the belief that predominance of age has only this significance, when it is the accompaniment of physical vigour. I will state the result of my investigations, which are mainly drawn from facts gathered from the family statistics recorded in the peerages and baronetages of the United Kingdom.

TABLE SHOWING THE PROPORTION OF THE SEXES.

Proportion of Male to 100 Female Births.

		Per Cent.
390	Parents of equal age	91·8
276	Fathers one year older than the mothers	101·3
312	„ two to three years older	101·8
211	„ four to six years older	108·0
200	„ from six to ten years older	130·1
168	„ from ten to sixteen years older	144·3
120	„ from seventeen to twenty-five years	189·7
80	„ from twenty-six to thirty-two years	125·6
45	„ from thirty-three to forty years older	112·6
18	„ from forty to fifty (mothers under 25)	115·4
13	„ from forty to fifty (mothers above 25)	91·6
	Mothers Older than Fathers.	
88	From one to three years older	94·3
77	From three to five years older	88·8
66	From five to ten years older	77·1
43	From ten to fifteen years older	60·6
17	From fifteen to twenty-two years older	48·3

The number of instances of marriage between males from one to five years older than the females is very great, it is, therefore easy to obtain a large array of figures from which to form deductions. The number of cases is much less when the father is many years older than the mother; and is still smaller when the mother is many years older than the father. I had great difficulty in obtaining the few cases on which my statistics are in this case based. It would appear that the proportion of male births continues to rise until it reaches 189 males to 180 females in the case of fathers from seventeen to twenty-

five years older than the mothers. A greater preponderance of age of the fathers over the mothers showed a smaller proportion of male births; probably from diminished physical vigour in consequence of age in the male parent. This was especially seen in the cases quoted of 18 fathers from forty to fifty years older than mothers under twenty-five years of age, which gave 115 male to 100 female births. This percentage increased in the 13 fathers forty or fifty years older than mothers above twenty-five, where the proportion was 91·6 male to 100 female births. I believe that a larger series of facts would give an even larger balance in favour of the female sex. If the preponderance of age in male parents is favourable to a larger proportion of male over female births; that of females over males is also favourable for a similar increased proportion in female births. Thus mothers from one to three years older than fathers gave a proportion of 94·3 male to 100 female births. Mothers from three to five years older than fathers gives a percentage of 88·8 males to 100 females. The proportion continues to increase until it reaches according to the small array of facts I lay before you the greatly diminished rate of 48·3 male to 100 female births; but in this case the mothers are from fifteen to twenty-two years older than the fathers.

Mr. BRABROOK considered there was a good deal of excellence in the paper, though, from our being unaccustomed to deal here with questions involving averages and proportions, it was, perhaps, better suited for the Statistical than for the Anthropological Society. Nevertheless there was a question at the bottom of that paper that did concern this Society, and he did not doubt that had the author been present to add some further explanation much greater advantage might have been derived from it. The statistics were taken from the peerages in which there would probably be several omissions and additions; and, though this might occasion a balance of errors amounting to truth, it did not always happen so, and he did not like such evidence. For example, it was likely that the female births would be often omitted as of less importance from their not affecting hereditable property; and, for this and other reasons, he considered that the peerages did not afford good data upon which to base calculations. At the same time much credit was due to the author for entering a new path which was quite open to inquiry, even though it was impossible to say how far the statistics before them went towards the settlement of the question.

The CHAIRMAN remarked that, with regard to the paper itself, the principle it contained was certainly borne out by known facts, such as the proportion between males and females born being 104 to 100. In no country were the males born fewer than the females, yet females predominate. When persons of the same age married the proportion of males born was 101·3 to 100 females, or nearly equal. The paper was remarkable as shewing what difference in age produced the greatest difference in proportion, together with the limits on both sides. Where the male was seventeen to twenty-five years older—provided that the mother was under twenty-five—the proportion of male births was shown to be 189 to 100, or nearly two to one. This was a practical point, and

specially interesting to the aristocracy. Nothing had been said about illegitimate children, though many persons thought them superior, and he pointed to William the Conqueror as a notable example, while others were of an exactly contrary opinion. The subject was most interesting and suggestive, and when procreation became a science, as it certainly would do in course of time, great importance would be attached to such papers as the present.

Rev. DUNBAR HEATH was much pleased with the paper, but he thought in considering the proportions of the sexes it should be remembered that no mention had been made of the number of still-born children, without which it could not be correct. It was very desirable to search for the law upon which depended the relative numbers of the sexes. Why should not anybody who kept domestic animals, such even as cocks and hens, take notice of the proportions of males and females produced by them? Any farmer or country gentleman might easily make such observations. For example, as with ewes and rams, there were many instances in which nature required but one male to many, perhaps even 100, females. Now was it the case that with one ram to 100 ewes there were 99 of the latter born to one of the former? He could not say—but as human beings were under the same law in regard to bones and muscles as other mammals, it might be advantageous to pursue such investigations. He would ask physiologists what was the exact day—hour even—during the period of gestation when sex was first traceable in the embryo, and whether it was possible to effect a change a day or two before that period? Had anyone suggested *causes* for any of these phenomena?

Mr. BRABROOK mentioned as a curious fact that of illegitimate children there were 105 girls born to 100 boys, which is precisely the same proportion as that of girls to boys in legitimate births.

The CHAIRMAN suggested that that was, perhaps, due to the greater age of the mothers in such cases.

Dr. HUNT considered the paper presented an interesting and important field for inquiry. It was his desire to encourage such papers, though in the present one they had not been given sufficient facts and tables for the purpose of arriving at any definite conclusions. With regard to the Rev. Dunbar Heath's remarks, the author had mentioned that rats follow the same law. Could such facts be established they would be capable of most practical application, and he was certain that if the author had been present his further explanation of the subject would have done much to advance the science of anthropology.

Mr. LAMPRAY thought the principle laid down in the paper exceedingly truthful, and turning the subject over in his mind he had cast about among the families of his acquaintance and could mention a dozen instances of there being families of boys where the father was older than the mother, and families of girls when the reverse was the case.

Dr. HUNT announced that there were two other papers by Mr. G. Napier which had been intended for that evening, but as it would be necessary to continue the meeting to a very late hour if they were

read, he proposed that they should be postponed to a future day when the author might be present.

The meeting then adjourned.

March 5th, 1867.

T. Bendyshe, Esq., M.A., V.P., in the Chair.

The minutes of the last meeting were read and confirmed.

The following members were elected:—John Ferguson, Esq., 19, Mecklenburgh Square; Dr. Patey, Ripon; Washington Downing, Esq., 29, Cumming Street, Pentonville.

Corresponding Member.—Professor Jeffries Wyman, Boston, United States.

Local Secretary.—Stephen Webb, Esq., M.D., 23rd Royal Welsh Fusiliers, for Jubbulpore, Deccan.

The following presents were received, and thanks voted for the same:—

The Museum.

From H. G. Williams, Esq., F.A.S.L.—Stone axe from the Madera River, Brazil.

The Library.

From the Author.—New Readings of the Motto of the Prince of Wales. By Dr. W. Bell.

From T. Bendyshe, Esq., M.A., V.P. A.S.L.—Works of Apollonius of Tyana. By Albert Reville.
Treasury of Botany. By Moore and Lindley.
Treasury of Bible Knowledge. By Rev. J. Ayre.
Biographical Treasury. By S. Maunder.
Popular Account of Australia.
Last Words of Eminent Persons. By Joseph Kaines.
History of Slavery in Massachusetts. By G. H. Moore.
School Atlas of Classical Geography. By Keith Johnston, Esq.
On Democracy. By J. H. Partridge, Esq.
Life of General T. J. Jackson. By Dabney.
Prometheus Bound of Æschylus. By A. Webster.

From K. R. H. Mackenzie, Esq., F.A.S.L.—Woman and Her Wants. By Madame Caplin.
The Comet. By Captain Morrison.
Christian Mythology Unveiled. By Anonymous.
Catalogue of Egyptian Antiquities. By Sir Charles Nicholson.
Cutaneous Diseases. By John Wilson.

Dr. Hunt announced that they had received from the Belgian Minister of the Interior, in reply to a letter addressed to him, a communication, which would be read.

The Chairman explained that the Society had expended several sums in promoting the investigation of certain remains in Belgium, which had, or were thought to have, an important bearing on the an-

tiquity of man, and the present communication was in reply to a report upon them.

The DIRECTOR read an extract of a letter from the Belgian Minister of the Interior, M. Alphonse Vandenpeerenboom, as follows :—

"I have received the obliging letter which you have done me the honour to send me, in the name of the Anthropological Society of London, relative to the excavations made by M. Ed. Dupont, under the patronage of the Belgian Government, in the caverns on the banks of the Lesse. I have observed with satisfaction the flattering appreciation which has been given on the part of the delegates of the Anthropological Society to the results already arrived at.

"I beg you to believe that in any analogous case I shall be charmed to afford to the honourable savants of England facilities to pursue their praiseworthy and fruitful investigation."

The following letter from Mr. J. P. Morris was read by Mr. Blake :—

"I have forwarded to-day one vertebra, one atlas, and one clavicle, from the Ure pits. Before washing the skull I found upon it a small tuft of short brown hair, a portion of which I sent to Pruner-Bey for microscopic examination.

"I should like to know why you ascribe to the skull a pre-Celtic origin; because I am of opinion that it does not differ very much from some of the inhabitants of a neighbouring district who are here popularly called Kirkby Roundheads on account of their very brachycephalic type—but this is a point I am now directing my attention to, and in a short time I may be able to send some measurements."

Referring to the same skull, the following letter was read from Dr. Beigel :—

"The skull from Ulverstone is doubtlessly of considerable interest, but to determine whether the impression (not flatness) to be seen in the projective direction of the sagittal suture, be natural or artificial, seems a difficult task. Pruner-Bey has already pointed to the importance of verifying, first of all, if the position of the skull and the weight of the superincumbent earth and other materials have not been able to produce such an aberrant form and exaggerated brachycephalism.

"Drs. Gosse, Davis, and Thurnam think that the impression has probably been produced by an unyielding cradle-board. 'The ancient Britons were, to a great extent, a nomadic people, and probably enough used a solid and flat cradle, on which their infants might be secured to the back and safely transported from place to place.'

"Firstly, I do not think the cradle to be a furniture for nomadic people. But if the impression on the skull should be due to the use of an unyielding cradle-board, another impression would be seen on another spot of the cranium as the point of counter-pressure. One could say the counter-pressure may have acted upon the trunk or limbs. True, but there is no evidence for that assumption.

"The impression on the skull is so symmetrical that to my mind it seems highly probable to be rather natural than artificially produced. From the *S* shape of the sixth cervical vertebra—provided there be no

doubt about its belonging to the same individual—it seems not improbable that the individual had a scoliosis, *i.e.*, a curvature of the spine, in which case deformities of the skull are very often associated with the deformity of the spinal column. This hypothesis, I think, is at least equally probable as the cradle-hypothesis."

The CHAIRMAN, in commenting on these communications, remarked that as to the ancient Britons being a nomadic people that must be taken in a limited sense, for there could have been but few open spaces, and, although we were told of their careering in war chariots, such operations must have been extremely confined. With regard to the skulls, it was certainly doubtful if the particular formation noticed were produced by having been put in childhood to rest upon some hard unyielding substance as was done with Indian children for facility of carriage. But the subject had better, perhaps, be discussed after Dr. Thurnam, who had come from Devizes for the purpose, had read his paper upon ancient British skulls.

The following paper was then read:—

Further Researches and Observations on the Two Principal Forms of Ancient British Skulls. By Dr. J. THURNAM.

[The paper will appear at length in the *Memoirs* of the Society.]

ABSTRACT.

Referring to his former paper (*Memoirs*, vol. i, pp. 120, 459), the author remarked, that the general connexion of the two differing ancient British skull-forms, with two differing forms of tumulus, had appeared to him sufficiently curious to be summed up in a convenient antithetic formula, thus,—*long barrows, long skulls; round barrows, round or short skulls.* At the same time, he was quite aware of apparent exceptions to this proposition, and was fully prepared for greater ones than had then been observed. As to the round barrows, he had expressly stated, that it was "evident that, unless the earlier race had been suddenly exterminated by the succeeding one, a mixture of interments and a mixture of the two types were to have been expected" (p. 128, also p. 150). It is for the first part of his proposition, or *long barrows, long skulls*, that the author makes any claim, as an original observer. He believes that he has established for that part of England to which his researches apply, viz., Wiltshire and Gloucestershire, the connexion between long barrows and dolichocephalic skulls. He has now opened more than twenty of these remarkable grave-mounds, and in not one of them has he found, in the primary place of interment, a brachycephalic skull. As to the second part of the proposition, or *round barrows, round skulls*, he had formulated the common experience of British craniologists, all of whom had maintained that the prevailing ancient British skull-type, and consequently that of the round barrows, is brachycephalous.

Dr. Thurnam exhibited a table of measurements of seventy skulls from the round barrows, twenty-five of which are engraved and described in *Crania Britannica*, forty-one are in the Bateman Museum,

and four are in his own collection, having been exhumed by himself. When these seventy skulls are arranged according to their breadth-index, 63 per cent. are found to be brachycephalic (·80-·89); 20 per cent. sub-brachycephalic (·77-·79); and 17 per cent. only are ovoid or orthocephalic (·74-·76). Not a single skull is sub-dolichocephalic (·71-·73), much less typically dolichocephalic (— ·70). The average breadth-index for the entire series of seventy skulls is ·81. These round barrow skulls are indeed as brachycephalous as those of modern Germans, Slavonians, and many Mongols. This is well seen on a reference to the extensive measurements recently published by Prof. Welcker, according to which ·79 is the mean breadth-index for Little Russians and Finns; ·80 that for South Germans, Great Russians and Magyars; and ·81 that for the Swiss, Slovaks, Calmucks, and Tungusians.*

The author also produced a table of measurements of sixty-seven skulls from long barrows in Wiltshire and Gloucestershire, most of them exhumed by himself or friends, and seventeen of which had been acquired since the publication of his previous paper. A comparison of this table with that of the skulls from the round barrows, shows at once how greatly the one series differs from the other. Among those from the round barrows, is not a single dolichocephalic skull; among those from the long barrows, not a single brachycephalic one. Upwards of four-fifths, or 82 per cent. of the latter, are more or less dolichocephalic (·63-·73); nearly one-half, or 48 per cent., typically so (·63-·70); a small proportion, only 16·5 per cent., are ovoid or orthocephalic (·74-·76); and only 1·5 per cent. represented by a single exceptional skull, is sub-brachycephalous, with a breadth-index of ·77. The average breadth-index of the whole is ·71. When compared with the skulls of all peoples, these long barrow crania are seen to occupy a remarkable situation. This place is almost on the top of the scale of dolichocephaly and brachycephaly, and alongside that of the skulls of Negroes, Hindoos, and New Caledonians. The sixty-seven long barrow skulls have, indeed, about the same average breadth-index as those of sixty-six African Negroes, and fifteen Australians, measured by Welcker; and if arranged according to the German professor's method (Taf. II, fig. 6), the resulting figure or diagram would be almost identical with that shown by him for the Negroes. In Europe, at the present day, we have *no typical dolichocephali* (*i. e.*, people whose skulls have an average breadth-index of ·70 or ·71); and we have to search for cranial proportions similar to those of the old long-barrow folk, far away in Africa, India, Australia, and the Melanesian Islands. The face-cranium in the long barrow skulls, however, is remarkable, for the most part, for the mildness of its character, being more orthognathic than that of most modern European peoples, and seems to show unequivocally that there is no genetic or necessary affinity between our ancient British dolichocephali and those modern savage (or in the case of the Hindoos, civilised) peoples of the distant South and East.

* "Archiv für Anthrop.", 1866, pp. 135, 142, etc.

The author inferred the relative date of the two classes of barrows from the archæological evidence. He observed that in no well authenticated instance had objects of metal or of the finer decorated pottery been found with the primary interments in *long barrows*, but only those of stone, bone or horn, and a peculiar coarse kind of pottery. He hence refers the long barrows to the *Stone period* of antiquaries, and believes that they are the earliest sepulchral monuments of the inhabitants of these islands which remain to us.

In the *round barrows*, on the other hand, objects of bronze, (very rarely of iron,) and richly decorated pottery, are often found, with or without objects of stone. The author hence refers the round barrows to the *Bronze period* of antiquaries, and to that of bronze and iron transition. Differing in this respect from the long barrows, a large majority of them cover interments after cremation. In the opinion of the author, they formed the tombs of the later Britons, down to the time of the Roman conquest of the island. In conclusion, Dr. Thurnam presented a summary of his inferences, under nine different heads.

The CHAIRMAN thanked Dr. Thurnam in the name of the meeting for coming so great a distance to read to them his very able and learned paper, and suggested that another paper on the same subject by Mr. Blake should be read before the discussion.

The following paper was then read :—

On Certain Skulls from Round Barrows in Dorsetshire. By C. CARTER BLAKE, Esq., F.G.S., Curator and Lib. A.S.L. [Vide *Anthropological Review*, vol. iv, p. 398.]

[The paper will appear at length in the *Memoirs.*]

The CHAIRMAN, after thanking Mr. Blake, remarked that Dr. Thurnam's statement that anchylosed vertebræ had been found in the dolichocephali, appeared to him very curious, as it was said to indicate going upon all fours, thus showing a degradation in the race form in the brachycephali.

Mr. L. O. PIKE thought the Society much indebted to Dr. Thurnam and Mr. Blake. They, and men like them, had placed anthropology on a different footing from that on which it had stood in former times. They had left the effete schools of dogmatism and conjecture, and had brought arithmetic, the best friend of the exact sciences, to bear upon the subject. On that score anthropologists owed a great debt of gratitude to Dr. Thurman. Formerly, if a community were found to speak one language, and another community a somewhat similar language, that fact was thought sufficient to prove the kinship of the two peoples. But it was now known that similarity of tongues was frequently accompanied by great dissimilarity in the shape of the skull, and if race meant anything we must assign the different forms of the skull to different races. The principle of classifying races by language would, if fairly carried out, prove a parrot which could say "Good morning," to be more nearly akin to an Englishman than an

Englishman is to a Frenchman or a Highlander. He did not, however, quite agree with Dr. Thurnam's conclusions that the long-headed men were short of stature and that the short-headed men were tall, for the measurements given had been taken only from twenty-five of the dolichocephalic skulls and twenty-seven of the brachycephalic, which he thought far too small a number to give reliable data as to the proportions of the two races.

Dr. THURNAM having interrupted him to explain that the measurements were taken from the *thigh-bones* of the skeletons of each type, from which the height was calculated according to the admitted standard of proportion,—

Mr. PIKE said he had, by a slip of the tongue, used the word skull instead of skeleton; but his objection was not to the manner in which measurements had been taken, but to the small number of instances from which so large an inference had been drawn. He understood Dr. Thurnam to have said further, that anchylosis of the cervical vertebræ was found in the long-headed race who injured themselves in creeping into their caves, and who were less civilised than the short-headed men. But the caves were used for storing corn which, it had been said, was cultivated only by the more civilised Britons. If that were so, how was it that the more civilised people who were agricultural, who grew corn and required storage-room, and therefore made use of cave-dwellings, did not get injured; while those who led a nomadic life and cultivated no corn, were unfortunate enough to exhibit all the injuries which cave habitation was said to produce? The dolichocephali were also stated to have been less prognathous and to have had less harsh features than the brachycephali. If so, was it reasonable to suppose that they were less civilised? He could not see why the short-headed should be considered more modern than the long-headed race. What was the total number of skulls of each type that had been found? The long, he believed, outnumbered the short considerably, but if the former were more ancient, surely their remains would be less numerous. Dr. Thurnam had endeavoured to account for this, and had said that the short-heads burnt their dead and were the dominant race; but if they introduced the practice of cremation as well as round barrows, while the long-headed race adhered to inhumation, then the preponderance of dolichocephali would have been found in the round barrows unless the dominant race had exterminated them, or the practice of burial in the long barrows had continued and co-existed with burial in the round barrows. But against the preponderance of short-heads at any time was the fact that the English of the present day are one of the longest-headed peoples in Europe and in Wiltshire certainly the longest without exception, while the only important infusion of foreign blood since the time of the round barrows had been that of short-headed Germans. Dr. Thurnam had also said that the long-headed type was that of the Iberians, and the short-headed that of the Belgæ, but this was, in his opinion, an unfounded and contradictory assertion. Tacitus wrote that the Silurians who inhabited the district now called South Wales were probably Iberians. The Belgæ

were in England found only on the southern coasts. How was it if the brachycephalic Belgæ established themselves in Wiltshire that the people of that county had, in the present day, the longest heads in Europe? And how were the short skulls found in different parts of the country to be accounted for if they were the skulls of the Belgæ, who, according to Dr. Thurnam himself, never penetrated into the interior. There was no theory to account for such discrepancies.

Mr. LAMPRAY asked what was the ordinary length and breadth of the barrows?

The CHAIRMAN having proposed that Dr. Thurnam should reply *seriatim* to Mr. Pike's questions, and then to any others that might be raised,

Dr. THURNAM said, perhaps he had better state at once, in reply to Mr. Lampray, that the size of the barrows is various, those called *long* being from 200 or 300 to 350 feet in length, and 50 to 70 feet in breadth, and the elevation of some from 3 to 5 feet, while others are 9, 10, or even 12 feet in height. They are very elongate, being, in fact, great earthworks; and it was surprising that a rude people should have taken so much pains to make them, especially as designed for places of burial, remains being only found in one corner of them. A trench on each side, but not extending round each end, adds to their apparent height. The *round* barrows are from 60 to 90 feet in diameter, and from 1 to 12 feet in height. He had seen none higher than 15 feet.

Mr. HYDE CLARKE considered that it would be very inconvenient if Dr. Thurnam were called upon to reply to each question raised, especially as some of the members present might be willing to support the opinions expressed in the paper. For his part, he thought that when so large a collection of skulls as that before them was exhibited it must strike everyone that they were useless to prove anything by themselves. To what nations could they be referred except by the aid of historical and lingual affinities. The relation of the Belgæ and Iberians had been illustrated by the discoveries made by Dr. Thurnam and set forth in his paper. He agreed with Mr. Pike that no portion of evidence should be neglected, and on that occasion still further light had been thrown upon the Iberian question. He doubted, however, whether any of these were Iberian skulls. Looking to history, the first account of Iberian civilisation written by Humboldt had been followed up by later histories and through different aspects till evidence had culminated in osteological facts. If Dr. Thurnam had classified the skulls as those of two distinct nations we could go to history to find out whether it justified such a classification, and by that means arrive at a satisfactory conclusion. Such a difficult question should be carefully and calmly considered, and in that, as in all scientific pursuits, we ought never to nail our colours to the mast, but always be ready to collect fresh evidence and form opinions accordingly. It would be curious to find out, for example, whether alleged lingual affinities were supported by these osteological discoveries.

The Rev. DUNBAR HEATH remarked that a sort of challenge seemed to have been given by Mr. Hyde Clarke, who thanked the osteologists for

having taken the subject out of the hands of the anthropologists. For his part, he had no wish any science should go alone, and the question of osteology, of anthropology, and every other "ology" must be considered together. A science pursued alone was of little use and small interest. But as to the question of osteology, he could not limit his attention to Great Britain. Similar facts he knew were to be found also in Europe and Asia. An important question which must suggest itself to the mind of every thinking person was, how such different types could have arisen in the human race. There was also a chronological question upon which such investigations might throw light. In the valleys through which the rivers Tigris and Euphrates flowed, the old Scythic monarchy which founded Babylon existed at a most important epoch,—that between the stone age and the bronze age. The Scythians were a broad-headed race, and the first originators of civilisation and science. If that be proved they form a boundary between two great periods of development, and serve to show that chronology is in close connection with osteology. And further, the Nigritian race was spread over Syria, India, and Africa, and if they were found also over Europe, then it would be shown that the whole of Europe and Asia were peopled by both the long and short-headed races. The spots of the globe filled by a previous race would afford further scope for investigation, and then might arise the question regarding intermixture of the Nigritian and Tartar races leading to something really very interesting.

Mr. McGrigor Allan asked how male and female skulls were distinguished; for if only by size, that would be uncertain, Dr. Carl Vogt having stated that the female had the infant type of skull; and if that were so it might, perhaps, determine the intellectual status of woman.

Dr. Hunt thought it only right to mention that he had obtained the skulls which were exhibited from the Dorsetshire barrows, from Mr. Shipp, who was not responsible for any opinion expressed upon them by Mr. Blake. The specimens were sent to their museum at the time of the Nottingham Meeting of the British Association, and Mr. Blake had examined and reported upon them at his request. He did not think there need be much difference of opinion about the two papers before them. Both had been brought forward in an admirable manner, and the right interpretation of the subject was a mere question of theory. That laid down by Dr. Thurnam, "long barrows, long skulls; round barrows, round or short skulls," was very startling, but at any rate there was great good to be got from such descriptions as had been given. He was glad that Dr. Thurnam had made an admission not in his former paper to the effect that he was prepared to find occasional exceptions to his axiom. Had the facts borne out Dr. Thurnam's theory he, for one, would have accepted it.

Mr. Brookes said that it did not appear to him that Mr. Blake's remarks had invalidated the position taken by Dr. Thurnam, whose paper had not been done justice to. If round skulls had been found in long barrows with implements of a later date than that assigned to the earlier race, that would have upset his theory, but such was not the

case. The observation of long skulls alone in long barrows had led to the theory advanced, and even if that were wrong the facts might be right. Long skulls had been found in round barrows it was true, but Mr. Blake had not discovered round skulls in long barrows, which alone would have affected Dr. Thurnam's position, inasmuch as the long-headed race might survive long after their subjugation by the round heads: that was no more than might have been expected.

Dr. CHARNOCK remarked that writers had made a great deal of mystery about the Iberi; and that anyone who lived near water might be termed an Iberian. The term Iberia was derived from the river Ebro, a name derived from the Greek *υδωρ*, water, which in Celtic became *dwr*, *dour*, *dower*, etc., and in Dutch, German, etc., *water*, *wasser*, and which was liable to contract and corrupt into *ur*, *eur*, *evr*, *ebr* hence the name Ebro, the river Eure (*Ebura*), and the town of Evreux in Normandy.

Mr. HIGGINS considered that Dr. Thurnam had fairly proved his position, and that it had not been invalidated by Mr. Blake. As to Dr. Thurnam's alleged positiveness, he had referred to the previous paper read by him, and had found that in it he had distinctly stated that he expected to meet with a few long skulls in the round barrows. He thought Dr. Thurnam had vindicated his theory on that occasion.

Dr. THURNAM, in reply, said he was no transmutationist, and thought too, that man was "created upright." It was, no doubt, a degradation to go upon all fours; but, perhaps, that came of necessity, and from being unable to construct or obtain any but low, narrow dwellings, they were forced to enter them in that manner. The anchylosis of some of the vertebræ was not uniformly found in the skeletons; but he had observed its occurrence so frequently as to claim attention. With regard to Mr. Pike's remarks, he would again refer to the statement of Diodorus, that the Britons had subterranean repositories for their corn; and to Tacitus, who says that the same custom prevailed among the Germans, and adds that they lived in such places during a part of the year. This might reasonably have been the practice of some of the ancient British tribes, but he would not insist upon that as conclusive.

Mr. PIKE explained that he had referred to Dr. Thurnam's statement that the brachycephali were the most civilised, and the corn growers, and yet without the indication of using caves, and, therefore, of storing corn, which indication was present in the dolichocephali who went into their caves on all fours.

Dr. THURNAM considered that rather Mr. Pike's own inference, than as necessarily implied by what he had said on the subject. With regard to the statistics of the stature of the two races, he would, of course, have preferred to have had more instances to deal with, but he would appeal to anyone whether the fifty-two facts taken from analogous examples, twenty-five of the long heads and twenty-seven of the round heads, did not afford at least a strong presumption in favour of the truth of his inference. The proportions were likely to be slightly modified by measurements from a larger number of examples. The

facts obtained, such as they were, supported his assertion that the long-headed race were shorter than the brachycephali. Mr. Pike had also asked what was the total number of skulls of the two types found, and expressed surprise that, on the assumption of the greater antiquity of the dolichocephali, so many long skulls were found, and so few short. But the numbers really given were seventy from the long barrows, and sixty-seven from the round, or nearly equal. A greater number had been obtained, but those of doubtful origin were weeded out. Considering the probable greater antiquity of the dolichocephali, it certainly appeared strange at first sight that they should be so numerous, but it must be borne in mind that skeletons of that type of skull were found in heaps in the long barrows, while the brachycephali were mostly found singly in separate round barrows. He accounted for the large number of skeletons in the former by supposing that the burial of a chief had been accompanied with the slaughter of slaves and others, and that was supported by the cleft appearance of many of the skulls. The fact, however, remained that there were many skulls in the long, to only one, two, or perhaps three, in the round barrows. As to what had become of the long headed race, he thought that the dolichocephalic type, or that of the aborigines, had since become modified. We should never find now an average breadth-index of ·71; that of skulls from modern graveyards being at least ·75·77. The fact was that the modern English people were a mixed, and as might be said, a mongrel race. The breadth of modern English skulls was due to the blending of race; and though individual instances might still be found as long as the dolichocephali of the past, he knew of no collective measurement of twenty modern skulls presenting the same dimensions as those of ancient times. He did not, of course, claim a blood-relationship for the British dolichocephali with the Polynesians; and only mentioned them to shew that they did not possess any series of modern European skulls of so low a breadth-index as ·71. With regard to the Iberians, Dr. Hyde Clarke would probably agree with him, that they peopled Spain and a part of Gaul. And, in reply to Mr. McGrigor Allan's question, he might say that female skulls were distinguished from male skulls, not merely by their size, though that of the female was ten per cent. smaller than that of the male, and the brain ten per cent. less in weight, but also by being mostly flatter at the vertex, and by a frequent perceptible constriction in the line of the coronal suture. Type was less marked in the female skull; the dolichocephalic female deviating towards the brachycephalic forms, and *vice versâ*. There was, as he believed, a general tendency in the sex, towards the ovoid, orthocephalic or mesaticephalic form, as represented in the beautiful Greek statues of females.

Mr. McGrigor Allan explained that he asked whether the female skull was also smaller in proportion to the skeleton.

Dr. Thurnam stated that he thought the difference was not so great in that respect, it being only, perhaps, three or four per cent. smaller. Dr. Hunt had referred to his axiom as having in his former paper been given as positive. This, however, was a mistake. It was expressly

qualified by the statement (*Memoirs Anthropological Society*, ii, 128), that "as regards the later (round) barrows, it is evident that, unless the earlier race had been suddenly exterminated by the succeeding one, a mixture of interments and a mixture of the two types were to have been expected." (See, likewise, the statement to the same effect, p. 150.)

Mr. Carter Blake, in reply to the comments made upon his paper, reminded Mr. Higgins that some of the descendants of the primitive dolichocephali were probably still extant in Ireland according to Messrs. Beddoe and Davis, and that there must have been some at any rate as recently as when Cork cathedral was used as a place for burial, a skull of that type having been found there by Col. Lane Fox. Dr. Thurnam had criticised the instrument he had used for measuring skulls, but he would mention that it satisfied Dr. Broca and Dr. Quatrefages, and met with Professor Huxley's approbation and Professor Owen's admiration. Dr. Thurnam had advocated the crude generalisation of "long barrows, long skulls; round barrows, short or round skulls," and to support it had referred the exceptions to admixture of race. Now, after having deducted the two extreme specimens from Blandford upon which he had commented, he found the result to be that the remainder oscillated between ·67 and ·79 respectively, while Dr. Thurnam's twenty-five skulls found also in round barrows were between ·68 and ·84, having consequently a broader average. For his part, he hoped science would always stick to facts. Dr. Thurnam's views had met with most able adverse criticism in the brother society of Paris, and with demolition at the hands of Mr. Pike in his work on the *Origin of the English*, so that in rejecting them he would be quite content to stick to facts.

The meeting then adjourned.

March 19th, 1867.

T. Bendyshe, Esq., M.A., V.P., in the Chair.

The minutes of the last meeting were read and confirmed.

The following gentlemen were duly elected:—J. C. Davies, Esq., M.D., L.R.C.P., M.R.C.S., Ivy House, Holywell; F. Duncan, Esq., M.A., D.C.L., F.G.S., F.R.G.S., Captain Royal Artillery, the Citadel, Plymouth; Reginald R. Dudley, Esq., F.R.C.S., Leicester, as Fellows of the Society; and M. Lelorrain as Local Secretary for the Champagne District, France.

The presents received since the last meeting were announced, viz.:—

For the Library.

Shakespeare's Hamlet. Tywysog Denmarc.
Transactions of the Royal Society of Literature.
One of the People. Letter to Lord Derby on Political Reform.

The Chairman having thanked the respective donors in the name of the Society,

The DIRECTOR announced that Colonel Lane Fox had undertaken to act as Chairman of the Committee appointed by the Society to superintend the researches in archaic anthropology now being made in London. Many objects of great interest to anthropologists had been dug up in making the excavations for the railways and other great works in progress, and it was much to be regretted that, for the want of such an executive, many skulls found had been buried again. It would be the object of the Committee to watch over the excavations made, to take charge of such crania, and to induce the contractors, clerks of works, and others, to preserve such valuable relics. Mr. Lewis and Mr. E. Jones had been placed upon the committee, and he hoped other gentlemen would also send in their names. He had further to announce that Dr. Collyer, who was so well known as a most zealous anthropologist, had been appointed Special Commissioner for Anthropology at the Paris Exhibition, and would, doubtless, make every effort to promote the interest of that science in the French capital. Dr. Hyde Clarke had been appointed Corresponding Secretary for Asia, and, from his well-known and able researches, there was no doubt that the appointment would afford great satisfaction to the Society. It was their intention to appoint well-qualified gentlemen as corresponding secretaries in all parts of the world with the view of extending anthropological research. Arrangements had been made to secure the proper representation of anthropology at the ensuing meeting of the British Association at Dundee; and, as great expectations had been formed upon the first appearance of anthropology in Scotland, he hoped the anthropologists would go there in good force, prepared to face and overcome the special difficulties they would have to contend with. There had already been discussions in Scotland upon the proposed introduction of that science; and, as controversy ran very high, it would be necessary to be specially careful in the preparation of the papers to be read there, so that anthropology might be clearly shown to be a real genuine science, and that, however much fault the Scotch might find with the science itself they might be able to find none with the scientific treatment of the subject.

The CHAIRMAN now called upon Dr. Bell to read his paper upon "The Origin of Language," which was as follows:—

On the Origin of Language from Interjections, and of our Modern English in the Teutonic and Cognate Dialects. By WILLIAM BELL, Ph.D., Pfleger in England of the Germanic National Museum at Nürnberg, and Honorary Member of many English and Foreign Scientific Societies.

In addressing so scientific and learned a body as the Anthropological Society of London it will be entirely superfluous to insist upon the difficulty of accounting for the origin of language generally.

Easy as appears our present mode of speech, and natural as its acquirement and fluent use may seem, few subjects are shrouded in greater difficulty, or on which a larger amount of discussions has been wasted. Gaining, as we all do our mother-tongue insensibly and almost unconsciously, we reflect little on the complex results we have

mastered, and on the great difficulties that had to be surmounted before language could have attained that order and system at which we now receive it.

Things in constant use appear natural and easy; as walking, which is but a perpetual stumbling, may now appear to us a normal status, whilst we forget our frequent falls in endeavouring to learn how properly to balance the body.

The great diversity of languages, which have been roughly estimated for the entire globe at three thousand, has caused some theorists to contend for a plurality of original tongues; but more advanced philologists of the present day, principally from the conformities of the widely-spread Indo-Germanic family, are gradually reducing many hitherto considered different to common roots; thus affording evidence to the Scriptural enunciation that there was a time when "all the world was of one speech."

It is from this biblical truth that we can best account for the number of homophonous words representing the same objects, and which are every day receiving fresh additions, either from the more extended field which our fresh conquests allow and necessitate, or from a more systematic pursuit of the great science of etymology.

This existence of so great a number of cognate meanings in all languages assures us that there must have been one parent tongue, one primæval speech which adumbrates the great number of its variants noticed above. What that tongue was it is almost beyond the reach of probability to know; we may, perhaps, gain slight glimpses of it by tracing the most frequently recurring cognate words throughout all the languages, and if one or more were found existent in all, with fair etymological allowance, I should say that such a word, or words, had the fairest chance of being primæval. A very learned reverend friend once tried our numerals on this plan, collected from an hundred different tongues, in which, with the etymological allowance I have mentioned, the conformities were astonishing.

How language and articulate speech first commenced is a very different and equally intricate question. All men have the same vocal organs,* and their differences in birds and animals is so trifling that we can scarcely ascribe the discriminating power of man in articulation to any difference of formation in his organs. The breathing, the respiration by which the voice is formed, is alike in man and brute, and may even be made to act artificially. You all have heard of Friar Bacon's brazen head, which uttered the oracular response, "Time was; Time is; Time is to be;" and then sprang into a thousand pieces when the diabolical craft by which it had been sustained was spent. The same belief in Satanic agency, for similar ingenious manifestations, pursued some of the most eminent men of science in the mediæval

* This assertion has been denied; but no one will refuse their assent to the facts that all men have the larynx, the chordæ vocales, a tongue, a palate, the teeth and lips in common, as all men have hands and legs and arms alike; there may be differences of size or colour, the nails may be differently set, but the variations are not sufficiently marked to call them disagreements.

ages. Pope Silvester II, surnamed Gerbert, was traduced generally as a sorcerer, and the evidence of his evil practices adduced in a speaking head, or androides, by no less a sensible historian than William of Malmesbury, and so with many other learned men of those ages, whose superior skill and knowledge were incomprehensible to those times unless due to magical incantations. The same power was known and exercised by the ancients: Archimedes, Dædalus, and even Orpheus, had all attributed to them automata of wonderful movement and great powers of speech; nor is it altogether improbable that they were able to produce by artificial means a head to pronounce, at least imperfectly, some words of easy utterance. For, at Hamburg twenty-five years ago, I saw a head, exhibited and made by Professor Faker, of Vienna, which uttered words distinctly and loud enough to be heard in every part of a large room; it chiefly affected words abounding in vowels, as Mississippi, Oroonoko, but also gave as entence in English pretty plainly, as "*God save the Queen.*" A bellows served for the respiratory functions and the sounds issued through lips of gutta-percha by means of a key placed behind the image, by which the lips were opened and shut. It was subsequently shown in London.

Birds particularly, as is well-known for starlings, but more especially for parrots, have great powers of imperfect articulation: an uncommon instance of this power is recorded by Alius Rhodignus, who asserts that a parrot was, in his time, to be seen at Rome, which Cardinal Arconi had bought for one hundred golden crowns, that could repeat all the articles of the creed in their regular order; this would argue an additional article to the creed of the narrator.

We may, therefore, I think safely assume that the mechanical process of breathing and respiration, and of modifying them by the action of the vocal organs, is the same in man and brutes; and we must next inquire in what constitutes the difference we find in both: is it not the principle of ratiocination in the human mind which is wanting in the brute; that power in man of memory and reason; that power of analysing and combining which we all feel, but cannot explain? and, as I hope to show from a simple interjectional monosyllable to raise up the stupendous structure of living and dead languages, which can embrace the meanest and the most abject ideas, or rise to the full expounding of the Shakesperian mind.

It will not then, I trust, be thought daring, if I deny the immediate inspirations of the Deity as the source of articulate language.

> "Th' eternal cause
> Acts not by partial, but by general laws."

If it can be made apparent that articulate speech is capable of being produced from our simplest elementary and interjectional sounds, I conceive it would be derogatory to our ideas of an allwise and omniscient power to suppose he would interpose his almighty weight and wisdom, that he would ordain a miracle when ordinary simple means would fully suffice for the same end; it would be inconsistent with our views of infinite perfection; it would be worse than nugatory to recur to a divine origin for what is capable of perfect mastery by human

reason unaided but by its own resources. Even for the impotent divinities of Greece and Rome, Horace advises no introduction of their power unless for an object worthy of the occasion.

"Nec Deus intersit nisi dignus vindice nodus."

That fear first made these gods was a favourite view of Roman superstition; it was enunciated as maxim by Lucan in his *Pharsalia*, followed by Statius in the *Thebaid*, but more amplified in a fragment of Petronius Arbiter.

"Primus in orbe Deos fecit timor: ardua cælo
Fulmina quum caderent, discussaque mœnia flammis
Atque ictus flagaret Athos."

It is when witnessing such a scene that we almost excuse the ancients with their imperfect metaphysical views, that they in it thought they viewed the action of an irate and angry God, whom it became them to propitiate by altars and sacrifices; and it is by asking you to put an early race of men witnessing a similar scene of seeming wreck of matter and a crush of worlds, and to ask what would be its primary effect, supposing, as regards language, it had not progressed beyond the elementary sounds common, as beforesaid, to man and brute.

Would it not have been an expression of surprise, an interjectional involuntary exclamation of wonder? and it is perfectly indifferent whether *ah*, *eh*, or *oh*, for the vowels are of no consequence. Take *oh*, by which we still mark any sudden impulse on the mind, either of woe or wonder; and suppose our early autochthon wished to communicate his feelings to a fellow man, could anything be more easy than to add the ready lip movement by which the *l* is produced, so that thus our present word *loh* was created; you are possibly not aware what a stupendous superstructure reason could build upon that small monosyllable. It became an idea connected with light and heat as exponent of the causes from which it had originated.

It is, therefore, confirmatory that we find *loh*, signifying light or flame, in various languages and different modifications—in Greek, λυκος, φλοε; in Latin, *lux*, *flamma*, *flagare*, *flumina*, etc.—may seem remote derivatives; but in German and the cognate dialects we have for this signification the identical word which we have retained.

Das Feuer brennt lichtre-looe is perfectly identical with our English phrase, the fire burns (with a) lilly-loco; and the same signification for it is found in all the northern tongues, as Islandic, log; Danish, lac; Swedish, lago; Finnish, licike. Having, however, once riveted the meaning of light and heat to this word, if we go the categories we shall find how prolific a parent it has been in universal language. You are all aware that Aristotle made ten categories as comprehending all the relations under which an idea can be comprehended; the first idea being the simple word, the nine other being its possible attributes and accidents of quantity, quality, relation, action, passion, time, place, situation, and habit. Others take only seven categories as sufficient, and express them in the Latin Hexameter,—

"Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando."

It is under these ten or seven relations that every idea can be

viewed; and each separate view gives a new and independent idea and a word. We thus gain in the formation of words a geometrical progression in a series of either ten or seven links.

If we for a moment reflect upon the immense number of new ideas and words to express them attainable from either series, we shall no longer wonder at the productive power of language or the immense number of differing tongues, as various suffixes and prefixes, or different exponents of the three divisions of sounds by the lips, the tongue, or the palate were used from a single root; in the series of ten categories we already find at the fourth power ten thousand possible new creations.

A few of the various relations of light and heat proceeding from our monosyllable loti, in our tongue as still retained in the English tongue: are loom, looming, glow, gleam, gloom, gladden, glisten, glitter, glass, glacies, glare: as consequences also slip, slape, slide, slope, etc.

What, I think, gives much conformity to this word *loh* as early expounder of light and heat, is that the alphabetic figure by which it is mostly expressed is hierographical of the same qualities. The lamed of the Hebrews in its most archaic form represents the zig-zag flash of forked lightning, but the radiant lambda of the Greeks shows in its outward form the diffusions of the rays of the sun, like radii from a centre, and that the Greeks took this view of their letter may be seen in the name they gave it of Λαμβδα from Λαμπος, therefore the letter of light; the Western Europeans have destroyed this beautifully pictorial significance by throwing the letter on one of its limbs.

Having thus gained a numerous family of monosyllables, it will be expedient to trace them to dis- and polysyllables; but, as this would lead us to a physiological examination of the organs of the voice, upon a due understanding of which, and of their mutual action and nice dependencies upon each other, a scientific system of etymology can alone be based; and, as this understanding seems difficult, if not impracticable, a more simple and merely mechanical progress of word-building may suffice.

It would, indeed, have been desirable here to give a full deduction of the process by which words became multiplied upon a full consideration of the action of these organs, had I been able to find a concurrent agreement in the various authors who have treated these organs. The author who most exhausts this subject whom I at present know is Dr. Rust, of Philadelphia (in his *Philosophy of the Human Voice*), who, at p. 193, says:—"It would be useless to transcribe an account of structures and actions when we know not what vocal effect these actions would produce;" and further on he adds as his ultimate result only the simple enunciation, "that some part or parts of the vocal canal produce all the phenomena of voice."

Warning, however, the etymologist to pay no attention to vowels as an etymological element, entirely wanting in the most ancient Hebrew and other eastern languages, I may more readily insist upon the value of the consonants: vowels are the mere muscles and tendons of speech; its bones and skeleton are the consonants; and, as in comparative anatomy, the skilful practitioner alone regards the latter, so

the true etymologist will disregard the vowels as mere expletives, and redundant for his purpose.

By the system of homogeneous consonants and a disregard of vowels, etymology becomes an easy and a pleasing study, and its results as unexpected as they are astonishing. In the following words attend only to the consonants :—

Band, *bend*, *bind*, *bond*, *bound*, and *bundle*, you will find in the consonants *bnd*, a radical common meaning of union of which the vowels which I have carried through the vocal gamut, are only the conventional expletives. So in *pan*, *pen*, *pin*, *point*, *pun*, the common force of the two consonants is that of an apex or sharpness ; a pane of glass is so called because when windows were first glazed, the figure of each pane was a rhomb ; the point need not be shown for the next three, and you will all allow with me that, as to the last, a pun without a point is valueless.

Examples of similar ranges through the vocal gamut without radical change of meaning occur in *blab*, *bleb*, *blip*, *blob*, *blubber* (roundness) ; *pat*, *pet*, *pit*, *pot*, *put* (hollowness) ; *cap*, *kep*, *kip*, *cop*, *cup* (globoseness) ; *dab*, *deep*, *dip*, *dob*, *dub* (daubing), and numerous others. Another very material subject in the consideration of words is the convertibility of their component letters principally according to Grimm's Law, which, however, may be more simplified.

As an example of this convertibility, we may take the *b* and *v*, which were undoubtedly used by the Romans indiscriminately ; it was a standing joke amongst them, invented, no doubt, by some jovial lover of old Falernian, that *vivere* was *bibere*, and the Emperor Aurelian could condescend to it when he said of his drunken competitor, Bonosus, I am sorry to say a Briton : Non ut *vivat* natur est sed ut *bibat :* this mutual interchange is still retained in that nation in which, exclusive of Italy, the language of Rome still retains greatest hold—in Portugal.

On a journey overland in early life from Lisbon to Oporto I was ferried across a river, which the boatman said was the Bouga, though on the map we find it noted as Vouga, and not far from its banks I passed a miserable roadside estallagem or inn, over the door of which the following inscription, besides the never-failing birch-bough, was painted, "*Aqui se bend vuon Bino ;*" for the orthodox, "*Aqui se vend buon Vino :*" here good wine is sold.

The *b* also changes in *f :* the high German *glaube*, belief, is the low German *glove*, in Dutch *glof* : it is from the low German dialect that we gain most of our Teutonic forms, and so our glove as gauntlet becomes our emblem of defiance, consequently our belief in the justice of a cause for which we offer defiance or challenge by a glove, and is a neat example of consequence being put for cause.

R and *l* are both liquids ; and, therefore, easily convertible. The Latin *ulmus* becomes the French *orme ; perigrinus* in pure Latinity, changes in Italian, French, English, and German, respectively into *pelegrino*, *pelerin*, *pilgrim*, *pilger ;* the French *parler* is the Portuguese *fullar ;* but as whole nations, like the Chinese, and much of Northumberland, are unable to articulate this *r*, it might appear an

inherent difficulty in the sound, did we not find the same metathesis in the earliest hieroglyphics of Egypt. In them a lion recumbent on the forepart of one is in Taharka, the *r;* in the cartouche of Ptolemy on the Rosetta stone, it is the *l.*

We have hitherto in the formation of language, treated it as only formed of monosyllables, of which only, for a long time, language mainly consisted. I will now proceed to show shortly how words of two or more syllables would be formed. The easiest, and therefore the earliest, process was by what the Germans call *anheilung*, and which we may translate by *agglutination.* This may take place in various ways: the first is simply a duplication of the original monosyllable, as in *marmor*, *purpur*, *papa*, *baby;* in the Latin *mamma*, the breast, as also in the Latin *usus*, the Hebrew *gilgal*, the Persian *bulbul.* These I may term *direct* agglutination; there is another mode which I term *indirect* agglutination; in this the consonant is the same, but the vowel in the one syllable is prefixed, in the other it is postfixed, as in *quane*, in German the Morse; *egge*, the harrow; *imme*, the bumble bee; in Hebrew, *abba*, father; in Latin *ille*, *anno*, *ecce*, *ossa*, *addo*, and numerous others.

When, however, this agglutination is directly the reverse of this last process, and instead of the two consonants the two vowels come together, then I call this agglutination *indirect inverse. Fief* is such a word, but *suus* is a better example which I adduce in reference to its formation from *usus* mentioned above, as this may indicate a much earlier and much easier mode of turning uses into possessions than the complex and expensive mode by parchments taken by our lawyers since, I believe, the time of Charles II; and in truth the questions betwixt *usus* and *suus*, betwixt using a thing and possessing it must be more intricate than is at first seen; if there was any cause for the hot controversy raging amongst the Capuchin branch of the seraphic order of St. Francis, whose vow demanded the entire and total abnegation of private property, on the question whether the very food they were masticating from the common refectory table was the individual property of the consumer, or whether he had only the use of it.

Having, however, conducted you from what I believe the first principles of articulate speech to beyond the threshold, I may leave the further building up the vast superstructure of language to your own leisure, and proceed to one of the more immediate sources of our modern vernacular.

If I were about to begin a course of German literature to a class of English youths not altogether uninitiated into the elementary principles of grammar, I should think that it would lessen my labour and facilitate their progress if I were to declare at the outset that it was not a new language they were about to master, but only a dialect of their own mother tongue, somewhat remote indeed, with much adventitious matter, but still in the main features of construction and syntax with many homophones, whose identity apparently different, becomes apparent, at least, in various modifications of one idea.

This may easily be believed if there be any truth in Bede's relation of the arrival of Hengist and Horsa with their Saxon followers, or even

putting that entire tale, as I believe it to be, fabulous or an allegory, it must be still evident that our earliest colonisation must have been from the nearest point of the continent, which, from geological dates into which I cannot now enter, must have been the coast of Western France and Germany, much nearer formerly than at present; the first colonisers necessarily brought with them their own language. The date given by Bede and the *Saxon Chronicle* for this event is 449. But the Romans had held sway here for almost four hundred years previously, and these conquerors had found a cultivated and intelligent people with many refinements of art, with a well-established government, with hereditary rule and a metaphysical priesthood, with a militant cavalry, and war chariots, which presume excellent roads, and thus an established traffic, all of which would require the refinements of language.

It would draw me too far from the immediate object of this paper to examine fully what this language was; I am prepared to argue, and I believe to prove, that it was essentially Saxon; and my proofs would be the rendering of all the names which Ptolemy gives in his survey of our islands, significant and even expressive of their present designations; further, by the titles on their so-called Tuiscan coins; by the indelible Saxon stamp in the names impressed on our hills or rivers, our lakes and forests, better preserved in the mouths of our peasantry than in the distorted forms found in the Roman historians; a language which I believe to have earliest pervaded entire Europe, if not the whole globe, and which I should call the *Theotisc*, because I find in *θεος*, *Zeus*, *Deus*, *Thuisco*, and its modification *Thor*, and even the Egyptian *Thota*, conformity in all for their great first cause, which must have been brought about by a conformity of language.

I will at present, from the shortness of time at my disposal, pass over our Anglo-Saxon as an immediate derivative of your archaic *theotisc*, and admit that it was the language prevalent in this country about forty years after the Romans had evacuated it; but those who introduced it were rather Frieslanders and Lower Germans than any of the three tribes mentioned by Bede.

That such was the case the geological grounds I have already mentioned make probable, and on philological grounds it is the Friesic in which words exactly corresponding with English are interspersed.

In Dr. Bosworth's Introduction to his Anglo-Saxon Grammar, prefixed to his Dictionary, is an excellent paper by the Rev. J. H. Halbertsma, of Deventer, on the ancient and modern Friesic compared with Anglo-Saxon, to which I may refer you. But my present purpose is with the Low German, Platt Deutsch being that dialect prevalent in that division of Germany shown in the maps as Lower Saxony, but also with some dialectical variations in Pomerania and Westphalia. In these countries the further we go back in both, the greater the agreements; this was early seen by old R(ichard) V(erstegan) in his *Restitution of Decayed Intelligence*, he says at p. 198:—

"And notwithstanding the so swerving of our tongue from the

original, I durst for a trial of the great dependence which yet it holdeth with that which, being issued from the same root, is spoken on the Continent; write an English epistle of chosen-out words yet used among the people of sundry shires of England, as also of the people of Westphalia, Friesland, and Flanders, and the countries lying between them that should be well understood of Englishmen and Dutchmen. It is not long since an Englishman travelling by waggon in Westphalia, and hearing the waggoner to call unto his mare and say, 'De strong is losse, bind de strong acu wagen vast,' presently understood him, and deeming the fellow to have been some English clown, spoke to him in English."

Richard Verstegan wrote his book in 1605, when William Shakespeare was in the acme of his fame, and a little more than two centuries later you will allow me to give you a fact from my own experience, for the same proof for which I have introduced it in my *Shakespeare's Puck* and his *Folklore*, vol. i, p. 4.

Two blanket-weavers from Heckmondwike brought some bales from their loom for sale to Hamburg; not satisfied with the prices offered them there, they determined to try the experiment of hawking their goods through the small towns and amongst the country people of Holstein and Lauenburg. They were successful in disposing of their entire stock; and to questions on their return how they had managed as regards the language, gave for answer: "It were nought so bad; German were nobbut broad Yorkshire backarts way." The words themselves presented no difficulty; it was only in their syntax and disposition that they found obstacles.

I have elsewhere recorded my opinion that it was this conformity of language which, under Providence, paved the way for the introduction of the truths and blessings of the Gospel throughout Germany by the noble army of Anglo-Saxon martyrs, Willebrord, Bonifacius, Winifred, Gallus, Collumban, Kilian, Walpurges, and a host of others from the seventh to the ninth century. Gaul and Italy were much nearer, and their own conversion from Paganism much earlier; but preachers from either country were never in any degree so successful as our countrymen; a consequence, partly, no doubt, of their own energy and zeal, but that zeal would have been almost ineffectual without a more intimate community of language than was found in the Romanised dialects of both the other countries. Low German or *Platt Deutsch* may be said to have been the earliest mother of the present German tongue. High German, *Hoch Deutsch*, was only one of its dialects till Luther, who spoke it, raised it by his translation of the Bible to be more especially the German language, which, by the continued improvement of subsequent writers has excluded every other; has become the Book, the written language of the country.

This influence of the German Reformers in preventing the further cultivation of the Platt or Low German, and in continuing its use only to the lower orders is regretted by all who are acquainted with its beauties. The most learned critics agree that while the Low German is equal to the High in strength and power of composition, it is much softer and richer. The true old German freedom, sincerity, and

honesty could have no better exponents of its full mental and political independence, of its genuine and confidential outpourings of the heart than its old unsophisticated open Low German tongue.

It is generally acknowledged that the purest Low German is spoken in Holstein and the southern portions of Schleswig, and particularly in the neighbourhood of Kiel. The Braunschweig and Hanoverian dialect is broad and coarse. In the south-east of Westphalia it mixes with the High German, while on the borders of the Netherlands it melts into the Dutch.

Anciently this dialect was less neglected than subsequently. Professor Müllenhof in his collection of Schleswig-Holstein Sagen (Introduction, p. ix) claims what we should unwittingly miss from our small store of Anglo-Saxon remains; Beowulf, as well as Sceaf and Offa, in the poetical recital of their deeds. The poem entitled the Helland, an old Saxon alliterative metre, has better claim as an indigenous composition; but here the poetic vein seems to have made a long pause, as but a few isolated verses can be collected subsequently, till immediately upon the introduction of the printing press the beautiful apologue of *Reyncke Voss* (Reynard the Fox) made its appearance.

It was soon after established as a favourite in nearly every European language, and a prose translation of it by Caxton is still one of the greatest curiosities left us by our earliest typographer. Time will not permit me to go into the history and merits of this remarkable production, which Göthe has fitly denominated a German *Odyssey*. I will only add that on reading it I was so impressed with its beauty, and the numerous affinities it offered for an elucidation of my native tongue and our national customs, that I made a translation of the entire poem with copious notes, which I still retain in MS.

A single instance of the use of Low German in making us understand our English tongue, may be allowed me in the word *starve*; its use must appear anomalous in being starved by cold and starved to death by hunger; but when we find that the Low German *starben* is to die, the High German *sterben*, the anomaly vanishes.

In later years the dialect of Schleswig and Holstein, to which, when speaking of Platt Deutsch I more immediately refer, has received greater attention. Professor Karl Müllenhof published in 1845 the work before mentioned, called *Sagen, Märchen, and Lieder* (Saws, Tales, and Poetry), collected principally by the clergy of the provinces, many of them in the dialect of the peasantry. This book was extremely well received, and is frequently quoted both for the legendary matter and the language. I will give you a specimen, selected to prove the still prevalent identity of this dialect with English in a short riddle:—

Höger as en Hus	*Higher than a house*
Lüttger as en Mus	*Smaller than a mouse*
Gröner as Gras	*Greener than grass*
Witter as Flas	*Whiter than flax*
Bitter as en Gall	*Bitter as gall*
Und doch mögen ded all	*And still may it all*
Der wall nuss.	*The walnut.*

It was possibly the success of this work that induced the latest and

best contribution to Platt Deutsch literature that has since reached me in a small volume of poems by a country schoolmaster, called Claus Grothenuder; the title, *Quickborn, Volksleben in platt deutschen Ditmarichen Mundart* (Quickborn, or Daily Life, in Low German Poetry of the Ditmark dialect (first published in 1852, but of which the edition I possess is the seventh in 1857). He gives many words and many customs that revive early English recollections, and also a very fine adaptation of Burns' *Tam o'Shanter* to Ditmarsh localities and superstitions.

In conclusion, I will give one or two examples where words, though homophones in English and German, have different meanings in both languages by being taken in different relations to the same idea. Both the English and German languages have the word *craft*, spelled by the Germans *kraft*, with whom it means merely physical powers; *ein kräftiger man*, a strong man; our meaning of skill, as in handy-craft, has now degenerated down to cunning, but the transition is in perfect illustration of the noble adage "that knowledge is power." So with *rasch*, in German, simply quickness; *ein rascher schritt*, a quick pace, whilst we have followed up the frequent consequence of quickness becoming rashness, recklessness.

Another example is the German *lustig*—merry, jovial—whilst the English lusty is the usual consequence of a jovial course of life, illustrating our old proverbial saw of "*laugh and grow fat.*" It is upon such a principle I should insist, as the best for translations, taking the idea and rendering it by some of its categories, or consequences; and in such a manner I could analyse a verse of any German poet, proving its near identity, if I felt that I had not already encroached too long on your time and patience.

The Chairman having thanked Dr. Bell for his admirable paper, remarked that it appeared to be the opinion of the author that the first notion of language came from lightning, which was perhaps further borne out by the traditions of the Vedas concerning the speaking of thunderclouds.

Dr. Charnock said he agreed with the author of the paper that there was a great resemblance between the English language and the Friesic, and that during his travels in Northern Germany he had noticed the same. He disagreed with Dr. Bell in his etymology of *suus* and *usus*. Usus was derived from *utor*, from Gr. *εθω*, *soleo*, whereas *suus*, *a um*, came from the Sanskrit *swâm*. The Greek letter *λαμβδα* was not from *λαμπος* (a mistake for *λαμπας*), but from the Hebrew *lamed=mal'med*, an ox-goad, in which form this letter is found on Phœnician monuments. He could not agree with Dr. Bell that the more advanced philologists considered that all languages were derived from a parent tongue. The author of the paper further stated that if a few words were found to be the same in all languages, it would be something towards proving that they came from a primeval language; but to ascertain this facts upwards of three thousand languages would have to be examined. But whence were derived the remaining words in the different languages of the globe? No doubt

many ordinary words in the principal languages and dialects of Europe, and in some of the Oriental languages, were very similar, and were derived from the same root; but many other ordinary words in those languages were totally different, and most of the words in the principal languages of the globe were totally different. Take the word *gold*, which although found much the same in the Gotho-Teutonic languages, was represented by other words in Latin, Greek, Polish, Sanskrit, Persian, Turkish, Hebrew, Malay, and Bengalí; and indeed in most languages.

Rev. DUNBAR HEATH, who said he thought the paper was to have been upon the origin of language, but really it contained very little upon that subject, and that little was that when man saw lightning he exclaimed "oh!" and then "ah!" and then put on an "l," and said "lor," which meant fire and light, but if he admitted all that, would it prove anything? The first verbal sounds, if they expressed man's feelings at all, would express the most fundamental, whereas lightning was a thing appearing only now and then. There were strong emotions common to mankind daily and hourly felt, and surely those, rather than an inconstant phenomenon, would have prompted utterance. It was almost an axiom that out of the emotions must be built a further advance to the perceptions, and if language were not heaven-born it must have been formed out of the emotions, and not out of the perceptions. He had often thought that in considering the origin of language, it should be compared with the natural sounds made by animals. There were hundreds of species of ducks and geese, which made nearly, but not quite, similar sounds; there were beasts which, like the horse and zebra, had a certain other set of sounds nearly but not quite alike; and in the same way races of men had the power of speech nearly but not quite alike. There were genera of sounds among animals, and when the origin of those was shown, that of language would be shown also. The investigation of human language would be assisted by the science of the noises of animals. The story of a dumb son suddenly speaking when he saw his father in danger, had been alluded to. The power of speech in that case must have arisen from emotion. Emotion was the first step to speech of a strictly individual character, but there was a half-way step of a semi-intellectual character towards language when a common emotion, affecting a crowd of persons, was expressed in common utterance, and thus passed from the purely individual to the social. And going a step further, emotion could be traced upwards to rationalism. In his opinion, proceeding in that course seemed more likely to lead to the truth of the origin of language than by endeavouring to build up words on abstract principles.

Mr. PIKE said that Dr. Bell's paper was so suggestive, that it was difficult to know where to begin. In the first place, he quite agreed with the author that it would be impossible to start on the assumption that we owed language to divine inspiration, because if that were so (and he did not wish to be understood to deny it), it would be out of the field of science and unfit for discussion in a scientific meeting. Assuming, then, that such was not the case, from what

starting point had language arrived at its present state? That he believed to be the question before the meeting, and to that he would return; but in the meantime he would express his obligations to the author for his treatment of the subject; for though he had travelled away from the direct question, he had touched upon others of very especial interest to himself. Dr. Bell had said that early English and the Frisian dialects were allied, and therefore the peoples were the same; but he thought that a very rash assumption, for which there was no proof, as language by no means indicated race. For example, the language of the American-Negro was like our own, and also that of the educated high-caste natives of Hindostan, and that of parrots, yet no similarity of race was held to be proved thereby. Dr. Bell also asserted that the names of the rivers, mountains, and principal natural features of this country, were of Teutonic origin, but if any one fact could be mentioned upon which philologists were agreed, it was that the origin of those names was not Teutonic, but Celtic. Dr. Bell had made a statement that the word Teuton was connected with the Egyptian *Thoth*, and with certain words signifying God. That statement went one stage beyond the apotheosis of Teutonism; it was a statement that everything Teutonic was, *ipso facto*, divine. Many men who had a contempt for science were apparently of the same opinion. And as to the similarity of English and the Teutonic languages he would refer to Max Müller and others, who consider grammar to be the great test of the affinities of language, and ask whether that test supported the assertion. He challenged any philologist to give a definition of a Teutonic language on the principles of comparative grammar; he challenged them to shew what was exclusively Teutonic in the English language. It was impossible to point out any set of grammatical forms common to English and the dialects called Teutonic which was not also common to some others. So far as the vocabulary was concerned, it was admitted that only one-third of the English language was in any sense Teutonic. Dr. Bell's assertion that there was ratiocination in man but not in brutes, and that the human organs of speech were identical with those of brutes, were simply statements. The organs of speech were not the same in brutes and man, nor even the same in all men. The larynx of Negroes, for example, was different from that of other races. And as to the brute creation, birds had no teeth, and was not that a difference in vocal organism worth notice, to say nothing of all other differences? But to recur to the origin of language. The fact, if fact it were, that similar words had similar meanings in various languages, was not wonderful. There were, on the other hand, identical words in different languages expressing totally different meanings, as black, and the French *blanc* (white). If a link were wanting between those two words, it was to be found in the Greek *μέλαν*, which was undoubtedly connected with the word *black*, and which any Frenchman, with a cold in his head, would convert into *b(e)lanc*. Such similarities of sound proved nothing whatever. To get at the origin of language it was certainly worth while to study the interjections, and it was satisfactory to find even philologists

coming to an agreement on this point. Language should be treated like any other science, and traced back to see how it had arisen. By way of example, let the word "grammar" (γραμματική) be traced back. The word was used to express a difficult branch of the science of philology; from that meaning we get back to the simple art of putting written words together. We then get back to γράμμα (a writing), and to γράφω (to write); but we know that the earliest meaning of γράφω and the allied words in other Aryan languages, was "to scrape," which is itself another form of the same word, and may be compared with the Latin *scribo*. The earliest kind of writing was scraping, and thus it happened that our word grammar was derived from a word which may have been applied to the very simple operation of scraping a bone with a flint implement. In other cases, as in that, it would be found that words had advanced from simplicity to complexity, as they had grown older and men wiser. Let words be traced back to their simplest forms and their simplest significations. The simplest fact which could be expressed was a state of consciousness; not necessarily, as Mr. Heath put it, what is called an emotion, but either an emotion or a sensation. The expression of emotions, which seemed to be a mode of drawing off nervous energy or excitement, was common to men and brutes; and it was not at all improbable that an involuntary cry might have given rise to the roots of some words, and it was not an unreasonable conjecture to suppose that the interjections caused by pain, pleasure, hunger, may all have been starting points. This, though only a conjecture, was in accordance with all the known facts. The origin of language was probably mimetic, and derived from the various sounds of nature. He begged to express his gratitude to Dr. Bell for having introduced no mysticism, no dogmatic statements about abstract ideas, and no Hegelian metaphysics into a subject which was sufficiently difficult even when free from such impediments.

Mr. CHARLESWORTH thought it would be very interesting to investigate the sounds made by animals and those of human beings with a view to comparison. The subject was of much philosophical interest, and especially so upon the theory that language sprang from the emotions. The emotional utterances of the lower animals *did* convey a great deal of information to man in some instances, as in that of the spaniel, whose peculiar and different cry was at once sufficient to inform the sportsman whether he had sprung a woodcock or come upon a hedgehog or a snake. He did not altogether agree with the Rev. Dunbar Heath's opinion that such sounds had any generic grouping, because there seemed to be no analogy between the general anatomy of the creature and the sounds uttered; for often the anatomical structure was nearly identical, and the sound made quite different, the horse and ass for example. Nor was animal classification any guide to the sound; sheep, bulls, and deer were all ruminants, but the two former made very different sounds, and the latter none. Giraffes made no cry, and the only instance known of any vocal sound made by those creatures having been heard, was by those in the Zoological Gardens, Regent's Park, when, on one occasion, during

sexual embrace, a slight cry was uttered. The anthropoid apes, most like man of all creatures, would have been thought the most likely, on the basis of anatomical analogy, to make also the nearest approach in speech, made, on the contrary, the most dissimilar sound of all animals. Seals made sounds most nearly resembling the human voice, and he had heard the "talking fish," which was really only a seal, utter certain sounds, such as "mamma," with marvellous distinctness and closeness of resemblance to human speech. The celebrated talking canary was the most remarkable instance on record. It had imitated the human voice of its own accord, and its beautiful modulation of tone was most charming. But the subject had never been treated by the Society in the scientific manner it should have been. What was known of language in its lowest form, as used now by the lowest races, such as the Andaman Islanders and the men of the earth-caves of Africa? Was their language primary or was it degenerate? He asked for information, which he hoped some member would afford him.

Mr. R. Tate complained of the manner in which the subject had been treated by Dr. Bell. Among other remarks he had spoken as if the letter "*r*" was unknown to the people of Northumberland, but he always thought they were the only people who *could* pronounce it. The author also alluded to geological changes in his remarks upon the arrival of Teutonic tribes in this country, but if the immigration took place by land, it must have occurred before the separation of England from the continent, in which case the immigrants could not have been Germans.

Mr. McGrigor Allan understood the author to have said that the people of France and Northumberland could not pronounce the letter "*r*," but he thought that all the English, both the vulgar and fashionable, had a great tendency to omit that letter. The English were very much amused by the Scottish and French pronunciation of the *r*, because it was so different from their own. But might not the Scotch and French be right in rolling the *r*? The English evince almost a national inability to pronounce that letter. With regard to the vocal organisation of man and animal, Buffon stated that the difference was that man uttered sounds by *ex*piration and animals by *in*spiration, but from his own observation that was not the case. He thought vocalisation was produced alike in man and animals by *ex*piration.

Dr. Hunt agreed with Mr. Pike that they were indebted to Dr. Bell, but not for the same reason as that gentleman had given. Dr. Bell, he thought, helped to show what were the true arguments and subjects they might pursue with advantage. It was, he thought, evident that any paper upon language at present, when only the general question could be dealt with, was useless towards advancing the progress of anthropological science, and their sister Society in Paris had come to the same conclusion. Nothing new had been presented to them. With regard to the vocal organs of man and beast, they were *not* the same, nor even the same in all men. The vocal and articulating organs of different races of men were as different as

the shape of their hands. He had no remark to make upon the speaking animals, nor upon the speaking machines which were well known years age. He was surprised to hear the author refer to Dr. Rush, who had been long superseded by Max Müller, Steinthal, Merkel, and by writers upon the structure of the vocal organs. The remark that the vowels went for nothing was not new, and that the fact was known in the last century when Monboddo wrote that all languages had one origin; that it was first of all guttural, and that labials were not introduced till some later period. That, so far as it went, was a philosophical explanation of the origin of language, and no better scientific explanation had yet been given. The subject was not ripe for discussion, for they were not now in a position to consider how language actually arose, but only how it might have arisen. The divine origin of language was a proposition of the same nature as that of the divine origin of man. Both questions must be determined in accordance with natural laws, and both now could only be discussed as what might have been. In reference to Mr. Charlesworth's remarks he would mention that the subject had engaged attention, M. de Serres having read a paper, which was afterwards printed in the *Memoirs*, before the Paris Academy, on the sounds of animals, and M. Dupont in particular had devoted much time to their study, and had discovered that pigeons and fowls make twelve different sounds, dogs fifteen, cats fourteen, and cattle twenty-two. With regard to the lowest tribes of men, those in Borneo were the lowest known, but all we know of their language was that they make a hissing sound. There was nothing so well established as that the sound of the voice was influenced by the shape of the vocal organs, consisting of the oral canal, the tonsils, larynx, and vocal cord. Articulation depended upon the articulating organs, and by a minute investigation of their structure and functions, and not by any *à priori* assumptions, in his opinion, the origin of articulate language must be traced.

Dr. Bell in reply said, that with regard to the remarks made upon his having traced the origin of language to the emotion caused by the sight of lightning, since nothing stronger or more striking could be shown than the effect of that element, it might well have been the cause of the first exclamation. As to the colonisation of England by the Germans, it must be remembered that the English coast had greatly altered, and that in earlier times the Dover cliffs were much nearer to France than they are now. So many natural convulsions had occurred that the position of many places had become changed. The small island of Heligoland, for example, was formerly a large province and part of the mainland. The Goodwin Sands and the coast of Norfolk, where so many towns had been swallowed by the sea, bore witness of such changes, as also the mouth of the Humber, where Ravenspur, the town at which Edward IV landed, was now buried beneath the ocean.

Mr. Tate did not see why Dr. Bell should have gone to Heligoland for example, when Dover, so much nearer, was only twenty-six miles from Calais.

Dr. Bell replied that no doubt the North Foreland and Boulogne were parts of the same ridge of land that was formerly continuous. But with regard to the ancient names of places in Britain, if Ptolemy were taken as a guide, he would undertake to find all the names given by that writer describable from the Teutonic names. Aberouse clearly meant the mouth of the Ouse; and "Μεταρρις," the word Ptolemy used for the "Wash," admirably expressed the rise and fall of water. Harwich, called by him "Κατασαλον," was another example, describing the mouth of the River Stour, and being the translation of the Britannic name. So that Ptolemy only gave a translation from the pre-historic language he found in Britain.

The Chairman having thanked Dr. Bell in the name of the Society, the meeting then adjourned.

April 2nd, 1867.

Dr. Charnock, V.P., in the Chair.

The minutes of the preceding meeting were read and confirmed.

It was announced that the following gentlemen had been elected Fellows of the Society:—C. M. Barter, Esq., M.B., 27, The Paragon, Bath; A. Bender, Esq., 1, Lansdowne Terrace, Stockwell; P. A. Brady, Esq., M.D., Bradford, Yorkshire; W. Barrington d'Almeida, Esq., F.R.G.S., 19, Green Park, Bath; Walter C. Dendy, Esq., Past-President of the Medical Society of London, 5, Suffolk Place, Pall Mall; Lieut. Arthur E. Downing, Bengal Army; R. H. W. Dunlop, Esq., C.B., F.R.G.S., Lakefield, Glen Urquhart, Inverness-shire; Robert Dyce, Esq., M.A., 16, Union Terrace, Aberdeen; T. d'Orville Partridge, Esq., M.R.C.S.Eng., and L.R.C.P., Flat Island, Mauritius; Rev. Edgell Wyatt Edgell, 2, Lansdowne Terrace, Notting Hill; George Rogers, Esq., M.D., Longwood House Asylum, Bristol; Edward Wood, Esq., F.G.S., Richmond, Yorkshire.

The presents received since the last meeting were announced as follows:—

For the Library.

From the Author.—Burmeister. Anales del Museo Público de Buenos Ayres, entregas 1 & 3.

From K. R. H. Mackenzie, Esq., F.S.A., F.A.S.L.—Picture of Hindoo in Mourning.

Antonio Nuck.—Adenographia curiosa, et uteri femineia natome nova.

The Director called attention to the large collection of specimens which had come from the Gaboon, and had been presented to the Society by their active Local Secretary, Mr. R. B. N. Walker. There were forty-six distinct specimens. The letter which accompanied them stated that Mr. Walker was still zealously at work for the Society, and more contributions to the museum might be expected from him ere long. In Mr. Walker's letter he expressed surprise how little the works of the Anthropological Society were at present

known on the west coast of Africa. In that part, he said, the English understood the Negro character, and if the negrophilists would only pay a visit to that coast he felt assured their views on the subject would undergo a great change. Dr. Hunt further observed that two years ago the Society had voted the sum of £20 to Mr. Walker to assist him in penetrating farther into the interior to examine more closely the African races. Hitherto they had heard little from him, but to-night there was presented a rich collection of specimens, the products of some of his labours. There was a list of forty-six distinct specimens used by the Negroes, and there was a communication from him occupying sixteen closely written pages. It was not necessary then to read any portion of the letter, as Mr. Walker was preparing a paper, or papers, to be read to the Society on a future occasion, when the opinions expressed by him on the Negro of Western Africa might be calmly discussed. In the mean time the weapons might be examined, which were explained in the list that accompanied them. He thought that nothing throws so much light on the savage races as the character of the weapons they used.

The following is a list of the objects on the table:—

1. Two fly whisks, from Loango, West Africa.
2. A grass-cloth, ditto.
3. An ivory carving, ditto.
4. A native pitcher, ditto.
5. Three pipe bowls, ditto.
6. A nest of six baskets, ditto.
7. Three small grass-cloths, from Old Calabar, W. A.
   (The above presented by Robert Kirkwood, Esq., of Gaboon, W. A.)
8. A musquito-net or bar (Nago-mbo), from R. Ogowe, or Ogove, W. A.

8*a*. Two pieces of grass-cloth, from Loango, W. A.

8*b*. A Ngove girdle, from Ngove or Caputa, W. A.

9. A pipe-bowl, made by Mbisho, or Mbisyo, tribe, Corisco bay, W. A.
10. Five spear-heads made by Ba-Fanh tribe, head waters of R. Gaboon, W. A.

10*a*. Six spears, made by Ba-Fanh.

11. Six knives or daggers, made by Ba-Fanh.
12. A Ntyambi, musical instrument made by Mpongwes of Chantomé, or south shore of R. Gaboon, W. A.

13, 14. Two skulls of Osyekani (pl. Asyekani) tribe, neighbourhood of R. Gaboon, W. A.

15, 16. Two skulls of Akeli, or Bakĕli tribe, near R. Gaboon, W. A.

17, 18. Two skulls of Ba-Fanh tribe, R. Gaboon, W. A.

N.B. Nos. 13 to 18 in small case, marked A.S.L. 2.

Nos. 8 to 18, both inclusive, presented by William Latta, Esq., Gaboon, W. A.

19. An Osyekani skull, R. Gaboon, W. A.
20. A skull of Nkâmi, or Camma, native, from R. Fernan Vas, W. A.
21. A skull of "Bobouri," Grand Bassam, W. A.

22. A Ba-Fanh skull, from R. Nkâmo or Coms, an affluent of the Gaboon, W. A.
    Numbers 21 and 22 presented by Mons. E. G. Méry, F.A.S.L., Gaboon.
23. Six Ba-Fanh spears, R. Gaboon, W. A.
24. An Inlenga paddle, R. Ogowe or Ogove, W. A., at confluence of Orembâ Okanda and Orbâ. Ngrmye.
25. A loom of the Isyâgâ tribe, with piece of grass-cloth, or Owŏngâ attached, nearly finished. This loom is common to many tribes; it appears not to have a collective name for the whole; the different parts are labelled with Isyâgâ or Isyira names.
26. Ipusu; material employed for the manufacture of grass-cloth, procured from a palm called by the Mpongwe-speaking tribes Enlimba (pl. Anlimba). This palm also furnishes these tribes with materials for building their houses, also with the thatch, which is sometimes called Calabar mats.
27. A Bakĕlĕ mat, R. Ogove, W. A.
28. Four Ngove mats, Ngove or Caputa.
29. Four pieces of grass-cloth (Owŏngâ, pl. Eboŭga), from Isyâgâ tribe, Orembâ Ngunye; several of these sewn together into a large cloth are worn by the tribes of the Ogove, Orembâ, Okanda, and Ngunye, and by many tribes south of and interior of the Gaboon; to the northward these cloths seem unknown; the large cloths are called Ndengĕ.
30. Two Ndengĕ, made by Isyâgâ, obtained at the Iveia town of Buāli, Orembâ Ngunye, a few miles above the Falls of Samba.
31. A Bakĕlĕ girdle, from R. Ogorve or Ogove.
32. The fan, or ivĕpa, of Nkombe Revĕga, or Nkango Ntyuga, a chief of the Igalua tribe, R. Ogove; the man was the chief cause of my being unable to ascend the Orembâ Okanda farther. Large fans of this description are used by the chiefs as insignia of authority, particularly when making a speech, or "talking a palaver."
33. An otendo, or hair-pin, from Inlenga, R. Ogove.
34. A spoon made by a slave at Inlenga, ditto.
35. A knife; imitation of "Dutch knives" used in barter; made by Isyâgâ; purchased at Buāli and called by the Iveia tribe tyuma.
36. A piece of ntyinge, or red dye, used with oil to anoint the skin, more especially by women during menstruation, and after childbirth, as a sign of uncleanness; procured at the Ivili town of Chief Agumbo at Samba Fall, Orembâ Ngunye.
37. A cutlass, or sword, made by Isyâgâ; procured at Iveia town of Buāli, above Samba; called by Iveia, ivaka, and valued so highly by them as to be almost unobtainable.
38. A bow of Isyâgâ; used also by Isyira and other tribes inland, but by none lower down the Ngunye than the Ivili; called by Iveia, igĕta. Tribes north of the equator, as the Ba-

Faugh, use cross-bows; those south, bows like this. I hope to procure and send a Fanh cross-bow and bolts soon.

39. Thirty arrows, some of them poisoned, made by Isyâgâ, purchased at Buāli; called by Iveia, moulai, but this name, I think, is rightly the name of the *poison* only.
40. A quiver, made by Isyâgâ, purchased at Buāli, and called by Iveia, isogolu.
41. A piece of bark and two leaves, given to R. B. N. W. by Rempâlés head slave, an Esyĕbo, before starting up the Orembâ Okanda; the Okanda tribe are supposed to be powerful magicians, and the Inlenga are quite unable to counteract their spells, but the Osĕbo are equally if not more powerful; the bark and leaves were to be kept constantly about me, and placed at night under my pillow, which would prevent harm coming to me during sleep; for it is at night that these people most fear the influence of witchcraft and sorcery; a man who by day possesses a fair amount of courage, becomes at night a pusillanimous coward; not having reached the Okanda tribe I was unable to put the virtues of my counter-charm to the proof.
42. Eleven iron necklets of the Ba-Fanh, Gaboon, W.
43. An iron bracelet of the Ba-Fanh, ditto.
44. A girdle of the Ba-Fanh, ditto.
45. A sword of the Ba-Fanh, ditto.
46. A dagger of the Ba-Fanh, ditto.

Nos. 19 and 20, and 23 to 46, both inclusive, are collected and presented by R. B. N. Walker, Loc. Sec., A.S.L., Gaboon.

N.B.—*â* is pronounced *aw*; *ŏ* has nearly the same sound as *â*; *v* is a combination of *v* and *w*, or sometimes of *b*, *v*, and *w*; *nl* is a combination of the two letters very frequent in the Mpongwe language, but sometimes the *n* is nearly mute, at others the *l*.

Orembâ (-baw) means river, and is the proper form of the word Rembo used by Du Chaillu; it makes Itembâ in the plural.

The first paper read was

On the Gipsies of Bengal. By Babu Rajendrálála Mitra.

Abstract. [The paper will appear at length in the *Memoirs*.]

The author pointed out at some length the general belief in Europe that the gipsies are of Asiatic origin; and gave the various names by which the gipsies, who call themselves *Rominichal*, or wandering men, became gitanos in Spain, zingari in Turkey, tatters in Holstein, weddahs or nuts in Southern India, and bediyas in Bengal. He compared the last-named with the gipsies in Europe, with whose habits great similarity existed. A long description of the customs, appearance, and language of the bediyas was given, illustrated with vocabularies showing the differences and resemblances between the Bediya and Hindustani Bengali dialects.

Mr. Hyde Clarke considered the paper to be a valuable one, as it

established the identity of character of the gipsies of the east with those of the west. The gipsies of Asia Minor, however, had not the same character for plundering as the gipsies generally have, and seldom came within the notice of the police. They follow in other respects the same practices as the classes of gipsies in Bengal. Many of the women were fortune-tellers, some were dancers, and they exhibited the same looseness of demeanour; but he believed they could not be charged with want of chastity out of their own caste. Many of the women earned their livelihood by working at the iron trade, in which small furnaces were employed. Their mode of habitation was the same as that of the gipsies of Bengal. In Turkey the gipsies are never employed as soldiers, for which occupation they are considered to be unfitted. In their outward conformity to the religion of the country they inhabit they also resemble the gipsies of Bengal. They went to the Greek church or were Mussulmans, according to circumstances. At Constantinople the female gipsies were dancers, and bore a loose character, but they were not prostitutes. The paper, he considered, contained much valuable information as it enabled them to compare the western gipsies with those of the east.

Mr. C. Carter Blake made some remarks on that part of the paper which noticed the practice of the extraction of sinews from the flesh, which he said was not a local peculiarity nor confined to any particular race or period. The custom was now known among the Esquimaux, and there was evidence, from the appearance of the bones, that it was a common practice among the dwellers in the bone caves of Southern France and Belgium. It was a curious fact that such a custom, which had existed at periods so distant, should prevail at the present time.

Dr. Dutt said there was no doubt a race of people in Bengal called bedyias, but whose characters had been much exaggerated in the paper. There were two classes called bediyas, who differed from each other. The people of one class were not thieves, nor were they dirty in their habits, but they got their livelihood by juggling. The others, also called bediyas, were a class of rogues. In the paper both classes were confounded together. The women of one of those classes did not go about telling fortunes, but were very hard working women and employed themselves in making baskets and other articles for sale. There was another class sometimes called bediyas, who were not natives of Bengal. They went about the country to cure diseases of men as well as of cattle, and did not pretend to be fortune-tellers. They very much resembled gipsies in character, but whether they belonged to the same race was doubtful. That they were not natives of Bengal could be told from their pronunciation of the language, and from the use of peculiar words. In Mr. Borrow's work on the gipsies it was stated that out of 2,600 words in their vocabulary there was not one peculiar to Bengal, but that there were several that were Hindostanee; therefore, he inferred the race came from India, but not from Bengal. His own impression was that those wandering in Bengal had been confounded by the author of the paper with the others who are not people of Bengal, but whose native place he could not determine.

Major Owen thought it probable that the author of the paper in speaking of Bengal had not limited his observations to the province of Bengal but to the Presidency, which included the whole country. This class of people were not peculiar to Bengal, but the race were found elsewhere. One class was said to congregate much in Benares, from which place they distributed themselves and returned at certain periods. Major Owen mentioned that during the mutiny in India in a remote part of the country his soldiers found some children of the gipsy race who would not give any account where they came from, nor could the tribe to which they belonged be discovered. He said that the gipsies in speaking the Hindŭ language among themselves inverted the position of the letters so as to make a slang language unintelligible to others.

Mr. Higgins said there was a tribe in Madras called Brinjari, who were never found living in towns, and were considered by many persons to be gipsies. He should be glad to know whether they were the same as the Bediyas mentioned in the paper; and also whether philologists traced any resemblance between the words Brinjari and Zingari. They were not a vagrant race, but were employed in carrying corn.

Dr. Dutt, in explanation of his previous observations, said there are women who wander about Bengal and speak the Bengalese language so imperfectly as to show that it is not their own dialect, but there are others who speak it correctly. They were different classes of bediyas. There was another wandering class mentioned in the seventh volume of *Asiatic Researches*, by Captain Richardson. His own impression was that the two classes who are jugglers are not gipsies; but that the other class, who go about the country professing to cure diseases, may belong to the same race as the gipsies, but that they are not natives of Bengal.

Mr. Hyde Clarke commented on the grammatical structure of the language of the gipsies, remarking that, although it was considerably affected by the language of the country in which they resided, it was decidedly of an Indian character. The gipsies in Spain adopted several Spanish words, and it was the same with those in Italy.

Dr. Charnock agreed with Mr. Hyde Clarke in considering the paper to be valuable, as showing a connection between the gipsies of the east and those of the west. In the vocabulary of the language, he found twenty-seven words out of forty-nine derived from the Hindostanee or Bengalee; in some of the words the letters had been inverted, so as to make what is called back slang. In the Lord's Prayer in the gipsy language, he found that two-thirds of the words were derived from the Hindostanee. He thought the way in which the gipsies settled their disputes was worthy of imitation.

The following paper was then read:—

On a Bechuana Skull. By R. W. Payne, Esq., F.A.S.L.

A few words on a skull. When a boy at school I recollect a skull was defined in some elementary book as a bony box covering and protecting the brain. Since then it has appeared to me as rather an

anomaly that when the brain is the least worth protecting, being of an inferior quality, the skull is thickest. The particular skull in question was picked up by me a few miles south of Zoutpansberg, in the Transvaal district of South Africa, and doubtless belonged to a Bechuana or Makalaka. When first found it was in a tolerably fresh condition, the birds having taken a good deal of the flesh from it, and the ants completed, or nearly so, the purifying process. No doubt its original owner had come to grief in the Veldt, either from a blow from another black brother, from sickness, or from a lion. This tribe of the Bechuana is not a particularly interesting one, as like the Negros generally, it is in a stationary state as regards mental and moral cultivation, and is retreating from before the white man like other savage tribes, and will doubtless continue to retreat until it reaches the wilds of Equatorial Africa, where, as Mr. Crawfurd once observed, it will most probably remain, as no one else can live there, or would wish to do if he could. The Bechuana is a lower class Negro than the Zulu, as he is neither physically so powerful, morally so brave, nor mentally so cunning. The Makalaka is the lowest class of Bechuana. It were much to be wished that travellers would endeavour to procure such relics of humanity as this, and bring them home, so that from comparison the characteristics of races might be studied. There is a little difficulty in obtaining crania, which might by exertion, however, be overcome, and most interesting collections formed, which would aid more the advancement of our knowledge of race than any other means; such collections, however, must consist of a great number of each type, or individual peculiarities will upset any theory. I present this skull to the Anthropological Society, as probably the only Mancatee or Makalaka skull in England, with the hope that it may acquire eventually a number of others, and so gradually attain to that position in power of demonstration which the energetic labours of its president and members deserve.

I venture to give a short anecdote, illustrating the difficulty referred to, of which the truth was vouched to me, but which I merely give as I received it.

An anatomist asked a celebrated missionary in the interior of Africa to procure for him the skull of a Bushman. The missionary said to a Griqua hunter, who lived in his neighbourhood, "Jantje, I want a Bushman's skull. You will probably be able to pick one up one of these days, as you must have opportunities of doing so when in the hunting veldt." A few weeks after, Jantje brought a skull in an unmistakeably lively condition to his pastor, who expressed his fears that the Bushman had fallen a sacrifice to his friend's thirst for science; and such was the case, as Jantje considered the easiest way to get a Bushman's skull was to kill the Bushman; and Bushmen are considered by all natives of Africa except themselves as of very small value. As the Dutch word *kop*, which means head, would probably be used in the instructions, it is not unlikely the Griqua considered he was doing his minister's pleasure in an orthodox manner. I can assure you, however, that the skull I give you was obtained in a legitimate way, and that my hands are clean of the blood of its original owner.

The thanks of the meeting having been given to Mr. Payne,

Dr. HUNT said that Mr. Payne had spent several years at Natal, and was an active member of the Society. He was glad that he had presented that skull, as it was the only one of a similar description in a London museum. Mr. Payne was actively working for the Society, and promised to send them other specimens.

Mr. BAINES made some remarks on the Bechuanas, of whom he said there were many tribes with different names, but they had a general similarity of form.

The next paper read was,

On the Natives of Madagascar. By THOMAS WILKINSON, Esq., F.A.S.L.

The natives of Madagascar may be classed into two distinct divisions, namely, those who inhabit the coasts, and those who inhabit the interior. The former have woolly hair, brown or black skins, strong white teeth, and in fact all the characteristics of a superior order of Negroes, though, in many, the facial angle is more sharply developed than in African races generally. They have a fondness for music and gaudy colours, and possess much sensuality, strong imaginations, credulity and indolence. They have, within the last few years, been conquered by the natives of the interior of the island, called *Hovas*, who, though for a length of time kept back from the sea coasts by the belt of Negroes, by which their inland fastnesses were encircled, at last, by dint of superior skill and energy, succeeded in overcoming their heavy limbed and thick-skulled Negro opponents. These latter are variously named according to that portion of the lowlands which they inhabit; thus the natives of the eastern coast, opposite to the British colony of Mauritius, are called Bĕtsimăsarákas, and were formerly independent, occasionally waging war with other independent tribes in their vicinity. Now, however, the *Hovas*, though they may use occasionally violent measures towards the conquered tribes, force them to keep the peace among themselves. The Hovas inhabit a country rocky and broken in the extreme, in the centre of the island, and which, on account of its elevation, is, notwithstanding its low latitude (about 19° S.) very temperate in climate. These people are generally slender, often small, with, in many cases, long, straggling, unsound, and ugly teeth, straight coarse hair and light brown skins, with faces resembling those of the Chinese or of other Mongolian races. They are shrewd, sceptical, good diplomatists (having several times diplomatically checkmated the French), good hands at driving a bargain, and oftener cheat foreigners than they allow foreigners to cheat them. They show much aptitude for learning and imitating foreign manners and customs. They partially understand European drill, and have procured European fire-arms. Their language, which was formerly only a spoken one, has been by English missionaries reduced to a written one, and is at this moment read and written by at least one-fourth of the male Hova population of Smerins, or *Emeryn*, as the French call it, the name of the native province of the Hovas. They are gradually but surely learning the manners and customs of more civilised nations, and will, no doubt, eventually attain as high a degree of civilisation

as their Mongolian skulls and brains will admit off. They are very jealous of foreigners, to whom they grant certain facilities for *commercial* pursuits, and from whom they learn as much as they can, placing in them, however, no confidence, and jealously preventing them from interfering in political affairs in the island. The grand staple of consumption for both races is rice. Though the coast tribes have been in contact with Europeans for ages they seem not to have much improved their position, while, on the other hand, the Hovas, who have not been long in contact with Europeans, have progressed wonderfully. Sometimes intermarriages take place between the races, and, as might be expected, the offspring seems to partake in a modified degree of the characteristics of both parents. Though the colour of the natives varies from a dark black to a light brown, the word "black" or "Mozambique" is applied disdainfully only to slaves or very black persons, and is considered by the natives as a very great insult.

The thanks of the meeting were given to the author of the paper.

The Rev. Dunbar I. Heath said he should be glad to be informed what is the most southern point to which the Mongolian race have been traced, and the most northern point of the Nigritian race. He understood from the paper that the centre of the Island of Madagascar was inhabited by a Tartar people, but how did the Mongolian race get into the interior of Madagascar? He considered the Mongols and the Nigritians the two preponderating races of the earth, and that the Semites and the Aryans, who occupy but a comparatively small area, were derived from the two greater races. Mr. Heath was proceeding to explain his views on that question, when he was reminded by the Chairman that the paper under discussion was only on the natives of Madagascar.

Mr. Ralph Tate considered the Nigritian the younger of the two races who inhabited Madagascar.

Mr. C. Carter Blake said there was in their museum a crucial test of the cranial character of the Hovas. In the alleged distinction between the Hovas and the inhabitants of the west coast of Africa, it was said that the former had a Malay affinity, and that it had been caused either by a Malay immigration or by a geological change which had submerged portions of what once formed a large continent. In the museum of the Anthropological Society at Paris, there were several skulls of Hovas, which had been measured by M. Pruner-Bey, and were pronounced to be of a Negroid character. There was the skull of one Hova in our museum, and any one who compared it with many Negro skulls, would perceive that there was great affinity between them. There were, therefore, opposite theories on the subject. The skulls of those who inhabited the coast of Madagascar were of the Negro type. All evidence showed that the race had the same conformation of skull as the ordinary Negro of the east of Africa, as, for example, those of Zanzibar. If they went to the Andaman Islands, Ceylon, or the Indian Archipelago, they would find a different character. The Negro of Madagascar was very different from the Malay, and still more so from the primitive black population of India.

There was no evidence to bear out the opinion that the inhabitants of the interior of Madagascar were Mongolian.

Major OWEN said there was no doubt that the language of the natives of Madagascar has an affinity to the Malay, and that fact would have to be accounted for supposing the people were not of Malay origin.

Professor MACDONALD denied that the skull produced from the museum was that of a Negro. In the shape of the forehead and in general character there was nothing of the Negro skull about it. Nor was there much either of the Mongolian character. With respect to the extent to which the Malay race may be traced, it was difficult to fix any bounds. They were found along all the coasts of Mongolia, and in still higher latitudes in America. It was difficult, however, to conceive that people so widely separated could belong to the same race. The difficulty in such cases consisted in the assumption that all the varieties of the human race were created from a single pair. That assumption checked all investigations. No one race could live in all parts of the earth, and that fact was evidence that they could not all have been produced from a single pair. Until they got over that prejudice, when they found races of similar habits widely spread over the world, they could never understand how they got there. They conjured up a ghost to account for it, and retarded their investigations by such a fancy.

Major OWEN alluded to an alleged Arabic influence among the people on the north of Madagascar, and inquired whether it would be corroborated, and whether there was any trace of Arabic blood in the islands.

Mr. K. R. H. MACKENZIE said, that at the Cape a large portion of the population, chiefly Malays, employed the Arabic language, and it might be possible that the Malays of the Mauritius or of the Cape might have communicated with the people of Madagascar and taught them Arabic.

Dr. HUNT thought there were no Negro characters in the skull from the interior of Madagascar, and in that respect he agreed with Professor Macdonald. But he could not agree with him in his notion, that to account for the existence of different races in different parts of the world, special creations were required. By such an hypothesis he would conjure up many ghosts instead of one.

Mr. H. BROOKES thought they should get rid of the word creation in all their researches. In the whole domain of nature there was no indication of the creation of man, or of any other animal; and they should not make any progress in their knowledge of man's origin until they had discarded the notion of creation, or had found some evidence of creation. They should endeavour to trace back races to the sources whence they sprang. All that was known on the subject hitherto was, that there had been many successive races of mankind inhabiting the earth, all of which appear to have sprung from races which were inferior, though anterior, to themselves.

Major OWEN observed that in the case of a mixture of black and white races, the progeny was, as might be expected, a medium be-

tween the two. But it had been discussed in the case of a butterfly, that there were three separate females to one male, and the eggs produced not only a male but a female like herself, and another one which was distinct from either.

Dr. HUNT said there were three other papers on the list for the evening which there was not time to read. He then announced the titles of the papers for the 16th instant, and the meeting adjourned.

APRIL 16TH, 1867.

T. BENDYSHE, ESQ., M.A., V.P.A.S.L, IN THE CHAIR.

THE minutes of the last meeting were read and confirmed.

It was announced that the following gentlemen had been elected Fellows of the Society :—William Battye, Esq., M.R.C.S., 11, Buckland Terrace, Plymouth; C. W. C. M. Medlicott, Esq., M.D., County Asylum, Wells; the Rev. R. J. Magens Mello, St. Thomas's Parsonage, Brampton, Chesterfield.

Local Secretaries.—E. Perceval Wright, M.D., Esq., F.L.S., Seychelle and Comoro Islands; Wm. Battye, Esq., M.R.C.S., Plymouth.

The following presents were announced :—

From T. BENDYSHE, Esq., M.A., V.P.A.S.L.—Catalogue of London Library, 2 vols. Sir Charles Lyell, Elements of Geology; Principles of Geology. Gibbon, History of Rome, 12 vols. Ovidii opera, by Burmann. Montesquieu, Works. Rollin, Belles Lettres. Robertson, History of Scotland. A. Pope, Iliad of Homer; Odyssey of Homer. Ammianus Marcellinus, ed. Wagner. E. Walford, History of County Families of the United Kingdom. Anon., History of the Sikhs. Findel, History of Freemasonry. H. P. Liddon, Some Words for God. J. Sumners, Handbook of the Chinese Language. Calderon de la Barca, Life in Mexico. Anon., Life of Santa Teresa. Dr. Cumming, Apocalyptic Sketches. J. Fergusson, Holy Sepulchre at Jerusalem. Goldwin Smith, Lectures on Study of History. S. H. Reynolds, System of Modern History. Minucius Felix, Works of. A. P. Stanley, History of Jewish Church. Bishop Butler, Whole Works. Rowland Williams, Rational Godliness. Baedeker, Schweiz. Levien, Outlines of History of Greece; Outlines of History of Rome. Bacon, Advancement of Learning. Meadows, Italian and English Dictionary. J. Murray, Handbooks to the East, to North Wales, to Switzerland, Savoy, and Piedmont, to France, to North Germany, and to South Germany. Rabelais, Works of, in English. E. Zeller, Strauss and Renan. W. Page, Introductory Textbook of Physical Geography. L. Agassiz, Method of Study of Natural History. E. Waterton, Wanderings in South America. T. Wright, Guide to Uriconium. Lucretius, Rerum Naturæ, ed. Munro. Zimmermann, Solitude. Hurd, Dialogues, Moral and Political. R. Damon, Geology of Weymouth and the Isle of Portland. Locke on Education, Montaigne, Essays. Bagster,

Critical New Testament, Greek and English. Bartholomæus Coclitus, Phisonomie. Esquiros, Itineraire de la Grande Bretagne. J. C. Prichard, Life of. Biberstein Kazimirski, Enis-el-Djélis.

From Dr. JAMES HUNT, F.S.A., Direct.A.S.L.—Bischoff, Lithographs of Skulls of Gorilla, Chimpanzee, and Orang.

From the Author, Sir G. D. GIBB, Bart., M.D., LL.D., F.G.S.—List of his Works; Fossil Lightning; Oyster Conglomerate Bed at Bromley; Canadian Caverns; Larynx of Negro and White Man; Physiological Effects of Bromide of Ammonia; Numismata Medica; Diseases of Hyoïd Bone; Position of Epiglottis; Sanguinaria Canadensis; The Laryngoscope; Growth from Larynx through Pomum Adami; Growth from Epiglottis; Throat Cough.

Dr. HUNT said they ought not to allow the long list of books presented by Mr. Bendyshe to pass without a special vote of thanks to him; he (Dr. Hunt) therefore proposed that the thanks of the Society be given to Mr. Bendyshe for his very liberal contributions to their library.

Mr. J. F. COLLINGWOOD seconded the proposition, which was carried unanimously.

Mr. BENDYSHE, in acknowledging the compliment, said his object in presenting the books to the Society was to induce others to follow his example.

The following paper was then read:—

Table of Human Races, classed in accordance with the Moral and Intellectual Characteristics. By C. O. GROOM NAPIER, Esq., F.G.S., F.A.S.L.

THE GREAT MORAL AND INTELLECTUAL FAMILY, OR SEMITIC INDO-EUROPEAN RACE.

This family, classed zoologically, has been very properly called by Hamilton Smith the "bearded type".

Intellectual Division.	Moral Division.
Greeks	Jews
Slavons	Ten Tribes of Israel
Celts, Gael	Edomites, Ishmaelites, Midianites
Basques	Chaldeans and Assyrians
Georgian and some Caucasian tribes	Ancient Persians
Modern Persians	Ancient Egyptians

Moral Intellectual Division.

Passive Subdivision.	Energetic Subdivision.
Fairer and better formed Hindoo tribes	Saxons
	Scandinavians, and other Teutonic tribes

THE GREAT PASSIONATE FAMILY.

This family, classed zoologically, has been very properly called the beardless type, for beards are rare, and are only found in a few of the smaller divisions of the Family, and of less luxuriant growth than exists in the Semitic Indo-European group. The first division have none, and the second relatively little.

The Motive, Mechanical or Avaricious Division.

The Restless and Roving Subdivision.

The Not Grasping.	The Grasping.
Caribs	Typical Mongols
Six nations	Kalmucks
Bosjesmans	Tungusians
	Malays, Polynesians
	Natives of Madagascar
	Lapps and Esquimaux

The Intellectual or Sedentary and Mechanical Subdivision.

The Not Grasping.	The Grasping.
Mexicans	Chinese
Peruvians	Japanese
	Indo-Chinese races

The Domestic Division.

The Careless, Imitative, but Amiable and highly Domestic Subdivision.

Congo Negroes
Eboe Negroes

The Intellectually and Economically Intelligent Subdivision.

Blacks of Soudan
Gallas
Kaffres
Berbers, Numidians
Khonds, Bheels, Santals

Two schools of anthropologists have laid their views prominently before the world: the physical and the philological. The first dwell principally on the external form and anatomical peculiarities of man, as affording a true index of the system of classification to be pursued. The second consider physical peculiarity of less importance than language as an indicator of the origin and filiation of races.

Man's mind being constituted in harmony with his body, the peculiarities common to each in individuals, show an analogy: this renders clear that there is a connecting link between physiological and philological comparative anthropology. For language as an operation of mind, must, in its varieties, harmonise with physical peculiarities *if rightly understood*, otherwise the body would not be *a type* of the mind. Language being only one operation of mind, although the expression or type of many, should not in systems for the classification of races occupy exclusive attention; but it should be most carefully studied as one of the most important products of the action of mind. In systems of classification it is usual to give the first place to those individuals, parts or divisions, which are most highly organised. The mind, or director of man, should surely receive a higher position than his mere physical portion, for it includes and indicates by its characteristics those of his entire being.

I propose to attempt the classification of the races of men in accordance with their mental peculiarities. I divide man's faculties into three sections; the moral sentiments, the intellectual faculties, and the propensities. These qualities, common to all men by their varying predominance in different races, afford a means for their arrangement.

If the human races classed physically are primarily divisible into three grand divisions; the Semitic-Indo-European, the Mongolian, and the Ethiopian, the races viewed mentally may be justly classified as the moral intellectual and the passionate, which last division would include the Mongolian and Ethiopian races. The Semitic-Indo-European is variously subdivisible into branches, specially characterised by the predominance of the moral or intellectual faculties, or both. The Greeks,

for example, are a highly intellectual race, but are relatively deficient in the moral sentiments. The Arabs, Jews, and the purer branches of the Semitic race, have been in all ages distinguished by the power and activity of their moral and religious faculties. I shall call them the moral subdivision of the moral intellectual race. The inhabitants of Western Europe, the Teutonic especially, possess the moral and intellectual faculties in due proportion to each other; they are distinguished as religious yet highly intellectual peoples. I call them the moral intellectual subdivision of the great moral intellectual family; yet they possess a large share of the propensities which predominate in the great passionate family, these strengthen their moral and intellectual faculties, and render them the ruling race, for they possess in a larger degree than any the qualities of all races.

The passionate family is divided into two subdivisions, the motive or mechanical and avaricious, and the domestic. The Mongolic race belongs to the first subdivision, and the Ethiopian to the second.

The great Ethiopian race includes the Negro and Negroid types, who are generally characterised by a predominance of the domestic propensities over the moral and higher intellectual faculties. I have arranged Tables in which I have shewn what appears to me the true position of the various races in relation to their moral and intellectual characteristics.

I shall first consider the great moral and intellectual family, which contains a larger portion of the Syro-Arabian and Indo-European races; for these I propose the name Semitic-Indo-European races. In this division I have placed these nations on account of the predominance in them of the moral and intellectual faculties over the passions. I have divided the great moral intellectual family into three subdivisions; the moral subdivision, the intellectual subdivision, and the moral intellectual subdivision. This last I have again subdivided into two; the more energetic subdivision, and the less energetic or passive subdivision. I shall proceed to treat the moral subdivision first. In it I have placed the Jews, the ten tribes of Israel, whose character is given in the Bible; the Edomites; the Ishmaelites; the Chaldeans; the Persians; the Georgian, and some Caucasian tribes; and the ancient Egyptians.

All these nations have displayed great attachment to their religious faith, which has taken a more spiritual form than that of other peoples. They have been the cultivators, *par excellence*, of religious belief. The Jews, it is almost unnecessary to say, have firmly maintained their creed under great vicissitudes of fortune. It is more essentially divine, and consequently more appeals to the moral faculties than that of the other nations we have above specified.

The ten tribes of Israel varied in character like any other human family. The Reubenites were relatively lawless (Num. 16), the Ephraimites ruling and honourable, the Benjamites crafty and cruel; but the Levites were the great lawkeepers and moral instructors of the nation. The lapse of the ten tribes into idolatry was, in the first instance, induced by the policy of Jeroboam, who for political purposes was anxious to establish a religious centre in his own dominions, but the long succession of idolatrous princes on the throne of Israel did not entirely

extinguish the purer faith, for on the settlement of a foreign population on the depopulation of the country in the days of Pul, King of Assyria, they fancied they were under some obligation to cultivate the faith of the God of Israel.

The Edomites also, although not so generally as Israel worshippers of the true God, yet cultivated a faith more spiritual than that of most other non-Semitic nations. Eliphaz the Temanite, who was clearly of the family of Esau, in his conversations with Job, gave evidence of a knowledge of a high order of theology.

The Ishmaelites, who form so large a portion of the nations denominated Arabs, are distinguished for their spiritual intelligence, and as pioneers and dictators in faith to a large portion of the world. Mohammed, of the tribe of Koreish, traced his origin to Ishmael. The Assyrians and Chaldeans indulged in complicated religious mysteries and innumerable symbols, which their winged bulls and lions shadow. They were amongst the earlier astrologers; a science which eminently exercises those faculties of man's mind which take cognisance of the symbolic.

The Persians, also, from the days of Zoroaster, have practised faith of an even more spiritual character. The Georgian and Armenian races, who profess Christianity, have surely made a considerable advance on the belief current among their pagan ancestors. The portions of these nations, and of the inhabitants of the Caucasus, who are Mohammedans, are still far in advance of the peoples of the north, who profess Schamanism.

The ancient Egyptians carried symbolic worship to its highest pitch; for with them the most striking animals and plants in their complicated worship prefigured the unseen. Their teachers must have possessed eminently spiritual minds, even if the main body of the nation were incapable of entering into their mysteries.

The Abyssinians deserve a place in the same subdivision as the Egyptians, and they are perhaps superior to them in moral character: they are usually considered an impure branch of the so-called Caucasian race. The Sabeans, or descendants of Sheba, practised a religion similar to that of the ancient Chaldeans, and only less spiritual than that of Moses. The Affghans are an energetic race who show strong physical affinities with the superior tribes of Arabia; they have strict, though limited notions of honour.

The Siaposh Kaufirs of the Hindoo Koosh appear a type intermediate between the Thibetans and the Affghan race. In moral character they should be classed with the latter.

I have specified the principal races which belong to the moral division of the moral intellectual family. I will now turn to the more purely intellectual division of the same family.

The Greeks are the most prominent members of this division, for in ancient as in modern days, they showed more intellectual activity and power than moral strength. The Slavons, Lettons, Lithuanians, Albanians, and Montenegrins also shew similar proclivities and dispositions; but varying in proportion, and considerably less of the intellectual element than in the Greeks.

Greeks are proverbial for their want of probity, and for the unscrupulous manner in which they accomplish their ends, but no nation has greater intellectual power. The gods of Greece had but a low standard of morality, in accordance with that of their worshippers, and their theology, with few exceptions, was, considering its intellectuality, remarkably deficient in the spiritual element.

The Celts, Gael, Basques, and Erse must be classed in the intellectual divisions, but they have a higher standard of morality than the Greeks, Slavons, and Albanians. This standard of morality rises in general as they are mixed with the Teutonic element which imparts solidity, which is accompanied at the same time by the loss of stolidity. The moral standard of the Celts is much lower than that of the Teutons. This is displayed in their less degree of punctuality in meeting their engagements and in the absence of bastardy laws; yet they have more sprightly intellects, are more imaginative, generally sympathetic and social, but capricious and vindictive—than the Teutons.

I will now view the moral-intellectual division, which is that containing the noblest specimens of mankind.

The moral-intellectual division I subdivide into two branches, the energetic and the passive sections. The more energetic contains the Saxons, Scandinavians, Jutes, Frisians, Franks, Thuringians, Goths, Vandals, Suevi, Burgundians, Longobards, Heruli, etc.

The passive section contains the bulk of the inhabitants of Hindostan, excluding such tribes as the Bheels, Santals, and Khonds. The Mahrattas, Hindoos, Tamils, and Teloogoos are intellectual peoples, and show great facility in acquiring European learning. Their various modes of belief inculcate a morality which, viewed in comparison with that of the aboriginal tribes abovenamed, appears high.

They are very deficient in many of the moral faculties, truth being but little regarded in their statements; but the sentiment of veneration predominates greatly in them. The original founders of their faiths must have possessed an acute and enlarged moral sense. They are more theological than Celtic peoples.

The Teutonic nations are those to whom we must look for the highest development of the moral and intellectual powers. They have raised the standard of man in most countries where their influence has penetrated; for in them all the intellectual faculties receive their due share of culture. It is not with them as with the ancient Egyptians and Brahmins, with whom the sentiment of veneration predominates over the other moral faculties; and where custom and the adherence to forms and ceremonies usurp the place of that justice and charity which man owes to his fellow. The proportion of the moral faculties in relation to that of other divisions through which the mind acts, differs greatly among the various Teutonic tribes. Thus the debased Teutons who are not unfrequently found in some parts of Germany and Britain, although eminently intellectual, and often possess great power and activity, are not surely to be classed morally with the Scandinavian tribes. They owe their moral degeneracy to an infusion of the Slavonic element; yet they, by their vast intellectual powers,

produce an immense impression on the world. The German schools of theology and metaphysics had their origin in the fusion of the Slavonic and Teutonic elements, which occasioned an extraordinary development of intellect at the expense of moral power.

The inclination to reform, so striking a characteristic of the Teutonic mind, is even more markedly seen in this Teuto-Sclavonic race.

The Scandinavian tribes have a higher tone of morality than the Teutons generally, but have less activity of body and mind.

The Angles appear to unite the highest moral capacity with the greatest intellectual power and activity.

The Swedes resemble the debased Teutons in many respects ; they have a much lower moral standard than the Norwegians ; but the moral standard of all these nations is higher than that of the Celts ; or in all respects, except the sentiment of veneration, than that of the natives of the peninsula of Hindostan.

The Huns have, I think, been confused too much with the inhabitants of Tartary, so as to have been assigned a place in the Mongolic race. The present population of Hungary, variously called Sclaves and Magyars, possess but a small portion of Mongolic blood. The Magyar division must clearly be assigned a place, yet a subordinate one, in the moral and intellectual division of the moral and intellectual family.

I will now treat of the great passionate family, whom I have divided into two ; the motive or mechanical and avaricious division and the domestic division.

The motive or mechanical division I have subdivided into two : the intellectual, sedentary, and mechanical subdivision, and the restless and roving subdivision. The intellectual, sedentary, and mechanical subdivision may be still further subdivided in two : the grasping for, and those relatively indifferent to, property.

I will now consider the motive or mechanical and avaricious class, with its two subdivisions and their two subdivisions. The first, or intellectual, sedentary, and mechanical subdivision I have divided into two : the grasping and the non-grasping. The Chinese, Japanese, and Indo-Chinese races belong to the first ; and the Mexicans and Peruvians to the second.

All these nations that I have specified possess great mechanical talents, a considerable share of intellectuality, and are not addicted to nomad habits. Of all peoples on the face of the earth, none show more avarice in the acquisition of property than the Chinese.

The Japanese also are a people inclined to trade so far as their rulers permit.

The Indo-Chinese races are intermediate in character as in physical appearance and situation between the natives of Hindostan and those of China ; but they should clearly be classed with the latter. Considerable variety of form exists in different divisions of this race, who, as a whole, are less civilised and have less mechanical ingenuity, and show less avarice than the Chinese. The Bhotya race, or inhabitants of Thibet, belong to the Mongolian race, and, as they cultivate literature and are relatively civilised, they should be placed in the same subdivision with the Chinese races.

The Mexicans and Peruvians show a strong analogy with the inhabitants of China and Japan, but differ in being not grasping for property. They are intellectual; and, had they not such small heads, we might expect them still to hold a place amongst the superior peoples of the world. They showed considerable skill in constructing buildings, and had made, at the period of the Spanish conquest, great progress in science and arts. I have placed them in the non-grasping subdivision of the intellectual, sedentary, and mechanical subdivision of the motive, mechanical, or avaricious class of the great Passionate Family.

I shall now treat of the restless and roving division of the great Passionate Family. These I have further divided into two subdivisions, the grasping and non-grasping. The typical Mongols, Kalmucks, Malays, Madecasses and Polynesians, Lapps and Esquimaux, are grasping nations; while the Charibs, the Six Nations, the Indians generally of North and South America, and the Bosjesmen of South Africa, are restless and roving, but not grasping.

The typical Mongol possesses the conical or pyramidal skull; his habits are essentially roving. The Kalmucks are a division of this race.

The Tungusians, who wander over the vast regions which extend from the sea of Okhotsk to lake Baikal, vary in habits, but are all nomads. The Turks must be classed here. They have the Mongolic shortness and height of head. They are usually roving and grasping, but those in Europe have been long settled. Their moral standard, however, like that of the Kalmucks, may contrast favourably with that of the Greeks and Albanians.

The Malays are in their physical affinities greatly Mongolic; but they show a resemblance to Celtic races, as also to the Melanic inhabitants of Hindostan. They possess the roving qualities of the Mongols; for either by sea or land they love to wander. Similar remarks apply to the bulk of the Polynesian tribes of this family. The New Zealanders are but a superior branch of this race; crossed, however, with Negritto blood, and what has the appearance of having been Celtic. The infusion I refer to was prior to the arrival of Europeans. The natives of Madagascar form a branch of the Malay race, which in some tribes is largely infused with Kaffre blood: they are a thievish and lying people, but show considerable capacity for acquiring the arts of life. The Bosjesmen, the most degraded race of Southern Africa, show affinity to the Malay and Negritto races, as also the Andaman Negroes. I am inclined to class them together.

The Lapps and Esquimaux are tribes who show a great analogy in physical appearance and character. They have both great mechanical ingenuity, are avaricious, sly, but industrious, and have nomad habits. The Fins are a type which approximate at once to the Lapps and to the Teutons. They had perhaps better be classed with the former; but this assignment is somewhat unsatisfactory. They have much of the mechanical ingenuity of the Lapps, but more capacity for acquiring art and science.

The natives of America differ greatly from those of the Old World,

in their comparative indifference to property; to obtain which they are not willing to work hard; to this the Esquimaux appear to be rather an exception.

I shall now turn to the restless and roving, but not grasping or avaricious subdivision, of the motive or mechanical and avaricious race.

The Red men of North America, the natives of Brazil and Guiana, and other parts of South America, as Tupi, Charibs, Guarani, Araucanians, Pesharais, and Fuegians, are the principal examples of this subdivision. If they vary in character and habits in other respects, they are mostly roving and not avaricious. They have less physical power than most of the races of the Old World.

The Red men of North America were mostly warlike, and possessed the animal senses in great perfection. Those of South America, with the exception of the Charibs, Araucans, and Peruvians, were less energetic and spirited than the tribes of North America. They have also less mechanical skill than their analogues in the Old World, except the Araucans and Charibs, whose ingenuity in constructing and using their weapons may be compared with that of the Malays.

I shall now consider the domestic division of the great Passionate Family, and its subdivisions—the intellectually and economically intelligent, and the careless, imitative, but amiable and highly domestic.

The blacks of Soudan, the Gallas, Caffres, Berbers, and Numidians of Africa, and the Khonds, Bheels, and Santals of India, belong to the first subdivision; and the Congo and Eboe Negroes to the second.

The natives of Soudan and Senegambia differ very greatly in moral character from the Negroes of Congo and Eboe. They have considerable vigor of character, pertinacity, independence, and intelligence, are well calculated for successful traders, and have not that yielding character which so fits the true Negro for a servant.

The Gallas of Abyssinia, that fierce, warlike race, is placed here. They are doubtless a hybrid, or at least an intermediate, type, between a division of the Semitic Indo-European race and the Negroes of East Africa. They are a thievish grasping people.

The Berbers and Numidians bear evidence of being an intermediate type between these two divisions of the human family. They possess much of the intelligence and ruling power of the Shemites, but a lower moral capacity.

The Caffres appear to link the Malay race with the Negroes, but likewise show affinities to Semitic nations.

The Khonds, Bheels, and Santals of the low hills of India, are avaricious tribes, who resemble the Bosjesmen in their unscrupulosity as regards diet, but show considerable intelligence.

The Negroes of Congo and Eboe show much resemblance to the chimpanzees of the land they inhabit, both in physiognomy and character. They are intelligent, highly imitative, and affectionate, and are much swayed by their domestic propensities; yet they are too much the creatures of passion to be relied on unless under the control of more stable races.

In the foregoing short sketch of the principal races of mankind, I have endeavoured to point out their most prominent traits of charac-

ter, which, to my judgment, entitle them to the position I have given them. Had space permitted, it would have been interesting to show many more; such as those which distinguish the smaller tribes from each other; which account for the antagonism or sympathy between races; which separate nations as widely as geographical boundaries; which render some masters and rulers on earth, and others fit only for the servant's place.

The CHAIRMAN proposed the thanks of the meeting to Mr. Napier for his very remarkable paper, which having been accorded,

The Rev. DUNBAR HEATH said he agreed with the author of the paper in the first principle enunciated—that to classify the races of mankind merely according to certain outward developments, was a very incomplete method. He, therefore, considered it better to attempt to make the classification according to the developments of the whole man. He differed, however, from the author of the paper in the classifications he had endeavoured to establish. He differed from him more especially in the notion that the Semitic races exhibited the greatest moral power; that they were the most important; and that the Deity used them to teach man the true religion by means of the Jews. There were many reasons for disagreeing altogether from that opinion. He asked, in the first place, what the Jews had done to show their alleged moral superiority. They were said to be the worshippers of one God; but the God they worshipped was not similar in his moral attributes to the Deity worshipped by the higher races. The Jews and the Semites lived in a state of society when the notion of a supreme governing power was that of a great, absolute, and powerful monarch, surrounded with the utmost pomp of eastern magnificence, and to whom all mankind must bow down. Among the ancient Europeans, the idea of the character of their monarchs was very different. They looked on them as beings who had duties to perform; whose functions were to administer justice and protect their people. Among European people their monarchs were regarded as working kings; but among Asiatics they were considered only as mighty despots; and those ideas they carried into their religion, and into their conception of the character of the Deity. Such was the notion of the Jews; and, in his opinion, the European was the more true and the higher idea of the Deity. In their notions of morality, too, he considered the Jews to have been inferior to the Saxons, Celts, and other occupants of ancient Europe. The first lesson taught in the Old Testament was highly adverse to the development of a moral being. It was, that happiness consists in idleness; that in paradise there was no necessity for clothing, or for cultivating the soil; that all the wants of man were supplied without any effort; and that it was a curse on him to be compelled to labour. Mr. Heath regarded this notion as opposed to morality. He honoured work; and he thought it was not an instance of moral development to say that work is a curse. He contrasted that notion of morality with the sentiment that now prevails in Europe, especially among ourselves. He referred to the foundation of the Anthropological Society as an

example of moral action at the present day. The founders of that Society had worked hard with the view of promoting knowledge, and were urged to make these exertions for the purpose of doing good. The Jews had done nothing of a similar kind. They were worshippers of one God, and that was all they professed to have done and taught us. It was said that they had shown great moral power, because they had submitted to death for the sake of their religion; but it would be found, on examination, that the religious party of the Jews were opposed to resistance to the Assyrians. But, assuming that they did prefer death to political subjugation, and that, as in the time of the Romans, they preferred death in the breach of the walls of Jerusalem, to submission to a foreign ruler, such conduct was not approved in modern days, nor was it considered morally right to sacrifice life when all had been done that was possible in defence of any principle. Mr. Heath alluded with approbation, as an illustration of modern notions of morality, to the conduct of the Confederate States of America, who, after having done all that they could to maintain their independence, when they found themselves irretrievably overpowered, in a most remarkable manner allowed that they were so, and gave in. That was, he considered, a moral victory of the people, and was far superior, as an example of morality, to the conduct of the Jews, who threw themselves into the breach with stubborn perversity, like animals.

Dr. CHARNOCK wished to know why the author of the paper spoke of the Gauls and the Celts as if they were distinct peoples. The Celts or Κελται were the Γαλαται, *i.e.* the Galli or Gauls. He supposed when Mr. Groom Napier mentioned the Celts, that he referred to the Cimbri. The author of the paper considered the Huns were not Tátárs, and he placed the Calmucks among what he called the "grasping nations;" but it was notorious that the Huns were the same people as the Calmucks, who were of Mongol origin. And were not the Huns also a grasping nation? Did they not at one time grasp a large portion of Asia, and over-run a considerable part of Europe!

The CHAIRMAN made some objections to several parts of the paper. He thought that nothing could be less spiritual than the laws of Moses; and with regard to the Greeks, Sclaves, and Albanians, no persons could be less similar, and they ought not to be grouped together. With regard to what was said about the Huns, he regarded that race rather as Magyars than Huns. He denied also the great intellectual superiority attributed to the Greeks as a people. Those men who by their great intellectual superiority gave a high character to Greek literature, were but a small portion of the nation, while the great body of the people had no pretension to be considered as distinguished for intellect.

The following paper was then read :—

Resemblance between Man and Animals. By C. O. GROOM NAPIER, F.G.S., F.A.S.L.

(Abstract.)

I have for many years thought of man as the microcosm, and have been led to examine nature in her lowest as in her highest forms; and have found illustrations of man in every department.

There are two ways in which man is illustrated by lower forms of of life. The first and most extensive is by analogy. The second or more confined is by an actual likeness which animals bear to man—the head of creation.

The resemblance of domestic animals to man is greatly to be attributed to his influence as a higher being modifying those beneath him. Man is the type of all natural things; thus the races in each country harmonise with their botanical, zoological, and geographical surroundings, and the history of the earth unfolded in its rocks, with the ages when man has lived on earth. Lastly, the elements of which the world is composed shew analogy with the faculties of man's mind.

The quadrumana most resemble man; their stronghold is in that part of tropical Western Africa, where Negro tribes much like them are found. There are tribes savage and untameable, as the gorilla; and others, like the chimpanzee, capable of shewing amiable traits under the influence of European masters.

The men most like the agile gibbon have long powerful limbs, small bodies, dark and bright eyes, great skill in balancing, and appear to walk or run with slight effort. But the higher intellectual and moral faculties are not conspicuous in them.

The varieties in the breeds of dogs is as great as in the races of men. Some dogs resemble their owners in expression, which adheres to them when they return to their compeers; Landseer's picture of "Laying down the law" illustrates this.

Persons like the mastiff are square in build, with mouths drawn down at the corners and daring eyes—a countenance not uncommon in England. Under moral restraint such are faithful to their employers, though gruff and surly; to those they do not like they are apt to show their teeth—often prominent. These are useful for their vigour and courage in attack and defence. The bull-dog is more given to fighting than the mastiff; it does not bark much, but rushes on the foe and holds on till death. Such a dog will hold even a man in check. I have seen a person with this physiognomy, a strong but little fellow, not much above five feet; the mouth had a slight twist on one side, and the nose was exceedingly small and crushed. The greyhound is often like those who train it—entirely occupied with the chase. Swift, clean, and elegant, except in scent, it is less acute than many dogs, and barks little. I remember an individual like the greyhound. Long limbed and faced, and graceful. Addicted to no vice, he was yet an unprofitable member of society, practising no art, and caring little for mental culture. When not hunting, he was as silent and listless as a greyhound at home.

High-nosed races of men are independent, and apt to have a repugnance for what is low; so amongst dogs, the long and high nosed are not pliable like the spaniel or "King Charles." The sheep dog combines the high nose of a hound with the round head of the spaniel, and it displays two characters. The analogue of the "King Charles" is a small weak-muscled, nervous, delicate, but accomplished man, who benefits others little for want of physical force and single-mindedness.

Men showing a likeness to the lion have shaggy hair about the

forehead, stern, daring eyes, and stiff whiskers which do not hide a grim mouth. Their foreheads, noses, chins, and shoulders are broad. They are more powerful than agile, less crafty than vigorous; mentally they are more logical than critical. Others are tigerish in aspect and character,—lanky, agile, smooth-haired, full over the eyes, wide mouthed, and slant-eyed, with immense muscular force in proportion to weight. They are ferocious, revengeful, and treacherous, without the magnanimity imputed to the lion and his type. Much of the apparent generosity of the lion may proceed from a more sluggish temperament, less nervous than lymphatic. The tiger seems to be of the bilious-sanguine-nervous temperament. Men of the tiger disposition are similarily constituted. The proportion of the nervous is, however, relatively small. Tippoo Sultan adopted the tiger for his ensign, and was like it in character.

Bear-like men are stout in body, wide in head, immensely powerful in limbs, and are awkward in their way of sitting down. They possess small fierce eyes, and should not be trifled with. Their voices and language are gruff; they are inclined to be gluttonous and cruel, but have great courage. Their ears are large and stick out; the hair is thick and dark, but not curly. Fondness for their children is usually the only amiable trait they display.

In the horse, as in man, great variety of temperament and constitution is seen. The sorrel or roan horse has great working power, and can endure with impunity long continued fatigue and exposure. Horses of mixed colour are the most hardy, as for instance, with a light coloured body and black feet—this answers to light complexioned persons with black hair and grey eyes.

In race horses the nervous-bilious temperament is illustrated: these unite the highest nervous sensibility; greatest muscular development, and just sufficient vital force to carry them on at a rapid rate for a short distance. Neither their temperaments nor mode of life are consistent with a long career. There are men whose course is brilliant and rapid but brief.

In white horses the sanguine-lymphatic temperament is chiefly developed, and is indicated by fleshiness and softness of muscles, and a liability to certain diseases; they show a resemblance to a class of very fair men, whose hair has a bleached appearance, and are of a scrofulous habit. White horses are milder and quieter, but less serviceable than the black or chestnut. Iron and dappled grey horses have temperaments analogous to the bilious-lymphatic amongst men. They are calm and steady in temper, and rather fleshy in body. The black horse possesses much of the bilious temperament; in the more delicate breeds the nervous is largely mixed; when the bilious prevails, there is great power and less excitability. Chestnut horses are of a mixed temperament akin to the bilious-sanguine; this is accompanied with strength, spirit, and impatience of control. Like men of this temperament, they are not much above the average size; both are apt to be coarse and violent in manners, and wanting in high qualities. Noble and generous dispositions are more common amongst light coloured horses, particularly bays. They unite intelligence with

strength, and may be compared with men with yellow hair; such indicates a temperament more "evenly balanced," which is oftener accompanied by a good constitution, and indicates endurance. Cart horses are of the sanguine-lymphatic sanguine-bilious temperaments which must be united with nervous blood from another parent if we would rear horses fit for a variety of purposes. These "cob" horses may be compared with the middle classes in England who can adapt themselves to a greater variety of occupations than those either above or below them. The Arabian horses are more lightly made and more sensitive than gothic. Similar remarks apply to the men inhabiting these countries. The most remarkable nations have sprung from tribes possessing divers but harmonious qualities.

The ass is of the bilious or motive temperament, the fibres of the body are so strong that they may be compared with metallic wires covered with leather. It shows much cunning and obstinacy, perhaps often the result of ill-treatment in youth. Extremely obstinate men, often called asses, are in temperament like this animal.

The manner in which the pig is treated by different nations is in harmony with national origin and filiation. Semitic nations, and through them Mohammedan, abhor this creature, and the Japhetic and those lost among them value it highly. The pig is most typical of the populations of China, Tartary, and the Indian Archipelago, there pig life and pig manners attain their highest development. Chinese pigs and Chinamen are more concave at the root of the nose than British pigs and their masters; yet our lowest classes who have this concavity often show evidence of Mongolic (Finnic) affinities. A high-toned mind is seldom the accompaniment of a low nose—pigs having the highest qualities have high noses. Various tradesmen are found to resemble the animals they associate with. Butchers have ox eyes; horse-dealers remind us of the horse; shepherds of the sheep; and pig keepers of the pigs.

Men with coarse broad hands and feet, who tower above their contemporaries in height, are often like Samson and Hercules, easily led captive by the softer sex. So elephants are captured by means of trained females, which seduce them into the toils of the hunter; or caught in pitfalls, they are despatched by their enemies. Such is the fate of some men who are great in nothing but size, and whose figure reminds one of the physical part of the elephant's nature. His more intellectual character as well as a certain resemblance to his *physique* is shared by some men who have good memories and much observation, and are interesting but not beautiful. Here is one of them; he had a hooked nose, had lost his teeth, and the nose hung over his mouth, his under jaw was prominent, and the thick under lip came up to meet his nose, and nearly attained its object; he was obliged to push aside this organ when he drank; he had broad flat ears, and a constitutional asthma was his excuse for a decided grunt when he agreed with the speaker.

The resemblance between national and local breeds of cattle and the populations of their countries is no less striking than between horses and their surroundings. The Englishman, John Bull, is typi-

fied by his ox; the jealous Spaniard by his excitable cattle; the wild Hindoo by his zebu; and the red Devon ox by the red Devonian soil.

The Arabs and Affghans have many of the qualities of the camel; able for great physical exertion; they show, in common, much singleness of mind. The Arab and the camel are much alike in expression. There is a resemblance between men and animals with sharp and prominent noses or beaks; those in the shrew mouse and warbler indicate restlessness and activity; they poke into obscure corners to seize the smallest insects and display great pugnacity among themselves. The analogy between shrews and a particular class of housewives is acknowledged. Aquiline noses do not stick out like those of the shrew and warbler; they indicate among birds and men a fierce but lofty character, and are often found in men pre-eminent as rulers. The beak of the parrot must not be confounded with that of the eagle. Men may be found whose noses resemble these imitative birds, they are more curved than those of eagles, and do not rise abruptly on the bridge like that of the grand birds and their types—Wellingtons—but bend down at the tip, are flexible, and move during speech. When goggle eyes accompany this style of nose, we have a voluble parrot amongst men, whose incessant prating, like the cry of the parrot in the forest, is more annoying than the roar of the lion and bear.

Cocks and hens, like horses and dogs, show an analogy to man as regards temperament and complexion. Red fowls most nearly approach the sanguineous, and are most courageous; light coloured, brown, speckled, and reddish, are most prolific and mild. Red haired men are commonly hot tempered. Black fowls are preferred on account of the size and number of their eggs. The milk of black haired animals is rich, as is that of black haired and skinned women. Black men and animals are more susceptible of cold than light coloured breeds.

The Chairman mentioned that an extraordinary work had recently been published in America on the subject of the resembance between man and animals, in which similar views to those of the author of the paper were entertained. If those opinions were correct, there was no telling to what animals man may be like. He said it was approaching somewhat to the Darwinian theory, which was probable, and if that were true, it was natural that there should be all sorts of analogies between man and animals. It might, indeed, be considered an extraordinary chance that we were not animals ourselves. Pointing to some drawings which were exhibited, showing the resemblance between the faces of several men and animals, he said he might think himself fortunate in not coming within the range of those resemblances. If the hypothesis could be established, it might have a practical bearing, for if they could tell what animal a child most resembled they might do a great deal with it. According to the views of the author of the paper man might truly be considered a microcosm, for while all species of animals resembled themselves, man resembled every kind of animal.

Mr. Higgins having been called on to express his opinions on the

paper, stated that Mr. Napier's ideas on scientific subjects so entirely differed from his own, that he could not venture on this occasion to offer any remarks on the subject under discussion.

Dr. DONOVAN said it is a subject having a degree of philosophic truth, and is therefore deserving of serious consideration. He objected to that portion of the paper relating to physiognomy, which he contended had no application to practical purposes. There might be some little truth in it, but it could not be applied, since it referred to no first principles. No reason, for instance, could be given why a man with a certain form of nose should have a certain character, for that feature fulfilled no mental office. The only part of the form of man by which character could be tested is the brain, as indicated by the form of the skull. Some men are handsome who are the worst of characters, and others who are considered ugly possess the highest mental and moral qualities; and there could be no judging of the characters of men by the features of their faces. The paper was philosophical because it was suggestive, and raised an important question, but as far as it depended on physiognomy it was delusive. The brain is the book in which the faculties of man are registered, and he hoped Mr. Napier would look into that book, for there he might read and learn what he was anxious to know, and which was worthy of all attention.

Major OWEN considered that in some respects physiognomy was clearly indicative of character, especially the nose. He supported the general views of Mr. Napier, and he laid great stress on embryology as indicative of the resemblance of all forms of animal life. In his opinion it taught that there was but one original form of animal life in nature.

Mr. MACGRIGOR ALLAN supported the general principles of physiognomy, observing that most persons were daily in the habit of judging of the characters of individuals from their features and expressions. He thought physiognomy an important adjunct to phrenology, for as phrenologists could form one idea of the character of a man by the form of his skull, so by looking at his face his sentiments might be known, and it could be perceived whether he was telling the truth by the expression of his eye.

Dr. DONOVAN repeated that physiognomy of itself is most deceptive. He admitted that every part of the body told its own tale, but the various indications must be taken as a whole, and the most important part, the skull, should not be left out of consideration.

Mr. DENDY thought too much dependence was placed on the connection between craniology and phrenology; and, as regarded physiognomy, that too much reliance was placed on the *mere lines* of the face. Physiognomy when technically considered alone was of little value, but when taken in connection with the *expression* of the countenance it referred directly to the mind, through the working of the features. To look to the form of the head alone as an indication of character he thought was altogether a fallacious method, for a man might have the finest developed head with the most depraved mind. Referring more particularly to the paper, he regretted that a great portion of it had been inaudible to him, and he suggested that it

would be better that the Secretary should read papers to the meetings where the authors of them could not make themselves audible.

Mr. CHARLESWORTH expressed a similar opinion. He said that owing probably to not having heard the paper distinctly he could not tell what was its ultimate object, but he supposed that Mr. Napier intended to identify the mind of animals with that of man, and to express the opinion that similar features were associated with similar dispositions. It was a subject generally interesting, and he hoped that the substance of the paper, in a compendious form, should be brought before the Society at a subsequent meeting,

The Rev. DUNBAR I. HEATH said the paper did not relate simply to physiognomy but to the resemblance between man and certain animals, and the essence of it was, as he understood it, that as men are divided into moral, intellectual, and passionate classes, so animals may be similarly classed, and that they are essentially of the same spiritual nature as man. Mr. Heath referred to a passage in the writings of St. Paul which, in the authorised translation from the Greek, is rendered, "we are also His offspring," from which he said it might be inferred that man was connected with superior beings and with the lower animals also. The question raised by the paper was not a question of physiognomy, but whether the small differences between man and animals proved that there was a deeper connection between them, and that, he thought, could hardly be denied. There was no drawing a line, and if so, they must allow to animals the possession of every spiritual quality.

Mr. GROOM NAPIER in replying to the remarks on his paper, adverted in the first place to the observations of the Rev. Dunbar Heath on the previous paper in regard to the Jews and Europeans. He said he considered the Europeans were a moral intellectual race which gave them their superior position; while the Jews displayed moral power without superior intellect. As to the objection raised by Dr. Donovan, on the ground that physiognomy was a deceptive guide to character, he admitted that it might not indicate it so exactly as the form of the skull, but the features indicated certain qualities; and not only the form of the features was a guide to character, but the passing emotions were shown by the expression of the countenance. He dissented from the assertion of Mr. Dendy that a finely-formed head is sometimes accompanied with low moral character, for he never saw a really finely-formed head possessed by a person of a naturally depraved character. Mr. Napier then pointed to and explained a number of drawings of heads and faces which, by their peculiar forms and expressions, indicated character.

The following papers by Mr. Groom Napier were then taken as read:—

On the Classification of Head Forms. By C. O. GROOM NAPIER, Esq., F.G.S., F.A.S.L.

On the Harmony between Geography and Ethnography. By C. O. Groom Napier, F.G.S., F.A.S.L.

(abstract.)

The principle that man is the type of creation is as applicable to geography as zoology. Races in their centres shew qualities in harmony with climatic, botanical, zoological, geographical, and geological surroundings. Thus the man of the locality is its key and its epitome. Mountains and rivers by their elevation, course, and direction, illustrate the history, character, and migrations of races as do deserts, steppes, llanos, national or racial character and habits; thus the inhabitants of mountainous districts are distinguished for loftiness of spirit and love of freedom. The inhabitants of steppes are democratic rather than aristocratic, whose tendency is to look up to chiefs as to a mountain peak. Nations temperate in passions—that is, those under the strictest moral government—reside mostly in temperate regions. The rainfall of countries typifies the degree of their moral and spiritual advantages, the belongings of each centre being considered.

The animals and plants of different regions of the earth illustrate, we have said, the character of the nations. Australia has the most debased *fauna* for so large a country, in harmony with its human population. The animals and plants of America are less vigorous than those of the eastern hemisphere, in harmony with the comparative inferiority of its aboriginal men; thus, the bats, the puma, jaguar, lama, tapir, bison, opossum, alligator, rhea, and turkey are smaller, or less vigorous than the bats of Madagascar, the lion, tiger, camel, elephant, African buffalo, kangaroo, crocodile, ostrich, and bustard.

The meeting then adjourned.

April 30th, 1867.

Dr. Charnock, V.P.A.S.L., in the Chair.

The minutes of the previous meeting were read and confirmed.

The Fellows elected were announced as under:—C. W. B. Bell, M.B., L.L.B., 5th Lancers, Messrs. Clack and Co.; Thomas Brankstone, Esq., 5, St. German Place, Blackheath; Rev. T. H. Browne, F.G.S., High Wycombe, Bucks; G. R. Dartnell, Esq., Henley in Arden; Robert Eadie, Esq., Blaydon-on-Tyne, Durham; E. Hooper May, Esq., M.D., High Cross, Tottenham; Thomas Mayne, Esq., M.D., Barrow-in-Furness, Lancashire; Barr Meadows, Esq., L.R.C.P., 2, Warwick Street, W.C.; John Medd, Esq., M.D., Elm Place, Stratford Road, Manchester; Robert G. Moger, Esq., F.R.C.S., Highgate; Henry Muirhead, Esq., M.D., Longdale, Bothwell, Lancashire; J. C. Murray, Esq., M.D., 20, Newgate Street, Newcastle-on-Tyne; S. F. Simonsen, Esq., F.R.C.S., 21, St. James Street, S.W.; H. V. Simpson, Esq., L.R.C.P., 167, City Road, E.C.; G. Hill Smith, Esq., M.D.,

Frederick Snaith, Esq., M.D., Boston, Lincolnshire; Philip Southby, Esq., F.G.S., 2, Montague Street, W.; Alexander M. Walker, Esq., M.D., Sussex House, Tunbridge Wells; Charles Warden, Esq., M.D., 39, Temple Street, Birmingham; J. I. Waring, Esq., M.D., Savannah, Georgia, United States.

Local Secretary.—J. I. Waring, Esq., M.D., Savannah, Georgia.

The following presents were announced, and thanks were voted for the same:—

From the Imperial Academy of Vienna.—Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften.

From J. W. Conrad Cox, Esq., B.A., F.G.S., F.A.S.L.—G. Conway, History of the Ojibbeway Nation. Rev. E. White, Theory of Missions. Anonymous, Irrationalism of Infidelity. Beaumont, Experiments on Gastric Juice.

From the Imperial Archæological Commission of St. Petersburgh.—Recueil des Antiquités de la Scythie. Compte rendu des travaux de la commission impériale archéologique.

Mr. C. Carter Blake referred to the presents of drawings of skulls from St. Petersburgh, which he said had been supposed to be those of a short-headed race of Russians, but they were found to bear an affinity to Greeks, and it was now considered that they were evidences of an immigration of Greeks into Southern Russia.

Dr. Hunt called attention to a large number of photographs on the table, which had been lent to the Society for their inspection. They were aborigines of Natal, and natives of that district, which had been collected by Mr. Conrad Cox. Dr. Hunt said the first paper to be read that evening was a short communication from Dr. Dupont, received since the previous meeting, mentioning some important discoveries in the bone caves of Belgium since the last report on the subject by Mr. Blake.

Discovery of an Habitation of Man in the Belgian Lehm. By Dr. Dupont, Corr. Mem. A.S.L.

Mr. C. Carter Blake has received the following letter from Dr. Dupont, dated Dinant, 18th April, 1867.

TRANSLATION.

"I have the pleasure to announce to you that I have just discovered an habitation of man contemporary with rhinoceros, etc. The bones are contained in the sands which I last year called *lehm*, but which I now call inferior or fluviatile sands (*limon inférieur ou fluviatile*), because I was told at Paris that I had thrown confusion into the terms.

"These bones consist of *Rhinoceros tichorhinus*, horse, reindeer, chamois, *Ursus spelæus*, *Hyæna spelæa*, *Felis spelæus*, *Canis vulpes*, *Canis lupus*.

"They are all broken, and are evidently the *débris* of repasts. Three hundred flint implements, of a very peculiar form distinct from that of man of the reindeer period, have been found therewith.

"(Signed) "E. Dupont."

The Rev. DUNBAR I. HEATH said certain reflections suggested themselves on hearing Mr. Blake's report of the discoveries in Belgium of the bones of extinct animals with the remains of man. It appeared from that report that there were found the bones of eight or ten sorts of animals which man had eaten. He had eaten lions of a larger and stronger species than any now known, and he had eaten the rhinoceros. Now the lion was, of all animals, with the exception perhaps of the grisly bear, the strongest for attack; and the rhinoceros was the strongest for defence. These were in proximity with naked man, and what could a naked man do with any quadrupeds at the present day? He was not nimble enough to catch them; nor had he naturally any mode of attacking them. It was, therefore, a wonderful fact that man in former times could destroy and eat the lion and the rhinoceros. It was supposed to be the same man, a specimen of whose jaw was on the table, which was pronounced to be different from that of any known living race of mankind, being half man and half ape; he lived, it was stated, before the reindeer period, which was a period of great cold. Now, it appeared that the variations of the ecliptic, which were assumed to be one cause of the change of temperature in this part of the globe, required 25,000 years for their completion, therefore it might be assumed that 12,000 years must have elapsed since that cold period, and the previous deposition of two hundred feet of fluviatile deposits shows that the man who lived in those caves, and ate lion and the rhinoceros, lived myriads of years before the reindeer period. His reflections on the condition of man living in proximity with those animals, and able to overpower them, tended to show that he must have availed himself of the three things which man at the present day can do, and which can be done but by one other animal. He can unite with others to accomplish a required object, he can throw a stone, and he can use a stick as a weapon of offence; these, he considered, were the elements which gave man his power. Apes alone, of all other animals, could do the same.

Major OWEN made a few observations to show that the period calculated for the precession of the equinoxes was but exceedingly small compared with other observed astronomical changes.

Mr. WESLEY inquired how it could be ascertained that the broken bones found in the caves had been split for the purpose of extracting the marrow, and that they had not been broken accidentally.

Mr. CARTER BLAKE, in reply to Mr. Wesley's question, referred to M. Lartet's memoir to the Academy of Sciences at Paris, in which the different characters of bones split for food and those broken accidentally were pointed out, as shown in the remains found in Aurignac. There all the bones were split in the same manner as is at present practised by the Laplanders to extract the marrow, the bone being divided into two great segments. In that manner, also, the bones in the Belgian caves were split, especially in one near Chaleux, in which 30,000 flint implements were found, and a large percentage of split bones. Even in the days of Dean Buckland the process by which the hyæna split the bones of animals for food had been well described. The

fractures had been shown to be different from those of the bones split by man, the latter being longitudinal. Mr. Blake further stated, in reply to a question put to him by Dr. Charnock, that he could not point out the exact position of the cave wherein Dr. Dupont had made the recent discoveries, but he believed it was higher up the river than the caves he himself had visited in company with the Chairman. There had been discovered in that vicinity twenty-eight bone caves. Mr. Blake referred to a diagram to explain the character of the strata. At a level of two hundred feet above the river, there was a deposit of angular pebbles; under that (in the caves) were various stalagmite beds, and a deposit of sand, called by Dr. Dupont lehm, or *limon fluviatile*, formed by the action of the river which had left it. This deposit was very different from the angular pebble deposit overlying it, containing bones of reindeer. Beneath all was a stratum of rolled pebbles which had been for a longer time exposed to the action of water, and in that the remains of beaver were found. In the lehm deposit at the Naulette cave human remains were discovered, and among them the jaw of a man of an age far more ancient than that of the reindeer period. In the stratified deposit, now called by Dr. Dupont *limon inférieur*, a succession of the remains of different extinct animals was found, including the rhinoceros, elephant, and bear, and now Dr. Dupont had discovered the bones of the cave lion associated with the remains of man, the bones being split longitudinally and evidently under the same conditions as other bones of the same period which had been described from other caves. The only osseous remains of the man of that period had been shown to the Society last autumn. In the cave in the South of France there was found a human tooth and a finger bone, associated with the hyæna and rhinoceros. It was a rarity to find the bones of the rhinoceros split by man in the caves of France, but now the fact had been proved in the bone caves of Belgium. He hoped that Dr. Dupont would continue his valuable researches in those caves.

On the Topographical Nomenclature of Turkish Asia Minor. By Hyde Clarke, Esq., Member of the German Oriental Society, of the American Oriental Society, of the Academy of Anatolia, of the Royal Society of Northern Antiquaries, of the Institute of Civil Engineers of Vienna.

I shall first proceed to notice the affinities between names in Turkistan or Tartary, as obtained from the pages of Vambéry, and of which I have recognised Osmanlee equivalents.

Kahriman is described as on the Khiva road, and Karaman as the name of a Turkoman tribe; with these I compare Karaman, the name of a town and eyalet in Anatolia, known to Europeans as Caramania. Ooloo Balkan and Kuchuk (or Little) Balkan, are named as on the Khiva road. The title of the Balkan mountains in Roomelia readily suggests itself. Kara Balkan is a name of a Turkoman tribe. This form of Ooloo Balkan will be found in Anatolia. It is enough to name Ooloo Borloo, Ooloo Kyshla. Gumush Tepe, or the Silver Hill or Mound, is repeated naturally in Anatolia as Gumush Tepe, and as

Gumush Dagh, or Silver Mountain. I do not consider the epithet necessarily betokens the presence of silver, but that it may be applied to a white hill.

The epithet for black, *kara*, is of course as freely used in Turkistan as by the Osmanlees; also that for white, *ak*, and that for red, *kyzyl*. *Kara tepeh*, black hill, is on the South Caspian. *Ak soo*, the white water or white river, in Chinese Tartary, is a name commonly repeated in the west. *Ak mesjid*, the white mosque or chapel, Whitchurch, is found in Khiva. Kyzyl Takir is a name on the Khiva road. *Kyzyl* is a common epithet throughout the west. *Takir Dagh* is the Osmanlee name for Rodesto, on the Sea of Marmora. *Ortakuju*, another station on the Khiva road, is a constant name in the west; as *Ortakeue*, or middle village, being the Osmanlee equivalent for Middleton or Milton. *Karakol*, on the Khiva and Bokhara road, the name for a guardhouse on a road, is common throughout the west, in Asia and Europe; so, too, is *Derbend* or *Derwend*, the name for a pass or gorge. *Yeni Hissar*, New Castle, in Chinese Tartary, is another of the same class.

Common names of villages and hamlets in the west are paralleled by *Khojalar*, in Kiva; *Kanli*, in Khiva; *Boghdala*, on the Khiva road; *Darì*, on the Khiva and Mesjid road; *Khoja Ili*, on the Khiva and Kungrad road; *Geukcheh*, on the same road; *Shikhlar*, in Khiva. *Burunjik*, a Turkoman tribe. *Chavdar*, the name of a Turkoman tribe, we have repeated in *Chavdar Hissar* in Anatolia; so, too, the name of *Geuklan*, another tribe, and of *Yalova*. *Karaval*, a name of a Turkoman tribe, I take to be the common form *Kara aoghl* in Southern Anatolia.

Of the repetition of familiar names of towns, may be cited *Khandek*, in Chinese Tartary and in Anatolia. The more remarkable, however, are in a group in the Smyrna district: *Bainder*, in the Cayster valley; *Eudemish*, the next town beyond it; *Ooshak*, a town of the interior. *Baindir* is likewise the name of another town in Anatolia. It would appear as if offshoots of the Eutemish and Baindir tribes had wandered into the Cayster or Little Mæander upper valley, and there formed stations.

When Professor Vambéry's Dictionary of the Jagatai language appears, this may give us more information, as it will afford materials for parallel forms of Osmanlee and Jagatai. If we possessed a greater number of names in Tartary, we should have better means of comparing with the Ottoman empire; for, as the system of the formation of local names is everywhere the same, the names of villages will correspond.

One of the most interesting topics of inquiry, is that as to the tribes of Turkistan participating in the various conquests of the west. For this we want likewise a bederoll. Mr J. S. Taylor, H.B.M. consul at Erzeroom, has occupied himself in collecting the names of Arab tribes and families; but we want the same labour for the Turkomans. So far as the above few facts go, they confirm the historical account of the migration from east to west of these tribes. It is to be observed, that some of the names of tribes given in Vambéry are derived from localities; and, in the absence of more specific and detailed information, we are in no position to generalise.

Then, too, comes the question of the racial character of the tribes of Turkistan, and of those nomad or settled in Asia Minor. There can be no doubt that in Asia Minor we have more than one distinct type. So, too, among the Krim Tartars, now in the Dobruja; and everywhere the Turks are distributed. What I have noticed in Anatolia, among the Krim Tartars, and among the Daghestanlis, is, that the upper classes resembled the Osmanlees, while the lower classes had a greater or less Mongol tendency, with eyes and cheek bones approaching the Mongol type. Among the Nogais, I did not notice any people of Osmanlee type. Among the tribes whose migrations I had the opportunity of witnessing, were the Yuruk and other Kyzilbash Turkomans, Krim Tartars, Koords, Nogais, and the so-called Circassians and Chetchens.

The general basis of Turkish topographical nomenclature, in the east or the west, in Chinese Tartary or Roumelia, in Krim Tartary or Persia, is of course the application of common terms, as mountain, hill, mound, stone, river, water, lake, pass, ford, spring, castle, village, plane tree, poplar, etc., with the epithets great, small, black, white, red, green, gold, silver, snow, old, new, middle. Thus for mountains we have snow, white, silver, goose, black, gold, red; for rivers we have black, white, red, green, yellow, sky, dry.

With regard to numerals, three, five, seven, and forty are favourites. We have *keurk gechid*, forty fords; *keurk aghaj*, forty trees; *keurk kilisse*, forty churches.

The names generally are such as we used in Anglo-Saxon times, and we still apply in naming objects and places in America, Australia, and New Zealand. There are, however, features to be observed in those parts of the Turkish domains where they have supplanted a settled race. The Greek rivers retain sometimes the old name, as the *Mendereh*, the Mæander of Anatolia; but the Cayster becomes the *Kuchuk Mendereh*, or Little Mæander. Generally speaking, the rivers are renamed with Turkish names, denoting that when the Turkish immigrants arrived, the wave of war had already passed over, sweeping away the old local population, and bringing in a population sufficiently numerous to use its own language alone. It is rarely the name of a Greek city is saved, and then chiefly of those places on the coast which held out longest. Such are Smyrna, Pergamus, Magnesia ad Sipylum, Phocæa, in Western Anatolia. Ephesus is lost as a name, but preserved in a Greek form of *Agios Theologos*, represented by *Ayasolook*. Tralles was changed, and Magnesia ad Mæandrum totally lost. Perishing Sardis was saved, but Philadelphia and Thyatira adopted Turkish names. It is only a few great towns, which stood their siege, capitulated, and maintained a partial Christian population, which retained their Greek names. Of this we have an example in Ephesus.

In most cases, all but the walls of the city or citadel had perished, and these were used as sheep or cattle folds, with the simple name of *Hissar*, the equivalent of Chester and Caster. Thus we have:—*Karah Hissar*, Black Castle; *Karajah Hissar*, Blackish Castle; *Ak Hissar*, White Castle, Whitchester; *Kyzil Hissar*, Red Castle; *Gyuzel*

Hissar, Fair Castle; *Eske Hissar*, Old Castle, Old Chester. *Veeran*, or *viran* and *esseer*, ruins, is quite as common a name. *Sheher*, city, applies as much to a ruined city as a new one; and *veeran sheher*, or ruined city, is a special name. Thus we have reproduced the same features as in Anglo-Saxon Britain; and it is only fair to believe they represent the like facts and events.

In Greece, although it was possessed by the Turks for centuries, we find few Turkish names, and the Greek nomenclature is largely preserved. In Wales, too, we find Welsh names, and few English names.

England must represent a conquest by the Anglo-Saxons in mass, when the country population was driven forward or extirpated; when it was unsafe to keep its members as slaves, with a ready refuge to their brethren in the field; and when the only portions of included population saved, would be the inhabitants of such towns as capitulated. It may, however, be very much questioned, if the evidence of local names is to be taken, whether London itself could have long preserved its former inhabitants after its occupation by the invaders.

What we find in England and Turkey is identical; but it is very different from what took place after the conquest of Gaul by the Franks, of Burgundy by the Burgundians, of Italy by the Lombards, of Spain by the Goths, and of Russia by the Warings. If we go beyond the Turkish districts in their empire, we come upon Greek, Albanian, Bulgarian, Servian, Wallak, Russian, Lesghian, Armenian, Koord, and Arab; as around England we had at one time Cornish, Welsh, Cumbrian, and Erse, and still have Welsh and Erse, the latter bounding the northern advance.

We find in Turkey another anthropological detail of interest, the acquisition or non-acquisition of the language of the conquerors. The rayah Greeks, or native Christians of Anatolia, assumed Turkish as their sole language, though obsolete Greek was read by the priests for religious service. In Candia, although one-third of the Greek population is Mussulman, and uses a foreign language for its worship, its sole spoken language is Greek.

The question of the forced conversion of bodies of Christian natives of Anatolia to Islam, is not worth long consideration in reference to the present population. Many were doubtless converted by interest, and many by force; but these have no representatives in the population of the interior, settled or nomad, in the hills or plains, Turkoman or Yurook. On the west we find no new Turkish populations; on the east we are encountered by Lesghians, Armenians, and Koords. Nothing better attests the decline and reduction of the old population of Western Anatolia, than the advance of the Koords, who may be found at the head of the Mæander valley. Indeed, the advance of the Turkoman nomads, when supreme, must have been fatal to the Christian cultivators; and the nomads reach the coast even now at every point. They come in sight of Smyrna within five miles. While the nomads swept the plains, some of their tribes occupied the hills, so that the Christians had no refuge but the great towns, where they were protected by treaties and charters.

To these observations on the Turkomans of Asia Minor I will add

some on the Kizzilbash, in consequence of the publication of a report of Mr. J. G. Taylor, H.B.M. consul in Koordistan, who, on my recommendation, has been lately named as Local Secretary for Erzeroom. Mr. Taylor says, the Kizzilbash are semi-independent, as secure in their inaccessible or difficult mountains; they pay what duties they like, refuse recruits, and disobey mudiers or sub-governors, other than those of their own race, and approved by themselves. Mr. Taylor estimates their whole number at not less then 200,000 men. (?)

Their chiefs are rich in their own rude way, but the great majority of the Kizzilbash are hopelessly poor, from the large amount they are yearly obliged to pay their aghas or chiefs, who take a fifth of their agricultural produce, and a certain number of sheep, butter, and money yearly.

Their religion is a curious mixture of Islam, Christianity, and Paganism. They worship the sun, large stones, and trees, and profess many other doctrines, which Mr. Taylor considers were originally derived from the Kerametta and Assassins, who rose in the third century of the Hegira, being common to the Noseegreet and Druses of Mount Lebanon, and other parts of Syria. On these subjects, Mr. Taylor, who is an accomplished Arabic scholar, is one of our chief authorities. He says, in the jumble of Kizzilbash religion, Ali holds the chief place, but they regard Jesus Christ with particular respect, as they, in fact, believe that all the prophets and holy men from Adam to Ali were but different incarnations of the Deity. Ali, as coming last, they reverence most.

Mysterious and scandalous rites, totally unfounded in fact, have been attributed to them; such as the promiscuous intercourse of the sexes in a previously darkened room. This scandal, Mr. Taylor considers, has arisen from the secresy they observe during their prayer-meetings, at which, on stated occasions, they partake of consecrated bread and wine; they are totally ignorant of reading and writing, and therefore generally fanatics in their faith. In religious matters, they, therefore, implicitly obey the guidance of their spiritual chiefs, called Deydees and Peyeds, who, under the circumstances, exercise unbounded influence over them, and preside at their prayer-meetings, on which occasions they chant the praises and attributes of Ali and the twelve Ismans.

Mr. Taylor says that some of the Kizzilbashes, including an influential chief and his followers, have embraced Protestant doctrines from an American missionary to the Armenians.

He states that the Kizzilbash exist not only in the Deyvain in Koordistan, but everywhere from there to Constantinople, including the districts about Sivas, and the mountains near Malatia, Paloo, Adiamoo, and Kharspool, and that they are generally disaffected to the Osmanlees, to whom Mr. Taylor thinks they would be dangerous in case of a Russian invasion on that side. It may be doubted, however, whether much as they dislike the Osmanlee, they know any kind of Christians so little as to prefer the latter; they would most likely be found, as of old, on the side of the Osmanlee.

I have met the Kizzilbash or Red Head in the West of Asia Minor,

in the mountains and valleys of the Mæander, the Cayster, and the Hermies, and, I believe, he is to be found on the south coast, and in the east beyond Turkey. In Western Asia Minor they are called Yurucks, and are by the Christians confounded with the gipsies. Their area is to be extended far beyond Mr. Taylor's limits, and they are deserving of special investigation. Mr. Taylor's observations are a good foundation.

I have given, on this occasion, evidence of the origin of the Turkoman population of Asia Minor from Turkistan in confirmation of the historical testimony; but in my report to the Society in Western Asia Minor, I have called attention to the circumstance that there are ethnological differences among the Turks of Asia Minor, and that they include two if not three races. The Osmanlees differ from the Kizzilbashes, but there appear to be Turkomans distinct from the two. The eye of the Mongol type is not common in Western Asia Minor, though I have observed the Mongol face and feet, it may have been in the case of black or Crim Tatars. Among the Crim Tatars, I have observed the Mongol type much more developed.

The only distinction I have noticed among the Kizzilbashes has been in the form of the ear, and I have seen the top overlapping, but this may have been from the turban pressing upon it.

Some of the mountain tribes freely yield volunteer irregular Bashibazooks, but the regular Kizzilbashes do not, and neither willingly supply conscripts for the regular army. Among the Bashibazooks, I have seen some very fine men. The regular Kizzilbashes have appeared to me more wiry.

The Kizzilbash is poor and dirty, and his women are commonly dirtily dressed, which is a necessary consequence of their drudgery. The women do most of the hard work, while, with the Osmanlees, the men work and the women attend to their household duties. Many of the Kizzilbashes are wood-cutters and charcoal burners, and the women are to be seen sawing the wood, and loading the mules and leading them, while the man scampers along with his gun or rides.

This state of affairs led me to make an inquiry. I have observed that commonly, where the women have distinct rights of property, as in France or Belgium, they get a heavy share of the work. I have seen a woman, a cow, and a donkey harnessed to a plough, of which a man held the stilts; but the woman, most likely, had a distinct inheritance in a small parcel of same field. Under such circumstances, the men are found the best dressed. The rajah or Turkish-speaking Greeks of Asia Minor work their women heavily in the fields, but then the wives transact the money business, and the daughters hold the chief shares in the inheritance.

I suspect the Kizzilbash women must be under like circumstances, though I was assured to the contrary by well-informed persons, who, of course, had no positive information one way or the other. At length I got an occasion to test it, and we said to a Kizzilbash chief, "We wish to know what you do with your money when you sell timber; whether you keep it yourself or give it to your wives?" After trying to ascertain which solution would be most pleasing, and,

being left to himself with an assurance the answer was only on a matter of curiosity, he said, "We give our money to our wives."

I always understood, like Mr. Taylor, that the women attend the prayer-meetings, that the meetings are strictly guarded by sentries, and that only the initiate are admitted; and I have heard the same aspersions, which seem altogether inconsistent with the habits of the people. Of their rites I know nothing, but consider them to be sectaries of Ali, from the public appellation of Kizzilbashes. I have found them ignorant of reading and writing, improvident in their habits, and not always reliable in their transactions, differing much from the Osmanlee.

They speak Turkish with a strong Turkoman accent; this, however, of itself is no strict ethnological proof of Turkoman descent; but the most anomalous member of the Turkish group is the Osmanlee himself, who shows a high character as decidedly as some members show a Mongol character. The Turkish group is more probably composed of elements brought together by political influences, and necessarily using the same language, than composed of homogeneous Monological elements. Within an historical period tribes of Northern Asia have lost and acquired a Turkish language. The solution of these questions involves the solution of the history of the Turkish history and migrations. The relations between the Turk, the Manchoo, and the Mongol are very curious and suggestive, and they have been mixed together on various occasions.

Besides the strict questions of race and language there is that of religion. I do not understand from Mr. Taylor's references that he intends to suggest any southern racial influence, but only the possible spread of Assassin dogmas. The Ali dogmas were possibly acquired in the migration through Persia, but the Assassin and Syrian dogmas may have been subsequently adopted.

Mr. Mackenzie made some remarks on the adoption of the Turkish language by the rayah Greeks. He said, a similar practice had prevailed in Egypt, where the priests read the Coptic language without understanding it.

The Chairman, referring to Dr. Clarke's remark as to the Djaghatâï, said that the Library of the East India Company contained a fine MS. in that language, called Bâbur Nâmeh. The Djagatâï was principally derived from the Uighur, which also formed the basis of the language of the Osmanli Turks. The author of the paper had noticed, that among the Anatolians, the Krim Tátárs, etc., the upper classes resembled the Osmanlis, while the lower classes approached the Mongol type. The Chairman had noticed in Hungary that many of the lower orders resembled the Mongols, which convinced him that the Huns had never been entirely driven out of that country. Might not this have arisen in Anatolia, and through the alliances of the Upper classes with the Georgians and Circassians. Referring to the topographical nomenclature of the paper, the Chairman said mistakes often arose through confounding similar-sounding words: thus, Kahriman, on the Khiva road, might mean "The Hill of Pomegranates;" whereas Ka-

rāmān, or Caramania, was probably derived from the name of a tribe or prince. Again, Balkan meant "a chain of mountains," and Ooloo Balkan signified the Great Balkan. Now, in Kalmuck *ula, ola ohla, gola* (from which, no doubt, the slaves got their *gora*) meant a "mountain," and in Mantchu, *ula* meant a "river." There was the Kirin Ula and the Sahalien Ula, *i.e.* "the black river," which the Chinese called *Hŭh lung keang, i.e.*, "the black dragon river;" and the Tunguses, the *Amur* or *Yamur, i.e.*, "the great river." This little word *ula* had found its way into Finland, where there was a town named Uleaborg, at the mouth of the Ulea, which the Finns called *Uula.* Hæmus, the classical name of the Balkan (whence the Turks got their *Emineh Dágh*), was said to be derived from Hæmus, son of Boreas, who was changed into a mountain. It was perhaps the only Sanskrit local name in Europe; and was, doubtless, from *hima*, snow. The Imaus of Pliny, which, according to some, referred to a part of the Taurus chain in Asia Minor, and by others, to the Himálaya itself, meant the same thing. Pliny himself was aware that in the language of the natives Imaus meant "snowy." Further, Himalaya in Sanskrit signified "the abode of snow."

Mr. Hyde Clarke said that the difference between the Osmanlees and the lower classes had been attributed by the Chairman to intermarriages with Circassians and Georgians, though he was not inclined to adopt that opinion. Among the Krim Tartars there was a great distinction between the upper and the lower classes, the former having countenances resembling Europeans. But that was not the case with the Turkomans. He never knew a distinct Mongol type of face among them, and in that respect they were very different from the Krim Tartars, who had a distinct Mongol character. It was true that the higher classes in Turkey had intermarried with the Georgians and Circassians, but it became difficult to ascertain what had become of the offspring of those intermarriages, because the difference of type was not confined to the upper classes. It was a remarkable fact that there would seldom be found in Constantinople the descendant of an ancient historical family. It was the same also in the provinces; their offspring appeared to become extinct in two or three generations. He was therefore inclined to doubt whether the difference in type was owing to intermarriages, which had produced an extinction of the mixed offspring.

The next paper read was on a stone axe from Brazil.

Notes on a Stone Axe from the Rio Madera, Empire of Brazil. By Kenneth R. H. Mackenzie, F.S.A., F.A.S.L.

The axe now laid upon the table presents few points on which any comment is necessary; but, in the unavoidable absence of Mr. Henry George Williams, our local secretary for Ceará, North Brazils, he has requested me to communicate its history so far as known, and at the same time present it to the Museum of the Society.

A half-caste Indian trader, Domenico Fuente, in the course of his business, proceeded as far west as the Rio Madera, about 60° west longitude, the point of confluence with the Solimoens (as the Amazonas

is called for a part of its course), being about 3° south latitude, near the town or settlement of Serpá. On its banks reside several tribes allied to the Tupi branch of the Guarani race; and among the Rachavás, a subdivision of the Tupi, this stone axe was acquired, and brought back to Ceará. Here it passed into the hands of Senhor Joao da Brigido, a member of the house of representatives of the Capitancia of Ceará, who lately presented the implement to Mr. Williams, by whom it has been brought to Europe.

This axe presents, therefore, a peculiar feature of interest, in being the first hitherto obtained so far from the Brazilian coast. Similar implements have been brought to Europe; and, on the 1st of March, 1860, we find the Hon. Robert Marsham exhibiting several axes before the Society of Antiquaries of London. In the remarks this gentleman made, we find some interesting details as to the value assigned by the Indians to these objects. He says:*—

"I inquired through the chief, who could speak a few words of Portuguese, if they (the Apinajés, residing on the Tocantins) had anything to barter. At first they all declared they had nothing; but, on my opening a box full of things they most valued, such as beads, knives, looking-glasses, etc., they soon brought out all their possessions, and were most anxious to begin the barter. In this way I obtained six or seven stone axes, at the rate of one stone axe for one new American axe; a much higher price than they demanded for their clubs, bows and arrows, feather head-dresses, etc."

It would appear from Mr. Marsham's statements, that these axes are not used in actual warfare, but for hacking the bodies of the slain after battle. But the shape of those brought by Mr. Marsham differs from that of the instance before us. They resemble in shape a semicircular cheese-cutter, as used in ordinary commerce; whereas I am disposed to think that the Madera axe was fixed in the clefts of a stick, and used like a hoe.

But it appears from Mr. Marsham's inquiries, that these stone axes were not manufactured by the tribe from whom he acquired them, but by a more warlike tribe, the Gavéos. The Chavantes and Cherentes, also located on the Tocantins, manufacture these axes. Mr. Marsham could not learn that any other Indians than those of the Tocantins have such axes; but they all made use of stone celts. We have now to add the tribes of the Madera to these axe-making races; and it is interesting to be able to contrast this specimen of native skill with others of a far different era and origin.

I may take this opportunity of saying, that the anthropology of Brazil is yet but very little understood; the indolence of the natives, the ferocity of the predatory tribes, and the sparseness of population, materially impede any inquiries in that direction. At some time we may hope for more exact details concerning the interior tribes; at present we can only welcome such small, though important, contributions as these.

The proximate opening of the Amazonas to general commerce, to

* Proceedings of the Society of Antiquaries, 2nd series, vol. i, p. 101, sqq.

date from the 7th of September next, and the impetus which this may give to anthropological science may lead to a better acquaintance on our parts with the natives of the mediterranean river-system of the Brazilian empire. It is to be regretted, however, that the present proposed free navigation of the Amazonas does not extend to the Madera, the Purùs, the Tapajoz, the Rio Negro, and other interior rivers. For some years past there has been a fortnightly steamer from Pará, at the mouth of the Maranõn, to the confluence of the Amazonas and the Rio Negro; but the singular peculiarities of the country and climate have hitherto tempted few travellers to remain; and, with the exception of Captain Burton, Mr. Bates, Mr. Williams, Mr. Swann (who was, some few years since, most ill used by the Brazilian civilised government, in much the same way as our unfortunate colleague Captain Cameron now is in another part of the world), and a very few others, I know of no scientific explorers. I may add, that Mr. Williams proposes to cast into a written form some reminiscences of his experiences amidst the natives of the Capitancia of Ceará, and to submit them to this Society at some future period. In the meantime, I think we are greatly indebted to him for this addition to our collection of an object of such rarity and interest. No other society, so far as I know, possesses any specimen of the kind.

Mr. MACKENZIE, in reply to questions, said he was not aware that the Indians attached a peculiar value to those implements, further than that which arose from the great trouble in making them. The chief value of the axe on the table was derived from the fact of its coming so far from the coast.

Mr. CARTER BLAKE said, in reference to the distinction between the axe on the table and Peruvian axes, that some of the latter were more of the shape of a cheese cutter.

Mr. HYDE CLARKE made some further explanation in reference to the failure of progeny from mixed marriages in Turkey, alluded to in his paper. He said that in "the good old times" in Turkey, when at any moment a man might be deprived of life by the bowstring by order of the Sultan, the practice prevailed of preserving the property to a family by giving it to a mosque, say on condition of burning a lamp at some particular shrine, and the church afterwards gave back the property to the former owner, who had to pay annually the cost of burning the lamp; it being a condition that on the failure of male heirs the estate should lapse to the church. In this manner at least one-third of the landed property of Turkey had become vested in the church. Mr. Clarke explained further other means by which the church acquired property in Turkey, failing male issue, in confirmation of his opinion that mixed marriages had not resulted in a continued offspring.

On the Land Dayas of Upper Saráwak, Seutah, Sikoy, Setany, and Quop. By EDWARD P. HOUGHTON, M.D., Medical Officer, Sarawak Government. [The paper will appear at length in the *Memoirs*. Abstract.]

Dr. Houghton gave a minute description of the Dayas, under the heads physical characters, births, length of life, uterogestation, diseases, religion, food, habitations, disposal of the dead, belief in a future state, domestic animals, and government.

Mr. MACKENZIE remarked on the excellent and lucid arrangement of the different subjects treated of, which, he thought, might be adopted with advantage by all travellers. It was a much more easy and simple mode of stating the facts noticed, and, he thought, it would be of great service to the advancement of Anthropological science, if a series of rules were laid down as a guide to other travellers on the statement of observations.

Mr. CARTER BLAKE replied, in answer to a question, that the meaning of the word Dyak was "savage" or "wild."

Mr. MCGRIGOR ALLAN, reverting to the concluding observations in Mr. Clarke's paper, that the intermixture of the Osmanlees and Georgians did not produce a permanent race, said, that fact confirmed the views of the late Mr. Knox, that no two distinct races succeed in producing a permanent offspring. He wished to know whether it was Mr. Clarke's opinion that, in conformity with the views of Dr. Knox, the Turkish race would disappear in Europe. Many Americans were now entertaining the notion that they should mix with the negro race to produce a superior race of men, but if the opinions of Dr. Knox were correct, that doctrine would prove altogether fallacious.

Mr. HYDE CLARKE said he never believed in the permanence of the intermixed races, but there was a great difference between giving broad facts as he had done, and carrying them out with statistical results. There were many old families in Turkey, and all were in the habit of intermarrying with Georgians and Circassians, but there were many different circumstances which might prevent the attainment of a positive decision as to extinction of races, any approximation to which could only be arrived at by statistical returns. He had, however, entered into the question of the probable extinction of the Turks and the increase of Christians in Turkey, in a paper which had been read before the Statistical Society. It was very rare, he said, to see a Mulatto in Turkey, though there were many black children.

The following paper was then taken as read.

On the Fishing Indians of Vancouver's Island. By E. B. BOGG, Esq., M.D. [The paper will appear at length in the *Memoirs*. See *Anthropological Review*, vol. iv, p. 400.]

The meeting then adjourned.

May 14th, 1867.

Dr. Charnock, V.P., in the Chair.

The minutes of the former meeting were read and confirmed.

The following Fellows were elected:—Anastasius Agathides, Esq., 28, Kildare Terrace, W.; The Rev. John Congreve, M.A., Lower Tooting, Surrey; C. W. Eddy, Esq., M.D., M.A., 24, Abingdon Street, Westminster; C. B. Ker, Esq., M.D. Edin., Hadley House, Cheltenham; The Rev. James Kernahan, M.A., Ph.D., 22, Navarino Road, Dalston, N.E.; Evan Powell Meredith, Esq., Agincourt Square, Monmouth; Flaxman Spurrell, Esq., F.R.C.P. Edin., F.R.C.S. Eng., Belvedere, Kent; John Scott, Esq., M.D., 8, Chandos Street, Cavendish Square, W.; Thomas M. Smith, Esq., M.D., Gorforth House, Newcastle-on-Tyne; John E. Smyth, Esq., B.A., L.M., L.R.C.P., M.R.C.S., 2, China Terrace, Kennington Road, S.; A. B. Stark, Esq., M.D., 62, Mount Pleasant, Liverpool; George Walker, Esq., M.D., Glasgow M.R.C.S., 11, Hamilton Square, Birkenhead.

Joint Local Secretary for Stockholm.—Professor Hildebrand.

The following presents were announced, and thanks were voted for the same:—

For the Museum.

From K. R. H. Mackenzie, Esq., F.S.A.—A piece of slag from a Roman forge at Hackness, Yorkshire.

For the Library.

From the Author.—George Ellis, Esq. On Irish Ethnology.

From the Author.—Dr. J. Barnard Davis. On Peculiar Crania from the South Pacific.

From the Author.—W. C. Dendy, Esq. Ψυχη; a treatise on the birth and pilgrimage of thought.

From the Author.—J. Perrin. Zulu-English Dictionary.

From T. Bendyshe, Esq., M.A., V.P.A.S.L.—Works of Horace, Virgil, Tacitus, Lucretius, Cæsar, Cicero, Aristotle, Sallust, Demosthenes. Bonomi, Nineveh and its Palaces. Robertson, Works of. Hallam, Literature of Europe. Biographie Générale. Prescott, History of the Conquest of Peru. Lyell, Travels in North America. Watson, Histories of Philip the Second and Third. Goodwin, Latin and English Dictionary. Potter, Characteristics of the Greek Philosophers. Maximus Tyrus, Philosophi Platonici. Smith, Translation of Thucydides. Arnold and Bloomfield, Works of Thucydides. Keightley, History of Greece. Montesquieu, Grandeur et Decadence des Romains. Barthel, C., Die Deutsche Natural Literature. Beneke, Die Neue Psychologie; Lehrbuch der Psychologie. Cicero, Tusculanarum Disputationem. Geology, Remarks on Bishop Sumner. Murray, Handbook of Northern Italy. Schlegel, Philosophy of Life. Nares, E., Elements of General History. Lardner, History of Rome.

Mr. Mackenzie presented for inspection some bronze implements

which were represented to have been found by a workman when excavating for the railway near Hammersmith; they were said to have been contained in an urn which had fallen to pieces. Mr. Mackenzie did not profess to know whether they were authentic or not, but they had been shown to him by a gentleman who had purchased them from the workmen. The implements, one of which was a dagger, another a badge, and a third a ring, were examined closely by several members who considered them not authentic.

Major Owen said there was the date of 1021 upon one of them in figures that were unmistakably modern.

Mr. Hyde Clarke, Mr. Carter Blake, and others, were also of the same opinion, and

Mr. Mackenzie himself was not inclined to support their authenticity; but he said that as they had been shown to him by a gentleman who believed they had been dug out of the ground, he thought it desirable to produce them for inspection.

The Chairman had not a doubt that the articles in question were forgeries: the date was very suspicious. He had, moreover, within the last fortnight, seen a duplicate of these relics in the possession of another person in Hammersmith, purchased from one of the workmen on the railway.

Dr. Hunt said he had been deputed by the Council to propose the thanks of the Society to their late zealous Local Secretary at Smyrna, Mr. Hyde Clarke, who, while he remained at Smyrna, had discharged the duties of the office in a manner highly satisfactory to the Council. He, Dr. Hunt, therefore, begged to propose their best thanks to Mr. Hyde Clarke for the good services he had rendered. He congratulated him on his return to this country, and hoped he would continue to give his valuable aid to the Society.

The motion was seconded by Major Owen and carried unanimously.

Mr. Hyde Clarke said he felt much indebted to the Society for the tribute of thanks they had given him. It was, however, unnecessary, and uncalled for. He had endeavoured to do his duty and he found sufficient interest in what he had undertaken to amply reward him for the labour.

Dr. Hunt then announced that he had received a letter from Dr. P. Broca, of Paris, of which the following is a translation, accompanied by thirty tickets for admission to the Egyptian Anthropological Exhibition at Paris.

TRANSLATION.

Paris, May 2, 1867.

"The Anthropological Society of Paris, charged by the Viceroy of Egypt with the organisation of the Egyptian Anthropological Exhibition, has been further desired to distribute tickets of admission to this exhibition, which is closed to the public.

"The tickets are chiefly distributed amongst members of the Societies which are devoted to the study of the human races. Every member of the Paris Society has received his ticket. I can still distribute amongst foreign *savants* a rather large number of tickets.

"I send you thirty of these tickets and request you to distribute

them to those of your colleagues who intend to visit the Universal Exhibition. Will you kindly inscribe their names on the cards, which are not transferable. If the number which I send you does not appear to be enough, be so good as to inform me, and tell me how many you wish. Will you also give notice to your colleagues that all Members of the Anthropological Society of London, can, on arriving at Paris, obtain a ticket from me every Tuesday, Thursday, and Saturday, from noon to half-past, rue des Saints-Pères, 1.

"Receive, etc.,

"(Signed) "P. Broca, *Secrétaire-général.*"

Dr. Hunt said, in continuation, that he had received the tickets and should place them in the hands of Mr. Blake to be distributed to those who intended to attend the Paris Exhibition. Any gentleman would do well to see the exhibition organised by Dr. Broca, for he believed it was the most wonderful of the kind ever shown to the public. He proposed the thanks of the Society to Dr. Broca for his kindness and liberality in sending the tickets.

Mr. Mackenzie seconded the motion, and observed that Dr. Broca had always shown himself to be a true, enlightened, and kindly-meaning anthropologist, and he could not speak too highly of his great merits. He was one of the most illustrious ornaments of the science of anthropology.

The vote of thanks was carried unanimously.

Dr. Hunt then announced that the Council had that day appointed Dr. Mouat as Corresponding Secretary of the Society for India, where he is at present, and he had promised to do all he could in aid of their objects. He had been appointed Inspector-General of prisons in India, in which capacity he would have the opportunity of acquiring much valuable information. He (Dr. Hunt) congratulated the Society on having so able and well qualified a man to act as their Secretary in that part of the world.

The following paper, contributed by Mr. Westropp, was then read.

On the Sequence of the Phases of Civilisation, and Contemporaneous Implements. By Hodder M. Westropp, Esq., F.A.S.L.

It is familiar knowledge to us that man, in his progress through life, passes through the stages of infancy, childhood, youth, manhood. There is evidence that man in the aggregate passes through an analogous sequence in the stages of his development—the primitive barbarous, the hunting, pastoral, and agricultural. The last alone may be termed historic, the other stages are prehistoric. In the early history of nations, we find evidences of an agricultural phase. In India, the Aryans were an agricultural race; their very name signifies "one who ploughs or tills". The Pelasgi, the earliest historic race in Greece, were an agricultural people. The Latin words which are expressive of the events of an agricultural life, such as *aratrum*, *bos*, *ager*, can only be ascribed to the Pelasgian colonisers of Italy. Tacitus also describes the ancient Germans as agricultural nomads. The late wonderful discoveries in archæology have opened up distinct vistas of the earliest prehistoric times, the pastoral, the hunting, the earliest and barbarous stages of separate races.

It appears as if there were but one history for every separate people, each passing through these successive phases.

Of the sequence of these stages, and of the various implements, weapons, contemporaneous and coincident with each phase, I shall now adduce a few proofs. In the first place, it must be admitted that the existence of these phases of civilisation in each separate race is undoubted, for all that has growth and progress advances by stages of development to a culminating point; and, as it is impossible that they could be contemporaneous among the same people, they must have been successive and in sequence, each phase ascending in progress from a ruder stage to a higher and more advanced one; analogous to the growth of the individual man, who cannot be an infant, a youth, and a man at the same time, for these stages of his development are in him successive. The transition, however, from one phase to another was neither marked nor sudden, but a slow and gradual operation. There was thus an intermediate period, partaking of the lower and higher stages, and a blending of the two.

This law of sequence is evidently a prevailing law, not only in man, but in nature. Mr. Page thus expresses himself with regard to its observance in geology:—"The geological record is a thing of mere sequence—an inconceivable amount of unexpressed time, during which certain events follow each other in definite order." The rise, progress, and maturity of the arts of architecture, sculpture, painting, are also nothing more than the sequence of styles from the lowest to the highest.

In France, England, Italy, Sicily, Palestine, India, evidences have been discovered of an early primitive barbarous phase, when man was contemporaneous with the mammoth and the woolly-haired rhinoceros, and used those large, rude, flint implements, found in conjunction with the remains of those animals. The implements and weapons thus found prove the man of that period to have been a savage of the lowest grade, unacquainted with the use of pottery, and even ignorant of the art of polishing or ornamenting the splinters of bone, or the rough flint that he used. Sir John Lubbock thus concludes on the evidence before him:—"We may regard it as well established, that the mammoth and woolly-haired rhinoceros co-existed with the savages who used the rude 'drift hatchets', at the time when the gravels of the Somme were being deposited."

Of the hunting stage of man's development, or that phase when flint arrow-heads and flint weapons were generally adopted, the North American Indians, and the weapons used by them, afford an example. They lived by the chase, depending mainly on the animal kingdom for their subsistence. They were essentially hunters and fishermen; the buffalo, the deer, and the salmon supplying them with their principal articles of food. They exhibited an extraordinary amount of skill in the manufacture of their bows, and, among several of the tribes, arrow making was a distinct profession. The arrow-heads were of obsidian, flint, and quartz. Distinct traces of this hunting stage have been discovered in France, England, Ireland, Denmark, Switzerland.

The sum of evidence from the discoveries of M. Lartet and Christy proves that man, in a hunting state, lived in the south of France on

reindeer, musk-sheep, horses, oxen, and the like. On the floors of the caves discovered by them, fragments of the bones of the red deer, the chamois, the bouquetin, and more particularly the reindeer, have been found mixed up pell mell with worked flints of different forms and sizes.

The Danish kjökkenmöddings were of this age. In these shell-mounds, rude flint implements, sling stones, fragments of bone, have been found. The primitive population of this period lived on the shore, and fed principally on shell-fish, but partly also on the proceeds of the chase. No polished axes have been yet found in these kjökken-möddings, and a total absence of metal has been remarked.

In Ireland several hundreds of flint and chert implements, comprising arrow-heads of highly finished types, scrapers, and other articles, together with bones and a boar's tusk, have lately been found on a peninsula of Lake Bally Noe; and the inference has been drawn that red deer (their antlers are found in this lake), boars, and other wild animals, having been driven into this thickly wooded peninsula, were slain with these weapons on its shores by the ancient inhabitants, who were hunters.

In a late excavation made by Dr. F. Keller, between Friedrichs-hafen, on the lake of Constance, and Ulm, the following objects were found. A number of small flint knives, and other implements of silex, in conjunction with the bones of the reindeer, of bears of large size, of the wolf, the horse, and the ox, and also bones of birds, evidences of a people who lived by the chase, and used these flint implements.

Implements of polished stone bear witness to a more advanced stage of civilisation, when man, abandoning the more precarious mode of subsistence derived from the chase, learned to domesticate his prey, and reduce the wild animals around him to his rule. He thus becomes a shepherd. Leading a more settled life, he builds for himself a dwelling, and learns to form implements more suited to his wants; he improves on the former rude shapes, grinds, polishes, and sharpens the stone implements which he will require for cutting timber, and for other purposes contributing to his need. The men of this stage possessed many useful arts; they invented the use of pottery, and were not ignorant of spinning; they dwelt in huts, the bottoms of which are now known as hut-circles, sunk in the earth, or in dwellings raised on piles driven into the shallows of lakes. The tumuli of Gaul, Germany, Britain, and Scandinavia, indicate their belief in a future state, and their reverence for the dead. They ground and polished their stone implements. Universally they had pressed the dog into their service. *They were essentially pastoral*, but lived also on the produce of the chase—the urus and the red deer, as well as upon their domestic animals—the horse, pig, sheep, goat, and short-horned ox.*

Of the existence of this stage, and of the implements contempo-

* An objection has been made to this view, that "the shapes of the implements vary with the nature of the stone." This observation is, however, not founded on fact, for there is undoubted evidence that the FLINT implements of England, Ireland, France, and Belgium, vary in shape according to the stage of civilisation in which they were used. Those of the hunting stage are invariably *chipped* into shape, while those of the pastoral are *ground*, a marked peculiarity of that phase of civilisation.

raneous with it, there are proofs all over the world. Herewith I give examples of stone implements from different countries, almost identical in shape and form,* and witnesses of a similar phase of civilisation wherever found. That they were independently invented among these different peoples cannot admit of a doubt. Sir John Lubbock, a great authority on this subject, expresses his belief that the simpler implements have been independently invented by various tribes, and in very different parts of the world.

The use of metal among any race marks an important era, and argues a more advanced grade of civilisation. The introduction of more cutting instruments of metal must have led the men of that age to cut down forests, clear and till the ground, cultivate the soil, and consequently bring about a system of agriculture. The adoption of metal, however, was neither sudden nor universal at the transition from the stone age to the bronze, as we have already remarked, was slow and gradual. The earliest and simplest bronze celts were, as Sir W. Wilde remarks, "evidently formed on the type of the old stone celts." These, however, were improved on until they assumed the more advanced forms commonly termed the winged and socketed celts.

With regard to the connection of these bronze implements with the more advanced or agricultural stage, Sir John Lubbock comes to this conclusion :—"The evidence appears to show that the use of bronze weapons is characteristic of a particular phase in the history of civilisation, and one which was anterior to the discovery, or at least to the general use, of iron"; and we may add, which was subsequent to the stone age. This phase was evidently the agricultural. Mr. Worsaae thus establishes the coincidence of bronze implements with an agricultural stage in Denmark. The population becoming possessed of useful metallic implements, began to till the earth. Having extirpated the forests in the interior of the country, partly by fire, partly by the axe, the inhabitants spread themselves over the whole land, and at the same time laid the foundation for an agriculture, which, up to the present day, is one of the principal industrial resources of Denmark. In Ireland the great antiquity of corn has been generally acknowledged, and sickles of bronze have been frequently obtained there.

Among the lake dwellings of Switzerland, some have been referred to the stone age, others to the bronze, as they exhibit marked distinctions in their fauna. The fauna of the former testify to a pastoral people, the latter to an agricultural. Sir John Lubbock adduces evidence of the different phases of civilisation in the lake dwellings. Among those of the stone period, the list of objects found comprises seventeen axes, twenty whetstones, and ninety-seven arrow-heads, flint flakes, while objects of metal are altogether absent, and but one doubtful case of a corn crusher, and not a single spindle whorl; on the other, in those of the bronze period, the large number of corn crushers, and the presence of spinning weights, are significant, and the total absence of stone axes is remarkable. Bronze was used, not

* The examples given exhibit almost identical forms. Others, also, of analogous forms, can be given from Japan, Australia, America, Peru, and the South Sea Islands.

for articles of luxury only, but also for the ordinary implements of daily life. The pottery tells the same tale. There is no evidence that the potter's wheel was known to men of the stone age, and the materials of which the stone age pottery is composed are very rough, containing large grains of quartz, while that of the bronze age is more carefully prepared. The ornaments of the two periods show, also, a great contrast. "Thus, then, we see," continues Sir John Lubbock, "that the distinction between the ages of stone and bronze is by no means confined to the mere presence of metal. The manufacture of pottery, the presence of the potter's wheel, the greater variety of acquirements evidenced by the greater variety of implements, the indications of more advanced husbandry, the diminution of wild animals and the increase of tame ones—all indicate a higher civilisation for the inhabitants of Morges and Nidau (of the bronze age), than for those of Mooseedorf and Wauwyl (of the stone age)."

A remarkable discovery at Haalstat, in Austria, has brought to light a transitional period, or a passage from the bronze to the iron age, when bronze tools were slowly dying out before the use of iron. The arms of iron found at Haalstat were actually copied from their predecessors in bronze. Bronze celts faced with iron edges were also found. In the iron age we reached the strictly historical period, and a more advanced phase of civilisation.

To sum up, we may now conclude that there is evidence of a sequence of phases of civilisation, and of contemporaneous implements among each separate race. A writer in a late number of the *Saturday Review*, terminates his article in these words:—"In the scale of the former occupants of Western Europe we have, first, the flint folk of the geologist, then the reindeer folk in a hunter state, then the polished-stone-using folk (or pastoral), then the Celts, and lastly the Teutons." Sir John Lubbock, at the end of his chapter on the Swiss lake-dwellings and their inhabitants, observes:—"We have traced them through the ages of stone and bronze, down to the iron period. We have seen evidences of a gradual progress in civilisation, and improvement in the arts, an increase in the number of domestic animals, and proofs at last of the existence of an extended commerce. We found the country inhabited only by savages, and we leave it the seat of a powerful nation." But, of all countries, Denmark presents us with the most distinct evidences of a country passing through the flint, stone, bronze, and iron ages successively. England and Ireland also exhibit similar analogies in the development of these successive periods.

This sequence of phases of civilisation, it must be admitted, can be considered to exist alone among the races who have exhibited progress; among the unprogressive races, such as the Negro, the Australian, the New Zealander, a blending and sometimes a contemporaneousness of the same phases and implements is visible; nor, indeed, was it always strictly followed out among the higher races, for, as Sir John Lubbock acknowledges, "many stone implements belong to a metallic period." The presence, however, of a stone implement, wherever found, bespeaks a want of civilisation, and generally an ignorance of metals. In some remote and uncivilised parts, they have been retained even up to a late date. The South Sea Islands,

at the time of their discovery, were still in the stone age; and an old woman was lately seen cutting cabbage with one of the 'Picts' knives' or stone hatchets of the early inhabitants of Shetland. While admitting that the sequence of these phases is not always strictly followed out, it must not be imagined that there is any uncertainty with regard to the existence of this law of sequence, the few proofs we have given amply testifying to it. It must be further kept in view, that the successive stages of civilisation are not always contemporaneous in different countries. The period in time of any particular phase, will depend entirely on the relative antiquity of the country in which these phases are evolved.

In conclusion, I may add that this view of the sequence of the phases of civilisation among separate races, and the analogy in the forms of the implements used contemporaneously with them, so far from being regarded as a wild speculation, ought more justly to be considered as tending to prove a unity in the development of man, and an analogy in the evolvement of his natural instincts and of the suggestive principle among all races; and further, as an emphatic proof of that order which universally prevails in man and nature.

Dr. Hunt observed, with regard to the remark that an old woman was lately seen in the Shetland Islands cutting cabbages with a stone hatchet, that a similar implement was now in the Society's museum. It was very unsafe to draw inferences from an isolated fact. The woman did not belong to the stone period, and did not know where the stone implement she used came from. It did not serve to show that the Shetland Islanders had ever used stone implements; the reverse was, indeed, the case, for they called those stone implements found in the islands "thunderbolts," and used them as charms. With regard to the assertion that the alleged sequence of the phases of civilisation among separate races and the analogy in the forms of the implements used contemporaneously with them, should be considered as tending to prove a unity in the development of man, Dr. Hunt remarked that it was a large question, and he did not think the author of the paper was warranted in arriving at such a conclusion by finding stone implements in use; still less could it be considered as proof of the universal prevalence of order in man and nature.

The Rev. Dunbar Heath also took objection to the last sentence in the paper, that the sequence of the phases of civilisation proved a unity of development in man. By what right, he asked, did the author of the paper begin with primitive man? If he began farther up in the scale of creation, the law would still be the same. Suppose they began with primitive man, and they found that he had used implements of stone, bronze, and iron; but in the Belgian bone caves were found that wonderful specimen of a jaw, half man and half ape. He did not see why they should begin at any point whatever. There was no reason why they should begin at an arbitrary point, for the same law was observed in operation farther on, and even unity of development might be deduced by embracing a larger number.

Mr. Fisher said the author of the paper appeared to have put the cart before the horse in asserting that the state of pastoral life preceded

the hunting stage. Man subsisted on wild animals long before he domesticated them, and protected them in herds and flocks. It was quite transposing the natural order, to place the latter state before the former. Pastoral life was an advance upon the supposed original state of barbarism, but it might be found that the subsequent barbarism was only a lapse from that state, rather than part of a continuous sequence.

Mr. McGrigor Allan said he did not understand from the paper that Mr. Westropp had placed the pastoral stage of progress before the hunting stage. He was inclined to think that some races would never advance beyond the hunting stage. The aborigines of North America were a proof of a race that never got beyond it, for notwithstanding all the attempts that had been made to get them to till the land, they could not be considered an agricultural people. He could not agree with the author of the paper, supposing they had passed through the successive stages of civilisation, that it proved a unity in the development of man.

Mr. Blyth considered it was not necessary for man to have passed through a pastoral stage. He instanced the Mexicans and the mound-builders of the Mississippi valley, who there was no reason to suppose ever possessed flocks. He mentioned that in Burmah stone implements had recently been discovered similar to those found in various parts of Europe.

Mr. Mackenzie was of opinion that the progress of the civilisation of man, as indicated by the author of the paper, would require a much longer time for its development than was usually allowed. They must give a few additional millions of years to the existence of the human race for such elaborations as indicated in his transition periods. He considered that Mr. Fisher's remark, that the progress of civilisation might not have been continuous, deserved attention. There might have been times when the human race went back. There might, for instance, be waves of civilisation in which man was thrown back by some natural catastrophe. It was known, in modern times, that the human race sometimes went back to a more barbarous state, therefore a longer period must be allowed for man's existence to account for his present state of civilisation.

Mr. C. Carter Blake, referring to that part of the paper in which the author supposed that the men of the polished stone period pressed the dog into their service, observed that in those Belgian bone caves, in which the remains indicated a late polished stone period, no bones of the domestic dog had been yet observed. There was, indeed, no evidence that man at that period had the slightest knowledge of the sheep, the domestic ox, the horse, or the dog. The remains of the ox found were always those of the *Bos longifrons*. The remains of sheep were never found in the polished stone period. In his opinion, the *Bos longifrons* differed essentially from the common domesticated ox of Great Britain, and he hoped that zoologists would direct their attention to the subject, and be able to adduce some positive facts as to the true distinctions between them. The wild sheep of Sardinia were very different from any sheep in England at the present time. With regard to the horse and other animals, he thought that in the

existing state of knowledge it was not possible to draw any generalisation whether man at different periods had power to domesticate the animals the bones of which were found with his remains; but he (Mr. Blake) believed that those animals were not domesticated.

Mr. Blyth said the domestic sheep in different countries were very different; so much so as to indicate a plurality of specific races, one or more of which (as the ordinary long-tailed sheep of Europe) have no living wild representative. Certain diminutive short-tailed races with crescentic horns, as that still inhabiting the Shetland Islands, and perhaps the flocks of small black sheep mentioned to occur numerously in Corsica, might very well have been derived from the *Ovis musimon*, which is still found abundantly wild in Corsica and Sardinia; but the short-tailed domestic sheep of high middle Asia, with a very different typical flexure of horn from that of the moufflon and kindred species, of which several are now recognised, are most unlikely to have descended from any wild race of that particular form of *Ovis*. In some of the larger kinds of wild sheep, as the different argali of northern Asia and America, the old rams are so large and powerful, that they might not be manageable by the shepherds; and there are no indications that any one of these great argali have contributed to the production of domestic flocks. Of the numerous wild species of the genus, it is remarkable that there is not one that bears fleece, or shows a greater development of the woolly under-covering than occurs in various other ruminants. The fleece of most of the cultivated races of domestic sheep, in the opinion of the speaker, was due to culture and selection in breeding, by which long continued process the under-covering had been developed in excess, while the coarse hairs (which alone are visible externally in the various wild species, and still in some of the domestic races) had been more or less completely eradicated. If the domestic of different parts of the world had descended from different wild stock, some of them long-tailed and others short-tailed, with various other differences, as Mr. Blyth believed to be the case, then it followed that the fleece had been analogously developed in races of different wild origin. We were completely in the dark with respect to the extinct wild type from which the numerous European breeds with horns describing a second spiral curvature in the mature ram, and invariably born with a long tail, may be presumed to have descended; but there was reasonable doubt that all of the various races of tame goat had descended from the Asiatic wild *Capra ægagrus*, and that we are therefore indebted to Asia for the tame goat, if not also for the prevalent type of domestic sheep in this part of the world. It is in the highest degree improbable that the long tails of the latter could have acquired their numerous additional vertebræ as the result of domestication; and there are no corresponding long-tailed races of tame goat. With regard to cattle, he thought it would be very difficult to prove that the *Bos longifrons* was different from certain of the modern cattle of Ireland and other places. There appeared to be several primæval races of cattle intermingled.

Major Owen suggested that the author of the paper might have conceived that the animals were created in the same state. As to the

supposition that a pastoral state existed before the hunting stage, he considered it to be impossible.

Mr. DENDY cautioned the meeting against falling into the error of drawing conclusions from isolated facts. The case already alluded to of the woman in the Shetland Islands, who was seen cutting cabbages with a stone axe, was one instance; and he considered the jaw-bone found in Belgium another. There were many cases of *lusus naturæ*, of which he thought this was one. So that it was impossible from a single specimen to conclude that an animal belonged to a different species. He had seen human bones so closely approximating to those of the *Simiæ* that it was difficult to distinguish them. It was a case of monstrosity, and no conclusions should be drawn from such isolated facts.

Mr. FISHER thought that climate had more to do with such changes than anything else, and that the changes were made to meet the wants of man. In northern countries, for example, where wood was required for fuel, the timber was soft and adapted for burning; but in warmer, tropical climates, the timber was hard. The wool of the sheep, in like manner, was better adapted for warm clothing in colder climates than in hot countries.

The following paper was then read:—

On the Power of Rearing Children among Savage Tribes. By SAMUEL PHILLIPS DAY, Esq., M.A., F.A.S.L.

THE topic which forms the subject-matter of this paper is one of some difficulty. There are no published statistics, and little reliable information to be obtained. What there is, can be found only by wearisome research, being diffusely scattered throughout various books of travel. Possessing very scanty data, I am thrown principally upon my personal observations, and the conversations which I have held with southern planters and others, in this tentative, and I am afraid abortive, attempt to throw even a faint glimmer of light upon a subject possessing especial interest for the student of Anthropology. With the Negroes of the United States, and the British American Indians, I have frequently been brought into contact. I have studied attentively their social characteristics; and, therefore, the brief remarks I have to offer may be received with that amount of credence attached to the statements of all disinterested travellers.

The manifest difficulty of rearing children, even amongst highly civilised nations, forms one of the most distressing and perplexing social problems of the age. Consequently, we are not to be surprised that, amongst savage tribes, this difficulty should become immeasurably increased. The Negro mother, more particularly, pays little or no attention to her offspring—possibly, feels no more affection for them than a lioness does for her cubs. She is generally highly prolific, so that every plantation swarms with children. Dull, unlively, apathetic creatures, they can bear any degree of neglect or ill-usage without murmuring. I have seen infants left about in baskets, exposed to the heat of a scorching sun for a length of time; and they neither cried nor moved a limb, feeling apparently as happy as a cat crouched on the hearth-rug before a blazing fire. Were Negro children as susceptible and delicate as those of white parents, they must

inevitably perish in large numbers. Such, however, is not the case. Doubtless the mortality amongst Negro children would be far higher than it is, but for the interference of masters, who provide arrangements to obviate the evils arising from the mother's indifference or neglect. On many, and formerly on most, plantations, a nursery for infant Negroes is kept, so that the little creatures are carefully looked after, and duly supplied with necessary food and clothing; while those other attentions not less necessary to health and longevity are not wanting. Owing to this absence of care the children of the free Negro born in the North die off rapidly. I do not believe that the wise arrangements heretofore adopted by Southern planters for the preservation of infant life among their slaves have arisen so much from personal and selfish motives as from feelings of philanthropy and a sense of religious duty and responsibility. Owing to the abolition of the institution of slavery in the South I much fear a similar condition of things will obtain there, as in the other section of the United States, viz.,—that the Negro will be less cared for, and infant mortality amongst the Negro race become startlingly enhanced. One fact is worth recording, namely, that in the Southern States the Negro mother has a greater attachment to the children of her white master than to her own offspring.

The savage mothers on the west coast of Africa are in the habit of restricting the free use of their children's limbs from their earliest infancy. They fasten them so securely with strips of bark that they cannot alter their position even by struggling; so that when the child receives the breast there is no occasion to release it from its shackles. Soft moss is employed by the Indian nurse to keep her child clean. But little regard is paid to cleanliness, and the poor infants are often terribly excoriated. Captain George Dixon, who visited this coast more than half a century ago, mentions that he had frequently seen boys of six or seven years old "whose posteriors bore evident marks of this neglect in their infancy."

At Whydah the women are not fruitful, few having more than two or three children. The Negresses at the age of twenty-five usually leave off bearing progeny. At Guinea and Benin, on the other hand, where polygamy is practised, children are numerous—a circumstance at variance with a modern theory on this subject. A reliable traveller met with men who were fathers of over two hundred children. Upon one of them being asked "How many children he had?" replied with a sigh, "seventy." And on being questioned if he had buried any, he answered, "As many as were then living."

It is said of Shinga, Queen of Angola, that she kept fifty or sixty young men instead of husbands, each of whom was allowed as many wives as he had a fancy for. But if any of them proved with child he was bound to kill the infant himself as soon as it was born. In 1648, according to the relations of Commander Fuller, a Dutch officer, who was appointed to assist this Queen against the Portuguese, one of these gallants *had one hundred and thirteen wives without any offspring!* which, "according to that devilish custom, *he had made away with.*"

Captain Burton, in his *First Footsteps of East Africa*, gives a highly interesting and graphic account of the Somali women, whom he describes as of "the Venus Kallipyga order of beauty." With regard

to their morality he is inclined to believe that bad doctrine that it is simply a matter of geography, and quotes the jibe which the satirical Yemei are wont to sing of the virgins :—

"'Tis a wonderful fact that your hips swell
Like boiled rice, or a skin blown out."

He describes the women as preferring *amourettes* with strangers to more legitimate love, in accordance with the quaint Arab apophthegm, that "The new comer filleth the eye." They are, he says, of "a cold temperament, the result of artificial and natural causes," and yet it appears they are erratic in their amorous desires ; very prolific, and "peculiarly bad mothers, neither loved nor respected by their children." After describing the manner in which the matron toils, such as tending cattle, looking after ropes and making them, pitching of huts, bringing water and firewood, attending to domestic affairs, and, when on journeys, loading and driving the camels, he refers to the cruelty and neglect with which they treat their children. They "are carried," he observes, "on their mothers' backs, or laid sprawling upon the ground for the first two years ; the Tomul women ignoring the Kafir custom during lactation. They are circumcised at the age of seven or eight, provided with a small spear, and allowed to run about naked till the age of puberty. They learn by conversation, not books ; eat as much as they can beg, borrow, and steal ;" and, what to Europeans will seem surprising, "grow up healthy, strong, and well-proportioned, according to their race." Perhaps the mother's invariable cruelty to her offspring may, in some degree, be the result of that practised upon herself when she became a wife ; for a part of the nuptial ceremony consists in the infliction of "memorable chastisement" upon the fair person of the bride by the bridegroom, who employs his horsewhip vigorously, "with the view of taming any lurking propensity to shrewdness" that may remain ; thus "carrying out with a will the Arab proverb, 'The slave girl from her capture ; the wife from her wedding.'"

The Indian squaws, especially the semi-civilised ones, unlike Negro mothers, possess a fair degree of maternal affection. Nevertheless, they do not inherit the power of rearing children. Consequently the mortality amongst their infants is very high. This is one cause of the gradual extinction of the Indian race scattered over the whole continent of America. The Indians are a very nomadic race similar to our gipsies. Hence they are exposed to every variety of climate. When travelling, and often when working—for they literally do all the work—they carry their "papouses" or babes slung across their backs. While with the Indians of Manitoulin Island in 1862, I was told that instances of cannibalism are not entirely unknown amongst the heathen tribes who inhabit the region of Lake Superior. A short time previous a mother, pressed by hunger, had *devoured her babe !*

The following paper was then read :—

The Migrations of Mankind. By Joseph Fisher, Esq.

(Abstract.)

Any survey of the condition of mankind, no matter how cursory, reveals the striking fact, that there are nations or races which have

strongly marked characteristics uniting them together, yet separating them from other nations. The easiest cognisable is language, the means of communicating thought and wants. Those who speak the same language have their thoughts cast in the same mould; their physical conformation and features have striking points of resemblance, but are dissimilar from those of other races. These circumstances point to a remote but common ancestry, to some strongly marked individual who impressed his peculiar idiosyncracy upon the physical, lingual, and mental conformation of his descendants.

The visible expression of the thoughts of past races comes to us in their labours upon materials more or less durable—architecture and ornaments. The former is governed by climate. The flat roofs which prevailed in the dry regions of Central Asia would be most inappropriate in a moist climate of Northern Europe. The general embellishments of the buildings conformed to the generic aspect of the structure; but there are points which unite remote races. The existence of antique crosses with mathematical ornamentation, in Greece and Ireland, links the inhabitants together, as possessors of a common idea at the same time, which can only be accounted for by the inheritance of thought from a common ancestor; we therefore trace affinity of race in the material expression of thought, in buildings and ornaments.

The child speaks the language of the parent, who in turn learned it from his mother, but as we ascend the stream we come to a point where this argument fails, a common parent indicates a common language. Yet in very early times we find traces of a division of language, by which those who had been united by the ties which now link nations into a homogeneous whole, were shivered into septs or tribes, each of which possessed a common tongue, which, at the same time, united the sept or family, the nucleus of the nation, and separated it from others. The union into tribes, and the difficulty of intercommunication, led to the dispersion of the human race, and to the diffusion which is the object of this paper.

Springing from a common centre the dispersion must have been centrifugal. Those who remained nearest the centre would naturally make the most rapid progress in those arts which we style civilisation; those who roamed from that centre could enjoy but slight means of culture in those sciences or studies which build up the literature, the sculpture, the paintings, or the legislation of a refined nation. They were only applicable to the possession or exchange of those products of human labour, resulting from the skill and the refinement of continuous productive employment.

The nomades, whose time was spent in unproductive wanderings, and whose only possessions were their flocks and herds, had a community of enjoyment therein which extended to land and its natural fruits, and to the animals which we style *ferœ naturœ*. He who captured the wild animal or plucked the growing fruit, acquired by that act, the application of his skill or labour, an individual right to that which had previously been common to all. Thus property arose. There was a common instinct to preserve the peace. No man could deprive another of that which he possessed without exercising force,

which all were interested in preventing, hence individual property in objects previously common arose.

As the nomadic life gave place to settled residence, land which was common to all was appropriated by possession. Men acquired property in the meres or bounds which they erected to separate the field from the common, and ownership of the land, which belonged to the common, passed to the occupier who separated it by enclosure; *meum* and *tuum* had to be defined before theft could arise.

The separation into races, usually defined by physiology, craniology, or philology, may be further traced in the laws or regulations which affect the possession or descent of land. Customs in reference thereto arose, when mankind ceased to be nomadic and aspired to the pleasures of more settled existence. Each man required secure possession of the use of his lands—at least, until he could reap that which he had sown. We can trace the difference of race in the customs upon which their very existence depended, and the mode by which the individual possession and descent of land was regulated. Occupancy gave the right of ownership of portions of that which had been common to all. The equality enjoyed by the several members of the same tribe dictated arrangements which secured its continuance. The wandering tribes enjoyed manhood suffrage; each respected the individual rights of others. The aboriginal races, who occupied without conquest, and enjoyed without robbery, appear to have adopted a system of LANDHOLDING simple in its nature. They may not have worked out their ideas by logical deductions, but the instinct which guided them rested upon cognate principles, and gave them practical expression. These principles may be thus expressed: Every man requires food; food comes from the land; therefore, every man should be an owner of land. Man is only truly independent when he is secured in the possession of some portion of the surface of this globe, upon which he can take his stand, and say "no legal power can drive me from it."

The diffusion of race may be traced by the rules which applied to the system of landholding. The idea which governed the earlier races being the same, the expression of it was similar; hence, we find in Cabul, in Java, in India, in Russia, and in Ireland, regulations alike in their import and tendency, and we may trace the migrations of races, by the prevalence of the laws which govern the possession and the transmission of land.

We must be careful not to confound conquest with migration; the former usually flowed from north to south, the latter from east to west. There is hardly an instance of a people from a warmer climate making a permanent settlement in a colder region, while there are many in which the superior robustness of constitution of northern warriors has overpowered the discipline and force of those of the south. It is unnecessary to state the examples with which history abounds to illustrate this idea.

This paper relates more to Europe than to the world, and I propose to illustrate the migration of races by a series of maps which I have had coloured expressly for the occasion. The earliest European race was the *Celts*, described by Herodotus as occupying from the Ister

(the Danube) to the ocean, its descent is traced to Gomer, the eldest son of Japhet. Plutarch states that the Ister or Danube divided them from European Sarmatia. Alexander came in contact with them before his invasion of Asia; Cæsar describes their habits and usages, and Tacitus has left us a most interesting account of their maxims and laws. Mr. Rawlinson, Sir James Mackintosh, Mr. Chalmers, and other modern writers, have discussed at much length the history and the habits of this very interesting race. They existed in Ireland until the reign of Charles I, and are described under the term *Tanistry*, by Spenser the poet, and Sir John Davis who was Attorney-General to that monarch. The lands of the sept, which had belonged to a remote ancestor, were divided among the males of the sept "according to their age or worthiness." Upon the death of one, his possessions lapsed to the sept, and were apportioned by the Tanist (who was elected heir in reversion to the chiefdom) among the sept, including the children of the deceased; thus there was a community of possession in the land of the sept. This was altered by the commission upon defective titles issued by King James, under which the chieftains obtained grants of the heritage of the sept, and an effort was made to reduce the co-proprietors to the position of tenants; this has led to the agrarian disturbances which distinguish Ireland from every other country except New Zealand, where the same struggle has taken place from the same cause.

The *Scandinavians* appear to have been a branch or offshoot of the Celts. Their system of landholding, as established in Norway more than a thousand years ago upon the expulsion of Rolf Ranger or Rollo, was division of a man's land among all his sons. Scandinavians occupied the south shores of the Baltic, and the Angles and Saxones, who have given the term Anglo-Saxon to the British people, were Scandinavian, not Gothic or German. The word Teutonic is comparatively modern, and ought to be discarded, but it would be more correct to speak of the English as Anglo-*Scandinavian* than Anglo-*Saxon*, in the sense in which the term is ordinarily used.

The *Getæ* or *Goths*, originally a small tribe, occupied Poland, Hungary, and part of Russia.

The *Sarmatians* or Russians occupied a vast region stretching from the Black Sea to the Northern Ocean; its eastern boundary was the Volga.

The *Scythians* or Mongols were an Asiatic rather than an European race. Some tribes crossed the Black Sea and settled in Boetia, Macedonia, and Greece, and from thence colonised the islands of the Mediterranean and Italy.

These ancient divisions are depicted on the first map of the series. The second shows the extent of the Roman empire, which carried its arms in self-defence into Gaul and crossed into Britain, but its dominion disappeared before the armies of the north. During the chaos which prevailed the Vandals swept across Europe and settled in France and Spain, and the Goths pushed westward and occupied Germany.

The next map shows the empire of Charlemagne, which was an agglomeration of races held together by the power of one man, to fall asunder upon his death.

The westward advance of the Goths was partly a settlement, and hence arose the feudal system. It was mainly one of conquest, and wherever it existed there were two races in the same nation, the conquerors and the conquered, the bond and the free; hence arose a new system of tenure, which sought to associate the old term *odhal*, or noble lands, with land held by servitude. Here, too, was found the baronial keep, the armed retainers, and all the incidents of one race holding another in subjection. These invaders pressed the Celts towards the ocean, and the purer portions of this race are found in Scotland, Wales, Cornwall, Ireland, the west of France and of Spain.

The Getæ or Goths have taken the name of Teuton, and are known as the Germanic race, which has recently made such an effort at union as a nation. It has completely shifted its locality, which has been partly occupied by the Sarmatian, partly by the Scythic races. The distribution of race in the Middle Ages is described in map iv of the series.

Modern legislation in the European states strives to abolish the traces of distinction of race in the same people; hence feudalism has, in some countries by the slow process of law, in others by an extraordinary convulsion, been set aside. France, true to its Celtic origin, returned to the principles of fraternity and equality, which its ancestors recognised, and it has moulded its laws relative to land to the usages of its ancient race—nay, further, it devoted blood and treasure to the freedom of mankind and the elevation of humanity. She has returned to elected rulers, and restored the equal succession of property. Prussia, conquered by the freedmen of France, saw that her nationality depended upon the people being secured their freedom and the possession of land, has imitated the conduct of France with great success. Russia, emerging from the barbaric effects of the mislegislation of a great mind, Peter the Great, who enacted compulsory residence, the parent of serfdom, true to her Sarmatian instincts, has freed a multitude of serfs, and raised them to a higher destiny.

The latest census gives us the following information as to the population of Europe :—

Celts	80,000,000
Sarmatians	66,000,000
Goths or Teutons	50,000,000
Scandinavians	50,000,000
Scythic or Mongol	27,500,000
Semitic or Jewish	2,500,000
	276,000,000

It cannot be a matter of indifference to the Anthropological Society to find another link which associates men together, and I venture to suggest the propriety of developing the ideas which I have rather crudely suggested, and in addition to philology and craniology, tracing that other link which unites mankind into races or tribes.

Mr. Hyde Clarke said he thought that the poor laws were established before the reign of Queen Anne, therefore anything done in her reign would not have effected the establishment of poor laws. He could not perceive how it could have been possible for the four millions of acres stated to have been since then enclosed to have been converted into parks, inasmuch as all the parks at the present

time did not comprise much more. As to the statement that conquests generally proceeded from the north, he thought it was, in many noted instances, contradicted by facts. The Egyptian, Phœnician, and Carthaginian conquerors, moved from the south northwards, and the same might be said of the Greeks, and of the Moslem. Even at the present time the Zulus were moving northwards. He disputed also the statement that the course of migration had been from the east towards the west.

Mr. MACKENZIE observed that in America the migrations had generally taken place northwards, and he instanced the Peruvians, the Aztecs, and other peoples on that continent, where there were seldom to be observed any traces of migration southwards. With regard to the principle contended for by the author of the paper, that every man should have a piece of land, he did not see how it was to be carried out as the population increased, since the land did not grow with the increase of the people.

Major OWEN thought the author of the paper was not likely to meet with general sympathy in his opinions respecting the holding of land. He probably intended that the land ought to revert to the general public.

Dr. HUNT expressed great satisfaction with the paper, which he said was very suggestive, and that the meeting were much indebted to the author for the suggestions he had made. They looked for reasons and for argument, and those they had in the paper that had been read. He thought they ought to pay more attention to historical anthropology, and look to the past of the early races of man with a view to throw light on the present government of the people.

Mr. MCGRIGOR ALLAN said he did not agree that all conquerors came from the north; it was evidently not true as regarded the Esquimaux, who made no attempts at conquest. The fact was, that different races of men were born in different parts of the earth, and as the stronger races occupied the colder regions they extended themselves into warmer climates. The safety of the men who lived near the equator consisted in the inability of the northerners to live in their hot climates. After alluding to the conquests of the Arabs as disproving the assertion that all conquerors came from the north, he adverted to the capacity of different races for freedom, observing that the French, the descendants of the Celts, have never succeeded in working out their freedom, and that he believed the late Dr. Knox was right in the opinion, that the Anglo-Saxons were the only people who understood constitutional freedom. In fact, they were so fond of freedom, that they wanted to keep it altogether to themselves.

Major OWEN attributed the conquests of the Greeks to the fortunate admixture of races.

The CHAIRMAN said the author of the paper seemed to confound Anglo-Saxons with Germans. As far as language went, the Anglo-Saxon was more allied to the Gothic than to the Teutonic. He considered the German language quite as ancient, if not more so, than the languages of Scandinavia. The Scandinavians had borrowed many of their proper names from the ancient German, in which language only would they translate.

Mr. FISHER, in replying to the remarks on the paper, directed his attention principally to the objections which had been raised to his assertions respecting the holding of land, and the effect of enclosing four millions of acres in the reign of Queen Anne. With respect to the alleged deficiency of food caused by increase of population, he said that agricultural chemistry showed that if there were restored to the soil what was taken from it, there would not be any deficiency. The population of Europe had increased within a very recent period fifty per cent., yet there was no deficiency of food. He believed that wealth lies in labour, and if it were applied to the land it would produce an infinity of food. As to the English poor law, it was, indeed, commenced in the reign of Henry VII, but it was not brought into full operation until the reign of Queen Anne. Henry VII got rid of all vagrants by killing them, vagrancy being made a capital offence. Henry VII abolished the practice of having retainers, and the immediate effect was to dissociate the men from the soil, whereby English vagrancy was produced. Mr. Fisher concluded by referring to the division of land in Belgium, for the purpose of showing to what extent four millions of acres would go in support of the poor.

Dr. HUNT announced that they had now come to the end of their old stock of papers, and that at their next meeting a fresh series would be commenced, with one contributed by himself, on "Physio-Anthropology." The meeting then adjourned.

JUNE 4TH, 1867.

DR. CHARNOCK, F.S.A., V.P.A.S.L., IN THE CHAIR.

THE minutes of the preceding meeting were read and confirmed.

The following new Members were announced:—John Atcherley, Esq., L.R.C.P., M.R.C.P., 22, St. James's Road, Liverpool; Lord Eliot, 36, Dover Street, W.; Arthur B. Ewen, Esq., Long Sutton, Lincolnshire; William Fairbairn, Esq., F.R.S., LLD., late President of the British Association, Manchester; John Grayling, Esq., F.R.C.S., Sittingbourne; Edward Greey, Esq., 36, Piccadilly; William Jepson, Esq., F.R.C.S., Salford; H. Nosworthy, Esq., M.A. Oxon., F.Z.S., Clarefield House, Maidenhead; Frederick M. Williams, Esq., M.D., 9, Portugal Street, Grosvenor Square, W.; Captain Morrison, R.N., The Elms, Winchmore Hill; John Williams, Esq., M.D., Nantlle, Carnarvon, North Wales.

Local Secretaries.—James McCraith, Esq., M.D., F.R.C.S., Surgeon H.B.M. Hospital, Smyrna; F. Mouat, Esq., M.D., Inspector-General of Prisons, Alipore; Calcutta (Corresponding Secretary); Dr. David Scott, Umballah, Punjâb.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From T. BENDYSHE, Esq., M.A., V.P.A.S.L.—Elgin, and a Guide to Elgin Cathedral. Lavater, Physiognomy. The Universal Church; its Faith, Doctrine, and Constitution. Dickens, W. B., Japanese Lyrics. Robertson's Works. Henderson, Folklore of the Northern Counties. Harvey, Ecclesiæ Anglicanæ Vindex Catholica.

From the ACADEMY.—Nova Acta Academiæ Cæsarea Leopoldina Naturæ Curiosorum.

The following paper was then read :—

On Physio-Anthropology, its Aim and Method. By JAMES HUNT, PH.D., F.S.A., F.R.S.L., F.A.S.L.

I propose this evening to call the attention of the Society to a subject which no doubt will afford material for an interesting, and I trust an important, discussion. I do not intend to lay before you any new facts in relation to our science, but to invite your attention to the aim and method of one of the most important branches of it. Before, however, proceeding with this part of my subject, I must offer a few words in explanation of the term Physio-Anthropology. I shall afterwards state the reasons why I have felt it necessary to discard the words, psychology, phrenology, or cerebral physiology, which have been employed by some writers as nearly convertible terms for what is now proposed to be included in Physio-Anthropology, or the science of the functions of man as a whole, not merely a science of his parts or attributes.

Biology, or the science of life, is divided by the general consent of naturalists into two great subjects, viz., Morphology, or the doctrine of form, and Physiology, or the doctrine of function. Anthropology, too, is by general consent acknowledged to be a part of the science of Biology. This acknowledgment necessitates our considering whether anthropology be also capable of this division, for what is applicable to the greater ought to be so to the less.

Anthropology, or the science of man, has been declared by the highest scientific tribunal in the country to be a part of biological science. Anthropology being thus admitted to be a part of biological science, does it not follow that it must be treated accordingly. If Biology can be divided into the doctrine of forms and that of function, so, too, must anthropology be capable of division in the same manner ; this, therefore, is my justification for the title of my paper, viz., Physio-Anthropology, or the doctrine of the functions of mankind, in opposition to physical anthropology, or the doctrine of the forms of mankind. The attention of the Society has during the last four years been mostly directed to the physical characteristics of mankind. The chaotic condition of the science of man a few years ago rendered it absolutely necessary that the errors relating to physical anthropology should be removed before we could with much profit turn our attention to the higher problem presented to us in the study of Physio-Anthropology. While, however, claiming as a justification of my title the classification adopted by the British Association, I am at the same time only ready to justify so much of the arrangement as relates to the science of anthropology being a part of the science of biology. Without a clear and well defined idea on this point, it would be utterly impossible for anthropology to make any real progress. Until we can free ourselves from the prepossession of what Professor Huxley so aptly terms "traditional prejudice" respecting the position of man in relation to the rest of organic life, we

must remember that we have not advanced beyond what Comte so fitly calls the metaphysical stage of our science. But while prepared to admit that anthropology is a part of Biology, I cannot endorse Professor Huxley's opinion that it is desirable in any scientific body to have one department for the study of form and another for that of function; this, however, is no business of ours—unless an attempt should be made to separate anthropology in a similar manner. Botanists and zoologists may be able to study form and function separately; but I contend, in anthropology, that both studies must go on at the same time; in fact, that the one must gradually lead up to the other, and that both must eventually be studied together. While, however, saying this, I ought to add that a man may be a very good physical anthropologist or anatomist without knowing anything at all about physiology. We can study forms without any reference to function; but we cannot found a science of living man without the aid of physiology.

Dr. Whewell has pointed out, in his *History of the Inductive Sciences*,* that in physiology we have a science which prepares us "for the transition from the physical to metaphysical speculation," and that although it is concerned about material combinations, we are led "into the regions of sensation and perception, thought and will." And here I would state, *in limine*, that we cannot, as a scientific body, attempt to pass the boundary by which all inductive sciences are confined. Our limits are the same as those of the biologists, and into the region of metaphysical speculation we must not enter.

I shall endeavour to show that too many of our modern men of science have introduced into their writings metaphysical speculation, and that if we follow their example we cannot expect to make any real progress. I shall further attempt to show that our future success in the establishment of a reliable physiology of mankind will chiefly depend on freeing our inquiries from metaphysical speculation, and entering on the field of direct observation of nature; in other words, we must be prepared, in our study of the highest division of our science, to pursue the method which has led us to such fruitful results in the lower branch, not only in one, but in every department of the science of man. Nowhere is caution on this point more necessary than in the one which we have, by long habits and the usage of centuries, been disposed to think belonged to a different class and order of inquirers. Dr. Whewell has well remarked, "in all genuine science, our knowledge becomes real and scientific, only in so far as it is verified by particular facts, and thus established in general propositions."† It is thus only facts which admit of verification on which we can found our science.

That the time has arrived when we ought to begin in earnest to throw off the assumptions of the metaphysicians, may be perhaps shown by an extract from a recent number of a periodical which fairly expresses the opinions of educated Englishmen. It may serve also to show the tendency of public opinion outside our walls, and may inspire us with courage and determination in our future investigations; I refer to

* Vol. i. p. 317. Third edit. † Vol. i, p. 318.

an article in the *Saturday Review* which appeared the week before last.*

"Metaphysics have indeed been long sinking into merited contempt. They are cultivated only by those who are engaged, not in action, wherein the true balance of life is maintained, but in dreaming in professorial chairs. An ambitious youth here and there goes through an attack of metaphysics, as a child goes through an attack of measles, and procures thereby an immunity from a similar disease for the rest of his life. And there are dabblers in metaphysics who remain youths for life. By the rest of mankind, whether men of the world or men of science, metaphysics are as little regarded as scholastic theology. * * * * *

"To give mental science its proper place among the positive sciences, it must be based, as they are, on the study of external nature. The external phenomena from which the laws of mind must be inductively drawn, may be classed as 1, The physiology of the nervous system. 2, The facts of the degeneration of mind, as exhibited in the different forms of idiocy and insanity. 3, The course of development, of mind as exhibited in the successive stages of the infant, the animal, and the barbarian. 4, The progress or regress of the human mind as exhibited in history. Our object should be to interest the mind in the realities which surround us, and to bring the mind into harmony with the laws of nature. The mind that is in intimate sympathy with the course of events, is strong with the strength of nature, and is developed by its force. Power is acquired by the habit of submitting the understanding to things. Natural gifts sharpened by mere logical training are not enough without a large experience of life and men.

"The very first thing necessary for the student of mental science is to form a just conception of what is meant by mind. The metaphysical conception of it, as a peculiar entity, the laws of which can be known in a way peculiar to themselves, must be discarded. Upon this abstraction, an imaginary substance, the supposed source of power and self-sufficient cause of causes, have been built all the endless and contradictory systems of philosophy."

Although these extracts have appeared since my paper was written, I still think that they may be useful to us as indicating the opinion on this subject of the educated public, and also as showing that the views now advocated with regard to the method of our science are neither novel nor without able advocates in current general literature. When it is announced in the public prints that "the history of mankind is the history of the latest organic development of nature," I for one rejoice at our past and look hopefully to our future.

In undertaking the duty of bringing this subject under your consideration, I am fully sensible of the gigantic difficulties of treating it in a manner its importance deserves, within the limits of a communication of this nature. My immediate object is to give an opportunity for discussing most fully and carefully what is the right method of research respecting the functions of mankind generally, and especially with regard to their mental phenomena.

* Vide Saturday Review, May 25, 1867.

Highly as I value facts, and willing as I am to suffer from the reproach of being loyal to them, I still consider that facts are of little service to the progress of genuine science, unless they are used properly; in other words, facts only become valuable when we have learned how to use them. I believe there is a general agreement among the Fellows of the Society, with regard to our researches into the past history of mankind, that we have adopted the right course when we have solely followed the inductive method. We may claim as an honour belonging to our Society, that we were the first public body in this country who ever attempted to apply a true Baconian method of induction to physical anthropology. It has been solely the application of this method which has given such weight to our deliberations and our deductions. Loyalty to facts with regard to physical anthropology has brought us face to face with popular assumptions, and the contest has resulted in victory to those who used the right method. Having then seen the advantage of conducting our investigations of physical anthropology according to the inductive method, the time has I think arrived when we ought to consider whether we shall do right to apply the same method to other branches of anthropology.

I should find it impossible, if I made the attempt, to overrate the importance of such a question. To change a method of scientific inquiry is to produce a revolution in science. It is impossible even to conjecture what may be the result to philosophy and social science of a change in our method of investigation.

We have, I suppose—nearly all of us in this room—been brought up in the belief that in mental philosophy or psychology it was necessary to start from some assumption—that is—if we employ an *à priori* or deductive method of research. If this be so, then psychology does not come within our domain. The question before us is, therefore, one of very great if not vital importance in the future history both of our science and our Society.

I wish to state that I am willing to be held solely responsible for any suggestions I may feel it my duty to make on this subject. I am indeed totally uninformed as to whether my views will meet with even partial assent from the Fellows of the Society generally. Profoundly interested in the progress of *bonâ fide* anthropological science in this country, I feel it my duty to make a few remarks on the present aspect of our science, because I conceive that if we do so we shall lay a good foundation for future work.

This question of method I regard as so important that I desire on the present occasion to forego the discussion of controversial points in order that our sole attention may be given to its consideration. What, then, is required, when we are invited to relinquish the deductive method for the inductive in all our investigations? What have we been fighting against during the last four years? Simply to abandon all theological, metaphysical, and *à priori* assumptions, when unsupported by observed facts. There are, for example, many men of science who plead the cause of some hypothesis with regard to man's origin, because they say "it is a good working hypothesis."

This feeling arises, no doubt, from the fact that many of the most important discoveries have been first suggested by working according to the deductive method. For this and for other reasons I therefore say most emphatically, that I do not desire or propose to open up a discussion on the question of the general merits of induction or deduction, but shall rather avoid any expression of opinion on the subject. I am willing even to allow that there are several questions in which men's minds are interested which can alone be discussed by the employment of *à priori* assumptions.

My remarks will tend to show the inapplicability of this method to anthropology in any of its departments, and are not, therefore, to be misconstrued into a general condemnation of such a method in other branches of inquiry. I propose to examine briefly the present state of physio-anthropology, in order that we may have some little idea of our present position and future requirements by examining what is our present state of positive knowledge if we deduct the assumptions of theologians, metaphysicians, philosophers, and men of science.

The first three classes employ and justify the use of the deductive methods, and to them I have nothing to say. All the world cannot but watch the war going on, not only amongst theologians of all shades and of all races, but also of metaphysicians and philosophers of every kind and degree. The prowess which each of these combatants displays against his adversary might almost tempt the man of science to enter the lists with them. But, good as may be the inclination, it must be resisted. No man of science can, as such, enter the arena of theological, metaphysical, and philosophical discussion.

By physio-anthropology I mean, not the philosophy of the human mind, but the science of the functions of mankind. Nor am I in any way disposed to put arbitrary limits to this definition other than belongs inherently to it as a pure science of induction. If we were to begin our researches by laying down some arbitrary limits to our investigations, we might exclude ourselves from discussing phenomena which might greatly assist in another branch of our science.

While, therefore, I do not condemn the use of the *à priori* method of investigation for the theologian, the metaphysician, or the psychologist, I must express my most emphatic opinion that it is entirely insufficient to build up either a mental or social science of man: it is the object and duty of the anthropologist to establish both.

A glance at the present aspect of philosophy reveals the fact that it is in a state, not only of transition, but that the condition of the whole so-called science of mind is one of very considerable confusion. The old landmarks of the schoolmen have been destroyed by internal dissension; and even at this minute the disputes of those who are looked upon as authorities sufficiently attest the viciousness of the method pursued by the respective schools.

Take, for instance, the following from one of our most recent philosophical writers, Mr. Herbert Spencer. He writes "the commonly assumed line of demarcation between reason and instinct has no existence."* Speaking of another "world old truth," as it has been

* Psychology, 1855, p. 564.

called, he says, "free-will, did it exist, would be entirely at variance with that beneficent necessity displayed in the progressive evolution of the correspondence between the organism and its environments."* I quote these remarks simply as specimens of the philosophical teaching of the present day, and to be able to protest against such dogmas and assumptions passing for science. Such teaching is the more dangerous, because it is put before the world as legitimate deduction from science. Mr. Spencer remarks that if "psychology is ever to become anything more than a mere aggregation of opinions, it can only be by the establishment of some doctrine universally agreed to;"† and that "no rational psychology can be constructed, save on the basis of some acknowledged relation between thought and the subject matter of thought—between mind and nature;"‡ and Mr. Spencer thinks that it is on these principles that a science of psychology must be erected. Mr. Spencer comes before the world with a system of philosophy, and the above statement sufficiently indicates his method. While he demands as a basis of psychology some "acknowledged relation" between "mind and nature," I ask, on the contrary, that no such acknowledged relation shall be admitted until the same is demonstrated. I do not mean to deny that there may be a "beneficent necessity" for Mr. Darwin's theory of "Natural Selection" to be true, or that Mr. Spencer is the inventor of a "rational psychology;" but I do contend that such a method cannot be the basis of a sound and logical science of man's mental phenomena.

Mr. Spencer speaks of "the unscientific reasonings of the phrenologists,"§ and yet there is, perhaps, no modern writer on psychology who has so blindly accepted the fundamental principles of phrenology as he has done. In one place|| he speaks of "the discovery of the relation subsisting between the development of the nervous system and the degree of intelligence. Originally no such relation was known to exist." Mr. Spencer accepts all the chief principles of the phrenologists, often, however, without due acknowledgment, and at the same time sneers at the conduct of physiologists for not accepting the same as "being in harmony with the course of controversies in general."¶ The only difference between the utterances of Dr. Gall and Mr. Spencer is that the one gives his opinion on the special localisation of faculties, as a man of science and observation, and the other as a dogmatic philosopher. Mr. Spencer says "localisation of function is the law of all organisation whatever; separateness of duty is universally accompanied with separateness of structure; and it would be marvellous were an exception to exist in the cerebral hemispheres."** Mr. Spencer, indeed, goes still further than Gall, or I believe any of his followers, in his application of the doctrines of phrenology to comparative anthropology. Thus Mr. Spencer writes:††—

"The corollary from the general argument that has been elaborated is, that the brain represents an infinitude of experiences received during the evolution of life in general, the most uniform and frequent

* Loc. cit. p. 620.
† Loc. cit. p. 4.
‡ Loc. cit. p. 34.
§ Loc. cit. p. 607.
|| Loc. cit. p. 575.
¶ Loc. cit. p. 706.
** Loc. cit. p. 607.
†† Loc. cit. p. 583.

of which have been successively bequeathed, principal and interest; and have thus slowly amounted to that high intelligence which lies latent in the brain of the infant—which the infant in the course of its after life exercises and usually strengthens or further applicates, and which, with minute additions, it again bequeaths to future generations. And thus it happens that the European comes to have from twenty to thirty cubic inches more brain than the Papuan. Thus it happens that faculties, as that of music, which scarcely exist in the inferior human races, become congenital in the superior ones. Thus it happens that out of savages unable to count up to the number of their fingers, and speaking a language containing only nouns and verbs, come at length our Newtons and Shakspeares."

Now after accepting so much of the principles of phrenology as those I have quoted, it was hardly to be expected that phrenology would be described as being of "comparative unimportance scientifically considered."* But the climax of what appears very like absurdity is reached when it is declared that "at best phrenology can be but an appendix to psychology proper."† However much inclined to oppose phrenology, I shall at the same time be ever ready to vindicate it from the charge of being merely an appendix of "psychology."

Mr. Spencer, after asking "What is the meaning of the human brain? Is it not that its immensely numerous and involved relations of parts stand for so many *established* relations among the psychical changes?" replies, "everyone of the countless connections amongst the fibres of the cerebral masses, answers to some permanent connection of phenomena in the experience of the race."‡ Now this is just the question which cerebral physiology has at this time to settle; but we must found such a very important deduction on a careful series of well-established and reliable facts, and not on the *ipse dixit* of a Darwinian advocate.

I have quoted from Mr. Spencer chiefly to show that the term I have employed, physio-anthropology, differs in no essential respect from what that writer understands by human psychology generally. And here I must say a few words in explanation of the objections I entertain to the use of the words psychology and phrenology. The former is literally the doctrine of the soul, and the latter the doctrine of the mind. Now in the present state of our science we know nothing of either the soul or the mind. We only know of mental phenomena in connection with a nervous system. The asserted existence of mental phenomena independent of a nervous system of some sort has not yet been demonstrated to us, and until this has been done logical consistency and scientific exactness will compel us to discard the use of the words psychology or phrenology.

Attempts have been made by many recent writers to use the word psychology in a sense entirely different from that indicated in its derivation. Many authors in this country have employed it to indicate the philosophy or science of the human mind. Phrenology was also used to convey the same idea until it was taken up by a school

* Loc. cit. p. 609. † Ibid. ‡ Loc. cit. p. 581.

of mental philosophers who professed to base their system on discoveries in the physiology of the brain.

If we open an ordinary book on psychology we find how different is the method I propose to that used by writers on this subject. Thus Sir George Ramsay, in his *Principles of Psychology*, says :—"The difference between Mind and Matter lies at the bottom of all psychology ; and upon it is founded the distinction between the mental and the physical sciences,"* and that if we do not acknowledge this difference "we strike at the root of mental philosophy, and hence of all genuine philosophy whatsoever."†

These are, or were till lately, the views held by nearly all psychologists. Now, however, we have a section of psychologists who are prepared to surrender this "broad, deep, and sudden"‡ distinction between mind and matter, and are ready to acknowledge that intellectual and physical forces are convertible. Whether the so-called mental and physical forces of man are convertible is a question well deserving the most serious attention of the Society at some future day. I now merely wish to indicate the position of psychology with special reference to our own science.

I think there are few who on carefully examining the present state of the literature of psychology will not rise from the study convinced that it is well-nigh impossible to rid the term of the metaphysical character in which nearly every writer has used it. By its origin, and by its use, it is alike condemned, and is more likely to produce than remove existing confusion. Anthropologists have, up to this time, wisely exercised a jealous care in the use of their terminology, and, although we should have found it highly convenient to be able to use a single word to express man's mental phenomena, yet I do not feel justified in proposing the adoption of the word psychology. This objection to the word psychology has been felt and expressed by many writers on the subject.

The late lamented Professor Grote well pointed out that "we must disengage psychology from the philosophy which it has mingled with itself." This union, he says, has produced "confusion of thought," and he adds, "this course will effectually ruin itself."§

Writers on psychology are especially careful to speak of it as a science: but, although they have adopted some of the theories of science, these are still, as is here well pointed out, a mixture of philosophy and science. The late Professor Grote appears to me to have had a rare insight into the present state of philosophy in this country, for he remarks, "the way is singularly open and inviting now for a good physio-psychology, as I should call it, by which, however, I mean something possibly very different from what several who have already treated that subject would mean," and later "the old vein of the philosophy of the Human Mind is worked out, and that whatever there was to be got from it, not much, I think, ever, is got already." These words coming from a professor of moral philosophy in the University

* P. 1. † P. xii. ‡ Ramsay, loc. cit. p. 2.
§ Exploratio Philosophica, 1865, p. xi.

of Cambridge, may be taken as a very fair index of the present state of philosophy in this country. Professor Grote goes on to say* :—

"I have always had a very strong opinion that the later psychology or philosophy of the human mind has neglected a large province of consideration which really belonged to it, in its failing to take notice of, and to try to bring into relation with human intelligence, the various intelligences of our humbler fellow creatures in the universe, the lower animals: mind belongs to them as well as to us. Mental human anatomy, which is of two kinds, the anatomy of the body pursued as far as it can be in the direction of the mind, and the observation of the results of action of mind in connection with this—such psychology always has considered in its province, though lately it has been pursued with special fruit: we want now more of mental comparative anatomy, or the study of the varieties of animal intelligence above alluded to."

It seems to me well nigh impossible to expect that psychology will ever free itself from the philosophy which has been mixed up with it. The word psychology will be useful to the future historian as showing that the science of anthropology has not been an exception to other sciences, and that it has not jumped directly from the theological to the positive stage. Psychology has thus, like phrenology, done good service, and we can look back on the former with gratitude as having given to the world the most rational philosophy of the human mind, and on the latter as having inaugurated a new method of research, but one which it had not the good fortune to carry out. At this minute the so-called sciences of psychology and phrenology stand before the world as hopeless failures. This is felt, not only by independent thinkers, but even by the general public, and in many cases by psychologists and phrenologists themselves.

Mr. Grote well foresaw the collapse of psychology, but he did not see that the ruin of that science necessitated the ruin of the word, or he would not have suggested for future use the term physio-psychology, which he defines to be "a mental and moral human anatomy, and a mental and moral comparative anatomy." This definition, however, is just the one which belongs to Physio-Anthropology.

I cordially agree with Mr. Grote, however, when he says, "I do not believe that these, or either of them, can ever be pursued with good results unless the pursuers of them dismiss from their minds what I should call philosophy;"† and fully admit the advisability, not to say the necessity of this suggestion; but to strip physiological writings of their philosophical speculations is a process which cannot fail to give displeasure to those writers who, while professing to discard *à priori* assumptions, frequently make them a basis of their theories. It cannot but be a matter of great satisfaction to all anthropologists to observe how writers holding the most diverse views point out that the world must look for future direction to the branch of our science now under our consideration.

Mr. Grote only sees an escape from our present confusion, and what he calls our "getting into a hopeless perplexity" by the study of the

* Loc. cit. p. x. † Loc. cit. p. x.

branch of our science under consideration in the first place and "the past history of the human race, both intellectual and moral or civil."* So too M. Auguste Laugel well asks if the time has not come when philosophy can be based on the various branches of our science? He says "a higher and universal science, which includes at once the natural sciences and the historical sciences, might become the solid basis of a philosophy whose doctrines, established *à posteriori*, and not preconceived like those of the old metaphysics; this would be the resumé of all the events, of all the relations, of all the laws of which the world is at once the permanent and ephemeral expression, always old and always new."†

On this point I cannot refrain from quoting an extract from the *Journal of Mental Science*, published at least six months before our Society came into existence. The writer therein says‡:—

"No one who takes a wide and careful survey of the present position of those sciences which immediately concern themselves with man's moral and physical state, can fail to conclude that we stand on the very verge of discoveries of vast importance. The physiologist is daily approaching nearer and nearer to the mental philosopher, while the latter has long since found it necessary to abandon an untenable position, and to accept as the basis of his fabric the discoveries of the physiologists. Psychology and physiology are two branches of one science—anthropology; or, perhaps, it might be said that physiology, drawing, like the roots of the tree, its support from the lower ground of matter; and psychology, like the branches, spreading out into a high sphere, unite in a common trunk, and form therewith a biological unity. The pure metaphysical philosopher, who, disdainful of physical science, cultivates mental phenomena on the basis of those infallible affirmations of consciousness which almost every second person does not understand, and every third person denies; who spins systems of words out of his own mind, as the spider draws its web out of its own belly. The philosopher, who trammels the unwilling mind with the burdensome logic of the schools, and in other ways attempts violently to sever man's intimate relationship with nature, may soon retire to that pleasant suburban retreat where, with the calm aspect of a lofty philosophical disdain, he may, in company with the megatherium and other creatures of the past, look down in undisturbed repose on an age which appreciates him not."

Professor Bain, too, writing in 1861, says in his work on the *Study of Character*:§ "Mr. Samuel Bailey has aptly indicated the position of the present subject as a branch of the whole science of man, or anthropology."

The opinion of Mr. Grote, that no good result can come from a mixture of philosophy and science, as found in nearly all the chief writers on psychology at the present day, becomes of the highest importance to us. I even submit that many of our recent writers on psychology, like Mr. H. Spencer, are far more dangerous foes to the progress of a genuine inductive science of man's mental phenomena

* Loc. cit. p. xvii.
† Journal of Mental Science, vol. viii, p. 194.
‡ Ibid. p. 213.
§ P. 11.

than the "pure metaphysical philosopher." It may be as the *Saturday Review* some time ago remarked with regard to psychology: "Of reasoning we have already had enough to drive us mad;"* but I still contend that its influence has not been, nor is it likely to be, so prejudicial to the progress of science as the mixture of physics and metaphysics which Mr. Spencer in particular has provided for those of the British public who will consent to sit at his feet for instruction. These views may be erroneous, but what I particularly wish to point out to the society is the necessity for us to pursue an entirely different course to that adopted by the writers I have named.

We know that some few years ago anthropology had not in this country emerged from the metaphysical period of its history. An admirable illustration of what I mean will be found in the works of that much quoted author, the late learned and industrious Dr. Prichard. I have said that we know nothing of mind apart from a nervous system, and I suppose there are few who will be so bold as to controvert this proposition. Yet in the *Physical History of Mankind* we read: "The whole universe displays the most striking proofs of the existence and operation of intellect, or mind, in a state separate from organisation, and under conditions which preclude all reference to organisation. There is, therefore, at least one being or substance of that nature which we call mind separate from organised body, not only somewhere, but everywhere."

The late President of the Royal Society thought that it is very remarkable that this argument has been "so much overlooked as it has been both by the physiologists and metaphysicians." Certainly it is very remarkable that such an important "fact" should have been overlooked by both the physiologist and the metaphysician. Sir B. Brodie says: "The human mind, as it comes under our observation, is, to so great an extent, influenced by the conditions of the body, that it cannot be the proper object of study if the latter be disregarded; while the physiologist is equally wrong in regarding the mind simply as a function of the brain, overlooking the entire want of relationship between the phenomena which the mind exhibits and those presented by the material world."† As we are all seeking for the truth, it behoves us to well weigh the opinions of two such distinguished men as Dr. Prichard and Sir B. Brodie. That mind can and may exist independent of a nervous system or organisation, I am not prepared to deny.

In attempting to lay down the principles on which any science should be studied, it would be wrong and highly unscientific to declare that any phenomenon is impossible. Many may be inclined to say that the existence of life, or mind, without a nervous system, is both impossible and absurd. I grant that it may appear absurd with only our present knowledge of organisation and life as found in nature, but I hesitate to declare it impossible.

The term physio-anthropology I consider does not involve any theory, but is the only term in which we, as scientific men, have any

* Sat. Rev. Aug. 31, 1861. † Psychological Inquiries.

right to speak of man's function. If these terms do not involve a theory, neither do they in any way warrant the denial of the possibility of mind existing independent of a nervous system. Our study hitherto has certainly been confined to the consideration of what I call different species of man, but they all have had a nervous system, and we have spoken of what at first sight appear to be the functions of that nervous system; but if we get some other species, or genus, or class, or order—a kingdom of men without nervous systems—we shall certainly be a little puzzled to know how to describe objects so strange to us. We must, however, ever keep our mind ready for the reception of new discoveries, be they ever so wonderful or discordant with our present knowledge. And here let me say that I differ most entirely from the propositions which Dr. Louis Büchner and many of his colleagues, both in Germany and this country, have laid down, viz., that the phenomenon which is known under the name of clairvoyance, for instance, is impossible. Dr. Büchner* says: "There can be no doubt that all pretended cases of clairvoyance rest upon fraud or illusion. Clairvoyance—that is, the perception of external objects without the use of the senses—is an impossibility. . . ." "There exist," he continues, "no super-sensual or supernatural things and capacities; and they never can exist, as the external conformity of the laws of nature would therefore be suspended. . . . Cases so repugnant to the laws of nature have never been acknowledged by rational unprejudiced individuals. . . . There are neither table spirits, nor any other spirits. . . . . The majority of human beings think differently; they must therefore be instructed."

Dr. Büchner has, no doubt, a perfect right to attempt to give the world instruction; but I feel it right to declare that I entirely dissent from the propositions he has laid down. I contend, on the contrary, that we must, in the investigation of the highest branch of our science, be entirely prepared to examine any phenomenon connected with man in the same philosophic and scientific spirit as we examine the sutures of the skull, or the length of the heel. Dr. Büchner says, "the scientific impossibility of clairvoyance has been confirmed by an examination of the facts by sober and unprejudiced observers, and were proved to be deceptions and illusions." But are we to deny the possibility of that which failed to convince some other persons? On the contrary, we must discard all such prejudices, and be very careful how we deny the possibility of any phenomenon connected with man. The struggles of what are now admitted to be truths, should teach us a lesson of caution on this point.

To make any progress in our researches into man's nature, we shall require the greatest forbearance and consideration on the part of those who hold different shades of opinion. The only common ground which we, as a society, can offer, is the one method by which alone all such problems can be solved.

I offer no opinion at present on the phenomenon of mesmerism, nor on the still more remarkable asserted phenomenon of clairvoyance. As

* Force and Matter, p. 153. Trübner and Co.

it will be our duty to sit as judges to examine into the truth of these phenomena as well as the laws regulating them, I think we shall act wisely in reserving our opinion on them until the subject comes under our consideration in a systematic form.

I may add, as bearing on the method proposed, that I cordially agree with Sir B. Brodie, in his censure on those physiologists who regard "mind simply as the function of the brain," and also that they have no right to overlook want of relationship between mental and physical phenomena. On the contrary, we must enter on an investigation of this matter entirely free from any preconceived notion. At present we only know, as students of biology, that life is always associated with what we call organisation; that all organisms are acted on by external stimuli. If we begin the study of the lowest forms of life, we find sensation with a hardly visible system of nerves; and, as we ascend higher, we find a gradual increase of size, complexity, and probably concentration of function, which phenomena, we, as scientific men, are obliged to admit, are related to cause and effect.

While assuming, therefore, that we ought not to regard "mind simply as a function of the brain," we are at the same time compelled, by our position as a purely scientific body, to regard all intellectual phenomena as functions of the nervous system or of the entire body. How far these functions are localised, is the question to be proved, and not to be assumed.

With regard to the assumed difference between mental and physical phenomena or forces, that is a question, too, we must discuss purely on its own merits. While we have no right to ignore this difference, if it exists, we are, at the same time, not justified in assuming it.

With regard to modern phrenology, I look upon its teachings as wholly unscientific. I have no wish to say hard things of earnest men like George Combe; but cannot but express the satisfaction which I feel at the ignoble finale his teaching received. For twenty years phrenology possessed a quarterly journal, in whose pages it was reiterated *ad nauseam* that phrenology was an inductive science, based on the physiology of the brain. Had it really been so, it would have held a very different position at this day to that which it occupies actually. The answer to every criticism was, that it is an "inductive science"; and yet the first proposition put forward by phrenologists, contains one of those gigantic assumptions which must for ever estrange it from every really scientific mind. I allude to the assumption, found in nearly every one of the authors on phrenology, from Dr. Spurzheim to Mr. Charles Bray, "that the brain is the organ of the mind." Five-and-twenty years ago, an accomplished physiologist told a "scientific body", calling themselves "The Phrenological Association", that this "was mere assumption." He well said, "We boast our science is purely inductive; and yet, in the enumeration of our axioms, we assume a position all our facts tend to disprove." He goes on to say:* "It is this conjectural doctrine—this

* Phrenological Journal, vol. xv, p. 298.

belief in the individual and indivisible essence of mind—this love of the marvellous—this thirsting after something mysterious—which is retarding the progress of cerebral physiology, and, in the same ratio, the happiness of man. It is this clinging to old opinions—this disinclination to shake off old garments, which is the cause of so much doubt concerning a question so self-evident. We oppose this system by the antagonism of reason and nature. It is impossible any longer to countenance the opinion. It must be rooted up. It is like a malignant disease, which can only be cured by extermination. Let it be boldly stated, because it is here that, as philosophers, we have to deal simply and exclusively with matter."

To attempt a refutation of such a sound position was utterly impossible; and this learned body, knowing and feeling this, performed the "happy dispatch", and there was an end in this country to the "inductive science" of phrenology.

It is not simply our duty, but it is a part of our business, as students of a genuine inductive science, to be on the look out for assumptions. For four years I have declared, whenever I had the chance, that it was against assumptions we had to fight before we could ever begin to found a science of man. Are we justified in making the phrenologist an exception to this rule? If there are any phrenologists now living, who think that we are inclined to allow them to call their science "inductive", when they put forward such an axiom as its basis, I warn them that they are greatly deceived. Whether "natural selection" or artificial selection has exterminated that race of phrenologists of which the amiable and zealous George Combe was the head, I know not; but can only hope that experience has taught them wisdom, and that they will not again attempt to show their childish petulance when they hear assumptions called assumptions, and treated as such.

Mr. G. H. Lewes, and Mr. Herbert Spencer, both charge the whole body of phrenologists with bigotry. The former says that they are "impatient of contradiction; they shut their eyes to difficulties; unable to accommodate their principles to the principles of philosophy, they contemptuously dismiss objections as 'merely theoretical', and fall back upon their 'well established facts'."* Mr. Spencer remarks: "The crudity of their philosophy is such as may well make many, who to some extent agree with them, refrain from any avowal of their agreement; more especially when they are met by so great unwillingness to listen to any criticisms on the detailed scheme rashly promulgated, and finally settled."†

In quoting these remarks, I would by no means be understood to endorse the opinions of these authors. Whether phrenology was rashly promulgated, is a question which in no way affects us. My desire on this occasion, is to give the reasons why we, as a scientific body, cannot accept any of the various systems of phrenology as a basis for our future investigations.

My only object in bringing the subject of phrenology forward in this prominent manner, is to show that phrenology is not what it is

* History of Philosophy, p. 640. † Psychology, p. 609.

claimed to be by so many of its disciples—purely a science of observation and induction. In doing this, however, I shall avoid as much as I possibly can saying one word which can give offence to any phrenologist. On the contrary, I would especially invite all the disciples of Gall to unite with us in endeavouring to found a science on the very method originally employed by that great man. We are a young society, and at present we are in no way identified with those parties who have made constant and bitter attacks on phrenologists. As far as I am concerned, I frankly confess that I look upon phrenology with the same kind of respect as I do on ethnology or psychology—as defunct sciences, out of which modern scientific anthropology has been developed. It was as necessary that ethnology, or crude speculations respecting physical anthropology, or equally crude speculations of psychology and phrenology, should precede inductive anthropology, as it was necessary that astrology should have come before astronomy, or alchemy before chemistry. Such, too, is the power of "inherited experience", that it is possible there may be traces of these embryo sciences a century hence, just as there are still a few who put more faith in astrology than they do in scientific astronomy.

With regard, however, to Dr. Gall, I would desire to speak of him in the very highest terms of commendation. My own estimate of the value of Dr. Gall's services to inductive science is as great as that of any modern phrenologist. All I have read of the early researches of Dr. Gall, lead me to the belief that, whatever may be the defects of phrenology as a system of psychology, yet he laid down the right method of investigation in his earliest researches. Up to a certain time in his investigations, he proceeded solely on observation and comparison—just as we shall have to do again at this day. I most cordially agree with Mr. G. H. Lewes, when he says: "The day for ridiculing Gall has gone by. Every impartial competent thinker, whether accepting or rejecting phrenology, is aware of the immense services Gall has rendered to physiology and psychology, both by his valuable discoveries, and by his bold, if questionable, hypotheses. He revolutionised physiology by his method of dissecting the brain, and by his bold assignment of definite functions to definite organs."*

There can be, I think, little doubt that Gall, in his early days at least, set an example of research and observation which we shall do well to follow. His influence on philosophy has been felt more than it has been acknowledged. Had he kept to his early method of observation and comparison, psychology would at this day doubtless be in a far more advanced state than it is. For twenty years Dr. Gall conducted his researches in a manner worthy of all possible praise.

However low the position of phrenology may be in the estimation of the public at the present time, there is at least some consolation for its supporters that, although they have failed they have done good, and that we do not hear their labours spoken of as they were half a century ago. The following passage from the *Edinburgh Review*, of April, 1815, will sufficiently indicate the advance that has been made.

* History of Philosophy, p. 632.

"The writings of Drs. Gall and Spurzheim have not added one fact to the stock of our knowledge, respecting either the structure or the functions of man; but consist of such a mixture of gross errors, extravagant absurdities, downright misstatements, and unmeaning quotations of Scripture, as can leave no doubt, we apprehend, in the minds of honest and intelligent men, as to the real ignorance, the real hypocrisy, and the real empiricism of the authors."

Sixty-seven years ago, after Dr. Gall had studied the question for upwards of twenty years, and some few years after he had begun to make public his researches and observations, he obtained what Mr. Lewes and most other writers call "his best disciple." Mr. Lewes also says, "Probably Spurzheim's assistance came at the right moment, to rectify many of the hazardous psychological statements, and to marshal the facts in better order."* I confess I hold just the opposite opinion. I think that Spurzheim's assistance was the ruin of Dr. Gall's scientific researches. It is a little singular that if Spurzheim rectified Gall's psychological statements, phrenology should be described by Mr. Lewes to be at present "in so chaotic and untenable a position with respect to its basis as to need thorough revision."†

Dr. Spurzheim was a man of the most undoubted talent and earnestness. But, as far as I am able to estimate his influence on Gall's labours, it was most pernicious to science. Gall studied the subject for twenty years before he developed the results of his observations in a series of lectures. Spurzheim then joins him, and it is at this time that a system of psychology was founded on these observations. Spurzheim seemed to have that faculty which is so pernicious in scientific investigations, viz., the habit of building up systems and making everything complete; in other words, of introducing philosophy into science. I look, therefore, on Dr. Gall's observations as of the highest value to science, and his generalisation on the subject is entitled to our best and most serious consideration; but I contend that the system of mental science now known under the name of phrenology, is nothing more than a system of philosophy, and as such doomed to absorption by science. The very perfection as a philosophic system to which phrenology has been brought is to us its greatest evil. This it owes chiefly to Spurzheim, who is answerable for its collapse.

I must here, however, remark, that neither Dr. Gall, nor even Dr. Spurzheim, in their earliest writings used the word phrenology. I believe Dr. Gall never used the word at all. And when Dr. Spurzheim first brought Dr. Gall's researches before the British public, he also never used the word. No unbiassed person can, I think, compare the work of Dr. Spurzheim, entitled, the *Physiognomical System of Drs. Gall and Spurzheim, founded on Anatomical and Physiological Examination of the Nervous System in General, and the Brain in Particular, and indicating the Manifestations of the Mind*, published in 1815, with his work entitled, *Phrenology, or the Doctrine of the Mind, and of the Relations between its Manifestations and the Body*, published

* History of Philosophy, p. 631. † Loc. cit. p. 644.

a few years later, without seeing how much less dogmatic this system was at its outset than in its after development.

In the work published in 1815 we find that their system was then spoken of synonymously with the physiology of the brain, as in the following sentence,* "It is of great importance to consider the heads of different nations. Several anatomists and physiologists have, accordingly, endeavoured to point out the particular shape of their heads, and though all the observations of this kind which have been made are very defective, they are yet rather in favour of, than in opposition to, the physiology of the brain."

At another place he says,† "We accordingly flatter ourselves that every one who, without prejudice, may take the trouble to examine and repeat our observations, will be convinced of the solidity of these principles of the physiology of the brain." But this love of system-making soon induced Spurzheim to use the word phrenology. He says, "I have chosen it (phrenology) to designate the doctrine of the special faculties of the mind, and of the relation between their manifestations and the body—particularly of the brain."‡ In other words, phrenology thus defined, means a system of philosophy based on the assumption of special faculties belonging to something else which is assumed to exist, but of which we know nothing. Mind is only known to us as an occasional phenomenon of life. In 1815 Spurzheim remarked, "The metaphysical notions of the schools have greatly impeded the improvement of anthropology. By the substitution of such metaphysical opinions for data furnished by the observation of nature, physiologists, and even anatomists, have regarded their opinions as sacred."§ In his work on phrenology he himself became a metaphysician, and speaks of the necessity for a "particular organ for every faculty being pointed out."‖ This remark was no doubt intended as a justification of Dr. Spurzheim's mode of procedure. He says in the same work, "The essential nature of the faculties is that which must be determined; and here I differ from Dr. Gall entirely."¶

I therefore entirely separate Dr. Gall's observations from Dr. Spurzheim's reasonings on the same. Not wishing to enter into the question of the merits of Dr. Spurzheim's system and reasoning, I am only now concerned to show that his mode of procedure differed essentially from that of Dr. Gall, who, as his opponent alleged, "followed an empirical method."**

My estimate, then, of Dr. Spurzheim, is far lower than that of his former colleague, Dr. Gall, more on account of his method than from anything else. It is in his later works that I find the objectionable characteristics above mentioned; on the contrary, the first work published in this country is one of the greatest interest to the physiological anthropologist, because here the true basis of the science is indicated. He there well says, "We must acknowledge that, without the physiology of the nervous system, there would be neither

* P. 268. † P. 271. ‡ Phrenology, p. 1.
§ P. 6. ‖ Phrenology, p. 125. ¶ Loc. cit. p. 124.
** Loc. cit. p. 126.

psychology nor any species of philosophy; and that it is impossible to find any object of greater importance than this, and more durably interesting to philosophers, physicians, moralists, teachers, judges, and legislators."*

He saw, too, some of the causes why we had not been able before that time to found a rational and durable psychology, and his remarks are of intense interest to the modern anthropologist, for it is he who has realised the desideratum of the last two thousand years. Dr. Spurzheim pointed out what I believe are three causes for the past stationary state of anthropology. He says:—

"There exist even at this day philosophers, who maintain that man is not at all subjected to the laws of nature; that, independently of all causes and motives, he may originate a series of actions, and that his functions do not admit of any explanation. According to this hypothesis, man is separated from all other beings; he is considered as a being entirely regulated by laws peculiar to himself. These schoolmen attribute all the operations of man to the soul: several of them even give to it an unbounded power over the body. This failure to compare man with other beings has been a great obstacle to the progress of psychology.—Moreover, the various branches of anthropology, instead of being united, are cultivated separately. The useful example of the Greek philosophers is neglected. Anatomy, physiology, medicine, philosophy, education, religion, and legislation, instead of uniting their mutual influence, constitute so many particular doctrines or sciences."†

This doctrine of the schoolmen respecting the influence of the mind over the body has found its way even into the works of some of our best modern scientific men, where we should not at all expect to find it. Even in the works of so distinguished a geologist as Sir Charles Lyell we find traces of this influence; for he concludes his work on the antiquity of man by telling the world that progressive development "presents us with a picture of the ever-increasing dominion of mind over matter."‡ Another distinguished geologist, after speaking of "the instincts of the brute," and "the noble mind of man," asks, "At what point of his progressive improvement did man acquire the spiritual part of his being, and become endowed with the awful attribute of immortality?"§

I have no doubt that some distinguished anthropologists might write equal nonsense respecting the origin of geological strata, and might show, to their own satisfaction at least, that the different strata are totally unconnected. Nothing can better show the absurdity of the geologist writing on anthropology, than the absurdities which are evolved when an anthropologist promulgates theories respecting geology.

But what shall we say when we find a professor of physiology in the University of Oxford advocating Darwinism on the plea that the mind plays the first and not the second part in progressive development? The failure to compare man with the rest of organised

* Physiognomical System, p. 10.
† Ibid. p. 7.
‡ Lyell, 1st ed., 506.
§ Frazer's Mag., July 1860, p. 88.

beings has also been one great cause of the stationary character of psychology.

The last cause assigned for the stationary state of psychology up to 1815 was, "that the various branches of anthropology, instead of being united, are cultivated separately." Half a century elapsed before any practical remedy was found for this last cause for the stationary position of psychology. The especial object of our Society was to unite those sciences which were necessary for a science of man. Without this union our deductions would only have had a partial value scientifically considered. Now, our science is of that catholic nature, that it is not only our right, but our duty, to call in the aid of every branch of inquiry likely to aid us.

The first obstacle pointed out, we have seen, was gratuitous assumption; from this we must be free for the future; the second was the neglect of comparative physiology. Our association with the biologists in the British Association, I hope, may be the means of inducing many anthropologists to keep themselves informed with regard to the latest results of inquiries respecting organisation and life. The third and last reason of the separation of the various branches of anthropology has no longer any existence, and hence all the causes pointed out by Dr. Spurzheim in 1815, are now finally removed.

While, however, I differ so much with the manner in which phrenology has been propagated, I willingly give place to the encomium passed on it by so impartial a writer as Mr. Lewes, who declared "that doctrine may now be said to be the only psychological one which counts any considerable mass of adherents."*

I desire to call on the disciples of Gall to join with us in endeavouring to build up a mental science founded on such a careful series of facts as shall not simply invite but shall demand acceptance from all fully developed educated Europeans.

Phrenologists must all confess that the present state of their science is unsatisfactory. Mr. J. W. Jackson has recently well remarked, phrenology has failed to keep pace with the progress of the age, and that "if we do not expand it, its doom is sealed. We must march with the age or consent to be trodden under foot by those more progressive than ourselves." And he adds, "although during more than twenty years a convert to the doctrine of specialisation in cerebral function, I am far from regarding phrenology as perfect, or its present teachings as final."† These words by one of the most eminent living disciples of Gall are a sufficient reply to the charges of bigotry made against phrenologists as a body by Mr. Herbert Spencer and other philosophers.

The spirit which Mr. Jackson has shown in this matter is one which I think eminently worthy of being followed by all other phrenologists. That such may be the case I heartily hope, for I should be sorry indeed, if their conduct in this matter were to justify the censure passed on them by the writers before named. Nor is it our wish to tread

* History of Philosophy, p. 628.

† Anthropological Review, No. xvi, p. 78.

phrenologists under foot. I, for one, desire, on the contrary, to be able to use the great mass of facts, together with the experience of phrenologists. As inductive anthropologists, we are bound to study man's intellectual phenomena. We know and frankly acknowledge that without an exact knowledge of both cerebral physiology and the physiology of the nervous system generally, we cannot establish a reliable science of anthropology. Being then fully sensible of the vast importance of cerebral physiology in our researches, I feel it my duty to resent with some indignation the charge which our colleague, Mr. Jackson, in his capacity of phrenologist, has made against us anthropologists. Mr. Jackson, speaking of the duties of the phrenologist, says* :—

"It is his humble vocation to supply the facts of cerebral physiology, for which, let me warn him, he will at first receive but slender thanks. He must be contented to wait in faith and patience for the recognition of his services. He must submit to be treated with indifference, if not contempt, by men who are ignorant of the very elements of his science, and who could not practically wield the simplest of its resources."

I take upon myself to deny the charges here made. I do not think that this Society as a body is at all likely to treat with indifference or contempt any of "the facts of cerebral physiology." If there be any man in this Society who is fairly open to the attack made by Mr. Jackson, I can only say that I entirely differ from him. I hope and trust that such a person does not exist in our ranks; and, at all events submit that such accusations should not be brought against anthropologists as a body, until they have shown by their conduct that such a very serious charge is justified. To affirm that we treat such facts with "indifference" or "contempt" is, I hold, to be as absurd as it is false. If at any future time any "facts of cerebral physiology" should be ignored in the manner here indicated I should be willing to join with Mr. Jackson in a strong condemnation of such conduct. It is our bounden duty as scientific men to accept facts without the slightest consideration of the quarter whence they come, and to accept them gratefully. But it is not our duty to accept dogmas or theories as facts. Still less is it our duty to erect elaborate theories on a few isolated facts. The range of facts on which phrenologists have built up an elaborate system of philosophy was too small to solve the problem which they attempted. A real science of Man must not be founded on the functions of any one organ in the body, however important that organ may be. A truly scientific anthropology can only be based on the functions of the whole nervous system, perhaps even of the entire body, and must have for its foundation comparative physiology and comparative anthropology. The importance of cerebral physiology in both these branches can scarcely be over estimated.

Even to suppose that we, a scientific body, could be indifferent to any of the discovered facts of cerebral physiology is an indignity which

* Loc. cit.

I would resent in the strongest possible language. To suggest that we should come here night after night to look at crania, and to have for our sole object the investigation of the state of their sutures or their cephalic index, I willingly admit is quite monstrous. But when it is known that this study of the capacity, length or breadth, or state of sutures is a part of our science, then this attention to such details is as praiseworthy as it is necessary. To pretend that we could build up a science of man without investigating the function of the nervous system can only have suggested itself to those who are totally unacquainted with the scope and objects of such a study. All anthropologists know well enough that we cannot build up a science of anthropology without knowing the functions of the brain, and to suppose that we should wilfully ignore the facts of cerebral physiology is to suppose that we are either totally ignorant of the scope and objects of our science, or that we are wilfully dishonest.

To the masses of mankind a skull may always be a skull, and nothing more; but by the anthropologist it is looked on with very different feelings. The skull is a part of man; and as such we try to find out what we can learn from it. We collect these skulls, describe them, and compare them, not surely for amusement, but for instruction; to assist us, in fact, to build up a science of man. Now a science of man, as I understand it, is a science built up on facts concerning humanity, which must be neither few nor incapable of verification.

To charge us with desiring to ignore the facts of cerebral physiology I hold to be as false, as it is true to say that we ignore the dogmas of the phrenologist. This confusion arises from the error into which many phrenological writers have fallen in making phrenology and cerebral physiology convertible terms. That phrenology is by its nature nothing more than a system or theory of cerebral physiology, may or may not be true; but, in its present state, we cannot accept it as men of science. In this respect, our attitude to the theologian and the phrenologist must be exactly the same. Our science can alone be founded on facts, and what facts of cerebral physiology have we ignored, or even received with slender thanks? I am not even aware that a single fact of cerebral physiology has been brought under our consideration for investigation; and if such be the case it is little to be wondered that our thanks have been slender. Some Fellows of the Society may be disposed to complain that although we have existed for four years we have never yet investigated these facts. The answer is simple, because these facts of cerebral physiology have never yet been brought under our consideration. Let the possessors of any facts relating to cerebral physiology bring them before us, and we shall, I doubt not, receive them with respect and grateful thanks.

Anthropologists are only grateful for what they receive, and not for what people promise them, or tell them they believe. If, therefore, a phrenologist has observed any facts which throw light on the functions of the brain, I hope he will be induced to lay the same before us in such a manner as our attention shall solely be directed, in the first place, to the facts observed; so that we might be quite

certain that they are neither few nor uncertain before we begin to theorise on the subject. But while I say we are ready to discuss both observation and theories, we are not bound to discuss the truth of any system of psychology. As a scientific body we know nothing of any system of psychology, nor is it our business to discuss their relative merits. While, therefore, we are speaking of the "method" of physio-anthropology, perhaps I cannot do better than point out very plainly the difficulties which have beset the discussion of cerebral physiology in other scientific bodies.

At a late meeting of the British Association a paper was read to prove that the brain was contained within the skull, and although some objections were indicated—that occasionally there were exceptions—the position of the author on this point was considered as established. The rest of the paper chiefly dwelt on what the author believed respecting the existence of mind, and that the brain was "the material organ of the mind." Now this language respecting the brain being the material organ of the mind is too frequently the language used even by men of science. With philosophers such an assumption of the existence of mind and its residence in some organ or organs of body is allowable, but men of science can know of mind only as a phenomenon, and however true the independent existence of mind may be, we cannot be truly scientific men and yet speak of the brain as the organ of something of which we can know nothing. I do not deny the possibility or even the probability of the existence of mind independent of matter; but to assume that the brain is the organ of the mind is to beg the whole question under discussion. We must, however, remember, that phrenological doctrines are now put before the world in a very different form to what they were by Gall, or even Spurzheim. They both declared that they only studied phenomena; and, doing so, they had no right to express any opinion respecting the nature of either mind or matter. Different language, however, is held by some of the most esteemed modern phrenologists; and, I mention them, because they have been brought before bodies that profess to be scientific.

A very good instance of the assumption to which I have alluded is to be found in a paper by an esteemed and old friend of my own—Mr. Robert Dunn, one of the Vice-Presidents of the Ethnological Society, and submitted by that society to Section E of the British Association at Birmingham. His first postulate is, "That the brain or the encephalon is the *material* organ of the mind; in other words, that the vesicular matter of the encephalic ganglia is the *material substratum* through which all psychical phenomena of whatever kind, and among all the races of mankind, are manifested in this life."*

Truly such assertions are to us revelations indeed. How happy and fortunate Mr. Dunn must be to know so much of the nature of mind, and that all "psychical phenomena of whatever kind" are connected with the brain. From these remarks, however, we are led to conclude, that the mind only acts through the brain in this life,

* Transactions of Eth. Soc., vol. iv, new series, p. 13.

and that the psychical phenomena observed in the animal kingdom of animals without brains, show that such animals are not in this life! In the same paper, Mr. Dunn informs the world "that the *Homo* is one, and that all the races of the great family of man are endowed with the same intuitions—sensational, perceptive, and intellectual—the same mental activities."*

Before the same society there was also, some three years ago, a paper read by another member of that society, entitled, "Physiognomy, Popular and Scientific." This curiosity in modern scientific literature, with the discussion thereon, has since been printed, and the following extracts will better explain its style than any description of mine. Dr. Donovan, the author of this paper, read before the Ethnological Society,† on May 24th, 1864, thus speaks of those who do not accept the dogmas or theories of the phrenologist: "These I deem to be of two classes, the lamentable and the contemptible." Under the lamentable class he grouped all scientific men who were not phrenologists; and the second class he described "as mere Lilliputian pinstickers, not worth naming."

And here, I contend that justice compels us to be very careful in speaking of phrenologists as a body of men who hold the same views. The landmarks which were originally laid down by Dr. Gall were never kept to, and the consequence was, that instead of investigations going on as to the functions of the nervous system in general, and the brain in particular, we had a really scientific subject degraded to one of mere philosophy. In the second number of the *Phrenological Journal* we read, "Phrenology, being a system of philosophy founded on the discovery of the functions of the different parts of the brain;"‡ and in another passage it is spoken of as "a system of mental philosophy.§" My only wonder, then, on looking back at the history of phrenology is, that it gained as much attention as it did. It was, in fact, only by ignorantly distorting the logical deductions of Gall's discoveries, that Mr. Combe and his followers could put forward as one of the claims of this new system of philosophy, "that it is perfectly consistent with the freedom of human actions—that it tends to a very highly-improved moral economy—and that it is beautifully in harmony with the precepts of our Holy Faith."‖ Those words are taken from the introductory statement, but as I do not know the writer, I am equally uninformed as to what faith is here alluded to. The singular fact remains, however, that phrenology, like other systems of philosophy, had its day, and the time was when, in the meetings of that learned body, the Phrenological Association, if any one got up and questioned any of the doctrines of this "mental philosophy," the indignation of Mr. Combe was greatly roused. In one meeting, one of the most distinguished followers of Dr. Gall, one of the authors of *Man's Nature and Development*, ventured to suggest that phrenology was still—this was in 1841—in "a very imperfect state, and that we have yet many difficulties to contend with, the science being in the

* Vide Transactions of Ethnological Society, vol. iv.
† See published paper, p. 14. ‡ P. 166. § Ibid. p. 192.
‖ Phrenological Journal, No. i, p. 31.

very infancy of its existence. There was not," said he, "a single organ, the functions of which have yet been correctly ascertained and described;" and he warned those who were in the habit of manipulating heads "to be more cautious in predicting character."* These remarks called down on their author the severe condemnation of Mr. George Combe. The "statement that phrenology is still in the infancy of its existence," ought not, said he, "to go forth without explanation." To tax the disciples of Gall, as a class, with bigotry, is, I maintain, eminently unjust, and the following extract from the valuable writings of Mr. H. G. Atkinson is a sufficient refutation of such a general charge. In the fourth letter of his correspondence with Miss Martineau,† I find the following remarks:—

"I found phrenologists to be, for the most part, ignorant of anatomy and of the labours of philosophers, and resting with the same confidence and presumption on their thirty or forty organs as some others do upon their thirty-nine articles of faith. I am not at all surprised, therefore, at the reception phrenology has met with from the scientific world, for it was easy to reject the whole where there was really so much error. Phrenologists were dogmatising and fortune-telling with strange incaution, and disgusting people by their presumption and blundering, while the subject was yet in its infancy, and all were professors, and few were students, at the very commencement of the inquiry. But there are difficulties and imperfections and errors in all sciences, and over-confidence and hardy theorising and system-making; but when, as Bacon wisely says, men dogmatise and lay down the principles of a science in its infancy with a show of completeness, it may add to the glory of the professor, but will not leave the science in a state of growth. Phrenology has been a glaring instance of the evil of making too great a show of exactness and method."

These words, written sixteen years ago, are still pregnant with interest and a warning to us at this day. The same love of system-making, the same desire of theorising to suit our race instincts or prejudices, exists at this day nearly as much as ever. It is when men leave off this desire to form philosophies and disseminate systems, that they will leave off the garb of professors and teachers, and become simply students and learners of nature as it is, and with no wish or desire to attempt to describe it other than it is. We cannot be too careful in laying down a solid foundation for our future. The history of phrenology is a warning to us in this respect. After twenty years of labour, we find one party of phrenologists telling the people of Boston, U.S., that "in Britain we cherish Spurzheim's memory with the deepest reverence and fondest affection;" that "he came like a messenger from heaven to make known to us this new philosophy," and that the gradual advance in civilisation in this country was due to the influence of our "enlightened, philanthropic, and philosophical press;" for Combe adds, "the journals of the largest circulation and most extensive influence in my native country are

* Phrenological Journal, No. lxvi, p. 60. † P. 23.

conducted by followers of Dr. Spurzheim." The same blind enthusiast told his American hearers that in France and Britain phrenology "already directs lunatic asylums, it presides over education, it mitigates the severity of the criminal law, it assuages religious animosities, it guides the historian, it is the beacon-light to the physiologist."*

While one section of phrenologists were making the foregoing wonderful statements as to the bearing of their science, another party declared that the mass of phrenologists "either cannot follow out the consequences of their own doctrine, or they have not the honesty or the courage to avow them;"† and a distinguished physiologist—the late Dr. Engledue—asked his brother phrenologists if they would continue to employ themselves "in pandering to the tastes, fancies, prejudices, antique theories, and visionary speculations of their generation."

Thus we see before us two parties of phrenologists holding entirely different views as to the bearing of that "new philosophy." How pregnant with warning to us is all this dispute and recrimination between phrenologists! But the discussion with which phrenologists ended their labours was the one in which we began our own. Facts and logical deductions from the same we all agree in declaring to be the sole basis of our science. Here all shades of opinion on other subjects are united. Nor, I hope, shall we now be tempted to discuss what may be the tendency of philosophy, religion or politics on some future science of physio-anthropology. That such a science will some day exist, we, as true and loyal anthropologists, are all bound to believe; but it will be both useless and derogatory to us, as a scientific body, to waste time on a discussion as to the influence of this embryonic and hypothetical science in human affairs and belief. We put forward as a claim for our researches, that we are merely and solely faithful students and interpreters of nature. We must do for science what is attempted to be done for art—get rid of mannerisms, and paint things as they are, neither better nor worse. "Follow nature" is as much a fundamental rule in science as in art. Mr. Atkinson well advises on this point. He says, "Let us not assume anything; thus may we lay hold of the science of human nature; and till we recognise this science we live in a barbarous and dark age, and have no health in us."‡ I cordially agree with these sentiments. Let us rejoice that our science—the science of human nature—is just appearing to shed its light, and thus put an end to the age of darkness.

But while fully enjoying the pleasure afforded by our situation, we must still check our natural impatience to declare that we have a new philosophy to offer the world. On the contrary, let us acknowledge and proclaim at once that we have not, and never shall have, any philosophy to offer the world. Our object, on the contrary, is to build up a science—a purely inductive science—which shall, from its nature, never be fixed, and consequently never perfect.

* Phrenological Journal, vol. xv, p. 210. † Ibid. p. 273.
‡ Loc. cit. p. 10.

The science of anthropology—or the science of human nature—must vary with the variations of human nature itself. The anthropology of one age may not, therefore be applicable to an age of entirely different physical conditions.

And herein lie my reasons for inviting your attention to the subject of the functions of mankind. The study of a man's form of skull or skeleton or other remains can go on without taking any cognisance of his functions. Physio-Anthropology is thus the science of living man, and is capable of numberless sub-divisions, each of which being well worthy to form the subject of special treatment.

I have treated the subject of Physio-Anthropology as though it were more synonymous with psychology, phrenology, cerebral physiology, pneumo-psychology, neuro-psychology, or pneumatology. But Physio-Anthropology really means something more than any of these. I think it is fortunate that it does so, and for this reason :—What right have we to start with the assumption that the functions of the brain or even the nervous system can give us a clue to the whole of man's mental phenomena? We can and ought to study man both objectively and subjectively. Hitherto the science of man's mental phenomena has been chiefly based on what are called the facts of his consciousness. We can still make our own reflection on the relations between our bodies and our intellectual phenomena and feelings, and of their mutual relation and influence. To build up a science of man we do not merely want to know the functions solely of any one part of the body, even if it is the most important, or the jewel of the whole body.

It is here that every individual Fellow of the Society has it in his power to render service to the science under consideration by the observation of, and reflection on the influence which, any derangement of the different organs may have on his nervous system, as well as the effects of cosmical disturbances on the same.

We can readily understand why philosophers like J. S. Mill still cling to philosophy for a solution of the world's problems. The fact is, that the method of philosophy in settling all questions, is so very much more easy than that of direct observation of nature, systematically accumulated, and laborious collection of facts, continued with patience in drawing conclusions, that there will be some men who will always prefer to build up a philosophy on brilliant fallacies and eloquent reasoning to going through all the drudgery of a real scientific method.

To build up a satisfactory science of Physio-Anthropology there is required on our part the most self-denying patience. The subject is so vast and important that our observations must be extended to thousands of instances before we lay down any really positive conclusions. We must remember that all premature theories do positive injury to the progress of science. We have not simply to endeavour to found a science of Physio-Anthropology, the details of which will be suitable to all species of man. We have good reason both to hope and expect that the study of Comparative Physical, and Physio-Anthropology will greatly assist us in our labours. Here indeed we have a magnificent field of inquiry which has barely yet been at all

investigated. What, for instance, is the significance of the fact that the brain of the Bushwoman, who exhibited few signs of mental difference from the rest of her species, would, if the same had been found in the European species, have been declared by M. Gratiolet to be the brain of an idiot?

Idiocy, insanity, and pathology in all races and species must also lend their assistance to us in discovering the laws regulating man's mental phenomena. As we want to know the whole truth, and not merely a part of the truth, we must draw our facts from every source from which we can attain them.

Mr. Atkinson has remarked that "It remains for philosophers to place physiology and mental and moral philosophy in the same position as positive science reached by induction. The delusions of ignorance and superstition are doubtless inveterate, and will not yield without a struggle and a spasm; but progress is a law of nature; and to remain where we are, were it possible, would be convulsion and ruin."*

I readily admit that the present state of Physio-Anthropology is in the most unsatisfactory condition; but do not see that philosophers are likely to extricate us from the net in which they have entangled themselves and the rest of the world.

We must, no doubt, be prepared to encounter gigantic difficulties in nearly every step of our inquiries. Mr. Atkinson further tells us that "Men have no faith in truth; but will uphold error, believing it to be necessary as a kind of police force," and that "government, the press, scientific men and all are prostrate slaves before old wives' fables, far too silly for a nursery tale."† Now, as a student of science, I must enter my protest against this sweeping condemnation of men of science.

All these things, we are told, are to disappear from the world "when the philosophy of man has become recognised as a true science based wholly upon natural causes." This has at last nearly come to pass, and we shall do well to give a most patient and considerate hearing to the man who was one of the first in this country to recognise the importance and, indeed necessity, for a scientific study of man. The following opinion‡ of Mr. Atkinson as to general physiological research is deserving of our most serious attention:—

"It appears to me that men, for the most part, have no clear notion of the nature of science, or of the laws of action and thought; but nature in general, and the nature of man in particular, seems to them to be a species of conjuring. But the true physiologist studies the laws of matter, and the whole process of development, disentangling himself from all spiritual and metaphysical dogmas, and will take into consideration all the circumstances which influence the man from childhood to the grave."

With regard to our future inquiries, there may be some inclined to ask who is to be our guide in the labyrinth of phenomena presented to us in the physiology of mankind.

* Loc. cit. p. 207. † Loc. cit. p. 210. ‡ Loc. cit. p. 201.

Now in science I must confess that I entertain but small respect for the opinion of those who are considered authorities. A science becomes stationary when one man's opinions are quoted in opposition to newly discovered facts.

The phrenologists, we have seen, venerated Gall and Spurzheim too much ever to make the slightest advance with researches into the functions of the nervous system.

It is not a little strange that those who are thus inclined to make Gall a hero, are, at the same time, disinclined to acknowledge what his opinions really were. In one of Gall's earliest writings on the functions of the brain, his letter to Baron Retzer, which was printed in 1798, is found the following passage:*—"Strictly speaking, you only play the part of puppets in a show: when certain cerebral organs are put in action, you are led, according to their seat, to take certain positions, as though you were drawn by a wire, so that one can discover the seat of the acting organs by the motions." We cannot read such a passage, written before Gall got into controversy with the powers that be, without wondering at the difference between Gall's idea after hearing of his discourse on the "Functions of the Brain," and the "new philosophy" known to the world as "phrenology." Leaving the merit of Gall's discoveries concerning the functions of the brain *sub judice*, is it not high time that the name of Gall, as a man of science, should be recovered from the mass of *débris* with which it is now associated?

If Gall's asserted discoveries as to the functions of the brain are correct, there is no doubt that his name will go down to posterity as perhaps the greatest discoverer, as well as benefactor to mankind, that the world ever saw. If, I repeat, his asserted discoveries are true, and if even they should be only partially true, no honour can be too great for such a man's memory. Whether his discoveries will be verified, or indeed any part of them, is a question on which I offer no opinion. If his views are correct there will no doubt be, as he says, "the most important consequences resulting therefrom to medicine, morality, education, and legislation."† With these consequences we are happily not concerned. Our sole business is to examine step by step the discoveries which have been made into the physiology of man, and especially of his nervous system and brain. The mere authority of great names will avail us nothing, and we must be simply and solely guided by the facts.

No good either can result in discussing the tendency of scientific inquiries or discoveries in philosophy or ethics. The time has long since gone by for the real man of science to trouble himself with the question whether his researches lead to materialism or idealism, or indeed any other ISM. These futile discussions now, I believe, only take place north of the Tweed, or amongst those whose "inherited experience," or (as I prefer to call it) "race characteristics," do not enable them to see the true position and dignity of scientific inquiry.

Agreement as to the facts is more easily obtained than unanimity as to the application of them. Thus, while Gall thought his discoveries

* Works of Gall, American ed., p. 17. † Works, p. 7.

showed "why lasting peace among men will be always but a dream,"* his professed English pupil taught that the recognition of these principles would soon bring about a universal brotherhood. We shall, therefore, do well to confine our attention to the facts themselves before we either begin to theorise about them, or speculate as to their bearings on other branches of knowledge.

Feeling, therefore, that guides in science are calculated to mislead, it is perhaps fortunate that there is no ancient, or indeed, modern writer, who fulfils the conditions I have herein laid down, and which I contend must be the basis of our future method of research.

The admirable work of Professor Laycock, on one portion of our science, which he has called the *Mind and Brain*,† is in most respects entitled to the very highest commendation; he is not a teacher to be followed blindly in his deductions; "That whereas mind designs, life is designed;" "Mind is a final cause;"‡ "that mind is dominant over matter;" and some other metaphysical propositions. Professor Laycock stands forth, however, in bold relief, from most of his compeers in this country, and is doing good work by his earnest and zealous advocacy of a more rational system of research in physiology. He has done what so few writers on this subject have done, that is, clearly laid down the position that "mind and its laws can only be known through the phenomena of life and its laws," and well adds, "its study as an applied science can only be followed according to the method pursued in the study and application of the other applied sciences."§

Professor Laycock says "mental science," and I say Physio-Anthropology "is the chemistry of human nature;" but we both mean very much the same thing.

I have quoted with some approval from Mr. Atkinson, who has the credit of being one of the first to see clearly and proclaim to the world that the science of man, or of human nature, was the one which could alone solve some metaphysical problems. But while quoting these passages with approval, I by no means desire to put that gentleman forward as a guide to be implicitly followed, for in his very first published letter to Miss Martineau I find a statement from which I totally dissent. It is as follows: "All the conditions of man and mental peculiarities are now traced to physical causes and conditions, exhibiting clear determining laws."|| This was written more than fifteen years ago, and if true it would have been a misfortune for us, for we should have had no work to do. I contend, on the contrary, that we have not yet traced the physical conditions of man to their causes, much less his mental phenomena. In fact, we are only just beginning both researches. I am glad to know that Mr. Atkinson agrees with me in this, for he says in the same work: "We are as yet but on the very threshold of knowledge;" and that "the true philosopher will be all patience for the present, and confidence for the future, and never in haste to form institutions in advance of knowledge and the condition of society."¶

* Works, p. 17. † P. xii. ‡ P. xv.
§ Loc. cit. p. 3. || Loc. cit. p. 6. ¶ Loc. cit. p. 281.

Without, therefore, pretending to know how these apparent discrepant statements can be reconciled, I must pass on to say a few words, in conclusion, on the imperfect state of our positive knowledge on that portion of physio-anthropology on which I have chiefly dwelt to night, and which is at once the highest and most interesting branch of it—the functions of the brain.

And here I desire to anticipate two objections which it is possible may be urged against the propositions I have laid down. In the first place, I may be told that it was unnecessary to dwell with such emphasis on the necessity of employing the Baconian method of research in physio-anthropology; and, in the second, that we already know so much of the functions of the brain that we shall be going backwards instead of forwards by beginning our researches on the subject *de novo*.

In reply to the first objection, I contend that if we take up really scientific works on the physiology of man, like the standard work of Todd and Bowman, we there find similar assumptions to those of the psychologist or the phrenologist. Thus, in the last edition* of their works edited by Dr. Lionel Beale, I read as follows:—"Although we are quite unable to say what sort of force vital power is, to isolate it, to examine it, or to give any satisfactory account of the exact manner in which it exerts its peculiar influence upon inanimate matter, we seem compelled to admit the existence of such a power, because the facts observed cannot be explained without such an admission."

Now, is this inductive science? and are we justified in calling in the aid of some unknown agent to save us the trouble of patiently seeking for the cause of unexplained phenomena? In the same place I also read:†—"It is unsatisfactory to many minds to be thus compelled to admit the action of a force or power of the nature of which nothing is yet known; but it is better to do so than to pretend to be able to give a satisfactory explanation of phenomena which science in its present state is incompetent to account for."

Are we, however, compelled to admit the existence of a force in nature of which nothing is known? or are we even justified, as men of science, in doing so? If we are justified in calling in unknown powers or forces to solve our problems, then there is an end of all disputes, for we may each explain phenomena in our own way, and there can be no such thing as positive science. Nor can I agree that it is better to call in the aid of such an agent, than to attempt to explain what is inexplicable. I contend that both methods are entirely vicious and radically wrong. The sort of opinions quoted are not simply to be found in any one book, but are the rule rather than the exception in English books on the subject.

In Mr. Robert Dunn's work on *Physiological Psychology* I find he differs from the late Dr. Prichard respecting the existence of mind without a nervous system, for he says:—"The essential nature of mind is a problem which belongs to the same category as the nature of life. We know nothing of life apart from organisation; and we

* Loc. cit. p. 35. † P 7.

have no evidences of mind independent of a brain or a nervous system. An organism is required for the display of vital phenomena and an encephalon for the manifestation of mind." And yet this writer talks about this brain being the "material substratum" of mind—of phenomena which are always associated with a nervous system, and which are not known except in this connection.

In one of the best modern books on *Human Physiology*, by Dr. Draper, I find the same metaphysical assumptions. In this work we read:—"The functional activity of the brain depends on the copious supply of arterial blood."* Then we are told that "Few topics are more worthy of the attention of the physiologists than that of the variable physical powers of man, and yet few have been more overlooked. By variable physical powers, I mean these periodicities of increase and diminution in our intellectual efficiency which may be noticed not only in disease, but also in healthy states. On the principles we have presented, these find their explanation in the temporary physical states of the organ, such as its condition of repair, its existing facility for oxidation, and the constitution of the blood as respects a proper arterialisation."†

The author then shows "the correspondence between the development of the cerebrum and intellectual capability," and how this is affected by wounds, disease, or malformation; and after all this, winds up by talking about some "prime mover," as he calls it, in one place, and "intellectual principle" in another. These instances could be indefinitely multiplied from other writers, and therefore I contend, in the first place, that English writers on the physiology of man do not follow the Baconian method. They may be right not to do so, but this is a point which I desire on this occasion to see fully and fairly discussed.

The second point I would reply to by anticipation is that we at present know so much respecting the physiology of the brain that there is no necessity to begin again investigating the truth of such general propositions as that, other things being equal, the size of the brain bears a direct relation to the mental power, or that the functions of the brain are localised. There may be many here who will, perhaps, contend that those two positions have been settled beyond the possibility of dispute. I, for one, will not undertake to dispute either of them. But have they been demonstrated in a manner which demands acceptance from scientific men?

In reply to that question, I cannot do better than quote the opinion put forth by a man of science whose researches on the brain have been compared with the labours of Copernicus on the stellar universe. I allude to the late distinguished *savant* M. Gratiolet. He laid down and defended the following propositions:—

I. That the size of the brain has scarcely any direct signification in individuals or races.

II. That the doctrine of specialisation of the functions of the brain is false, not only in its application, but in principle.

Need I add more to show the necessity of again beginning our

* P. 325. † P. 327.

labours and proving each point *seriatim?* Many may be inclined to think that these opinions must be the result of imperfect knowledge, but they can hardly make that charge in the case of M. Gratiolet. On some future occasion we shall have an opportunity of discussing the facts on both sides of this question, and in the meantime I will only quote one other opinion on the point, and that from an English craniologist, who says, "Recent investigations tend to the opinion that the posterior lobes are more intimately connected with the mind than the anterior."* In quoting this assertion, expressed by Professor Busk, some three years ago, I would desire to add that I do not mean to insinuate that his opinion on this subject is of special value, or that he was at all warranted by any investigation I have ever heard of in making such a statement, but merely to indicate the present almost hopeless condition of cerebral physiology with men of science generally.

The question now before us is, what is the best method by which we can escape the endless confusion in which our predecessors have been involved? This, to us, I repeat, is a serious, if not a vital point.

Whatever may be the present state of anthropology in England, let us never forget that throughout Europe it is seen and acknowledged that our science is the one to which all parties look for help and assistance to free them from their present confused ideas respecting man's position, not only in animate nature, but also as regards the mutual and natural relations of classes, races, and species with each other. In Dr. Büchner's preface to the Italian translation of the ninth edition of his work on *Force and Matter*, just published, I find these words "all men agree that the future foundation of science and philosophy and (what is more important) of political and social economy, is no longer to be on a theological or metaphysical but an anthropological basis."

It cannot, perhaps, be said with truth that all in this country acknowledge this proposition. There may be some even who are unwilling or unable to see that our science has any right to put forward such a claim. There are, however, few properly educated Englishmen who will any longer deny the paramount importance of our science as a whole, and especially of that portion to which I have directed your attention this evening. Let us, therefore, as an earnest of future work, endeavour to agree on some generally acceptable method of research which we can all understand and follow, and we shall have done more to show the exact nature of our science than by discussing any special question in the whole range of human nature.

If we can once agree on a correct method, I am greatly mistaken if, with the vast accumulation of material already available, and with the numerous staff of industrious anthropologists all over the world, we do not make more progress towards founding a science of man in one year than has hitherto been effected in a century.

Dr. CHARNOCK proposed a vote of thanks to Dr. Hunt for his excellent paper. He thought he had dealt in a very mild and charitable

* Discussion on Dr. Donovan's paper, before the Ethnological Society, loc. cit. p. 16.

manner towards the phrenologists, whose attempts to impose on mankind had been so successful. He would postpone to the next meeting any remarks he might have to make upon the subject.

The Rev. DUNBAR HEATH took it for granted that the debate on so important a subject would be adjourned; therefore he would put himself forward as a sort of seer or prophet, who explained to the people what he felt himself to be the impressions produced by the paper. The question principally discussed in Dr. Hunt's paper was, has man a mind, or has he not? Is there, in point of fact, such a thing as a mind? Quotations were made from various writers, all of whom assumed that there is such a thing as mind distinct from matter. But why was that assumed? The only reason seemed to be that because there were mental phenomena, therefore there must be a mind. There were, no doubt, mental phenomena which could not be weighed in a balance as all material things can be, but that seemed to him to be no proof that there is a mind. Many similar questions arose in the course of scientific investigations, but the tendency of opinion at present is to reject the existence of such a thing as a living principle, in a seed or in an egg, for instance. Let it be assumed that there was a living principle or a mind in man, why should they stop at one? If there were one there might be twenty such principles. There was as much difference between emotion and intellect as between intellect and heat, or as between emotion and motion. There was no connection between the feeling of happiness and the comprehension of the fifth proposition of Euclid. If, therefore, it be assumed that there is one mind, it must also be assumed that there are several; there must be an emotion mind and a thought mind at least; and as a human being produces heat, there must therefore be a heat producing mind. All that we know is the phenomena produced. It was therefore as inconsequent to argue that there must be a mind because there is an emotion produced, as that there must be a pair of bellows and coal to produce heat. One important consideration bearing on the subject was type. There was no vegetable nor animal that had not its respective type. There should, therefore, be a type-producing mind. The perpetuation of type was indeed a phenomenon as strange as anything in creation, and if there was a mind at all there must be a type mind. They might thus quite as well argue that there were twenty minds as one. The religious mind assumed that there is a higher power which produces the type. It would follow, however, that if there be an outside power to produce the type, it must be called into account for the production of good and bad types,—then all the differences observable among mankind would have to be accounted for. It would be difficult to explain why the outside power should so act as to produce talent in one man and stupidity in another. Mr. Heath, in conclusion, said he considered the paper did Dr. Hunt great credit. Though somewhat long it was lucid and valuable, and he hoped it would form an era in the history of the Society. He was ready and willing to follow what was said in the paper about phrenology, and he thought no reasonable phrenologist would object to the remarks on that sub-

ject, which, while condemning the methods that had been adopted by some of its followers, approved of the principles of the science as proposed by Dr. Gall.

Professor MACDONALD said he was much pleased with the paper, and approved of the principle on which Dr. Hunt started the necessity of adopting physiological anthropology as the best basis on which to build the science. He should, however, prefer the term anthropophysiology as a better designation. With regard to parts of the paper he made some objection. He scarcely thought the discussion about phrenology should have been so long, and it might have been better if it had been omitted. It would be of great advantage if they could introduce the practice of a more definite attention to the inductive mode of reasoning by the observation of man in his various parts, by which means a sounder view of anthropology might be taken. He expressed much pleasure at the arrangement of the subject in the paper. But he could not express the same approval of Mr. Heath's view, who had gone wild into the mist of metaphysical researches. It had been called a "mistyphysical" science, which he thought a very proper term for it, and the sooner they dropped metaphysics the better.

Mr. HARRIS expressed his opinion strongly in favour of the paper. With respect to the suggestion of Professor Macdonald for the omission of phrenology and metaphysics, he considered that anthropology might fuse the two into a valuable science. A certain value might be attached to phrenology, and he considered that too much had been said against it in the paper. Locke and Bacon also had studied mind in conjunction with matter, and he thought that mode of investigation should be continued. There was, no doubt, great confusion in the science of mind, and the only way of getting out of the confusion was by the science of anthropology; at the same time, he thought, they were much indebted to phrenologists for their researches, showing the connection between mind and matter. In the application of those results no doubt many errors had been committed, of which the reported development of organs in a skull supposed to be that of Raphael was a remarkable instance. In that skull the phrenologists perceived all the qualities requisite to make a great painter, but it was afterwards discovered to be the skull of a very different person. It must be admitted, however, that phrenology had done much to add to our knowledge, and anthropology he conceived to be a science well adapted to unite phrenology with metaphysics, and the paper pointed out the way in which the union might be achieved.

Mr. MACKENZIE thought the Society were much indebted to the author of the paper for the manner in which he had treated the subject. There was great difficulty in combatting the question between mind and matter, and in pursuing the investigation they soon came to a wall beyond which they could not go; but that wall he thought anthropology would enable them to break through. It was impossible to discover the phenomena of life except by such efforts as were now being made, in order to form the science of man. The difficulty

that had been encountered had been, whether the phenomena of mind were to be discovered by attending to old wives' tales, or by attempting to arrive at them by investigating nerve centres. The proper course was to ignore everything that was not founded on facts, and among those facts he would place *clairvoyance*. From his own experience he knew of instances of the correctness of clairvoyance which were so well supported that no one could deny them; but in what that peculiar power consisted he must leave in abeyance. As to phrenology, he thought Dr. Hunt had not spoken too strongly against it. He considered it a most stupid thing, and he had a mortal aversion to it.

Dr. DONOVAN rose to move that the debate be adjourned; but his right to do so, as a visitor, having been questioned, Major OWEN, as a Fellow of the Society, made the same motion, which was seconded by Mr. CARTER BLAKE. A short discussion then took place as to the right of visitors to move an adjournment, it being contended that a visitor who is invited to take part in the proceedings of the meeting has a right to move that a debate be adjourned.

Mr. HIGGINS moved, and Dr. BEIGEL seconded, that the discussion now be continued. On this Dr. HUNT suggested that as it was an important subject and the hour was not late (ten o'clock), that the discussion might be continued.

A division having been taken, the amendment was carried by a large majority.

Dr. DONOVAN then spoke in defence of Phrenology, which he said had been often attacked by those who knew little about the matter, and it would be well able to bear what had been said about it that evening. Phrenology had not died under the attacks, nor did it appear from the paper that Dr. Hunt wanted to kill it. He wished, however, that he had done something more than quote passages from the works of different authors. He should have described the doctrines of phrenology and its principles. Phrenology, he considered quite as recondite a science as chemistry. It was based upon facts; there was a theory of Phrenology, and propositions expressive of that theory. It had, at least, quite as much claim to be called a science as Anthropology, which had no doctrines, nor propositions, nor theory. He called phrenology the science of man, and he was prepared to state his reasons why; and he should have been glad if Dr. Hunt had stated what anthropology is. He compared the manner in which Dr. Hunt had spoken of phrenology to the speech of Mark Antony over the body of Cæsar, in which, while he excited the people against those who had killed Cæsar, at the same time he called them "honourable men." He wanted in like manner to bury phrenology. (Cries of "No! no!") Dr. Donovan put it to Dr. Hunt to name what principle of phrenology he would dare to deny; and to bring forward any one of its doctrines and refute it. He contended that phrenology now stands at the head of mental science in Europe, and he concluded by protesting against the expression of opinions adverse to it by persons who were utterly ignorant of the subject at issue.

Major OWEN denied that it was the desire of the Society to put down

phrenology. They wanted to bring it under discussion, and not to condemn it. He said he had given the subject great consideration, and he did not speak without as much knowledge of it, perhaps, as Dr. Donovan himself. What the Society wanted was facts, and he hoped that each member would bring forward facts that he could vouch for, and which he had discovered himself, not accepted on the statement of others. It was the practice of chemists to test for themselves what had been stated by others, and if their experiments failed to produce the expected results they tried again; and at last the right circumstances under which the experiments should be made were arrived at, and they succeeded. He wished the same practice to be adopted with phrenology and mesmerism.

Dr. Beigel said Dr. Hunt had shown the right method of investigation by which they might arrive at truth, but he did not stick to the point. Phrenology had never been a science, and it was not capable of being so. He made a difference between phrenology as at present practised and the phrenology taught by Dr. Gall; and said that if the doctrines of Gall had been adhered to there would now be no phrenology. Its professors at the present day never took the trouble to examine the brain. All the stars of science were against phrenology, and he considered that Dr. Hunt exposed himself to attack by speaking of phrenology more extensively than it deserved. It was a subject that was done for all over the world.

On the motion of Mr. H. Brookes, seconded by Mr. McGrigor Allan, the debate was then adjourned to the 18th inst.

June 18th, 1867.

Dr. Seemann, V.P., in the Chair.

The minutes of the preceding meeting were read and confirmed.

The following new Fellows were announced:—Charles Radcliffe Bond, Esq., M.R.C.S., L.S.A., 26, Fortress Terrace, Kentish Town, N.W.; Richard Tonson Evanson, Esq., Holme Hunt, Torquay; Charles Rowland Goodman, Esq., M.D., M.R.C.S., 205, York Street, Cheetham, Manchester; S. Kisch, Esq., M.D., 14, Great George Square, Liverpool; Henry Greenway, Esq., M.D., 12, Ham Street, Plymouth; George Ladd, Esq., M.D., St. Margaret's Place, King's Lynn; Thomas Josiah Laing, Esq., Reform Club Chambers, 105, Pall Mall; F. F. Lilly, Esq., M.D., M.R.C.S., Cambridge House, South Lambeth Road, S.; John Nottingham, Esq., F.R.C.S., M.R.C.P., 20, Roscommon Street, Liverpool; Robert Pattison, Esq., M.D., 32, Charlotte Street, Leith; James C. Procter, Esq., M.R.C.S., Lydd; Alexander Robertson, Esq., M.D., Town's Hospital, Glasgow; H. Hodgson Rugg, Esq., M.R.C.S., 11, Grove Terrace, Grove Road, St. John's Wood; John Ryan, Esq., LL.D., M.D., M.R.C.S., Gere Street, Sheffield; William Francis Ramsay, Esq., M.D., 15, Somerset Street, Portman Square; John Tolhurst, Esq., 60, Tooley Street; Matthew Willis, Esq., M.D., Edinburgh, Aysgarth, Bedale, Yorkshire; Dr. Otto Wucherer, Bahia, Brazil.

The following Local Secretaries were announced as having been elected:—Dr. Zohrab, Broussa, Asia Minor; Professor Arminius Vambèry, Pesth; Frank Calvert, Dardanelles; Dr. Von Hahn, Imperial Consul, Syra; Dr. Pospuli, Constantinople; Charles W. Heyland, M.R.C.S., Constantinople.

The following presents were received, and thanks were voted for the same:—

From the Author.—Friedrich Müller. Reise der Oesterreichischen fregate Novara.

From Dr. Hunt, Direct. A.S.L.—W. Blair, Esq., Anthropology. Esquiros, The Dutch at Home. J. Bonwick, The Wild White Man.

From the Author.—F. C. Bakewell. Dynamical Theory of the Earth.

From T. Bendyshe, Esq., M.A., V.P.A.S.L.—Lucan, Works of; Bentley's Edition.

The Chairman said he was glad that on the first evening he had attended the meetings of the Society since his return from South America the names of eighteen new Fellows had been announced.

Dr. Hunt, after congratulating the Society on the return to them of Dr. Seemann, stated that he had been requested to give an abstract of his paper, as there was to be an adjourned debate on it, but he did not feel inclined to carry out that wish, as it would unnecessarily detain the members from entering on the discussion and it was now almost unnecessary, as printed copies of the paper were in the hands of most of them. The subject to be discussed was not a party question; it was one in which they were all specially interested, for its object principally was to establish the right method of research in the science of anthropology. Whether the paper attacked various systems on the views of different persons, the object of it was that they should meet on a common ground, to lay the basis for future investigations. They could not found a real science of anthropology until they agreed that they were pursuing the right method of inquiry, and one in which they could place confidence, and he hoped, with the assistance of the Fellows of the Society, that they should be able to come to some general agreement on that point. As this was a subject of an important nature it might be found necessary again to adjourn the debate, in which case the meeting would be adjourned to Friday next.

Mr. H. Brookes suggested that nothing could be worse than the title of the paper, nor than that proposed by Professor Macdonald as a substitute. The subject was the physiology of the nervous system, and it was necessary that they should investigate that subject as primary to the study of anthropology. The proper title of the paper should have been neuro-physiology. Physiology of the nerves was a great branch of anthropology, therefore, the title he proposed would have been the most appropriate for the paper. That paper was similar in its general character to all the papers which Dr. Hunt had contributed to the Society. It was able and exhaustive. It was true that it was rather wide and diffuse; that it blew both hot and cold at the same breath, and hit about right and left without reserve; it, in

fact, set them altogether by the ears, having a good word to say to one and a bad word to another. He (Mr. Brookes) did not, however, complain of that. Words of commendation served to stimulate; and words of condemnation were also of use, as they cautioned them to proceed more scientifically in their researches. Dr. Hunt "pitched into" them all, and at times most unjustly so; but such a mode of treatment might do good, for it might stimulate their investigations, and induce them to proceed in a more scientific manner. The whole drift of the paper appeared to be to bring phrenology under their consideration. He denounced phrenology as everyone else did, and of course for the best of motives. He (Mr. Brookes) had been a phrenologist for twenty-five years, and he took Dr. Hunt's lecture to phrenologists in a good spirit, and admitted that they had pursued their inquiries in a bad manner. But anthropologists were open to the same charge. Mr. Brookes then proceeded to allude to the opinions of Mr. Herbert Spencer, as given in Dr. Hunt's paper, and to read quotations from the paper, showing that, even in the opinion of Dr. Hunt, Mr. Spencer went further than the phrenologists, accepting all their chief principles, often without acknowledgment, and that "the only difference between the utterances of Dr. Gall and Mr. Spencer is, that the one gives his opinion on the special localisation of faculties as a man of science and observation, and the other as a dogmatic philosopher." It appeared to be admitted by Dr. Hunt that philosophers had taken from phrenology its facts and principles, but denied any merit to the discovery of the relation subsisting between the development of the nervous system and the degree of intelligence. Mr. Brookes claimed for phrenology the mode of investigation which was now attempted to be applied to anthropology, and he humorously accused Dr. Hunt of stealing their offspring. It was, he said, a case of scandalous abduction on the part of Dr. Hunt, who wished to run away with their child, having an eye to the inheritance, and he wanted to hide the iniquity by changing the name. Hitherto the child had been known as Miss Phrenology, but now it was to be known as Miss Physio-anthropology. He contended that the disciples of Gall had adopted his scientific principles and his mode of investigation, which had been praised in the paper, and that they ought not to be deprived of the fruits of their industry by an anthropologist, who wanted to appropriate what they had achieved and to give them nothing but abuse in return. In some points Dr. Hunt was quite as unscientific as the phrenologist whom he denounced. Dr. Hunt said that he agreed with Sir B. Brodie in his censure of those physiologists who regard mind simply as a function of the brain, that they have no right to overlook want of relationship between mental and physical phenomena, and that an investigation of this matter should be entered on entirely free from any preconceived notion, yet he immediately afterwards denied that phrenology had any claim to be called an inductive science, and that the assertion that the brain is the organ of the mind was a "gigantic assumption" that must for ever estrange phrenology from every really scientific mind. Then after abusing phrenologists and the facts and systems they had established, Dr. Hunt was con-

strained to admit that Gall had laid down the right method of inquiry at the beginning of his investigations. There was no doubt that Gall did discover that a certain peculiarity of mind was connected with a certain configuration of the skull. Those observations and facts discovered by Dr. Gall were confirmed by millions of subsequent observations. He did not contend that every phrenologist was true in his account of mental development, nor that the organs mapped out on the skull were correct; but he maintained that Dr. Gall did discover that certain mental phenomena coincided with the form of the cranium. If some phrenologists had gone wrong, that was no reason why the discoveries of Gall and his followers should not be accepted. It was the duty of anthropologists to correct what had been taught that was amiss, and that duty they had neglected. Referring then to a similar charge against anthropologists, which had been made by Mr. Jackson, as noticed in the paper, and to the expressed indignation with which Dr. Hunt resented the charge, Mr. Brookes observed that it must be considered as affected indignation, for there was nothing in what Mr. Jackson said that could justify real indignation on the part of anthropologists. One passage of Mr. Jackson's publication, when speaking of the duty of phrenologists, as quoted by Dr. Hunt, was: "It is his (the phrenologist's) humble vocation to supply the facts of cerebral physiology, for which, let me warn him, he will at first receive but slender thanks. He must be contented to wait in faith and patience for the recognition of his services. He must submit to be treated with indifference, if not contempt, by men who are ignorant of the very elements of his science, and who could not practically wield the simplest of its resources." Dr. Hunt considered that charge a scandalous imputation on the anthropologists, and took upon himself to deny the charges made against them. He (Mr. Brookes) took upon himself to repeat them, and to prove them to be true; and he would do so by the manner in which the paper had been received in that room. The first gentleman who addressed the meeting was the Rev. Dunbar Heah, who made some general metaphysical remarks, but whether he was opposed to phrenology or not he (Mr. Brookes) did not know. Mr. Mackenzie spoke with ineffable contempt of phrenology, which, he said, was a most stupid thing, and that he had a mortal aversion to it, though he confessed at the same time that he knew nothing about it. Mr. Brookes said that when he was a young man he entertained a similar contempt of phrenology, and hearing a medical friend of his speak of "phrenological developments," he had expressed surprise, and observed, "surely you don't believe in that humbug." His friend, however, asked what he knew about it, and he was obliged to confess, as Mr. Mackenzie had done, that he knew nothing; but, not being so old, his expression of contempt for a thing of what he knew nothing was more excusable. His friend gave him some books on the subject, after reading which his opinions became changed. Another speaker, Dr. Beigel, remonstrated with Dr. Hunt for having introduced the subject of phrenology into his paper, which, he said, had never been a science, and was incapable of being so. According to his (Mr. Brookes') notion, the Anthropological Society had, not only on that occasion, but

at other times, treated the subject of phrenology with indifference and contempt. There could be no doubt—indeed, it was admitted in the paper—that there was some truth in it, though there might be error; and it was the duty of that Society to find out the truth and to expel the error. It was no excuse to say that they did not believe anything about it. Mr. Blake and Mr. Higgins were ready to say that phrenology could not be true, because some skulls were thick, and others were thin, and that the frontal sinus would interfere with any external developments of the form of the brain; but such objections were really of no consequence if the facts elicited by phrenology be true. There might be a thickening of the skull in some cases to interfere with the correct external development, but the simple question was whether they could in general discover by an examination of the skull what was the internal configuration of the brain. He had seen many facts in his time which placed the question beyond all doubt. Twenty-five years ago he was a devotee to phrenology, and he could bring forward innumerable facts in the course of his experience in corroboration of observations made by others, and some of those facts were sufficient to compel the Society to carry out the investigation further. Two or three of these facts he would now state. Mr. Brookes then proceeded to mention that on one occasion a boy was brought to him, whose face he was not allowed to see; and, on placing his hand on his head, he immediately declared that the boy had a great talent for music. Mr. Sergeant Adams, who had brought the boy to him, expressed great surprise, and said it was a most astounding proof of the truth of phrenology, for the boy "had been a musician from his cradle upwards," and could then play upon seven instruments. And Dr. Gall had discovered that certain portions of the brain had connection with tune, and that there was a specific function of the brain for appreciating music. The other case adduced was to prove that if any peculiar state of the mind be known the form of the skull can be predicted. It was the case of a girl in the hospital at Guernsey, who could retain nothing on her stomach, and the medical men could not tell what was her complaint, though they all agreed that the seat of the disease was the stomach. Mr. Brookes suggested that it was a case of cerebral disease, and that there would be some indication of it in the region of the organ of alimentiveness, for which suggestion he was much laughed at. On examining the head of the girl, however, a large protuberance was perceived on that part of the skull, produced by the inflamed state of the brain underneath, and it was painful to the touch. These instances, he thought, were sufficient to prove that there is some truth in phrenology, and that anthropologists were neglecting their duty in not investigating the subject, instead of treating it with contempt.

Mr. McGrigor Allan said:* I should not venture into the arena of discussion on the profound subject so elaborately handled by Dr. Hunt, did I not consider it my duty to give my humble support to the position taken up in respect to psychology and phrenology. I

* Printed from Mr. McGrigor Allan's notes. Ed. J.A.S.L.

desire to follow the example of an honourable gentleman (Major Owen) who endeavoured to throw oil on the troubled waters of the debate commenced at our last meeting. To me it seems that all anthropologists, whether "out and out," medium, or anti-phrenologists, should feel equally obliged to Dr. Hunt for such candid and plain statements as this: "We know nothing either of soul or mind. We only know mental phenomena in connection with a nervous system." In saying that "the so-called sciences of psychology and phrenology stand before the world as hopeless failures," Dr. Hunt has done his best to bring to an issue this most important question: is phrenology a science? His paper does not deny the fundamental principles on which it has been sought to rear a true system of mental science. There is approval of Dr. Gall who proceeded cautiously without dogmatism, and censure of Dr. Spurzheim who too rashly completed a formula of specialisation of cerebral functions. If phrenology be a science it need not fear attack. It should court investigation, and be able to stand the test of the most minute examination. Man being the most complex of all animals, the supposition that his brain is not one simple organ, but that various parts are respectively connected with various mental phenomena, is a very natural hypothesis. Man appears to be the only animal capable of looking inwards, taking stock of his own organisation, and becoming conscious of ideas, sentiments, feelings so utterly distinct and antagonistic to each other, that he is said to possess a duplex nature. He has animal propensities prompting him to seek their immediate gratification regardless of consequences. He has also intellectual inclinations urging him to higher pleasures utterly opposed to the gratifications of the passions; and affections which induce him on some occasions to sacrifice not merely his own pleasures and instincts, but his very existence, for the benefit of another. Is this duplex nature confined solely to man? Is man the only animal which may be said to possess a moral and intellectual organisation in addition to passions and appetites? I think not. The rudiments of the moral and intellectual organs are possessed by other animals; for example, one of the strongest, most beautiful of sentiments, one productive of the purest, most unalloyed happiness, the least selfish, the great bond of society—*the love of offspring*—is certainly not confined to the human species. We praise the conduct of a human parent who risks life to save his offspring. What shall we say of the most timorous of animals which do the very same thing? Justice compels us to own that in love of offspring, human parents might copy the example set them by the meaner creatures. Phrenologists admit some sentiments as common to man and animals. But veneration is restricted to man. Without disputing that man is probably the only animal capable of rising from the contemplation of nature up to the conception of a ruler of nature, I draw your attention to Vogt's statement that fear of the supernatural is the germ of religion; and this fear is developed in a high degree in the horse and dog. He writes, "No animal knows mathematics or geometry; but there are animals which can count, though only up to a few cyphers; and this is the germ of

the whole edifice which man has erected, and by means of which he has measured the celestial spaces. The animal has no faith, but it fears something unknown; and is it not the fear of something unknown—the fear of God—from which man has developed his religion?" The fundamental principles or hypotheses of phrenology seem to be very generally accepted. Almost every one seems to associate intelligence with the development of the frontal lobe of the brain, and idiocy with deficient size of brain. To this point we seem to be all more or less phrenologists, in spite of the propositions of Professor Gratiolet, "That size of brain has scarcely any direct signification on individuals or races. That the doctrine of specialisation of function is false in application and principle." What are we to think of the extraordinary assertion of Professor Busk? "Recent investigations tend to the opinion that the posterior lobes are more intimately connected with the mind than the anterior." With the ancient Greek sculptors the art of representing the human form in marble, rose and fell. Modern sculptures are but caricatures of life compared with the antique. The Greeks represented heroes, demigods, statesmen and philosophers, with large well developed brows; women invariably with a lesser development of the anterior lobes; and *athletæ*, gladiators, wrestlers, slaves, with "foreheads villanously low." As examples of this, I would instance those well-known antique types of manly majesty, female beauty, and muscular force—the heads of the Apollo, the Clytæ, and the Farnese Hercules. Daily observation confirms the principles displayed by Greek art. Remarkable men generally possess remarkable heads and faces, and *vice versâ*, the muscular ruffians of the prize ring, and others whose lives rise little above animal manifestations, show small development of the anterior lobes. Our gaols and penitentaries furnish many examples of what is called the criminal type of head and face. We find in mammals an ascending scale of brain structure; man's being, as might be expected, the most complex. Instead of a few grey knots as in fishes, or a uniform nervous centre to evolve simple phenomena, we have a cerebrum and cerebellum, both divided into hemispheres, subdivided into anterior, middle, posterior, and parietal lobes; the surface highly convoluted, with well defined fissures. We may admit that this peculiar conformation favours the hypotheses of division of labour, of specialisation of functions. But there is a wide gulf between such admission, and the conclusion that specialisation of function is *proved*, and that phrenologists are proceeding inductively in mapping out various organs on the exterior of the skull, and by comparison of such organs, telling the fortune of the individual by the shape of his head as a gipsy does by the lines on the palm. I am disposed to rebel against the thirty-nine articles of the phrenologist as well as those of the theologian. Do we not perceive men with well-balanced skulls who do not possess well-balanced minds? People not conversant with science speak of phrenological *bumps*. Phrenologists object to the word as erroneous, but this inelegant word may suggest a logical inference. Instead of the human cranium being smooth in surface with gently swelling elevations, ought it not, consistently

with the phrenological hypothesis of specialisation of function, and an elaborate division of labour, to rise in hillocks or bumps; and ought not the surface of the brain to correspond exactly with these bumps, instead of presenting a mass of irregular convolutions, which have been compared to the figure produced by forcing a bag larger in surface than the skull-interior, into the cranium? According to Vogt, "A localisation is claimed which in no way corresponds either with the intellectual faculties, or with the details of the cerebral structure." "The old anatomists paid but little attention to the arrangement of the convolutions, especially as it was soon found that they were not symmetrical on both sides." He proceeds, "There is no doubt whatever that, according to the fundamental plan of his brain, man belongs to the ape." The remarkable analogies between the brains of ape and man suggest an important question for the consideration of phrenologists. Believing as I do, that neither in mental phenomena, nor in brain structure, can we draw a broad line of demarcation between man and the higher mammals, especially the mammal which approaches the nearest to him in form, I have taken great interest in the celebrated controversy between Professors Huxley and Owen on the human and simian brains. If phrenologists do not dispute the fact that in the ape as in man, the posterior lobe covers the cerebellum; that both man and ape possess a posterior cornu, and a hippocampus minor; that the external surface of the ape's brain possesses the principal fissures and convolutions which are visible on man's brain; it seems to me, that they cannot refuse to apply to the ape the system of mental science which is applied to man. If any gentleman doubt this uniformity with the arrangement of the convolutions between man and ape, he may inspect these illustrations in Vogt, p. 184, representing the brains of a mathematician, the Hottentot Venus, and the orang. So far as we can judge by these figures, there is no generic distinction. All three brains are formed on the same plan, and the attempt to claim for man a separate zoological kingdom on an asserted diversity, is utterly unscientific. The general plan is the same; and so far as brain structure is concerned, the consistent naturalist might, with strict propriety, place man and ape in the same *order*. As a lover of impartial justice, let me protest against this very absurd argument which I have frequently heard used against phrenology; that it cannot be true because it is directly opposed to the freedom of the will, and that a benevolent Deity would never have constituted man with an organisation which caused him to sin! All such *à priori* arguments are puerile and worthless. I am not one of those who pretend to cut the Gordian knot of all difficulties by assumptions which virtually imply the privilege of entering into the counsels of Supreme Wisdom. Of Nature's designs, of the moral purpose of the creation, we know absolutely nothing. The speech of a well-known phrenologist at our last meeting, appeared to me to contain some remarkable discrepancies. Dr. Donovan began by saying that phrenology was almost universally disparaged and despised, and yet he was indignant with Dr. Hunt and Mr. Mackenzie for not accepting the dogmata of a

science endorsed by so many eminent authorities! He spoke of Dr. Hunt as a *dilettante* observer, and, after expressing a hope to become a Fellow of our Society, he tauntingly asked Dr. Hunt what was the meaning of anthropology, the object and scope of his science? Dr. Hunt observes that the definition which Grote applied to physio-psychology—"a mental and moral human anatomy, and a mental and moral comparative anatomy," belongs to physio-anthropology. It is not necessary for me to take up the time of the Society by defining the meaning of a word which speaks so plainly for itself as anthropology. But in conclusion, I may observe, that anthropology is not one science, but many—a *congeries* of sciences. Its universality and comprehensiveness are shown by the number of our Fellows, each pursuing some branch of study more or less intimately connected with the grand science of man. It is natural, of course, that each should think his own hobby most important, and strive to give it a prominent place in anthropology. But under the genial sway of our learned and indefatigable Director, I augur good, not evil, from this amiable rivalry; in this scientific Catholicity consists, in my opinion, the real strength of our Society. There is work enough for all, and the Anthropological Society wisely welcomes men holding the most divergent views. When we observe the battle going on between philosophers, metaphysicians, psychologists, phrenologists, theologians, sociologists, and the desperate efforts made to keep certain systems and societies afloat, we may say to these leaders of forlorn hopes, "Here bring your wounded hearts. Here tell your anguish." *Here*, at least, you will find "a refuge for destitute truth." When I reflect that to this Society may, and probably will, fall the Herculean labour of disinterring anthropological truth from the heterogeneous heap of theological, metaphysical, and philosophical rubbish under which it has been buried for so many centuries; and becoming the chief agent in freeing man from systems and establishments interested in keeping him far more ignorant of his own nature and capabilities than of the most insignificant weed, insect or worm, I certainly consider it a privilege to call myself an anthropologist; for, as such, each Fellow may apply to himself the celebrated line of Terence,

"Homo sum; nihil humani à me alienum puto."

Mr. C. Carter Blake thought that scientific men might congratulate themselves that science had at last been brought face to face with phrenology; though he was a little surprised that such a subject should have been noticed in such a paper at all. He thought that Dr. Beigel had truly described the position of phrenology when he said that it had no existence as a science at the present day; and to make further remarks on it was, to use a common expression, "like throwing water on a drowned rat." There could be no use in the discussion of phrenology by the anthropologists of 1867, unless they thought that in following the observations of Mr. Brookes they would be placing themselves in the position of the picadors in the Spanish bull-fights, who, by throwing red rags and darts, and other provocatives at the animal, prolonged the sport, and for that purpose kept up the game till the

matador gave the death blow. Phrenology as now practised might be an art, but it could not be called a science. He was perfectly willing to follow in the wake of such men as Cuvier, St. Hilaire, Owen, Huxley, and Busk, whom England honours, and who have done the greatest service to anthropology, and in studying physio-anthropology he hoped the Society would not be led too much into metaphysical inquiries, but would only accept the statements of those who had studied the brain as it was actually presented to them on dissection. He differed from Dr. Hunt regarding the respective merits of Gall and Spurzheim. The latter he considered a true anatomist, however erroneous in some of his inferences, and no anatomist would cease to honour him as one who had intimately studied the anatomy of the brain, however absurd were his conclusions from the facts he had discovered. Mr. Blake could not say this of Gall. In one part of the paper Dr. Hunt noticed the uncertainty of the present state of knowledge of the brain, and alluded to the opinion of M. Gratiolet that the size of the brain has no direct influence on the intellect. That opinion was combatted by Dr. Broca, and on other and more trifling points he admitted that anatomists were divided. Some maintained that the degree of intellect depends on the size of the brain, some that it depends on the number and intensity of the convolutions, but none at the present day said that a certain collocation of the brain denoted intellect. It was stated in the paper that Professor Busk had expressed the opinion that the posterior lobes of the brain are more intimately connected with the mind than the anterior, but he (Mr. Blake) thought there was no reliable evidence that Professor Busk had ever expressed the opinion attributed to him in an absurdly inaccurate pamphlet, purporting to give an account of a discussion on Dr. Donovan's paper in another place. Professor Owen, in his recent great work on anatomy, described the brain of fishes, and stated the results of experiments made as a test of the localisation of the functions of the brain. Phrenology here totally failed; now what was true of lower animals was true of man, because anthropology was not independent of general "biology." That was admitted by Spurzheim, who took the brain of the tortoise for one of his illustrations. With regard to the title of the paper, he should prefer "the function of nerve matter in man" as a better title than physio-anthropology, for all these questions, if treated in the way Dr. Hunt had treated them, only came to the discussion of matter and its functions in the end. "Functional anthropology" would, perhaps, have been more definite. "Biology," he said, might be divided into morphology and teleology, the latter being the science of the functions which animal matter undergoes, but all ideas of design or creative adaptation should be excluded from scientific discussion. He thanked Dr. Hunt for his valuable paper, which had led them more or less away from the facts; the discussion had done so still further, but it was always advisable that they should wander a little. In conclusion, Mr. Blake observed, that valedictory addresses are frequently wearisome to the hearers; and there is no tune so lugubrious, so dull, and so painful as *La Despidida*. He

had, on this occasion, perhaps the last when he should have the honour to address them from that table, merely to thank them for their patience.

Mr. C. WALFORD observed that phrenology in its present state was not able to explain the phenomena of the mind, and that it was desirable to adopt some other mode of inquiry. The study of anthropology seemed to open the way to satisfy the cravings of the mind for fuller information, and he considered that Dr. Hunt had laid the foundation for a right method of investigation.

Dr. CHARNOCK said, perhaps no one took so great an interest in anthropology as the author of the paper. Thus it was we were favoured with such titles as "Historic Anthropology," "Archaic Anthropology," "Physio-Anthropology." He would, nevertheless, advise Dr. Hunt to alter the title of his paper. Professor Macdonald's suggestion, "Anthropophysiology," would be much better. But the most appropriate term was "Human Physiology," in contradistinction to "Vegetable Physiology." Dr. Donovan asked what was meant by anthropology? Under the circumstances that was a strange question. He would refer Dr. Donovan to a Greek lexicon, under *ανθρωπος* and *λεγω*; again, from *βουνος* or *κονδυλος*, might be formed a much better term than "Phrenology." Dr. Donovan said the phrenologists had the facts with them; so had the mesmerists, the spirit rappers, the table turners, and those who formerly believed in lunar influence in diseases. The latter, indeed, had some respectable authorities, as Galen and Hippocrates among the ancients; Sauvage, Hoffman and Mead among the moderns. Among other phrenological facts here was an interesting one. A Welshman, who had not spoken his native language for thirty years, received a considerable injury on his skull; on recovery, he forgot the English language, and ever afterwards could speak no other language than Welsh. Dr. Donovan defied his opponents to refute any statement in phrenology. The so-called science, "Phrenology," was based upon falsehood, assumption, and unreasoning. The writings of Drs. Gall and Spurzheim contained two truths; one was, that large heads contain large brains, and small heads small brains. This fact was known to physiologists long before the time of Messrs. Gall and Spurzheim; it was not, however, always true, some skulls being thicker than others. The other truth was, that there are eminences on the surface of the skull. But eminences are not found on all skulls, and the number varied. Then came the falsehood, viz., that there are eminences on the brain and concavities in the inner part of the skull *corresponding* with projections on the surface. No anatomist of repute would endorse such a statement. There were often depressions within when the outside of the skull showed no projection whatever, but was quite flat, and sometimes even hollow; and there were often large prominences on the surface when there were nc corresponding depressions within. Again, phrenologists were not agreed as to the number of their eminences or organs. According to Gall there were twenty-seven organs, Spurzheim says thirty-five, Combe thirty-three. They could not all be right. Which of them was right, and why should there not be a

greater number of organs and eminences? Why not, for instance, several organs for veneration; viz., one for superstition, another for science, and a third for quackery? What a pity the later phrenologists had not consulted the writings of Sir Charles Bell. That distinguished anatomist discovered that thirty-one nerves went off in rapid succession from the brain and spinal marrow. What a fine theory the phrenologists might have made of this. Thirty-one nerves, thirty-one bumps, thirty-one organs. It was probable that the brain had little if anything to do with the mind; and that the latter had its origin in the remainder of the nervous system. Look at the experiments of Morgagni, La Peyronie, Duverney, Lacutus, Genga, Petit, Schmucker, Brodie, Abernethy, Home, and others. In some cases portions of the cerebrum were wholly wanting; in others, parts had been destroyed by suppuration or otherwise. These cases included nearly every region of the brain. In one instance, part of a knife; in another, the end of a stiletto, had been found in the brain, and yet in all these cases without producing loss of sensibility in any part of the body until within a short period of death. There was a case mentioned by Quin of a child who died at the age of eighteen months, in which nearly the whole of the brain was found reduced to water; and of another cited by Morgagni, that of a man, who died without experiencing any loss of sensation, where a large portion of the cerebellum was found reduced to a vascular mass. From the printed copy of the paper which he now held in his hand, it would seem that Dr. Hunt had omitted to read the best paragraph, viz., an extract from the *Edinburgh Review*, to the following effect, "The writings of Drs. Gall and Spurzheim have not added one fact to the stock of our knowledge respecting either the structure or the functions of man, but consist of such a mixture of gross errors, extravagant absurdities, downright misstatements, and unmeaning quotations of Scripture, as can leave no doubt, we apprehend, in the minds of honest and intelligent men, as to the real ignorance, the real hypocrisy, and the real empiricism of the authors." This was the correct estimate of phrenology. When the present should cease to be a shallow age, it would doubtless place upon the same shelf the busts of Gall, Spurzheim, Paracelsus, and Count Cagliostro.

Mr. DENDY said the observations which had been made on the paper were not worthy of the paper itself, which contained a mass of suggestive opinions on the subject, and did not go wide a-field as most of the speakers had done. He was astonished at the strong observations which some gentlemen had made about phrenology; and, in his opinion, they should adopt the principle of concession and compromise in their inquiries, or they would never get at the truth. He admitted that some of the observations of Mr. Brookes had astonished him, but he was not inclined to speak of phrenology in the manner other speakers had done. Reverting to the term phrenology, he considered it to be the most unfortunate name that could have been adopted, for its strict meaning was the doctrine of φρην the diaphragm; and it might be assumed, therefore, that it attributes the operation of thought and intellect, and of emotion, to the viscera instead of to the brain. In

the mapping out of the organs on the skull phrenologists had also been unfortunate, for the organs of constructiveness and of destructiveness were placed close together, and, in some instances, the divisions of the respective organs on the skull went across the convolutions of the brain. The developments of the cranium, he thought, had little to do with the actions of the mind, for the different thicknesses of the bones in some parts, and the frontal sinuses, must prevent the actual form of the brain from being perceived. He thought the quantity and quality of the brain was much more important than its shape. He agreed, however, with phrenologists in thinking that the brain is the seat of the mind, and he admired the mode adopted by Spurzheim in dissecting the brain. He considered that a good way to study phrenology would be by noticing the effects of diseases of the brain. He said that he had had a patient whose skull was fractured, and he had taken away a portion of the brain, so that a very small part of the left hemisphere remained; yet, after a week the man regained his senses and his memory, and seemed to be not much affected in his mind, though the organs on one side had been taken away.

Mr. Bendir said his remarks would be confined to that portion of the paper which related to clairvoyance. Dr. Hunt having dissented from the proposition of Dr. Büchner that clairvoyance is impossible, he (Mr. Bendir) thought it was not conclusive merely to adduce in general terms our imperfect knowledge of human nature. Dr. Büchner had not barely asserted an opinion, but his arguments were founded on a number of well ascertained facts, as well as on some principles in which all men of science agreed. If Dr. Hunt could disprove the arguments, or doubted the facts referred to in Dr. Büchner's work, *Force and Matter*, translated by Mr. Collingwood, there would be need of discussion on a subject which otherwise was beneath the serious consideration of a scientific body like the Anthropological Society.

Mr. Alfred R. Wallace expressed his dissent from that part of Dr. Hunt's paper which related to phrenology. He said that anthropologists had hitherto considered the mental faculties and physical peculiarities of mankind as isolated phenomena, and had not made any attempt to connect them; but phrenologists had done so, and had shown that certain peculiarities of the organisation of the brain had relation to the functions of the mind. If there be a connection between them it was to be traced, and they should endeavour to find it out. Many of the objectors to phrenology admitted that Dr. Gall commenced his inquiries in the right method to arrive at truth, and that he had made important discoveries; yet it was now asserted that there was not a particle of truth in the science. If that were so, it became the more important to take up the study of the brain, and to arrive at the truth. With the large collection of skulls now formed, and with materials to aid in the inquiry never before existing, it became the duty of that Society to see whether any relation does exist between separate portions of the brain and distinct mental faculties. He objected most strongly to Dr. Hunt's calling the statement of the phrenologists, that the brain is the organ

of the mind, "a gigantic assumption." He might as truly say that to assume that the eye is the organ of vision was a gigantic assumption. The question was, has the brain anything to do with mental functions, and can we connect the peculiarities of mind with distinct parts of the brain? It was a great subject, and should be taken up by that Society on a large scale, so as to extend observation from individual cases to whole races of mankind, which the Society, with the aid of its many corresponding members in all parts of the world, were in a condition to do. What was wanted was the accurate determination both of the mental characteristics and the form of the skull of different races, and a systematic comparison of these data, so as to connect the one set of facts with the other. Individual cases made little impression on the public mind compared with the effect that would be produced by a comparison of the crania of different races with their known mental peculiarities.

Mr. Alfred Higgins moved that the discussion be adjourned, which was seconded by Mr. Luke Burke, and carried.

Mr. Charlesworth suggested that a limit should be put to the time to be occupied by each speaker, as there were many gentlemen who were anxious to express their opinions.

The Chairman expressed regret that in the course of the discussion several members had thrown dirt on different sciences. They were all trying to find out the right path, and though many might be wrong, yet by taking advantage of their experience, and by avoiding the paths that had been shown to be wrong, the right path might be gained at last.

The meeting was then adjourned to the following Friday.

June 21st, 1867.

Dr. Seemann, V.P., in the Chair.

The minutes of the last meeting were read and confirmed.

The following new Fellows were elected:—Robert Carrington, Esq., F.R.G.S., Admiralty, Whitehall; F. H. Chittenden, Esq., M.R.C.S., South Lodge, Lee Park, S.E.; Frederick Cock, Esq., M.R.C.S., 1, Westbourne Park Terrace, Porchester Square; James Coke, Esq., M.D., Kivellan, Edinburgh; Wm. O. Copperthwaite, Esq., M.R.C.S., Malton; F. H. Fitzwilliam, Esq., 18, Royal Crescent, Ramsgate; Ryves Wm. Graves, Esq., F.R.C.S., 18, Barton Street, Gloucester; C. E. Haile, Esq., M.R.C.S., 17, Cross Street, Islington; L. Doake Hill, Esq., M.D., 35th Regiment; Henry James Paine, Esq., M.D., 11, Crockherbtown, Cardiff; James Rawson, Esq., A.B., M.D., Lichfield; J. L. Thomas, Esq., M.D., St. Clear, Carmarthen; J. F. Wm. Turner, Esq., M.D., 9, Melville Street, Ryde; Thomas Heagle, Esq., Rochdale; F. W. Coates, Esq., M.D., 10, Westover Villas, Bournemouth; Fred. Theed, Esq., M.R.C.S., Glanydon House, Rhyl, Wales; J. R. Carlill, Esq., M.D., 57, Berners Street, West; F. G. Courthope, Esq., Cheam, Surrey.

Corresponding Member.—Samuel P. Haven, Esq., Worcester, Massachusetts.

The following presents were received, and thanks were voted for the same :—

From the Author.—W. T. Pritchard, Esq. Polynesian Researches.
From the Author.—Evan Powell Meredith, Esq. The Prophet of Nazareth. Amphibologia.
From Dr. Hunt, Direct. A.S.L.—G. J. Murray. Industrial Products of United States.

Dr. Hunt announced that the Council had received an intimation that space had been allotted to the Anthropological Society of London in the Exhibition, and the Council had decided to send specimens there, of which Dr. Collyer, then special commissioner in Paris, would undertake the arrangement. The Society had a considerable number of interesting specimens in their museum to exhibit, and he was glad to say that, though the space allotted to them was very small, it was in one of the most important positions in the whole exhibition. It was satisfactory to find that the Paris commissioners had at length recognised the claim of the Anthropological Society of London to have a special space allotted to them. Any Fellows who wished to send contributions to the Exhibition might do so if there were room. The box containing them would be transmitted next week.

Mr. A. Higgins opened the adjourned discussion on Dr. Hunt's paper on Physio-anthropology. He commenced by discussing the title of the paper, observing that if they were to have a new term they might as well inquire into its meaning. He pointed out that in the paper ten definitions were given to the term physio-anthropology, which did not agree very well with each other, but the conclusion he drew from them was that by physio-anthropology psychology was meant. Physio-psychology was a good word, but psychology was used throughout Europe, and he preferred to stick to it. It was a question whether psychology was a part of anthropology, for the latter had for its object, according to M. Broca, the study of human groups, and not of individuals; therefore, strictly speaking, the study of the mental phenomena of the individual man did not belong to anthropology, though the anthropologist might offer suggestions to the psychologist as to the method he should pursue in his investigations. Dr. Hunt had exposed the assumptions of Mr. Spencer, Mr. Dunn, and others, and by so doing he had done good service. It was an indubitable fact, that no means had yet been discovered of bridging over the difference between mental and physical phenomena; but he thought some aid might be given in that direction by the study of mental disease, of the gradual growth of the mental powers in childhood, and of their decay in old age, also of the effects on the body of violent emotion and of mental over-work. In these researches, also, they must not neglect the forms of the human body, and all parts of the body should be taken into consideration. Such investigations should be carried on, not only among various races, as had been suggested by a previous speaker, but in a large number of individual cases of

one race. Dr. Hunt had spoken in his paper of the "gigantic assumption" that the brain was the organ of the mind, but that was too strong an expression, for he conceived that all the evidence we possess is in favour of the assumption that the brain is largely concerned with mental phenomena. He recommended that casts should be taken of the insides of skulls, and that they should be looked at by a single strong light to show the marks of the convolutions of the brain in a most marked manner.

Mr. Prideaux, in the absence of Mr. Luke Burke, next addressed the meeting, and commenced by reading a short letter from Mr. Bray, which he had received from Mr. Burke, and in the opinions of which they both agreed. They thought that Dr. Hunt, in his paper, had shown his ignorance of phrenology, and that he seemed to think everyone was as ignorant of it as himself. So long as phrenologists made phrenology merely a study of dry bones, he admitted it was not a science, but it was entitled to that name when those bones were associated with the brain enclosed within them. The objection raised to the claim of phrenology to be called a science seemed to be the same as if, when anthropologists said that in any particular race particular bones were prominent, that was worthy to be called science; but when they stated what those bones signified, then anthropology was to be called humbug. One fault of the paper was its indefiniteness. It failed to show how phrenologists were wrong in the methods of investigation they pursued, and how those methods he proposed to adopt differed from them. Though so much was said against assumption without proofs, there was an assumption at the conclusion of the paper for which no proofs were offered, to the effect that, if they could once agree on a correct method, anthropologists would make more progress in founding a science of man in one year than had hitherto been effected in a century. That was an assumption without any proof, of which Dr. Hunt complained so much in others. In other portions of the paper Dr. Gall was eulogised for the discoveries he had made in the anatomy of the brain. Yet Dr. Gall professed to have discovered in the brain the seats of twenty-seven of the mental faculties, and Dr. Hunt would not undertake to say they were incorrect. Phrenologists, indeed, boasted that their science was founded on observation and induction quite as much as any other. Dr. Hunt said that the Anthropological Society would be glad to receive information from any quarter, but his (Mr. Prideaux's) experience did not confirm that assertion; for he had submitted a paper to the Council which was declined to be read. Phrenologists were always ready to exhibit facts in support of their opinions, and he was glad that anthropologists were going to pursue the subject. Mr. Prideaux then referred to a case that came under his own notice in a manufactory at Birmingham, where he observed that one of the workmen had the organ of imitation largely developed, and on making inquiry he was informed that the man was remarkable for his powers of mimicry. He suggested that the Society should send to Birmingham to obtain a cast of the skull of that man, to form No. 1 in their museum of phrenology. With regard to the objection made during the previous discussion, that it was difficult to ascertain the

form of the brain owing to the thickness of the skull, Mr. Prideaux observed that supposing the difficulty to be much greater than it really was, it would be no objection to the science of phrenology; it would only apply to the difficulty of distinguishing individual peculiarities. There was no better method of arriving at the truth of phrenology than by examining the heads of those individuals in whom there was known to be some remarkable characteristic. Thus the position of the faculty of destructiveness had been determined by a comparison of the skulls of carnivorous and herbivorous animals, in which there was a very distinct difference, and the skulls of murderers had been found to correspond with those of the former. If a better method of inquiry than that could be found, phrenologists would be ready to adopt it. Mr. Prideaux concluded by remarking, *Mit der Dummheit kämpfen Götter selbst vergebens.*

The following communication from Mr. Atkinson in reference to the notice of him in Dr. Hunt's paper, was then read:—

"18, Upper Gloucester Place, June 19, 1867.

"Dear Sir,—You do not think it consistent in me to say that all the mental phenomena are now traced to their physical causes and conditions, and yet that we are but on the very threshold of knowledge. But surely we may trace the phenomena of light and heat as effects of material causes, without yet having discovered the laws in all the particulars under which such effects are produced; but of course you have misapprehended the passage in question. If you will turn to p. 17 of my *Letters*, you will find my reasons given, commencing in these words, 'The proof that mind holds the same relation to the body that all other phenomena do to material condition (light for instance, or instinct in animals), and that it is not some sort of brilliant existence caged in the body to be clogged and trammelled by earthly conditions, is to be found by all who will exert their senses and understanding, released from nursery prepossessions, etc.' I need not quote more, as you have the work, and what I have asserted is your own opinion, that the mental phenomena in their entirety are the function of the physical being, and you seem to imagine that mind may exist as the function of other matter than brain and nerve, which seems a rather fanciful notion in one insisting on rigid induction from well ascertained facts; and when you say that 'we have not yet traced the physical conditions of man to their causes, much less his mental phenomena,' it is difficult to see what it is you can possibly mean. Is not matter the positive and fundamental cause in itself; or, as Bacon expresses it, 'the cause of causes, itself without a cause.' You really seem so desirous of accommodating all classes of thinkers, that you fail to make yourself always quite clear and intelligible, and you should not have quoted from me passages against the errors of the Combe phrenology without saying that I had written the work to explain what was the true method of investigating the functions of the brain after the Baconian method, and proposing other means that seemed to meet the special requirements of the case, and pointing out the kind of facts essential to the inquiry. And I am now very glad to find that Dr. Maudsley, in his chapter 'On the method of the

study of mind,' so far as he goes, agrees with me entirely, and there is some little hope now of our getting in the right way free from the prejudices of the past, when it was assumed that mental phenomena must be studied in a different way from all other classes of phenomena.

"And now a word on clairvoyance, which Dr. Büchner oracularly declares to be a 'scientific impossibility,' but to know which astonishing fact for certainty, the Doctor himself must be clairvoyant. But in reply to Dr. Büchner, I not only say that I know—yes, positively know—clairvoyance to be true, having observed the fact day by day, and week by week, and for many years together, to say nothing of the mass of clear historical evidence; but further, I say, that the mind is entirely clairvoyant; that our ordinary perception is a clairvoyant power, and nothing else, and can be nothing else; and beyond this I affirm that every bird, animal, and insect is clairvoyant, or possesses instinct, which is the same thing; and that the mental powers are something more than the mere expressions of experience, and that the faculties could not have been developed, and as it were, built up, as Mr. Spencer in conformity with the theory—the baseless theory, I think, of Mr. Darwin—has supposed. The process is utterly impossible to conceive, so that Mr. Spencer, our 'universal postulate,' as he wrongly calls it, condemns him. With the explanation of clairvoyance I will not now occupy you; but on some future occasion shall be ready to go into this deeply interesting and important question, and I think be able to show that there is no essential difference between the so-called clairvoyance and our ordinary perceptions; but with this, as with so many other matters, it is the exceptional or deviating instances that must cast the most light on the nature and laws of the ordinary effects and general fact, and I may add that, in truth, the origin of any class of mental phenomena or instinct, from matter, is equally inconceivable and profoundly mysterious, just as the fundamental origin or character, or subtle nature of everything else whatsoever, is inconceivable and far beyond the power of the senses and understanding, though the familiarity of a fact leads us to think otherwise; but in reality nature throughout is equally wonderful and magical.

"Sincerely yours,

"Henry G. Atkinson."

The following letters were also read:—

"My Dear Dr. Hunt,—I am truly delighted that physio-anthropology has been thus introduced to the notice of the Society. To neglect the functions while we study the form of man, is to leave the better half of our work undone. The physiology of the nervous system is still in a state of chaos, from which we must make an effort to redeem it. My professional duties forbid my writing you at any length to-day, but between this and Monday I hope to embody a few remarks, the result of *personal observation*, as a slight contribution to the facts and suggestions, which are now, thanks to your judgment and determination, being brought under the observation of anthropologists.

"While discarding the theories, let us carefully examine the asserted facts of phrenology and mesmerism, bearing in mind that what is truth

and what is fallacy in these so-called sciences, can only be determined on the testimony of nature, and that in this, as in all other departments of inductive investigation, one carefully conducted experiment or correctly observed phenomenon, is worth a thousand arguments.

"In conclusion, permit me to assure you, that whatever little stock of knowledge I may have acquired in those branches of inquiry now under discussion, will be at the service of the Society, before whose more enterprising members a noble field of investigation and discovery is being thus opened up, in which solid duty may be done and a lasting reputation may be made, by those willing and able to be, in this way, the benefactors of humanity.

"With a renewal of my thanks for your admirable paper, with the general spirit, and with the several propositions of which, as far as I have been able to apprehend them, upon a first perusal, I entirely agree, and in the hope that the discussion now pending, will eventuate in the recognition of physio-anthropology as a legitimate department of inquiry, I remain, my dear Sir, yours very truly,

"J. W. Jackson."

"In treating physio-anthropology we should bear in mind that it is impossible to thoroughly understand the functions of man without a knowledge of the animal economy generally, for let us clearly understand that the human organism is simply the animal type more fully unfolded; or as it has been elsewhere said, humanity constitutes a new order of organic being, superior to but not separated by any impassable gulf from the orders, genera and species beneath it. All this is of course only saying that we must base our investigations on the facts of comparative physiology, whereof the functions of man constitute a very important, but nevertheless tributary province.

"Now what is the primarily determining element by which man is distinguished from inferior types of sentient being? we answer, the higher development of his nervous system. And if asked to define the speciality of this development, we would say its centralisation in the brain. In all this, however, let us understand man is only the farther continuation of a line, whose direction however is clearly discernible throughout the vertebrata, if not the inferior divisions of the animal kingdom. But while thus admitting the ever increasing importance of the brain, as we ascend in the scale of sentient life, let us also remember, that it is not, even in man, a perfectly isolated organ, but a part of his nervous system, between whose remotest filaments and this its (solar) centre, there is intimate action and reaction incessantly maintained. This then should suffice to prevent our falling into the error of those cerebral physiologists, who attempted to study the brain as a separate organ, without due regard to its anatomical connection with, and physiological relation to, other portions of the organism. It may be remarked here, that the real advance of phrenologists, effected in these latter years, has been in the endeavour to correct this error of its earlier teachers. But we, as anthropologists, should not begin by falling into it. In the study of the brain from *external* indications, three things must especially engage our attention, namely, its quantity, its quality, and its form, respecting

which we may again observe in passing, that the old school of phrenologists made too much of the first, and underestimated the second, while they were too prone to mere 'organology,' to a comparative neglect of general proportion and contour, in the third. But anthropology must not rest satisfied with this study of external indications, but proceed, through its medical Fellows, to a profounder knowledge of the arrangement and distribution of the convolutions, the volume of the cerebrum as compared with that of the cerebellum, and of both as compared with that of the spinal cord. I dwell on these things, feeling fully assured that a knowledge of structure and function must go together.

"As we have comparative anatomy and comparative physiology, so we must have a comparative physical anthropology and a comparative physio-anthropology. We must not only study the peculiarities of form, but also the specialities of function, attaching to different races and temperaments; for it is a most mistaken idea that the various types of man differ only in structure, that being the sure index of fully proportionate diversity in the action of their vital forces. Nor is this diversity confined only to the broader demarcations of race; it is found also, between the several varieties, and attaches very perceptibly even to those minute subdivisions, which, as we have said, though now known phrenologically as temperaments, are in all probability the suppressed germs of *caste*, a result of the ineradicable proclivity of man to separate, like some other animate types, into distinct *breeds*. Now it is here that the practical experience of phrenologists, whatever may be the gravity of their errors, in the way of groundless assumption and unwarranted theory, will be found eminently valuable to the physio-anthropologist, if only as suggesting the road to farther discoveries, and as a stimulus to yet profounder investigations.

"As my time, however, for the preparation of these remarks is to be counted by hours, and as, moreover, I would not willingly intrude at needless length with a written communication on the patience of those who have met for a *vivâ voce* discussion, I will hasten to conclude by giving a few instances of the value of physio-anthropology in the prosecution of our inquiries into the nature of man. In doing this I shall occasionally advert to the influence of the nervous system, not only on our mental manifestations but also our corporeal functions, for the latter as well as the former constitute a legitimate branch of physio-anthropology. In this connection, let us remember that man is an organic integer, and not a mere assemblage of separate and independant organs, and that all his manifold functions are but the manifested activity of ONE lifepower, a truth but too often forgotten, not merely by the much offending phrenologists, but also by others in whom perhaps the error is not so excusable.

"And first as to the effect of FORM. It will be found that when the basis of the brain is large, the shoulders are generally broad, the chest well arched and the limbs muscular, while respiration, digestion, and the corporeal functions as a whole, are efficiently discharged. The circulation is vigorous, the skin is warm, and the ten-

dency is to diseases of an acute rather than a chronic character. Persons so constituted are prone to a life of action rather than thought, and unless the coronal region be also powerfully developed, often allow their impulses to predominate over their principles. Now, contemplated in the light of comparative anatomy and physiology, what is all this but saying in effect, that the animal economy is still well developed in such persons, and where the type is very strongly marked, that this, the lower nature, tends even to predominate over the higher and human, with which it is mingled. We may observe that such persons *fatten* much more readily than those in whom the basis of the brain is small, arising, probably, from the fact that their alimentary duties are more efficiently performed. Now is comparative physical anthropology sufficiently developed to inform us whether the abdominal and thoracic viscera bear the same proportion to each other in these people as in others diversely constituted cerebrally?

"Let me now give another illustration from temperament or QUALITY. Here is a man of the nervous temperament, or as a jockey would say, he has 'blood' in him. Here bone and muscle are, in a sense, subordinated to nerve. The extremities are small and beautifully formed. The hands are psychical—for the type extends to the finger tips, which are neither thick (rudimentary), nor broad and flat (spatular), but fine and pointed. The general form of the body is elegant, and its movements are graceful and elastic; the skin is fine—not rough, coarse and porous—and the hair is soft and silky; the face is oval, the mouth is rather small but beautifully formed, and the features generally are delicately chiselled and classical in outline. Now, in a being so constituted, the senses are acute, the perceptions are quick, thought is almost intuitional, and the emotions are intense. In correspondence with this, the brain has immense power over the physical functions, it can accelerate the circulation and retard digestion, derange the bowels and upset the previously harmonious working of the entire animal economy, through what, in common language, we term *mental* impressions. Now, are we prepared to afford any satisfactory explanation of these facts? What speciality is there in the structure of the brain to account for so much susceptibility to outward impressions, and such almost painful intensity in the reaction to which they conduce? Are its convolutions more complex, or has it a larger amount of grey matter than usual? And what do we know of the volume and distribution of the nerves connected with the viscera, that may serve to explain their especial control over function in the case before us?

"From the foregoing, and were there time we might similarly illustrate the connection between structure and function from each distinctly characterised form of head, and from every one of the well defined temperaments, it will be at once obvious that physio-anthropology is yet in its infancy. As phrenologists we have accumulated many valuable and suggestive facts, but as anthropologists we have not yet laid even the foundations of a science.

"I have not yet touched on mesmerism, nor is there time on the present occasion to do more than allude to it. Suffice then for the

present, that after twenty years experimental knowledge of this subject, I am fully convinced that physio-anthropology will ever remain imperfect until the susceptibility of the nervous system of one human organism to the vital action of another, be fully and fearlessly investigated. What is really wanted in this matter, as in phrenology, is not blind acceptance or bigotted rejection, but enlightened investigation.

"And now in conclusion, let me most respectfully suggest to all earnest anthropologists, that no man is really qualified to give an opinion as to the reality or fallacy of the asserted facts of phrenology and mesmerism, until he has profoundly studied and rendered himself *experimentally* familiar with these so called departments of science. Foregone conclusions on these, as on any other province of inquiry, are simply '*idola*,' which every true disciple of Francis of Verulam will hasten to cast out. An anthropologist has no prejudices. He is open to all truth, his only 'school' being that of nature. We have carried out these principles in physical anthropology, and if we are to retain our place in the vanguard of science, we must be prepared for a similar disregard of antiquated prejudices and an equal display of fearless loyalty to the truth, in physio-anthropology. Let us not deceive ourselves. If *we* refuse to thoroughly investigate the functions of man, then we shall have to give place to those who will."

"Wilmot Lodge, Rochester Road, Camden New Town,
June 20, 1867.

"My dear Sir,—I have just finished reading your able pamphlet on physio-anthropology, and I congratulate you on the masterly manner in which you have treated the subject. It is impossible to insist too much on the inductive method of research, if we wish to keep clear of crotchets and brush away all the cobwebs of the olden time; but you will have a hard battle to fight, rest assured. For my part, when I reflect how slowly truth travels, and how the greatest minds are biassed by preconceived notions, or early prejudices: when I call to mind that even Bacon, 'the wisest, brightest, meanest of mankind,' to whom we all look up with such veneration as a model philosopher, was himself a bigot in science, and repudiated the brilliant discoveries of Galileo: when I recollect that even the great Newton believed in alchemy, and undertook to interpret the apocalypse, I am really tempted to despair of philosophy, properly so-called, ever making any great progress. However, I suppose *nil desperandum* must still be our motto, for there is no getting on without it.

"I hope by the time the Society meets again to have more leisure than I have had of late; and, therefore, to be able to place my services, such as they are, at the disposal of the Society.

Believe me, dear sir, your's faithfully,
C. Robert des Ruffières."

"21, Mount Pleasant, Liverpool, June 21, 1867.

"Dear Sir,—I have not the pleasure of knowing you personally, but, nevertheless, I esteem you as a fearless and bold thinker. Mr. Fraser, the Secretary of the Liverpool Phrenological Society, has been kind enough to lend me a proof copy of your address respecting physio-anthropology, which I believe is being discussed by the members of

your Society. I have read your paper with pleasure, and feel glad that you have taken the right view of Dr. Gall's true position in connection with his own subject. For more than thirty years I have made phrenology a special study, and have taken every means within my power to verify Dr. Gall's facts and observations, and I must say that I have found him singularly correct in his statements. My observations and experience have not been altogether confined to man in a civilised condition. I have carefully made a study of him in the wilds of North and South America, and there found Dr. Gall's statements equally verified, so that I speak on the authority of experience derived from observation.

"I fully agree with you respecting the insulting and dogmatical language used by some of the advocates of phrenology to those who cannot see the truth of it, in the light in which they present it. But empirics are always dogmatical, insulting, and boasting, whatever their subject may be. Hence, the advocates of phrenology are not the exception; for in the infancy of all science, we find that some believed themselves able to explain all phenomena, when they had the least power to do so from ignorance of their laws.

"You appear to think that phrenology has collapsed, and that it is little thought of. I cannot see from your paper how you have been led to that conclusion, as my experience does not fully accord with it; I certainly do not find the same kind of excitement in the public mind respecting it as did exist some thirty-five years ago. But notwithstanding that, I know that it is now very extensively cultivated, and the belief in its truth is wide spread. The extensive sale of any works on the subject, not only in this country, but in India, Australia, and America, is some proof of the statement. Still, I readily admit, that the subject does not hold the position, in the estimation of many persons, that I should like to see it do, who are looked up to in matters of science. But we should not close our eyes to the fact that the opinion of a man, be he ever so eminent in a certain department of science, is of no practical value on a subject that he has not carefully investigated on the order of nature. Hence, the opinions of men on subjects have different degrees of value, according to the positive knowledge they have of the subjects. Now, if an individual has no positive knowledge of phrenology, and he takes upon himself to express an opinion regarding its truth or falsehood, his opinion should be taken for what it is worth, whoever he may be.

"You charge the advocates of phrenology with being dogmatical. But I think you will admit that the charge does not rest with them alone. I frequently meet with men who stand high in the scientific world who denounce phrenology in very strong terms, yet they admit that they have not made a positive investigation of the subject. The real disciples of Dr. Gall can make every allowance for such men, and value their opinions accordingly.

"As a disciple of Dr. Gall, I tender you my warmest thanks for your paper, and the manly courage you have displayed in laying the claims of Dr. Gall before the members of your most important Society.

"I have the honour to be, sir, your humble servant,

"To Dr. James Hunt. "FREDERICK BRIDGES."

Mr. CHARLESWORTH observed that though Dr. Hunt's paper did not profess to be a paper on phrenology, it was practically so; and one gentleman, who spoke at the last meeting (Mr. Brookes) had occupied the time of the meeting nearly an hour with that subject. Mr. Higgins's speech was very different, both in tone and matter, from those on the last occasion, and really had a bearing on the great object of the paper. If that was not to be considered a phrenological discussion, all that Mr. Brookes had spoken should be cancelled; and if it were not to be a phrenological discussion he should make a few remarks on the general aim of the paper. He attached great value to all the communications of Dr. Hunt, but the present one rather disappointed him, from its want of connection and of logical definition. It was an earnest appeal to the members of the Society to divest themselves of preconceived opinions. All must agree with him in that; but on that point they all understood one another. He hit right and left at almost everybody. He said they must throw aside the assumptions of everybody; the assumptions, even of men of science. He (Mr. Charlesworth) would go with him in the general spirit of those observations, but they were likely to lead them to dangerous ground. If they laid down the principle that they would have nothing to do with assumptions, the progress of investigation would be arrested and discovery become extinct. As an illustration of that opinion, Mr. Charlesworth adverted to a question which once excited the scientific world respecting a creature that lives in the depths of the sea, the paper nautilus, which was supposed to be a pirate, and to have stolen the shell it occupied. That was an assumption, and the investigation of the truth of that assumption had produced a remarkable influence on physiological science. When, therefore, they were told to have nothing to do with assumptions, they should bear in mind how valuable they sometimes are.

Mr. WESLEY remarked on the inconsistency of their being told that the discussion was not to be on phrenology, and yet that the most important part of the subject under consideration was the connection between the mind and the body. Phrenology attempted to settle that question, and they could, therefore, scarcely refrain from discussing it. Phrenology is based upon two assumptions; the localisation of the functions of the brain, and the possibility of distinguishing the various cerebral organs outside the skull. The first of these assumptions was still open to question, while he believed the second had been entirely disproved. Unless the mental faculties could be discerned upon the living head, phrenology, as a practical science, falls to the ground. It is now known that great changes in the form of the skull are produced by the premature closing of the sutures; but it did not appear that such changes affected the mind; and if the skull be flattened artificially by pressure, it did not destroy the mental faculty supposed to be located in the part depressed, nor produce others. He regretted that the race character of skulls had not been sufficiently investigated. There were broad distinctions between the skulls of different races which had not been attended to, while minute differences in the skulls of the same race had been brought into prominence. In this want of

general knowledge of the subject, he thought phrenology had been prematurely brought forward, and its theories, based upon assumptions, had been mistaken for science. He instanced, as an illustration of the mistakes that phrenologists are likely to make, a skull in their museum which approached in general character the skull of a gorilla, yet it exhibited a large development of the organ of veneration and of some of the intellectual faculties, in consequence of the great thickness of the bone in those parts of the skull.

Dr. Beigel rose to address the meeting, when Mr. Brookes reminded the Chairman that Dr. Beigel had already spoken on the first night of the discussion; but the Chairman overruled the objection, as no other gentleman seemed to desire to speak.

Dr. Beigel then proceeded to comment on the paper. He said the object of the second part of it seemed to be to bring phrenology face to face with science; it was, therefore, impossible not to make some remarks on phrenology. He considered the cases adduced by Mr. Brookes far from satisfactory; and the latter of the two he was inclined to treat as a practical joke of the medical men at the Guernsey Hospital. He thought it was unfair of Dr. Hunt to bring the question before that Society, for it could not be decided by such a meeting. Phrenologists should go to the dead-house and examine the skulls of the bodies brought there. He adduced cases of hydrocephalus as decided evidence against phrenology. In those cases the skull was greatly extended beyond the natural size, and the brain was turned into a fluid mass; and yet the persons so afflicted may retain all their mental faculties. In asylums it was known that changes took place in the brain when the mind was destroyed, but very seldom was there any indication of change on the surface, though sometimes a change was perceived in the very middle of the brain. That fact, he considered, was sufficient to show that phrenology was not worth speaking about. There was no scientific man who had examined the brain with great care who did not pronounce phrenology to be nonsense. If the localisation of the mental faculties on the surface of the skull were true, he should recommend that the name of phrenology should be changed to that of geography of the skull. It was, he considered, a pity that so much time should have been wasted in the discussion of phrenology, and he hoped it would be the last occasion attention would be paid to it, as Dr. Hunt had now brought it face to face with science.

Dr. Donovan begged to be allowed to speak a second time in answer to Dr. Beigel's second attack on phrenology; the fundamental principles of which are impregnable. They may be thus briefly enunciated:—"that the mental faculties are innate in man, and, in a sense, in all creatures that can be said to feel and to think"—"that these faculties perform their functions by means of material organs"—"that the brain is composed for the most part of these organs"—"that the brain as a whole, and its component organs likewise, are subjected to a law of size." In proof, it is a fact that, if a man's brain be less in circumference than twenty inches—nay, than twenty-one inches—such a person is, if not an idiot, in a state which, for

want of a better term, may be called spooneyism; nineteen inches necessitating idiocy.

Several members objected to this; when

Dr. DONOVAN said that, before the proceedings commenced, he measured the head of an avowed opponent of phrenology now present, and found it to be only twenty inches and three-quarters round. Now, said the doctor, I would not have such a head on my shoulders for all the gold in Australia, for it must be utterly incompetent for anything like normal vigour and efficiency in any profession. Dr. Donovan was proceeding to elucidate further principles, when

The CHAIRMAN said he was out of order to enter then into the consideration of the principles of phrenology. It was not the last time that phrenology would be discussed in that room, and Dr. Donovan had better reserve his observations for a more fitting occasion. If the subject was brought forward again they should be glad to hear all that he had got to say, but the question before them at that time was a question of method.

Dr. DONOVAN persisted in so far pursuing the subject as to show the use of phrenology in cases of insanity, and read letters from Dr. J. Scott, of the Haslar Hospital, and from Dr. Davy of Northlands asylum, in which they expressed their opinion of the great utility of phrenology in the treatment of mental diseases, and the latter said that phrenology lies at the root of anthropological science.

The Rev. DUNBAR HEATH moved that the discussion be adjourned, as he desired to make a few more observations.

Mr. MACKENZIE seconded the motion, but when the motion was put to the vote there was a majority in favour of closing the discussion.

Dr. HUNT, in reply to the various remarks on his paper, commenced by saying, that he was disappointed with the discussion, which he hoped would have led to some argument as to the method in which they should pursue their investigations; but after three nights' discussion they had not much advanced towards that object. He hoped that Dr. Donovan would have replied on behalf of the phrenologists to that portion of the paper which referred to them; but during the three nights when the opportunity was offered, no one had attempted to defend what he had termed the gigantic assumption that the brain is the organ of the mind. His meaning on this point had been entirely misunderstood. Many speakers had asserted that he had denied that we had any right to assume the brain to be closely connected with mental phenomena. Nothing, however, was further from his intention. That all mental phenomena were associated in the most intimate manner with the brain he did not dispute for a minute. He could not put the case stronger or more simply than he had done in the paper, and in time he had no doubt his opponents would be able to see the vast difference between the existence of an entity called the "mind," and mental phenomena. Dr. Donovan said on the first night that he did not know what anthropology was, and he asked them to tell him what were its doctrines. He (Dr. Hunt) replied, that anthropology had no doctrines at all, and in that respect it differed from phrenology. It was because Dr. Donovan came forward

with the doctrines of phrenology instead of with facts, and wished to force it down by dogmatical assumptions that he objected to receive them. As to the question of the size of the brain and its relation to mental power, it had often been discussed in the Anthropological Society of Paris, and it must sooner or later come on for discussion by their Society; but the question at present was as to the method of conducting their investigations. Dr. Hunt was proceeding to comment on the speech of Mr. Brookes as a defender of phrenology, when

Mr. BROOKES rose to explain. He said he was not a phrenologist, but a student of mental phenomena in connection with the nervous system.

Dr. HUNT said, amidst much laughter, that he was very glad indeed to hear this, and then directed his attention to the communication which had been read from Mr. Atkinson. He observed that Mr. Atkinson objected to the paper because it showed too great a desire to conciliate all parties; whereas Mr. Brookes asserted that its object was to set them all by the ears. Dr. Charnock and Mr. Blake expressed themselves as violent opponents of phrenology, and Dr. Charnock went so far as to call both Dr. Gall and Dr. Spurzheim impostors; whereas Mr. Blake, though expressing nearly similar opinions as to phrenology, yet considered Spurzheim to be one of the greatest anatomists of the brain. Then with regard to clairvoyance; the opinion expressed by Mr. Atkinson was in its favour, while Mr. Bendir agreed with Dr. Büchner that all cases of pretended clairvoyance rest upon fraud or illusion. These great differences of opinion were held by men who in other respects entertained similar views. It had been asserted that his position with regard to the subject in hand was unsatisfactory; but he contended that it was consistent. Mr. Charlesworth had expressed his disapprobation at exception being taken to the assumptions of men of science; but why should scientific men be allowed to put forward unwarrantable assumptions more than any other class? He had made a distinction between philosophers and men of science, because the latter, he considered, differed entirely in their method from the former. Science, as he understood it, did not attempt to explain the origin of things, but only the laws by which they were regulated; nor was it the duty of scientific men to call in the aid of entities like the mind and soul, of which, by their methods of observation and research, nothing was or could be known. These assumptions had hitherto retarded the progress of physiological science. Mr. Atkinson had said that it was a fanciful idea to admit the existence of mental phenomena without a nervous system. He (Dr. Hunt) had not admitted such an existence. He merely stated that we had no right to declare that the existence of a new order of man with a more attenuated form of matter, was an impossibility. He granted that such a supposition, in the present state of our knowledge, is not only fanciful, but is equally absurd, for it is contrary to all our present knowledge. It was merely thrown out to show the catholic nature of their science, as well as his desire to be ready to admit any phenomena, however remarkable or even fanciful. Mr. Atkinson has declared Darwinism to be impossible.

Mr. ATKINSON. I say the process is impossible.

Dr. HUNT replied that this was just the point on which he differed. There were two or three points in connection with Mr. Darwin's theory to which he had always strongly objected. One of these was the breathing of life into a few primitive forms; and the other was, the descent of mankind from a single ape. Yet, differing as he did on these and other points, he did not feel himself justified to declare Darwinism to be impossible. Science did not know or concern itself with what was possible or impossible; it merely sought to discover and demonstrate what was true. They should leave to philosophers the office of declaring scientific deductions to be impossible. With regard to the objections raised by Mr. Higgins, they deserved most serious consideration. The confusion which that gentleman had pointed out respecting the different meanings of physio-anthropology were, he thought, more apparent than real. The various definitions he had given of the science were to illustrate his meaning. Mr. Higgins's objections were directed against the positions laid down in the first page of his paper. If the position laid down by Professor Huxley, and adopted by the British Association, was sound, then he was justified in both his title and his definition. There was no doubt something to be said in favour of retaining the word psychology; although he differed from those who thought it a good word, or that its origin gave it any recommendation to their acceptance. He had first of all called his paper "On Psychical Anthropology," and it was with some regret that he felt obliged to relinquish this title. He contended that all scientific men knew of psychology was by physiology—by the study of structure in action. He felt that, sooner or later, the time must come when the word psychology must give place to one which was less objectionable, and that for the present it would be advisable to make a beginning, and when we speak of function use a word which has that meaning, and not a word like psychology, which bears an entirely different signification by nearly every person who uses it. Mr. Higgins had said that all parts of the body threw light on mental phenomena, and he quite agreed with him; this was one justification for the title. There were many other points which had been raised by the discussion, but it would be impossible at that late hour to go into them thoroughly, and he thought it therefore best to leave his reply to these points until another occasion.

The Society was then adjourned till November next.

ERRATA IN MR. HIGGINS'S PAPER

"NOTES ON SCANDINAVIAN MUSEUMS."

P. xv, line 16, for *Professor Santerini*, read "Professor Santesson."
P. xv, line 28, for *slaves*, read "Slaves."
P. xv, line 30, insert full stop after *Austrians*.
P. xv, line 44, for *Gaelis and Cirlici, four Folhungs, a noble Swediish family of the twelfth century*, read "Galli and Cimbri, four Folkungs (a noble Swedish family of the twelfth century.)"
P. xv, line 47, for *eight*, read "three."
P. xvi, line 2, for *inward below*, read "downwards and inwards."
P. xvi, line 10, before *Macassar*, insert "natives of."
P. xvi, line 11, for *Affghans*, read "Alfurus."
P. xvi, line 20, for *men*, read "Inca."
P. xvi, line 28, for *their*, read "the."
P. xvi, last line but two, for *genuine*, read "Guarani."
P. xvii, line 2, for *ricksthalers*, read "riksthalers."
P. xvii, line 10, for *with*, read "into."
P. xvii, line 11, for *into*, read "as."
P. xvii, line 14, for *Skandinavisker Nordens Urinvanare*, read "Skandinaviska Nordens Urinvånare."
P. xvii, line 15, for *works*, read "work."
P. xvii, seven lines from the bottom, for *his*, read "the."
P. xviii, line 11, for *pot-hook*, read "fish-hook."