Isabella Baillie of Polkemmet

THE PHRENOLOGICAL JOURNAL AND MISCELLANY.

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"As in the inquiry of Divine truth, the pride of man hath ever inclined to leave the oracles of God's word, and to vanish in the mixture of their own inventions; so, in the self-same manner, in inquisition of nature, they have ever left the oracles of God's works, and adored the deceiving and deformed imagery, which the unequal mirrors of their own minds have represented unto them. Nay, it is a point fit and necessary in the front and beginning of this work, without hesitation or reservation to be professed, that it is no less true in the human kingdom of knowledge, than in God's kingdom of heaven, that no man shall enter into it, *except he become first as a little child.*"—BACON. *Of the Interpretation of Nature.*

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THE

PHRENOLOGICAL JOURNAL.

No XIII.

ARTICLE I.

LETTER FROM GEORGE COMBE TO FRANCIS JEFFREY, Esq.

> Moved "by the sound, the King grew vain:
> "Fought all his battles o'er again;
> "THRICE he routed all his foes, and THRICE he SLEW the SLAIN."
> ALEXANDER'S FEAST.

SIR,—An elaborate and ingenious criticism on my work on Phrenology has just appeared in the 88th number of the Edinburgh Review, which common report attributes to your pen. Finding myself assailed not only by the wit and argument of that article, but by the whole weight of your literary and philosophical reputation, I endeavoured to ascertain the grounds on which you were designated as its author; and, in addition to the strong intrinsic evidence afforded by the article itself, I have traced the statement, in numerous instances, to individuals who say that they received the information from yourself. Thus situated, I use the freedom to address this answer to you, not merely as the reputed editor of the Review, but as the individual author of the criticism in question.

In the 15th article of the 4th number of the Edinburgh Review for April, 1803, the late Dr Thomas Brown exclaimed, "Of Dr Gall and his skulls who has not heard!" After eleven pages of hostile argument, he "*trusts*, that his "*readers are* ALREADY SUFFICIENTLY CONVINCED *that the prin-* "*ciples on which Dr Gall has founded his theory are erroneous;*"

and adds, that "it is *unfortunate* for Dr Gall's theory that he has "entered into the detail of it with such minute exactness, *as it en-* "*ables every one too easily to compare its predictions* with the "skulls of those around him."

In the 49th number of the same Review, the late Dr John Gordon exclaims, "Our readers will here recognize, "without any difficulty, the same man of skulls whom we had oc- "casion to take notice of more than twelve years ago. *Long be-* "*fore this time we should have looked for his Craniologi-* "*cal death ! !*" "We look upon the whole doctrines taught "by these two modern Peripatetics, (Drs Gall and Spurzheim,) "anatomical, physiological, and physiognomical, as a piece of "*thorough quackery* from beginning to end; and we are persuaded "that every intelligent person who takes the trouble to read a sin- "gle chapter of the volumes before us will view them precisely in "the same light."—"They are a collection of mere absurdities, "without truth, connexion, or consistency, which nothing could "have induced any man to have presented to the public, under pre- "tence of instructing them, but absolute insanity, gross ignorance, "or the most matchless assurance."

These were pretty plain intimations to the public of the opinions of the Edinburgh Review; and if "Craniology" did not immediately thereafter give up the ghost, you, at least, were guiltless of its future inroads and ravages. The public *at first* believed every word of this criticism, and railed at Craniology in round set terms, furnished by your Review;—gave up purchasing and reading the works on the subject, and seemed, for a time, to have consigned it to oblivion.* With an obstinate, but not an ignorant perversity, however, (excited partly by the first edition of the work you have just condemned,) the public "took to their old idols again;" after reflection, and observation of facts, many of them openly and audaciously professed belief in "Craniology," dignified, at length, by the name of Phrenology; and plainly showed that the two articles of your Review in 1803 and 1815 had been utter failures.

* Dr Spurzheim's publisher told me, that the sale of his works completely stopped after the appearance of the 49th number of the Edinburgh Review, and did not revive till 1819, after which it went on rapidly, and to still proceeds.

The flourish with which you introduces the third attack is in the following terms:—"Every one, of course, has heard "of Dr Gall's Craniology, and seen his plaster heads, mapped out "into the territories of some thirty or forty independent faculties. "*Long before this time, we confess, we expected to have seen them* "*turned into toys for children, and this folly consigned to that* "*great limbo of vanity to which the dreams of alchemy, sympathe-* "*tic medicine, and animal magnetism had passed before it.*" It seems really to provoke you that Phrenology *will not die.* You tell us in this article, that "the dogmatism and arro-"gance of its advocates were really BEGINNING TO BE TIRE-"SOME, *and the folly had lasted* RATHER TOO LONG." No wonder! It has lasted twenty-three years after you had deprived it of every shadow of plausibility! It is now believed in and supported by full-grown men, who were not in existence when you first attacked it. This *is* lasting "rather too long." You assure us, however, that "it would, *no* "*doubt*, decline of itself *in no* VERY *long time;* and, in supposing "that we have now done something to accelerate its cessation, we "are probably vainly arrogating to ourselves an honour that will "belong entirely to the progress of reason, or the more fortunate "distraction of some newer delusion." It was this passage, coupled with the two previous attacks of the Review, that suggested the motto to the present Letter.

The strong contempt which you entertain for Phrenology has kept you sadly ignorant of its history and progress. You have written sixty-six pages replete with hostile arguments, original, no doubt, to yourself, but the most of them familiar, as a thrice-told tale, to those who have attended to the discussions about the science. Did the public not know your genius and originality, it would be impossible for them to doubt, that you had ransacked the pages of Blackwood's Magazine, the Literary Gazette, and other equally philosophical oracles,—picked up every argument they contain against Phrenology, and spun them into this web of your own. Your objections, almost without a single exception, have been already propounded, refuted, and given up by their advocates, and, what is more, by the public. It shall be my business to prove this as we proceed.

You say, "We do not hear that Phrenology makes much "way in London or Paris." This is because you do not read the periodical notices of its progress. Allow me then to mention, that there is in London a Phrenological Society, embracing upwards of a hundred members, not obscure persons, but members of parliament, doctors in medicine, barristers, and such like. In April and May, 1826, Dr Spurzheim lectured in that city to an audience exceeding 800 individuals of the highest rank and intelligence; and, finally, for brevity's sake, the Medico-Chirurgical Review for October, 1826, the most widely-circulated and the most esteemed medical journal in Europe, has published a review of the system of Phrenology, in which the following passage occurs:—
"Phrenology is more intimately connected with the applica-
"tions of medical knowledge than may at first sight be apparent.
"On this account, therefore, *we recognize in the science of its prin-*
"*ciples a legitimate and useful subject of professional inquiry.* We
"must acknowledge, at the same time, that we feel impelled, *by*
"*the pure force of multifarious and unquestionable evidence,* to
"regard this *as the most intelligible and self-consistent system of*
"*mental philosophy that has ever yet been presented to the con-*
"*templation of inquisitive men.*" After a full, able, and accurate analysis of the work, the journalist concludes:—"We might have
"expatiated at great length on the utility of this science, in its ap-
"plications to the purposes of education, legislation, political eco-
"nomy, criminal jurisprudence, history, legal and theological elo-
"cution, and, *above all,* TO THE TRUE PHILOSOPHY OF MEDI-
"CINE; but we have abstained from this indulgence, in the belief
"that the foretaste of an intellectual luxury we have provided for
"our readers will stimulate them to desire the enjoyments of a full
"repast."—P. 468.

In regard to the progress of the science in *Paris*, I beg to refer you to the following extract of a letter from a gentleman in that city, published in the Transactions of the Phrenological Society in 1824.—"It is worth mentioning also,
"that, about two years ago, Dr Gall, at the request of the Mi-
"nister of the Interior, commenced lecturing for the benefit of
"the Medical Students in Paris. The lectures were, like others,
"delivered gratis; but he was provided with the use of the
"operation and lecture room in the *Hospice de Perfectionnement,*
"for his first course, and afterwards, on account of that being
"too small, with the large examination-room of the Institution

"des Jeunes Aveugles, which, is well fitted for the purpose. "His audience amounted to betwixt 200 and 300; and so eager-"ly is he attended, that it is well known that many more tickets "were applied for at each course than could be given, and that "the apartment was regularly crowded half an hour before the "lecture began. Dr Spurzheim also continues to lecture in "Paris, and although, from his demanding a fee, his auditory "is not numerous compared with Dr Gall's, yet he is regularly "attended, and his course is esteemed the more philosophic of "the two."

The statements of this letter are confirmed by a notice which appeared in the New Monthly Magazine for January, 1823.—"Histoire des Fonctions du Cerveau. Par le Docteur Gall, 2 vols. 8vo, Paris, 1822.

"This is another exposition of Dr Gall's system of *Invincible* "(innate) *Dispositions*. This gentleman, who possesses no little "talent, both as a physician and a writer, has been practising, "for the last twelve or fifteen years, in Paris, where he has esta-"blished a reputation, and realized a handsome fortune. On "the first development of his system, it was received either with "unthinking pleasantry, or dismissed as idle, without due con-"sideration; but a more intimate knowledge of the man has led, "if not to the adoption of his ideas, at least to a more serious "and respectful examination of them. There are many men "here (Paris) amongst the most eminent for their medical and "physiological knowledge, who, though differing widely upon "other scientific topics, yet agree in saying, that there is much, "not only of probability, but of truth, in the system of Dr Gall. "It is certain, that one of the most powerful motives of human "action, *instinct*, has been but very imperfectly examined by the "most celebrated modern philosophers, and, amongst others, the "acute Helvetius. It appears to be the general opinion of the "present *savans* of Paris, that Dr Gall's system calls for a much "more serious and profound examination than it has hitherto "undergone. To this task it will be necessary to bring a con-"siderable share of anatomical science, as the Doctor, it is said, "has made some very important discoveries in the structure of "the brain. This new edition, which is improved and enlarged, "will consist of eight volumes 8vo."

The account given in the foregoing letter regarding the opinions entertained in Paris, although published in this country several years ago, and reprinted at the time in a Parisian newspaper, have never been contradicted. Not only so, but they have been supported by many subsequent notices in the

philosophical journals of France, particularly the Revue Encyclopedique.

In page 295 of your Review, you state, "that several persons who had been at first rather taken with the new doctrines, had, by more careful observation, been thoroughly convinced of their fallacy." This also is an unfounded and very frequently-refuted assertion. It is adverted to in the following letter by Dr Spurzheim, likewise published in the Phrenological Transactions.

"In the whole of our travels," says he, "we have been well received, and the second course was always more fully attended than the first, so that there was no doubt that the subject excited great interest. But it is to be regretted that we stopt too short a time to form practical pupils. The principles were explained, the development shewn, and we were off. You will conceive that this was not the way to establish the doctrine. We had more advantage than our pupils, because we had great opportunities of observing the heads of many men of talents; we got more conviction than our auditors. We were prepared by previous study to make observations, but our stay was too short to teach the auditors to repeat them. Dr Gall even gave the advice not to repeat the experiments, since it is difficult to do so, which I have mentioned in my large English work, 2d edition, p. 270. But I assure you, that not *one Phrenologist, from knowledge*, has fallen back, saying that the doctrine is false. I have seen frequently the contrary, i. e. the belief in it strengthened by self-observations."

Farther, the assertion, that individuals, after once believing, have discovered evidence which induced them to renounce their faith, must imply one of two alternatives,—either that nature changed betwixt the period of belief and that of disbelief, or that the persons alluded to became converts at first from credulity, without due examination. The first alternative will scarcely be alleged to have happened; and as the second implies a total want of a philosophic understanding in the individual, and indeed admits his previous stultification, I willingly allow you all the advantages which you can derive from such testimony against the truth of the doctrines. Even although some persons should affirm that they have made observations, and found the result to differ from the assertions of the Phrenologists,—this

would be nothing more than has happened in the case of other sciences, which have nevertheless been ultimately admitted to be true. Mr Playfair mentions that Mariotte, "though very conversant with experiment, *appears never to* "*have succeeded in repeating the experiments of Newton.*" Supp. to Encyc. Brit. second Dis. p. 57.

To complete this brief notice of the progress of the science, allow me to add, that Dr Otto, an established medical professor, and editor of a medical journal in Copenhagen, lectures on Phrenology as the true theory of the functions of the brain, advocates its cause in his Journal, and has published a separate work in elucidation of it. In the United States there are Phrenological Societies in Philadelphia and Washington; and lectures have been delivered at the latter city, New York, and Lexington. Dr Caldwell of Lexington is an endowed medical professor, who has both published and lectured on the science; and, in particular, his course in Washington this year was attended by the highest functionaries of the American state, and many members of Congress. In Calcutta there is a Phrenological Society; and, as a proof that it is not a dormant body, it may be mentioned, that there is now on my table a pamphlet, or rather a book of 126 octavo pages, published there in 1825, against the science. I could add many more proofs that Phrenology is far more widely extended than you appear to dream of; but one more shall suffice. In the spring of 1826, a Mechanics' Phrenological Society was formed in Dundee. The first letter of their Secretary announcing the information was as follows:—

"*Dundee, May* 2, 1826.—To GEORGE COMBE, Esq.—RE-"SPECTED SIR,—The members of the Dundee Mechanics' Phre-"nological Society request me to transmit you their *most sincere* "*thanks* for the interest you have taken in their welfare, by sending "them, through Mr Galloway, a copy of your System of Phreno-"logy at a reduced price. At the same time they wish me to give "you some account of the motives which induced us to form our-"selves into a society for the purpose of obtaining a knowledge of "phrenological truth; the chief of which was, the education of "youth. It has long appeared to a few of us, that the present sys-

"tems of education (I use the word in its widest sense) are deficient, "because they do not seem to be founded upon a true knowledge of "the nature of man, by presupposing equal natural abilities in all, "and holding, that education alone is competent to make a youth "a mechanic, a lawyer, an orator, or a divine. But, experiencing "in our families the truth of the poet's observation, that

"'The hand of Nature on peculiar minds
"'Imprints a different bias,'"

"we resolved to study Phrenology, and finding it (as far as our li-"mited observations went,) to be in accordance with nature, we "formed ourselves into a society, that we might the more easily ob-"tain the necessary books, busts, and apparatus, and, by our united "observations, aid each other in sooner acquiring a knowledge of "the science.' We have now procured your 'Elements' and 'Sys-"tem,' a 'set' of busts and callipers, and two or three of our num-"ber are finishing craniometers for our use, which will enable us to "take more correct measurements. We have drawn up a few re-"gulations, but have not yet printed them, hoping we may procure "a copy of those belonging to your society, which might suggest "some new mode of procedure, as it is our wish to have every thing "as wisely ordered as possible to disarm our opponents, of which we "are honoured with a few, who industriously circulate Gordon's "critique upon the science amongst themselves,—a work which, I "am told, is as full of opprobrious epithets as of sound philosophy. "We have chosen the name of Mechanics, &c. partly because it is a "true designation, and partly to distinguish *ours* from the *one* "formed by our "patricians," who will doubtless contribute to "throw new lights upon Phrenology by their discoveries; while *we*, "from our stations, must be content to *receive* its lights, happy if "we succeed in rendering them practically useful for restraining "the propensities, nourishing the higher sentiments, and training "the faculties of our youth into activity, thereby rendering them "useful and virtuous citizens, fitted to adorn

"'The mild majesty of private life,
"'Where peace with ever-blooming olive crowns the gate.'

"Should your other avocations permit, we would feel proud of a "continuance of the countenance with which you have already ho-"noured us, which, I beg to assure you, would be gratefully re-"ceived by, respected Sir, your very obedient servant,

"ALEXANDER TAYLOR, Secy."

The Secretary's second letter, dated 10th October, 1826, is as follows.—

"RESPECTED SIR, *Dundee, 10th October, 1826.*

"In consequence of the increase of members to the Phrenological "Society of this quarter, we find it necessary, in order to meet the "demand of the younger members, to have other two copies of your "System, and one copy of the Elements. I have, therefore, at

"their request, taken the liberty of applying to you, through the "medium of the guard of the Champion coach, for them, who has "instructions to pay you for them; and, should it be convenient, "we would be obliged much by their being sent by return of the "the coach, as there is a meeting to-morrow evening. I remain, re-"pected Sir, your obedient servant, . . . ALEXANDER TAYLOR."

Here, then, is evidence, that, notwithstanding of your utmost efforts, and not of yours alone, but those of nearly the whole periodical press of Europe, Asia, and America, Phrenology has extended itself into all these regions of the globe, and now embraces among its votaries men of every rank and profession, from the senator to the mechanic. One would imagine that such facts, if known to you, might have made you pause, and doubt of the infallibility of your own philosophy. The degree of knowledge which has forced its way into your mind has, indeed, modified the style of the present Review greatly to the better. Phrenologists were formerly "*quacks*," "empirics," "itinerant philosophers," "mountebanks," "and "cunning craniologers;" now they are men of "more than "common acuteness;" but their doctrines are still "crude," "shal-"low," "puerile," "fantastic," "dull," "dogmatic," "incredibly "absurd," "foolish," "extravagant," and "trash." How, then, does it happen that a gentleman of your acknowledged talent and courtesy should be betrayed into such a dismal situation as you now occupy? for, after twenty-three years' experience of defeat, you are still denouncing a large number of intelligent men as lost in utter stupidity, because, after full examination, they believe in what you admit is, after all, a pure question of fact! This is easily explained without disparagement, either to your sentiments or intellect. Your opinions were formed in a different school, before Phrenology was heard of; and you have never been able to overcome the force of your first impressions so far as to study it with an impartial mind.

Locke, in adverting to persons in a similar condition, says, "What probabilities are sufficient to prevail in such a case? And "whoever, by the most cogent arguments, will be prevailed upon "to disrobe himself at once of all his old opinions and pretensions "to knowledge and learning, which with hard study he hath all his

"time been labouring for, and turn himself out stark naked in quest "of fresh notions? All the arguments that can be used will be as "little able to prevail as the wind did with the traveller to part "with his cloak, which he held only the faster." (Book iv. c. 20. § 11.)

That the phrenological doctrines do appear to your mind enveloped in all the incongruity and absurdity which you have so lavishly expressed, is explicable, without the alternative necessarily following that these qualities really belong to them. When a new proposition is submitted to our consideration, we compare it with principles which we regard as established, and if we are able to connect it consistently with them, we admit it to be true, and give it our assent. If it appear at variance with our previous opinions, we are disposed to reject it as erroneous, and rarely possess the magnanimity to enter upon a scrutiny of our first impressions, so as to discover whether they, or the new ideas, coincide most closely with nature, the only authoritative standard of physical truth. On the contrary, we too frequently regard received opinions with an undoubting and superstitious veneration, and reject new propositions as intrinsically absurd, not because we have ascertained them to be in opposition to facts, but because they do not coincide with what we previously believed to be true. Dr Thomas Brown has justly remarked, "that to those who "have not sufficient elementary knowledge of science, to feel any "interest in physical truths, as one connected system, and no habi-"tual desire of exploring the various relations of new phenomena, "*many of the facts in nature*, which have an appearance of incon-"gruity, as at first stated, do truly *seem ludicrous*."

It now be my endeavour to show that this sentence of Dr Thomas Brown very accurately describes your mental condition on the subject of Phrenology.

Your article contains five or six distinct annunciations, that you have "completely refuted" the science, and to the surprise of your readers, it tugs and toils on at a new and additional refutation. This, while it shows that you are ill at ease as to your own success, renders an answer within moderate limits extremely difficult; and I hope, therefore, to

be excused for bringing your objections on each point into a focus, and condensing the reply to the narrowest limits consistent with perspicuity. It shall be my earnest endeavour not to mistake or misrepresent your meaning, but to quote your own words. If you had done this by me, the present reply might have been spared; for I observe, that you have generally preferred giving your own paraphrases of my statements, and have refuted these, leaving the real propositions quite unassailed. In truth, there is no review of the system of Phrenology; and no reader could form an accurate conception of that work from your representation of it. The article is a special pleading, all on one side, and its author resembles a party on his defence much more than a judge administering impartial justice.

You decline bringing Phrenology to the test of observation, because "A proposition, in point of fact, may be ambiguous or unintelligible; and before inquiring how it is proved, we must ascertain whether it has any meaning, and what that meaning truly is. When it is affirmed, that certain projections on the skull, or the brain, are the *organs* of all the *faculties* and dispositions of the mind, it will not do to proceed at once to the alleged proofs of this assertion; we must first determine what is meant by *organs*, and what by *faculties*, and in what sense these terms are here to be understood."—P. 255.

First, then, as to the organs. "Upon what grounds," you ask, "can the name of organs be applied to the bumps of the Phrenologists? or in what sense is it really intended that this name should be received in their science? *The truth*, we do not scruple to say it, is, *that there is not the smallest reason for supposing that the mind ever operates through the agency of any material organs*, except in its perception of material objects, or in the spontaneous movements of the body which it inhabits; and that this whole science rests upon a postulate or assumption, for which there is *neither any shadow of evidence, nor any show of reasoning*."—P. 267. The same proposition is repeated in p. 293, and in several other parts of the Review. The proofs adduced are the following:—"INSECTS CONTINUE TO PERFORM ALL THEIR FUNCTIONS AFTER THEIR HEADS ARE OFF; and *cold-blooded animals live and move* in the same predicament!" In a subsequent page (292)

you inform us, that "the writer of these observations is not "learned in anatomy,"—a modest declaration indeed; but one which was scarcely necessary after this specimen of physiological wisdom. The Creator erred, then, in adding the superfluous appendage of a head to insects: *you* would have managed the matter better, by retrenching this unmeaning excrescence!

As to cold-blooded animals living and moving in the same predicament, I would ask, how long do they perform these acts? But we have the authority of your own Journal against your grand proposition. "His Imperial Majesty," says the Reviewer of 1803, "has had of late too many good opportunities "of knowing that *a man* cannot continue to march, and load, and "fire, when he has left his head behind him; and the redoubtable "lecturer of Vienna has said little more. It may be wrong," continues he, "to allow a daring demonstrator of processes and "sinuosities to assert that the mind remembers, imagines, and "judges, only by the intervention of certain parts of the brain; "but it is a piece of forbearance, at least as dangerous, to al-"low a single cellar to be open in the taverns of Vienna, *or "memory, imagination, and judgment, to be all set to sleep by a "few grains of a very common and simple drug.*"—Edinburgh Review, vol. II., p. 148. Memory, imagination, and judgment then, are neither acts of "perception of material ob-"jects, nor spontaneous movements of the body;" yet wine and opium first stimulate, and finally overpower them. How does this accord with your doctrine, "that the mind "never operates through the agency of material organs" in performing these functions?

This authority might be relied on as settling the question with you; but to convey to persons, who are not familiar with these topics, some idea of the recklessness of your assertion, a few passages from the most common medical and physiological authors may be cited. Dr Cullen says, "*we cannot doubt that "the operations of our intellect always depend upon certain motions "taking place in the brain, &c.*"—Practice of Physic, vol. II., § 1500.

Dr Gregory, speaking of the internal faculties of the mind, says, "Omnes hæ facultates (videlicet memoria, imaginatio,

"judicium) tam purè mentis sunt, ut primo intuitu haud quic-
"quam corporei iis inesse videatur: Docent tamen morbi qui
"eas impediunt certum cerebri statum, ut bene exerceantur
"requiri: *idque sensuum internorum primarium esse organum.*"

Magendie, whose name stands so high both in France and Britain, says, "The brain is the material instrument of "thought. This is proved by a multitude (une foule) of ex-"periments and facts."*—*Precis Elementaire de Physiologie, tome I., p. 115. edit.* 1816.

Your next objection is the following:—"If the theory of "the Phrenologists be right, it would seem to follow, *a fortiori*, "First, that all the five external senses must have *organs in the* "*brain*; as well as a connected apparatus or machinery beyond "it;—and, secondly, it is, at all events, a fundamental point in "their creed, that the mind *is not* in any way conscious or aware, "even as to them, that it acts by means of organs having any "locality at all. Now, the first and most plausible of these "propositions they have themselves been forced to abandon; "and both, we humbly conceive, are not only gratuitous, but, "in any sound sense, entirely unfounded and erroneous.—P. 258.

In answer to the assertion, that "all the five external senses "*must have* organs in the brain," I beg to state, that, from the views entertained by Phrenologists regarding the senses, (some of which are stated in a subsequent part of this Letter,) no other organs than those already known appear to be necessary; but, secondly, we are quite ready to admit such organs whenever you prove their existence as matter of fact. You reply, however, that "it will not do to suggest here, or in other "cases, where the allowance of faculties is plainly insufficient, "that these are mere omissions, which may still be supplied "if necessary, and do not affect the principle of the system. The "system, it must be remembered, rests *not on principle, but on* "*observation alone*. Its advocates peril their cause on the as-"sertion, that it is *proved* by observation, and as matter of fact, "that their thirty-six bumps are the organs of thirty-six parti-"cular faculties, and no other,—that these organs have a cer-"tain definite shape and relative place and size,—and that

* These authorities are all cited in my "Essays on Phrenology," published in 1819, in answer to a denial, in the 49th Number of the Edinburgh Review, that the brain is the organ of mind. They were not reprinted in the System, because the objection had been, till you took it up again, abandoned as utterly untenable.

"among them *they cover the whole skull*, and *occupy the whole* "*surface of the brain*."—P. 287. This is your statement; but the following is mine, printed in the work which you have reviewed:—"*There are parts at the base of the brain, in the* "*middle and posterior regions, the size of which cannot be discover-* "*ed during life, and whose functions in consequence are still un-* "*known*. From analogy, and from some pathological facts, "they are supposed to be the organs of the sensations of hun- "ger and thirst, heat and cold, *and of some other mental affec-* "*tions, for which cerebral organs have not been discovered*; but "demonstrative evidence to this effect being wanting, this con- "jecture is merely stated to incite to farther investigation."—*System of Phrenology, p.* 31. If, then, you can show that there are mental affections attending the activity of the five senses, which cannot be referred to the external organs, nor to any of the internal organs admitted by Phrenologists, it will undoubtedly follow, on the principles of this science, that such affections must have organs also; but the objection, that "there is no room for them to extend their position," is utterly unfounded.

As to the mind's consciousness of organs, I shall notice, first, the real phrenological doctrine on that point; and, secondly, your commentary upon it. In the System of Phrenology it is stated, that "the mind is not *conscious* of acting "by means of organs; and hence the material instruments, by "means of which it performs its operations in this life, and "communicates with the external world, cannot be discovered "by reflection on consciousness."—P. 25. In the Essays on Phrenology this doctrine is illustrated at some length; but the illustrations were omitted in "the System" as superfluous, the point having been conceded by every person who had considered the subject. Allow me, however, to repeat them, as you still dispute the accuracy of this fundamental principle of the science. "The *organs*, by means of which the mind acts "upon, and by means of which it receives impressions from the "external world, perform their functions without any con- "sciousness in the mind either of their existence or their ope- "rations. For example, voice is produced by the contraction "and relaxation of a number of muscles connected with the "larynx, at the command of the will; and yet consciousness "gives us no intimation either of the existence or functions of

"these muscles. In like manner, the leg and arm are extended "and withdrawn by means of the nerves of voluntary motion, "and a great number of muscles at the command of the will; "and yet of the existence and operation of these nerves and "muscles consciousness gives us no intimation. We are con-"scious of the act of volition which puts them in motion, and "of the result produced, but not of the existence and operation "of the special nerves and muscles themselves."—*Essay on Phrenology, p.* 3.

Phrenologists, then say, that the mind is not conscious of smelling by means of the olfactory nerves, hearing by the auditory, or seeing by the optic nerves.

On this doctrine you remark, "but they are all agreed, "it seems, that the mind has no *knowledge* of the existence "of the organs of sense, or of the functions performed by "them."—P. 267. Here you have used the freedom to substitute "Knowledge," which I did not write, for "Consciousness," the word actually employed; and your reason for doing so will speedily appear. You proceed,—"This, to most "people, will probably appear more surprising still. Is it "meant to be said, that we do not *know*, certainly, naturally, "and immediately, that we see with our eyes, and hear with "our ears, and feel with that part of our bodies on which an "external impression is made?" This objection is absolutely created by your substituting the assertion, that "the mind has "*no knowledge* of the organs of sense," for the real proposition, that it has "no *consciousness*" of them. The Phrenologists have not said, that we *do not know* that we see by the optic nerves, but only affirm, that this fact is ascertained by *observation*, and not by instinctive consciousness; and the inference which they draw is, that if we cannot discover the existence even of such palpable organs as the auditory and olfactory nerves by means of simple consciousness or feeling, but must resort to observation to find them out, it is not wonderful that we should not be conscious of the internal organs of the mind, or that *observation* should be requisite to determine them also.

You anticipate this correction, and the answer that will be founded on it, and try to show that the words "immediately

"know and feel," are synonimous with "being conscious." You then proceed:—"The true question upon either supposition "is, whether, knowing and feeling, as, in one way or other, we "do with the most perfect distinctness, that we see with our "eyes, and hear with our ears, and that it is by these organs "alone that the mind performs these functions, *it can be truly "or even intelligibly said, that we are as little aware of acting by "material organs when we so see or hear, as we are that we love "our children, by bumps on the back of the head*, or perceive the "beauty of music by a small protuberance in the middle of the "eyebrow."—P. 260. The only shadow of plausibility in this argument depends on your confounding facts and propositions that are altogether distinct. The ears, in popular language, include the whole auditory apparatus, namely, the external ear, the tympanum, labyrinth, semicircular canals, numerous small bones, and the auditory nerve which connects these with the brain; and the "eyes," in common speech, include the eyeballs and the optic nerves. Now, "are we aware" of any thing more than the mere locality of the senses of hearing and seeing? Do you assert that we "are aware" of all the *organic apparatus now enumerated*, and that you are *conscious* that the existence of an external object becomes known to you, through the eye, only by means of an image depicted on your own retina? You certainly cannot maintain this. But we have the same general impression of the locality of the mind; we know that we do not love children by the foot, nor write reviews by the calf of the leg, but that thinking in general is performed by the head. If we go one step farther, however, and inquire whether we know that there is a brain, or an apparatus of organs in the interior of the skull, by means of which the processes of thinking are accomplished? the answer must be, that we do not know until we have ascertained the fact by observation. In like manner, I venture to assert, that mankind have found out the optic nerve to be the organ of vision, solely by observing, that vision never existed without it; or, in your own words, "by anatomy and experiment." If this be sound physiology, does it warrant you to object to the doctrine which teaches, that,

in order to discover a particular portion of the brain to be the organ of Benevolence, we must observe the relation between the power of experiencing this emotion and the condition of that organic part? and yet this is the proposition which you adduce it to refute.

After stating your objections to the organs, you proceed,—

"These last considerations lead us naturally to another class of "objections which, we confess, have always appeared to us of "themselves conclusive against this new philosophy,—those we "mean which apply to the strange apparatus of *separate faculties and sentiments* into which it has parcelled out and divided "the mind.

"We are a little jealous of the word *faculties* in any philosophical discussion. *The mind, we take it, is one and indivisible;* "and if by faculties is meant parts, portions, or members, by "the aggregation of which the mind is made up, we must not "only deny their existence, but confess that we have no great "favour for a term which tends naturally to familiarize us with "such an assumption. What are called faculties of the mind, "we would consider as different *acts*, or rather *states* of it; but "if this be the just view of the matter, it is plain that it renders "it *in the highest degree improbable, if not truly inconceivable, "that those supposed faculties should have each a separate material organ.*"—P. 261.

This objection has been long ago answered in the Phrenological Journal, vol. I. p. 206, and by the Rev. David Welsh, in a note to his Life of Dr Thomas Brown, quoted on page 54 of the "System" which you were reviewing. Dr Brown maintains, that the word *faculties* means only *states* of the mind; and Mr Welsh observes, that "the only difference that the doctrines of Phrenology introduce in regard to "Dr Brown's principle is, that, instead of the feelings and "thoughts being merely the relations of the simple substance "*mind*, to its own former states, or to external objects, they are "the relations of the simple substance *mind* to certain portions "of the encephalon.

"In looking upon any object—as snow—we have the notion "of a certain colour. Now, the notion is not in the snow, but "in the mind; that is, the notion of colour is the mind existing "in a certain relation to an external object. But it is allowed, "on all hands, that there is an intervening step between the "snow and the mind. There is an affection of the optic nerve. "It will be conceded, that this does not alter the question as to "the simplicity of the mind; and if this is conceded, it is abun-

"dantly obvious, that another step in the process might be "conceived, without taking away from the simplicity of the im-"material part, and that, instead of an affection of the optic "nerve being the immediate antecedent of the notion of colour, "it might be a particular portion of the encephalon. As the "notion of colour, upon this supposition, is a relation of the "mind to the organ of Colour, it follows, that, if an organ were "changed in any respect, the state of the mind would also be "changed. Thus, if it were larger, or of a finer structure, or "more active, the perception of colour would be more delicate, "or quick, or pleasing. The same remarks might be extended "to all the organs. Where the organ of Causality is large, as "in the case of Dr Brown himself, then there will be a ten-"dency to reason; which tendency is a state of the mind in re-"lation to a material organ, which state would have been dif-"ferent had the organ been different.

"A multitude of organs may all be affecting the mind at the "same instant, and in that case a variety of feelings will be ex-"perienced; but still the mind is simple, and it is only its re-"lations to these different organs that are complex."

This metaphysical reply to your objection appears to me tolerably complete; but there are more tangible and practical answers to your denial of separate faculties and organs. Dr Barclay, in his work on Life and Organization, stated arguments on this point extremely similar to those now adduced by you, and Dr Andrew Combe answered him in the Phrenological Transactions. From his paper I select the following passages. They will show also to what extent your objections have been anticipated and refuted, apparently without your knowing any thing of the matter.

"*First*, Then," says Dr Combe, "it is an undisputed truth, that the various mental powers of man appear in succession, and as a general rule, that the reflecting or reasoning faculties are those which arrive latest at perfection. In the child, the powers of observing the existence and qualities of external objects arrive much sooner at their maturity than the reasoning faculties. Daily observation shows that the brain undergoes a corresponding change; whereas we have no evidence that the immaterial principle varies in its powers from year to year. If the brain, as a whole, is the organ of the mind, this successive development of faculties

is utterly at variance with what we should expect *a priori*; because, if the general organ is fitted for manifesting with success one mental faculty, it, one should think, ought to be equally so for the operation of all, which we see is not the case. Observation indeed shows, that different parts of the brain are really developed at different periods of life. In infancy, according to Chaussier, the cerebellum forms one-fifteenth of the encephalic mass; and in adult age, from one-sixth to one-eighth, its size being thus in strict accordance with the energy of the propensity of which it is the organ. In childhood, the middle and lower part of the forehead generally predominates; in later life, the upper lateral parts become more prominent, which facts also are in strict accordance with the periods of unfolding of the knowing and reasoning powers.

"*2d*, Genius is almost always partial, which it ought not to be, if the organ of the mind were single. A genius for poetry, for mechanics, for music, or for mathematics, sometimes appears at a very early age in individuals, who, in regard to all other pursuits, are mere ordinary men, and who, with every effort, can never attain to any thing above mediocrity.

"*3dly*, The phenomena of dreaming are at variance with the supposition of the mind manifesting all its faculties by means of a single organ, while they are quite consistent with, and explicable by, that of a plurality of organs. In dreaming, the mind experiences numerous vivid emotions, such as those of fear, joy, affection, arising, succeeding one another, and departing without control from the intellectual powers;—or, it is filled with a thousand varied conceptions, sometimes connected and rational, but more frequently disjointed and absurd, and all differing widely from the waking operations of the mind, in wanting harmony, consistency, and sense. These phenomena harmonize remarkably with the notion of a variety of faculties and organs; some of which, being active, would communicate these ideas and

feelings which constitute a dream, while others remaining asleep would, by their inactivity, permit that disordered action which characterizes the pictures formed by the fancy during sleep.

"Were the organ of mind single, it is clear that all the faculties should be asleep or awake to the same extent at the same time; or, in other words, that no such thing as dreaming could take place. Somnambulism, although in itself a species of dreaming, affords a still stronger illustration. In that state, one or more of the external as well as internal senses are awake, while the others are dormant. In this instance we *see* that the organs asleep and awake are different, as when a person walks with his eyes shut; but let us suppose that they were as much hidden as the brain, would any man infer from the phenomena, that sight, smell, taste, and voluntary motion, could be exercised by one and the same organ, when he finds all of them in different states and degrees of intensity in one individual at the same time? Never. Then, on what principle does any one draw a different inference from similar phenomena, when the internal faculties and organs are in question?

"At present, however, it is chiefly to the admitted phenomena of what are called Partial Idiocy and Partial Insanity that I am anxious to direct your attention; because these states of the mind are so plainly and strongly in contradiction with the notion of a single organ of mind, that Pinel himself, no friend to Phrenology, asks if their phenomena can be reconciled to such a conception.

"Partial Idiocy is that state in which an individual manifests one or several powers of the mind with an ordinary degree of energy, while he is deprived to a greater or less extent of the power of manifesting all the others. Pinel, Haslam, Rush, Esquirol, and, in short, every writer on insanity, speaks of the partial development of certain mental powers in idiots; and Rush in particular not only alludes to the powers of intellect, but also to the partial possession

of the moral faculties. Some idiots, he observes, are as remarkable for correct moral feelings as some great geniuses are for the reverse. In his Traité du Goitre et de la Crétinisme, Fodéré thus speaks, p. 133:—'It is remarked, that, 'by an *inexplicable singularity*, some of these individuals '(cretins), endowed with so weak minds, are *born* with a 'particular talent for copying paintings, for rhyming, or for 'music. I have known several who taught themselves to 'play passably on the organ and harpsichord; others who 'understood, without ever having had a master, the repairing 'of watches, and the construction of some pieces of mechan-'ism.' He adds, that these powers could not be attributed to the intellect, 'for these individuals not only could not read 'books which treated of the principles of mechanics, but *ils* '*étaient deroutés lorsqu'on en parlait et ne se perfectionnaient* '*jamais.*' It must be observed also, that these unfortunate individuals differ very much in the *kind* as well as quantity of mental power possessed. For example, an instance is given by Pinel of an idiot girl who manifested a most wonderful propensity to imitate whatever she heard or saw, but who displayed no other intellectual faculty in a perceptible degree, and never attached an idea to the sound she uttered. Dr Rush particularizes one man who was remarkable for his religious feelings, although exceedingly deficient in intellectual power, and other moral sentiments; and among the cretins, many are to be found who scarcely manifest any other faculty of the mind except that of Amativeness. The above quotation from Fodéré also illustrates this fact. One is all kindness and good nature, another quarrelsome and mischievous. One has a lively perception of harmony in music, while another has none.

"It ought also to be observed, that the characteristic features of each particular case are strictly permanent. The idiot, who to-day manifests the faculty of Tune, the feeling of Benevolence, of Veneration, or of Self-esteem, will not to-morrow, nor in a year, change the nature of his predominant manifestations. Were the deficiency of the single organ the cause of idiocy, these phenomena ought not to appear; for the general organ being able to manifest one fa-

culty, ought, according to the circumstances in which the individual is placed, to be equally able to manifest all others, whose activity may be required, and thus the character of the idiocy ought to change with every passing event, which it never does. Fodéré calls these 'inexplicable singularities,' and, no doubt, on his and Dr Barclay's theory they truly are so. To the Phrenologist, however, they offer no difficulty, for they are in perfect harmony with *his* views. The difference in the *kind* of powers manifested in cases of partial idiocy, between the capacity for mechanics, for instance, and the sentiment of Veneration, Self-esteem, or Benevolence, is as great as between the sensations excited by the perception of a sound, a taste, or a smell. To infer, therefore, that one organ serves for the manifestation of all these faculties, is really much the same in point of logic as if we were to suppose all the external senses to communicate with the mind through the medium of only one nerve, in spite of the facts of many individuals being blind who are not deaf, or deaf and still able to see and smell.

"Although partial idiots manifest one or more faculties more powerfully than others, yet they seldom or never manifest any with the energy of a sound mind. Consequently, according to the phrenological system, we ought in such cases generally to find the brain defective in size. Now, Pinel, and many other opponents, inform us, that this is precisely the case; and in the course of my own observations, both on the Continent and in this country, I have found the same fact to hold good in a considerable number of cases. It does not always occur, because, although small size is a frequent cause of idiocy, it is by no means the only one. I may farther mention, that Phrenologists, by *actual observation*, have found in idiots those parts of the brain most fully developed which corresponded to the organs of the faculties most strongly manifested by them; and observation also has, in some instances, shown the entire absence of those convolutions which form a part of the organs of

certain faculties in which they were deficient. Indeed, by comparing the brains and mental manifestations of some idiots with those of healthy individuals, the conviction of a plurality of organs is almost forced upon the mind by the evident and distinctive characteristics of each. In the collection of the Society, there is a cast of the brain of an idiot girl, in which no trace of certain convolutions, which in the ordinary state indicate the development of the organs of *Causality*, can be perceived, while others are distinctly recognisable. I have also seen in the possession of Dr Spurzheim a cast of a brain in which the organs of *Veneration* were wanting, and a deep hollow existed in the corresponding situation.

"We come now to the consideration of Partial Insanity, or that state in which one or more faculties of the mind are diseased, without affecting the integrity of the remainder. This state, which is also known by the name of Monomania, appears equally with the former to exclude the possibility of one organ executing the functions of all the mental faculties; for the argument constantly recurs, that if the organ be sufficiently sound to manifest one faculty in its perfect state, it ought to be equally capable of manifesting all,—which, however, is known to be in direct opposition to fact. Having, in a former paper "On Insanity," as illustrated by Phrenology, laid before the Society a great variety of cases connected with the point under discussion, I shall on the present occasion confine myself to the statement of a very few instances, merely in illustration of the proposition.

"Of *folie raisonnante* Pinel thus speaks:—'Hospitals 'for the insane are never without some example of mania 'marked by acts of extravagance, or even of fury, with a kind 'of judgment preserved in all its integrity, if we judge of it 'by the conversation; the lunatic gives the most just and 'precise answers to the questions of the curious; no incohe-'rence of ideas is discernible; he reads and writes letters as 'if his understanding were perfectly sound; and yet, by a 'singular contrast, he tears in pieces his clothes and bed-'covers, and always finds some plausible reason to justify his

'wandering and his fury. This sort of mania is *so far from* 'rare, that the vulgar name of *folie raisonnante* has been given 'to it.'—P. 93. A very striking instance of furious mania, with integrity of intellect, will be found, quoted from Pinel, in the Preliminary Dissertation, and which it is unnecessary for me to repeat. I shall, however, add another equally interesting case from the same author. 'On ne peut conce-'voir la nature d'une certaine aliénation, qui est comme un 'mélange de raison et d'extravagance, de discernement, et 'd'un vrai délire, *objets qui semblent s'exclure reciproquement.*' 'One lunatic,' he continues, 'whose malady is of seven 'years' standing, is perfectly aware of his state, and forms as 'sound a judgment of it as if it were a thing which did not 'immediately concern himself. He tries to make efforts to 'free himself from it; but, on the other hand, he is convinced 'that it is incurable. If any one remarks the incoherence in 'his ideas in his talking, he readily acknowledges it, but an-'swers, that this inclination overpowers him so much, that he 'cannot but submit. He adds, that he does not guarantee 'the soundness of the judgments which he forms, but that it 'is not in his power to rectify them. His understanding is 'much more altered in another respect, that he believes him-'self above all ordinary rules; and he thinks, that if he once 'resolved to approximate to other men in his conduct, he 'must begin by doing most extraordinary things, from which 'the greatest evils and even atrocities would result to himself. 'He believes, for example, that if he wiped his nose, that or-'gan would remain in his handkerchief; that if he shaved 'himself, he must of necessity cut his throat, and that, at the 'first attempt to walk, his legs would break like glass. He 'sometimes subjects himself to rigorous abstinence for seve-'ral days, under the impression, that if he took aliments, they 'would suffocate him. What are we to think of an aberra-'tion of intellect so regular and so singular?'—Page 94.

"It would be easy for me to multiply such instances as these of the partial affection of the mental faculties, but it is needless to occupy your time with more, and the above are amply sufficient to show the nature and bearing of such cases. Here again the difficulty recurs of reconciling such facts with the idea of one organ executing all the functions of the mind. How comes that organ to be able to manifest one, but *not all* the faculties? or, How does it happen that these affections retain the same characteristic features

throughout? That the patient, who labours under religious melancholy is found the same to-day as yesterday, and will be found the same to-morrow, for a month, or for a year? or how does it happen that a person may be insane, and yet aware of being so? If the single organ were affected, surely all the faculties of mind, of which it is said to be the instrument, ought *in every case* to be equally deranged, and the patient ought to pass in one moment from an abyss of despondency to the abodes of bliss, from the state of listless apathy to that of demoniacal furor. We may be told that this is sometimes found actually to be the case, and no doubt it is so; but it is far more rare than the other state, and is easily explained on the phrenological principles; for, in such cases, the whole brain, including of course *all* the organs, is diseased. This state, therefore, affords a true picture of the nature of insanity, such as it would *necessarily* be in every instance, if the organ of mind were single. It must strike every one who has been at all in the habit of seeing cases of insanity, or of reading histories of them in books, that there is scarcely a single case to be met with which is, I do not say explained by, but even consistent with, the division and functions of the faculties assigned by the metaphysicians. Pinel, Crichton, and many other very eminent and very philosophical men, have laboured to reconcile some species of insanity to the metaphysical systems, which they had severally adopted; but, with all their genius, and with all their unwearied industry, they have hitherto laboured in vain. Whereas, not a single instance will be found which is in contradiction with the principle of a plurality of organs, nor even, as far as I am aware, with the existence of such organs as we consider already ascertained.

"Besides the phenomena of idiocy and insanity, there is also another class of facts (to which however I shall only allude) equally at variance with the supposition of a single organ of mind, viz. partial injuries of the brain, which are

said to have occurred without injury to the mental faculties. Having in a former communication to the Society examined these cases in detail, I need not repeat them, but merely observe, that if every part of the brain is concerned in every mental act, it appears strange that all the processes of thought should be manifested with *equal success*, when a great part of the brain is injured or destroyed, as when its whole structure is sound and entire. If the fact were really as here stated, the brain would form an exception to the general laws of organic structure; for although a part of the lungs may be sufficient to maintain respiration, or a part of the stomach to execute digestion, in such a way as to support life, there is no instance in which these functions have been as successfully performed by impaired organs as they would have been by lungs and stomach in their natural state of health and activity. The Phrenologists are reduced to no such strait to reconcile the occurrence of such cases with their system; for as soon as the principle of a plurality of organs is acknowledged, they admit of an easy and satisfactory explanation.

"From the preceding considerations, then, it appears, that any theory, founded upon the notion of a single organ, is uniformly at variance with all that is ascertained to be fact in the philosophy of mind; and that, on the other hand, the phrenological principle of a plurality of organs, while it satisfactorily explains *most* of these facts, is consistent with *all* of them. Its truth is thus almost demonstrated, not by far-fetched or pretended facts, which few can verify, but by facts which, to use Dr Barclay's own expression, daily 'obtrude themselves upon the notice of the senses.' This principle, indeed, bears on the face of it so much greater a degree of probability than the opposite one, as to have long since forced itself on the minds of many inquirers. Fodéré himself, a very zealous opponent of Phrenology, after recapitulating a great many reasons similar to those already mentioned, which had

been employed by philosophers antecedent to Gall and Spurzheim, for believing in a plurality of mental organs, is constrained to admit, that "this kind of reasoning has been 'employed '*par la plupart* des anatomistes,' from the time of Ga-'len down to those of our own day, and even by the great Hal-'ler *qui eprouvait le besoin* d'assigner une fonction à chaque 'departement du cerveau,'" &c. Pinel also, (in the article "Manie," in the Encyclopedie Methodique,) after relating some cases of partial insanity, asks, "si *tout cet ensemble de faits peut* '*se concilier avec l'opinion d'un siège ou d'un principe unique de* 'l'entendement." If, then, the majority of anatomists, for the last 2000 years, and such illustrious physiologists as Haller, and the others above referred to, were led to the belief of a plurality of mental organs, by a perception of the contradiction and inconsistency existing between the phenomena, and the supposition of the whole brain being the single organ of mind, I cannot be far wrong in saying, that the latter notion, although it may be adopted by Dr Barclay, so far from being self-evident, appears so improbable as to require even stronger facts to prove it than the phrenological view."—*Phren. Trans.*, *pp.* 413—426.

But let us return to the reasons urged by you, for denying a plurality of faculties and organs:—"By the example of the "external senses and their known organs," you say, "it is no "doubt proved, that certain faculties or states of the mind "have material organs; and why, it may be asked, should it "not be inferred that other faculties have them also?"—This is a very fair question; and you answer, 1*st*, That we believe the "functions of seeing and hearing, &c. to be carried on by mate-"rial organs, *only* because we *know* and *feel* that they are so." Now, you *know* that you see by the optic nerve only, because you have been told so, or have observed the effects of injuries of it on other men; but I deny that you *feel* its functions at all. In fact, Magendie,* to whom you refer as an authority, has recently stated reasons for doubting whether the optic nerve is at all connected with vision,—a point which could not, by any possibility, be open to question, if we had an intuitive consciousness of its functions. You pre-

* Compend. of Physiol., Milligan's Translat., 2d edit., p. 48.

ceed,—" And we do *not* believe that the mind performs its " other functions by a like machinery, *because we do not know* " *or feel* any thing analogous in their operations."—If I am correct in the preceding reply, it follows, that if you choose to pursue *the same means* to discover whether " the mind per- " forms its other functions by a like machinery," you may come to *know* that men love their children by a " bump on " the back of the head," just as they hear by the auditory nerve. It is not the fact that men *feel* either the one or the other. If you do not incline to believe on testimony, or to practise a course of observation to find out the existence and functions of the " internal machinery," you must, of pure necessity, remain altogether uninformed on the subject; but you would have remained equally uninstructed in regard to the organs of the external senses, if you had as resolutely rejected these means of information. Indeed, it is amusing to observe your inconsistencies. In p. 258, in speaking of the eyes, ears, and touch, you say, that " *anatomy* and *experi-* " *ment* show farther, that the sensibility of these organs de- " pends on the *nerves* which belong to them."—A little before you referred this knowledge to consciousness.

" If," (you continue,) " the mind, in comparing or resenting, " made use of certain organs in the head, just as it does in hearing " and seeing, we cannot but think that the fact would be equal- " ly certain and notorious; but, as we know or feel nothing at " all analogous, we cannot believe that any thing of the kind " takes place."—Imagine for a moment, that a reviewer of the days of Galileo had objected to the doctrine of the revolution of the globe, " that if the earth did turn on its axis, we can- " not but think that this would have been certain and noto- " rious; but, as we know or feel nothing at all analogous, " we cannot believe that any thing of the kind takes place," how would you have despised his weakness? The fact which you dispute lies out of the region of consciousness as much as the revolution of the globe; and if you will not condescend to discover it by the exercise of your understanding, you must continue unconvinced of its truth. The analogy of the *senses* is against you.

Your second answer is, that "all the organs which we actually know to be used by the mind are used to connect it with material and external objects; and indeed it is difficult for us to conceive how we could ever have become acquainted with such objects, except by means of a material apparatus in our living bodies. *But the other functions of mind do not so connect us with matter;* and therefore there is not only no such reason for supposing their existence, but there is a corresponding difficulty in the conception."—P. 262. I must here again refer you to the well-known effects of wine, opium, and nitrous oxide gas, on the mental manifestations. You who assert, "that there is *not the least reason to suppose that any of our faculties,* but those which connect us with external objects, or direct the movements of our bodies, *act by material organs at all,*" (p. 293.) are certainly called upon to explain how an immaterial principle can be excited to activity, hurried away in ungovernable ecstacy, or laid low in a state of suspension and debasement, by means of such material substances as are here enumerated.

But, to proceed with your answers, you say, "*3dly,* And this is what chiefly concerns our immediate argument, all those functions which operate through the organs of sense are of a *definite and peculiar nature,* and so totally unlike those which the Phrenologists would furnish with like instruments, as to make the inference of their being actually so furnished in the highest degree improbable and extravagant."—In part of this statement, I cordially agree with you, viz. that the functions of the senses are of a *definite and peculiar nature,* and that the functions of the internal organs must be equally definite and precise, otherwise they cannot be supposed to exist; accordingly, I am quite ready to peril the cause of Phrenology upon the fact, that Hope is as different from Fear, Benevolence from Combativeness, Self-esteem from Veneration, Tune from Causality, as Seeing is from Hearing; and that all these feelings, emotions, and intellectual powers, are also as precise in their nature as the senses. No doubt, you confound and confuse the phrenological faculties in a very ingenious and imposing manner; but you do not cite the recorded descriptions of them, and prove that

they are really what you represent them to be. With two exceptions, to be afterwards noticed, you give your own account of the faculties, and pass it off for mine. It is necessary only to compare the work reviewed with your pages to be convinced of this.

You deny that the phrenological faculties are primitive principles of mind, or distinguishable from each other. Let us inquire, then, what other philosophers have said regarding these powers. As to

Amativeness, You admit that "injuries of the *cerebellum* generally seem to affect this propensity," (p. 314.) and of course cannot well dispute that it is a distinct feeling. Mr Stewart admits it. (Outlines, p. 82.)

Philoprogenitiveness.—This is admitted by Reid and Stewart. (Outlines, p. 99.)

Concentrativeness is stated by the Phrenologists themselves as unascertained.

Adhesiveness is admitted by Mr Stewart in his Outlines, page 87, as "the desire of society;" by Dr Thomas Brown in Lecture 67; and by Lord Kames, in his Sketches, under the title of "an appetite for society," vol. II. p. 153.

Combativeness is admitted by Dr Reid, and by Mr Stewart (Outlines, p. 105.), under the name of "*sudden resentment*; and Dr Thomas Brown gives a beautiful and accurate description of it, under the name of "*instant anger*," vol. III. p. 324. Lord Kames treats of it under the name of "*courage*," vol. I. p. 42. 48.

Destructiveness.—This propensity is admitted by Lord Kames, under the name of "*an appetite for hunting*," vol. I. p. 86; and "*the principle of malevolence*," vol. II. p. 178, and by Dr Brown, Lect. 72.

Constructiveness.—This is not adverted to by metaphysicians as an original principle; but by writers on insanity it is generally recognised. (See the citation from Fodéré, p. 21 of this Letter.)

Acquisitiveness.—This is disputed by Mr Stewart and Dr Brown, but admitted by Lord Kames under the name of "*a sense of property*," and as "an *appetite* for storing up "things of use," vol. I. p. 123. In the "System of Phren-"ology," p. 139, I have cited Esquirol, Acrel, Dr Rush, and the "*Journal de Paris*," as describing its diseased manifestations.

Secretiveness is very accurately described by Lord Bacon in his essay "On Cunning."

Self-esteem.—Dr Reid and Mr Stewart, (Outlines, p. 90,) treat of this sentiment under the designation of the "Desire "of Power." Dr Thomas Brown calls it "Pride," and defines it as "that feeling of vivid pleasure which attends the "consciousness of our excellence," vol. III. p. 300. Lord Kames refers to it as the "Sense of Dignity," vol. I. p. 116; and again under the name of "Pride," vol. I. p. 344.

Love of Approbation.—This sentiment corresponds to the "*Desire of Esteem*" of Dr Reid and Mr Stewart, and to the "*Desire of Glory*" of Dr Thomas Brown. Lord Kames calls it, "*the Appetite for Praise*," vol. II. p. 192.

Cautiousness is described by Lord Kames with perfect correctness under the name of "Fear." "All weak animals," says he, "are endowed with *a principle of fear*, which prompts "them to shun danger; and *fear*, THE FIRST PASSION DISCO-"VERED IN AN INFANT, is raised by every new face; the infant "shrinks, and hides itself in the bosom of its nurse," vol. II. p. 177. Dr T. Brown ranks "*Melancholy*" among the primitive emotions, which is one of the effects of this faculty in a state of constant but not violent activity. In all works on insanity, "*Melancholy*" is admitted in the classification of mental diseases.

Benevolence is admitted by Reid, Stewart, and by Brown, Lect. 59.

Veneration is treated of by Lord Kames as "a Sense of "Deity," vol. IV. p. 201. It is not adverted to as an original principle by Stewart, Reid, or Brown; but "Piety," as

a distinct sentiment or affection, is recognised by hundreds of authors on human character, from Virgil downwards. Esquirol, and other writers on insanity, describe its diseased states.

Hope is adverted to as a primitive principle by Stewart. Outlines, p. 232.

Ideality corresponds to Lord Kames' "*Senses of Grace* and *Taste*, vol. I. p. 196; to Dr Thomas Brown's "*original Emotion of Beauty*," vol. III. p. 134—5; and authors on insanity describe its diseased affections.

Wonder is noticed by Dr Adam Smith (History of Astronomy, p. 2), as a sentiment; Dr Thomas Brown admits it as an *original emotion*, vol. III. p. 59; and Lord Kames expressly mentions it as an original feeling of the mind.

Conscientiousness corresponds to the moral sense or emotion of the metaphysicians. Cudworth, Hutcheson, Kames, Reid, Stewart, and Brown, all admit it. Lord Kames says, "*the moral sense is born with us*, and so is taste; yet both "of them require much cultivation," vol. I. p. 196; and the diseases of it are described in works on insanity.

Firmness is not described by the metaphysicians; but firmness, perseverance, obstinacy, stubbornness, are recognised by many authors and observers as fundamental traits of character, and these are all referable to this faculty.

Individuality—higher and lower—which you define to be "an instant and rapid observation and disentanglement of "fleeting events, or complicated appearances," (p. 309), corresponds nearly to the "*desire of knowledge*" of the metaphysicians. Lord Kames speaks of "*an appetite for* "*knowledge*," vol. II. p. 192.

Form, *Size*, *Weight*, *Colouring*, *Locality*, } These are not recognized by metaphysical writers.

Order corresponds to Lord Kames's sense of "Order," vol. IV., p. 125, and of "Symmetry," vol. I., p. 116.

Time, *Tune*, } These are not recognized by metaphysicians.

Language is admitted by Mr Stewart "as an auxiliary "faculty and principle," (Outlines, p. 68); and Dr Thomas Brown's power of "Simple Suggestion" includes the whole, from Individuality downwards.

Comparison.—Malebranche and Lord Bacon have both discriminated a "radical distinction" betwixt minds; "that "some have greater power, and are more fitted for the ob-"servation of the *differences*, others for the observation of "the *resemblances* of things." (*Quoted in System of Phrenology*, pp. 354—5.) This power of observing "resemblances" is Comparison.

Causality.—This and Comparison correspond to the power of "*Relative Suggestion*" of Dr Thomas Brown. Lord Kames speaks of a "*Sense of Cause*," vol. IV. p. 103.

Wit is the "*Sense of the Ludicrous*" of the metaphysicians. Lord Kames admits "*a Sense of Ridicule*."

Imitation is recognized by almost all writers on the mind.

In fact, twenty of the phrenological faculties are recognized by Lord Kames alone.

To return to your objections to the phrenological faculties:—"Our perception of sounds," you say, "is quite in-"dependent of our perception of colours, odours, or tastes; "and would be precisely what it is, though none of those per-"ceptions, or the objects of them, existed in the universe. It is "in truth this palpable separation and *independence* of these dif-"ferent classes of sensations which leads us to describe the ca-"pacity of receiving them as a separate function or faculty of "the mind."—P. 263. To all this I readily accede; but when you say, that, "in this respect, the case of the imaginary faculties "of the Phrenologists is not only in no degree analogous, but "directly the reverse," I simply refer you to the authorities just cited, which prove, that the existence of at least *seven*-

tenths of them, as "separate and independent classes" of emotions or intellectual powers, is actually admitted by the most accurate and profound metaphysicians of Britain.

Immediately after the passage last cited, you proceed:—
"In this way it is obvious, that our knowledge of the organ "(of an external sense) is *antecedent* to our knowledge of the "faculty, and that it is truly by reference to the *former* that the "*latter* is recognized and determined."

There is much reason to doubt the soundness of this proposition. The infant mind knows that it sees, hears, smells, tastes, and feels long *before* it knows that it has optic, auditory, olfactory, gustatory, and *sentiatory* nerves. In fact, mankind could not have assigned functions to the organs of sense at all, until after they had experienced and discriminated the sensations; because the organ, *contemplated by itself*, is a mere unmeaning mass of matter. Imagine that you were to present the ear to a man born deaf, and to desire him to describe the use of it, could he do so? and yet this is a fair and appropriate example of the possibility of discovering the faculty by *antecedently* knowing the organ.

You tell us that, in this respect also, the case of the phrenological faculties is "not only in no degree analogous, but "directly the reverse. As to these, it must be admitted that we "have no antecedent knowledge of the existence of any mate-"rial organs; and the existence of the faculties, therefore, must "be assumed on quite different *data*, if it is not rather imagined "without any reason at all."—P. 263.

The order of Dr Gall's discoveries was the following. He *first* distinguished different mental talents and dispositions in his brothers, sisters, and school-fellows; *secondly*, he observed differences in the forms of their heads; *thirdly*, he ascertained that the forms indicated particular developments of brain; and, *lastly*, he ascertained, by extensive observation, that particular forms and particular talents or dispositions, were concomitant in all sane and healthy individuals. This is exactly analogous to the real method with the senses. We first know that we see, and then, "by anatomy and experiment," discover the connexion of the optic nerve with this operation. After the principle of distinct organs is de-

termined, we may infer, that a particular unappropriated part of the brain *is an organ*, before we know its functions; but this knowledge does not enable us at once to designate its uses.*

Near the beginning of your article the following sentence occurs:—"If it were asserted that every man detected "cheating at play would be found to have the figure of a nine "of diamonds in the transverse section of the nail of his great-"toe, we suspect there are not many people who would think it "worth while to verify the fact by experiment."—P. 256; and you insinuate by this, that it is equally idle to look for the organs of the mental faculties in the brain. There are three distinctions, however, between the cases, which are worth noticing. In the *First* place, it is a well-established principle in physiology, that *different* functions are never performed by the *same organ*. The optic nerve does not both see and hear; and we already know, that the great-toe performs a certain function,—that of muscular motion,—distinct from cheating at cards. *Secondly*, the *brain* has no ascertained function, if it is not the organ of mind. Dr Roget, your fellow-labourer in the refutation of Phrenology, says, that "the brain is *still as incomprehensible in its func-"tions* as it is subtile and complex in its anatomy."—(Art. Cranioscopy in Sup. to Encyc. Brit.) *Thirdly*, Consciousness localizes the mind in the head, although it does not reveal what organs are in the interior of the skull; and as the brain is found, by observation, to occupy that cavity, there are much better reasons, even *a priori*, for looking for the organs of mind in the encephalon than in the nail of the great-toe.

The next objection is, that "so far from supplying ori-"ginal, definite, and independent impressions, the greater part "of the phrenological faculties presuppose the existence of such

* You have one merit, however, that of consistency in your positions, which it is but fair to acknowledge. You maintain, that knowledge of the organ must precede knowledge of the faculty; but as you admit some faculties in the mind of which you do not know the organs, you very properly deny that they have organs at all. This, at least, is consistency in error.

"impressions, and seem to have little other function than to mo-
"dify or direct the functions of other faculties. Thus, Love of
"Approbation presupposes an habitual communication of sen-
"timents with other men ;—Veneration, a custom of observing
"and comparing the powers and qualities of different beings ;—
"Acquisitiveness, the general development of the idea of pro-
"perty ;—and Cautiousness, an experience of the occasions and
"consequences of many forms of danger."—P. 263.

I admit the soundness of the greater number of these observations; but what then?—Do not the eyes presuppose light, and objects to be seen,—the stomach hunger, and objects to be eaten,—the horns of the buffalo enemies to be overcome, and the claws of the lion prey to be caught and devoured? and are we to infer from this, that these different instruments are not primitive institutions of nature, but fashioned by the animals themselves, after the occasions for using them have occurred? If the Creator framed man for the obvious purpose of living in society,—of comparing himself with other beings,—of subsisting upon property, and of occasionally encountering dangers, what could be more reasonable than to bestow on him, in anticipation of these circumstances, the primitive faculties and organs to which you here object? Could he make these for himself *after* he came to need them, or ought the work of creation to have proceeded piecemeal, each faculty being supplied for the first time only when a demand was made for its services?

You enter into a train of gratuitous assertion and confused argument to establish the *unreasonableness* of admitting several of the phrenological faculties as primitive principles of mind. I might simply refer to the authorities already cited, which show that principles precisely similar to by far the greater number of them have been recognized by the profoundest metaphysicians of the present and preceding ages, and, on this account, doubt whether your *dicta* on this subject should be received in opposition to the opinions of so many distinguished men. But it may be worth while briefly to examine a few of your positions, and to judge of them by their intrinsic merits.

You say that "*our old philosophers* were *all pretty well*

" *agreed*, that it was *the same principle* (namely *Benevolence*), " that was, in every case, at the bottom of our regard and affec- " tion for sentient beings of all descriptions; though it was va- " riously modified by a consideration of the different qualities of " the objects to which it was directed, and the different relations " in which they might happen to stand to us; and when their " attention was called to the distinctions that might be pointed " out between the kind of love they bore to their children and " that they felt for their parents, or the attachment they cherish- " ed to their young female friends, as compared with their an- " cient male ones,—or to the worthies of their own country and " those of foreign lands,—or to inferiors and superiors of their " own or of other races, *they thought all this pretty well explained* " by saying, that it was the GENERAL BENEVOLENT FEELING " modified, in the case of children, by *a sense of the weakness,* " *innocence, and dependence of their condition;* in the case of pa- " rents, by *respect for their experience and authority*, and grati- " tude for the obligations they had conferred;—in the case of " young women, by *emotions of sex;*—of our own countrymen, " by associations of patriotic partiality," &c.—P. 265.

Now, in the first place, it is not true that the old philosophers gave any such explanation as is here laid in their names. They admitted sexual love, love of children, and desire of society, as distinct principles from Benevolence; and you are not supported by them in asserting that all these are mere modifications of one general benevolent feeling. But, in point of fact, you only *intend* to maintain this doctrine, and do not in *reality do so.* The benevolent feeling, you say, is modified;—by what?—*by itself*,—if there be only one general feeling.—But this is not what you allege;—it is modified, you say, in the case of children, by "a *sense of weakness*," (Philoprogenitiveness); in the case of parents, by "*respect* for their *experience and authority*," (Veneration); in the case of young women by "*emotions of sex*," (Amativeness); of our own countrymen, "*by associations of patriotic partiality*," (Adhesiveness). All these modifying feelings then must necessarily subsist *distinct*, not only from *Benevolence*, but from *each other*, otherwise there is no sense in your words. The phrenological analysis of these mental affections is, that they arise from Benevolence, acting in combination with the other faculties now specified;

and this is precisely your doctrine also, if you distinctly understood it yourself.

On page 264 you say, our love, "considered simply as "love, may be strong or weak, sober or frantic, grave or gay. "All that depends, of course, upon the shape and size of its "own peculiar organs; but its *constancy* is the concern of an "entirely different faculty, which has a goodly organ of its own "in another region of the skull, and has no more connexion "with it, physically or metaphysically, than smelling has with feeling." All this you are pleased to designate as a strong case of absurdity. But on p. 265, after the observations just cited about love of children, love of parents, love of young women, &c., you continue,—"With regard to the con-"stancy of these attachments, again, that was generally sup-"posed to depend *partly* on the *judgment* or *deliberation* with "which they had been formed, and *partly* on what might be "called the *firmness* or *gravity* of the character to which they "belonged."—P. 265. Now, can any thing be plainer than that here you yourself admit the constancy to depend on something *different from the affections themselves?*—It depends, you say, "partly on judgment," and "partly on *firmness* or *gravity* of character:" and, if so, how can you possibly charge the Phrenologists with absurdity for saying, that constancy in love depends on Adhesiveness, acting along with Intellect, directing it to proper objects, and with Firmness, which produces steadiness or gravity of character? Does it not afford a strong presumption in favour of Phrenology, that, whenever you write sense concerning the mind, you fall, by inevitable necessity, and altogether unknowingly to yourself, into an exact accordance with its doctrines? Will you favour me by now reading p. 266 of the Review, commencing at the top, and ending two-thirds down? That passage certainly carries a sting; but if it does not prick its author, it is innocuous; for it has not touched the Phrenologists.

Memory is the next topic of your animadversions. You maintain that there is such "a thing as a good memory in general;" and are very severe upon the phrenological theory of this function of the mind. Your doctrines, however, are so utterly disowned by experience and disproved by

facts, that I reckon it a mere waste of words to refute them. The phrenological doctrine is, that Memory is merely a mode of activity of the various intellectual faculties; it "implies a new conception of impressions previously received, "attended with the idea of past time, and consciousness of their "former existence, and it follows the order of the events as they "happened in nature. Each organ will enable the mind to re-"call the impressions which it served at first to receive. Thus, "the organ of Tune will recall notes formerly heard, and give "the memory of music. Form will recall figures formerly "observed, and give the memory of persons, of pictures, or of "crystals, and produce a talent for becoming learned in matters "connected with such objects. Individuality will give the me-"mory of facts, and render a person skilled in history, both na-"tural and civil. A person in whom Causality is powerful "will possess a natural memory for metaphysics. Hence, there "may be as many kinds of memory as there are Knowing and "Reflecting Organs. As the recollection of facts and occur-"rences is what is commonly meant, in popular language, by a "great memory, individuals so gifted will generally be found "to possess a good development of Individuality, and probably "of Language to express them."—*System of Phrenology*, p. 393.

I presume you are aware that Dr Thomas Brown, no mean authority in metaphysics, has done away with Memory as a general faculty, and substituted for it his principles of relative suggestion. As to the organs, again, Dr Watts seems to have anticipated, by a very acute conjecture, the real philosophy of Memory. He says, "It is most probable "that those very fibres of the brain, which assist at the first "idea or perception of an object, are the same which assist also "at the recollection of it; and then it will follow that the me-"mory has no special part of the brain devoted to its own ser-"vice, but uses all those in general which subserve our sensa-"tion, as well as our thinking and reasoning powers."—P. 18.

You proceed:—"It follows by necessary consequence, that "it is by the nose we *remember* smells, and by the eye that we "have memory of colours," and you then exclaim, "Can it "really be thought necessary to inquire into the alleged *proofs* "of propositions so manifestly preposterous?" You might as well have said that it is by the legs we remember a walk. But would any person reading your last remark suppose that the following sentence occurs in the work you are reviewing?—"Whatever perceptions or impressions received from external

"objects can be renewed by an act of recollection, *cannot de-*
"*pend exclusively upon the senses;* because the organs of sense
"are not subject to the will, and never produce the impressions
"which depend upon their constitution, except when excited by
"an external cause."—*System of Phrenology, p.* 262.

You first object against Phrenology, that its faculties are too numerous, and then abuse it because they are too few. The re-statement of a simple proposition in physiology will suffice in answer to all you advance on these topics. Different functions are never performed by the same organ, and hence there are distinct nerves for hearing, seeing, smelling, tasting, feeling; and you seem also to have heard of the discovery which Dr Spurzheim predicted before it was made, that there are nerves of voluntary motion apart from those of feeling; and you half admit Amativeness to be connected with the cerebellum. Follow out this principle then, and you will arrive at sound conclusions. There must be a distinct organ for every separate and primitive mental affection, however great or small the number may be. The number and nature of them is determined by the Creator; and even the Editor of the Edinburgh Review makes but a sorry figure in arraigning the wisdom of His institutions. If the same nerve does not both see and hear, neither is it probable that the same part of the brain will feel both Benevolence and Hatred. Whenever, therefore, you are able to point out clearly and definitely, an independent mental principle for which no organ has been discovered, you are certainly entitled to say that the phrenological system is still defective, which, you will observe, we also distinctly admit; or, on the other hand, if you point out a part of the brain which bears no relation in its size to the vigour of any known faculty, you are equally authorised to designate this as an organ of which the functions are not discovered.

You, however, say, that, "If a separate faculty and organ
"is insisted on for every separate and distinct *perception or idea,*
(this is *your* statement, and not that of the Phrenologists,) "we
"really see no reason for not having an organ not only for every
"shade of colour, but for every diversity of quality by which

"external objects are distinguished—for the smoothness of oil "as distinguished from the smoothness of water—the soft-"ness of silk as different from the softness of wool—or the "roughness of a second-day's beard from the roughness of "a rough-cast wall. Our *thoughtful* readers," you continue, "will see at once how deep this goes into the whole theory." In answer, I observe, 1*st*, That the Phrenologists do not assign a separate organ to each "distinct *perception* or *idea*;" the olfactory nerve serves to smell both balm and assafœtida, because both are *smells;* and the organ of Colour to perceive both "the red of a rose" and "the blue of the sky," because both are colours. *Secondly*, there *is* an organ for every *real* "diversity of quality by which external objects "are distinguished;" for example, there is one organ for perceiving Colour, and another for perceiving Size; and these distinct organs, so far as we can guess at final causes, appear to have been instituted by the Creator, just because the mental affections excited by these qualities are altogether distinct; the notion of the size of St Paul's not being in any degree a modification of the notion of its colour. This may appear to you very absurd; but in point of principle it is not more so than the institution of one set of nerves to move the hand, and another set to feel with, after it is put in motion. *Thirdly*, you must have had a poor notion of the discrimination of your "*thoughtful* readers," when you imagined that they could not discover that "the *smoothness*" of oil is *not a different quality* from "the *smoothness*" of water; because smoothness is just smoothness, softness is softness, and roughness roughness, whether occurring in oil, water, or a beard.

On pages 274, 5, 6, you are facetious on the faculty of Concentrativeness; but the whole appearance of absurdity which you have given to that subject owes its existence to your erroneous representation of it. In the System of Phrenology it is stated again and again, that the faculties and organs were discovered by observation, and not invented. On page 77, under the title "Concentrativeness," it is said, that "Observation proves that this is a distinct *organ*, because "it is sometimes found large, when the organs of Philoprogeni-

"tiveness and Self-esteem, lying below and above it, are small, "and sometimes small when these are large." The ideas of Dr Gall and those of Dr Spurzheim, concerning the *faculty* connected with it, are then stated, after which my own observations are mentioned; as these differ from the ideas of Dr Spurzheim it is said. "From this and some other objections of Dr "Spurhzeim, which I pass over without comment, I am con- "vinced that he has not correctly apprehended the quality of "mind which I designate by Concentrativeness. This must no "doubt be my fault; but it affords a good reason for not pro- "longing disputation." The concluding paragraph is as follows:—"The leading objects of these discussions is to enable "the reader to form an idea of the mental quality, *if it be such*, "intended to be designated by Concentrativeness, so that he "may be able to decide on the function of the organ by his own "observations. It acts along with the feelings as well as with "the intellect. Abstract reasoning is not admitted in Phre- "nology as proof in favour of any organ of faculty; and "I have observed, that, by leading the mind insensibly to "adopt a conclusion for or against particular ideas, it produces "a tendency to seek support for opinions rather than truth, "and thereby retards the progress of accurate investigation. "The function is stated *as only probable*, and stands open for "further elucidation."—*System of Phrenology*, p. 84.

Now, in this discussion the only point given out by Dr Gall, Dr Spurzheim, and myself, as *certain*, is the existence of *the organ*; and we all state the *faculty* connected with it as undetermined. Our views regarding the *faculty* are not so irreconcilable as you seem to imagine;* but assuming, for the sake of argument, that they are at utter variance, what *conclusion* do we arrive at? Does Dr Gall say that *his* faculty is *determined*? Does Dr Spurzheim assert that a *different power* is *proved* to be connected with the organ, and do I maintain that a *third* mental quality is *ascertained* to be situated there? If we did, then you would have good ground for questioning the soundness of our observations and inductions. But the very opposite is the fact—Dr Gall states the function as unascertained, Dr Spurzheim mentions it as "only conjectural,"

* In point of fact, it has been shewn in an able Essay in the Phrenological Journal, vol. III., p. 191, that Concentrativeness includes Inhabitiveness, and that there is no inconsistency in the views advanced in regard to this faculty.

and I, as merely "probable;" so that the point we arrive at is, that the faculty is not at all ascertained, just because our observations do not coincide. What are we to think, then, of your fairness as a critical judge, when you select this faculty as *the only one* which you venture to describe, at length, in our own words, and represent it as a specimen of the accordance and consistency of our views upon other faculties, regarding which we are all agreed? Nothing but the spirit of partizanship, the feeling that in this contest you are a party at the bar of public opinion, struggling to maintain a position fast giving way beneath you, could have induced you to resort to such a shift.

You are particularly eloquent also on the supposed discrepancies of doctrine between Dr Gall, Dr Spurzheim, and me, about the functions of Individuality. A brief explanation will serve to place this matter in its proper light. Before a phrenological faculty and organ are regarded as finally settled, there are three points to be determined; *first*, the situation of the organ; *secondly*, the kind of mental manifestations that accompany its development; and, *thirdly*, the metaphysical *analysis* of the manifestations. In several instances, that of Wit,* for example, the first and second points are completely ascertained, while the third, being attended with greater difficulty, is open to considerable difference of opinion. Individuality stands at present in a similar situation. Phrenologists are agreed on the kind of manifestations that accompany the organs when large, and on the mental deficiencies that result from their being small; but they are not at one on the ultimate principle involved in them

In connexion with Concentrativeness, you become witty

* It is worth noticing in passing, how very little you are acquainted with the contents of the work you are refuting. In a note, p. 313 of the Review, you say, "It farther appears from the same valuable document, (Dr Spurzheim's last work "on Anatomy,) that a *new organ*, entitled *Mirthfulness*, has been discovered "since Mr Combe's book was written—though we cannot exactly ascertain "which of the old ones has been suppressed to make room for it." On p. 364 of the System, in treating of the organ of Wit, Dr Spurzheim's own words are quoted: "I propose the name Mirthfulness, or Gayness, to indicate the pecu-"liar feeling of wit."

on the "natural language of the faculties." That doctrine is correctly announced by you, when you say, in derision of course, "The great practical truth is, that when any faculty "is in a state of activity, the head, at least, if not the whole "body, is moved in the direction of the external organ of that "faculty." You ridicule the statement, "that when those per-"sons who really possess the power of Concentration, while "preparing to make a powerful and combined exertion of all "their powers, naturally draw the head and body backwards "in the line of this organ." On the assertion, that "preachers "and advocates in whom it is large, while speaking with ani-"mation, move the head in the line of Concentrativeness and "Individuality, or *straight* backwards and forwards," you remark, "this, we should humbly conceive, they must necessarily "do, if they move them *oftener than once* in either of the op-"posed directions." This at first sight appears not only witty, but conclusive; but it is really at variance with fact. If you will observe more narrowly than you appear to have done, you will find that there are preachers and advocates who, although they very frequently move their heads backwards and forwards, scarcely ever, by any chance, do so "in the *straight* "*line*." Those in whom Secretiveness predominates, in bringing the head forward, present the face at an angle to the audience, and look to the side from the corners of their eyes; they draw back the head in a sidelong direction also; those again, in whom Combativeness predominates, move the head backwards and forwards in the line of that organ; and those in whom Love of Approbation predominates, carry their heads backwards with a swinging motion, also in the line of the organ; Concentrativeness in all these cases being deficient. Such statements, I am aware, must appear to you absurd, because you have never taken the pains to observe their truth; but this is accounted for by the quotation from Dr Brown, p. 10.

You ask, "When a man seeks the applause of assembled "multitudes in the senate, on the battle-field, on the stage, "is he irresistibly moved to go to the left about, and ad-"vance the posterior curves of his cranium?" I answer no—it is only Mr Jeffrey, and not the Phrenologists, who have said so. You proceed,—"Has a proud man a natural ten-

"dency to *move* backwards?" I have not said that he has; my statement is, that he has a natural tendency "to carry "*his head high* and *reclining* backwards."* To designate unwarrantable assumption of consequence in any individual, is it not common to say that "that man carries his head too "high?" and do not very proud men, in point of fact, walk erectly, and carry their heads high? You next ask, "Are constant friends and lovers generally to be found drift-"ing down, stern foremost, on the objects of their affections?" Certainly not; but this again is your witticism, and it is really a good one. Look at the pictures of Castor and Pollux, in which the one stands with his arm passed over the shoulder of the other, the two heads touching at a point a little behind and above the ear; or place any two persons, no matter although of the same sex, in both of whom the organs of Adhesiveness are large, in this position, and you will soon discover whether or not this is the natural attitude of attachment. It is unnecessary to proceed farther on this topic. Artists, who make it their study to observe nature, have recognised the correctness of the doctrine about natural language; and the whole ridicule with which it is invested in your pages arises absolutely from your passing off gross absurdities of your own invention for statements of mine.

On the subject of Fear and Hope, you enter into a long dissertation, chiefly a paraphrase of a passage from Hume's Essays, quoted in the "System," and arrive at the conclusion, that "the *truth is*, that the two principles *are substan-* "*tially one and the same, and necessarily imply each other, as much* "*as heat and cold do. The increment of the one is necessarily the* "*decrement of the other.* If, in the contemplation of danger, a "man fears much, he, by necessary consequence, hopes little— "if he hopes much, he fears little. It is no matter which form "of expression is used, since they *both obviously mean the same* "*thing*, and *indicate exactly the same state of mind or feeling.* "They are the two buckets in the well, and it is not less ab-"surd to ascribe them to different principles, than it would be "to maintain that the descent of the one bucket depends on

* System, p. 161.

"causes quite separate from that which occasions the ascent of "the other:—and the superfluity of the Phrenologists in these "instances, is but faintly typified by that of the wiseacre who "made two holes in his barn-door, one to let his cat in to kill "the mice, and the other to let her out." The common edition of the story is, that the wiseacre made a large hole for the cat, and a small one for the kitten; but let that pass, as you are not very particular in your quotations. The question is, whether Hope and Fear are one feeling or two?

There is a maxim in philosophy, *ex nihilo nihil fit*, which, in plain English, means, that something never arises out of nothing. Cold then is not a positive substance, but the mere negative of heat; silence is the negative of noise; and rest the negative of motion: accordingly, cold, silence, and rest, not being entities, cannot become agents, or exhibit active qualities; for this would infringe on the above maxim, which in philosophy is absolutely indisputable. If Fear then be the mere negation of Hope, it cannot be a positive feeling; it can produce no effects, and excite to no actions; or if you reverse the case, and say that Hope is the negation of Fear, then it is the mere zero of that emotion; it is nothing in itself, and can produce no consequences. But this is altogether at variance with the real phenomena of life. Fear, when violently excited, is an overwhelming passion; Hope, when high upon the tiptoe, is a prodigiously strong positive emotion; and both give rise to the most extensive consequences in human affairs. Your theory is the same as that which maintains Fear to be the negative of Courage, and Courage the negative of Fear; or that the mere absence of terror was all that constituted the heroic bravery of Nelson; and that a man in the ecstacies of a panic experiencesno positive emotion, but is only negatively brave.

With your permission I shall borrow from you the simile of the two buckets, and endeavour to apply it to better purpose than you do. I place Fear in the one bucket and Hope in the other. In the medium condition of ordinary life they hang in equilibrio; when an object pregnant with

danger presents itself, Fear mounts up, and Hope sinks down; when an agreeable prospect appears, Fear descends, and Hope rises. You should have had only one bucket in your well, and called it Fear when at the bottom, and Hope when at the top. On page 309, you say, "What is Cautiousness, but a quick sense of danger, a most prompt and vigilant circumspection for security?" This is an excellent definition; but does it designate, as appropriately, the simple negation of Hope?

Let us next proceed to your commentary on the phrenological doctrine of the perception of Colour. In the System of Phrenology, p. 273, under the head of "Sight," the question is asked, "What, then, are the true functions of the eye? "No organ of sense *forms ideas*. The eye, therefore, only receives, modifies, and transmits the impressions of light; and here its functions cease. Internal faculties form conceptions of the figure, colour, distance, and other attributes of the objects making the impressions, and the power of forming these conceptions is in proportion to *the perfection of the eyes and the internal faculties jointly*, and not in proportion to the perfection of the eyes alone. Hence the lower animals, although they have eyes equal in perfection to those of man, are not able to form the ideas of the qualities of bodies, which he forms by means of his internal faculties through the instrumentality of the eye, because in them the internal faculties are wanting."

Again, in treating of the organ of Colouring, it is said, that "Although the eyes are affected agreeably or disagreeably by the different modifications of the beams of light, or by colours, yet they do not conceive the relations of different colours, their harmony or discord, and they have no memory of them. Certain individuals are almost destitute of the power of perceiving colours, who yet have the sense of vision acute, and readily perceive other qualities in external bodies, as their size and form."—*System of Phrenology*, p. 296.

To this you object, that, "So far is it from being true that we do not perceive colour by the eye, that in reality it is colour, *and colour alone*, that is the primary object of its perceptions. What we see indeed is only light; but light is always coloured (if we include white as a colour), and the different colours are in reality but *so many* kinds of light."—P. 287. "Colour, in short, is the only quality of light by which we are ever made aware of its existence; and to say that we do not see colour by the eye, is in reality to say that *we do not see at all*; for the strict and ultimate fact is, that we

"never see any thing else."—P. 288. And again you say, "Take the case of sight first. It is true, as we have already "observed, that we see nothing but colour; and accordingly, "if all objects were of the same colour, both as to *shade* and in-"tensity, we certainly should never perceive their forms by the "eye."—P. 289.

There is more ingenuity in these than in many of your other objections; but still they are easily answered. It is not asserted by Phrenologists that the eye *alone* is sufficient to perceive light. The statement is, that "it only *receives*, *modifies*, and *transmits* the impressions of light;" of course, it transmits them to something else, which is stated to be the organ of Colouring. Assuming the position then, that light is colour, it will follow phrenologically, that light cannot be perceived without the joint operation of both the eye and the organ of Colouring; and, accordingly, nothing in opposition to this is stated in the phrenological works. It is expressly mentioned in the "System," p. 36, that "*every (sane) individual possesses all the organs in a greater or less degree.*" Now, suppose that in two persons the eyes are equally perfect, but that in one the organ of Colouring is very large, and in the other very small, it will follow that the *impressions* of light will be *conveyed* to both equally; but that they will excite in the former a strong and in the latter only a feeble perception of colours. You object, however, that it is impossible that the latter can distinguish *forms* readily by the eye, because his perception of colour being imperfect, and light being mere colour, he must be as deficient in general vision as in discriminating hues. I reply, that mere difference of *shade* is sufficient to enable us to perceive forms by the eye, as is proved by the arts of black-chalk drawing and copperplate printing; and that for the perception of *shades* a much *lower degree* of the combined action of the eye and organ of Colouring will suffice than for acutely discriminating the relations of colours. This may be illustrated by the parallel case of sound. It is pretty generally admitted that mere sound is different

from melody, and yet melody is nothing but sound. It is sound, however, modulated in a particular manner; and the perception of this modulation is a *higher mental act* than the perception of simple noise. Now, suppose the auditory apparatus and the organ of Tune to be *both* requisite for the perception of melody, it will follow phrenologically, that if two individuals possess the former equally, but differ in the degrees in which they enjoy the latter, they may both perceive sounds with acuteness, while the one may in addition have a great perception of melody, and the other very little. To refute this view it will not suffice to assert metaphysically, that melody is mere sound, and that *therefore* it is absurd to say that a man can hear acutely while he is insensible to music. It is a sufficient answer to say, that the one implies a higher degree of perception than the other; that a person may enjoy the lower, and yet be deficient in the higher degree; and that the *fact* in nature actually is so. This, accordingly, is precisely what the Phrenologists teach in regard to colours. They maintain that perception of differences in *shades* arises from a *low degree* of combined action of the eye and organ of Colouring; while discrimination of *colours* requires a *higher degree of* BOTH; just as mere *sound* is perceived by a slender endowment of the auditory apparatus and organ of Tune, while a more ample portion of both is requisite for the perception of *melody*. It is therefore quite intelligible in theory how "certain individuals, *almost* (not *altogether*, as "you seem to assume) destitute of the power of perceiving co-"lours, may yet have the sense of vision acute, and readily "perceive other qualities in external bodies, as their size and "form." This is asserted to be a *fact* in the System of Phrenology, p. 296; and the explanation given is, that in them the organ of Colouring is not wanting, but small. But you do not grapple with the facts there stated, although the names and designations of several living individuals are furnished to you who are in this predicament. You pass all these over in silence; and, as a set-off to them, favour us with a

fact of your own. It, however, is too precious and important to be dismissed without comment. In the System of Phrenology, p. 300, the following passage occurs:—"Mr "Jeffrey, in the article 'Beauty,' already alluded to, informs us, "'That colour is, in all cases, absolutely indifferent to the eye;' "and adds, 'that it is no doubt quite true, that, among painters "'and connoisseurs, we hear a great deal about the harmony "'and composition of tints, and the charms and difficulties of a "'judicious colouring. In all this, however, we cannot help "'thinking that *there is no little pedantry and no little jargon.*' "Speaking of the natural gamut of colours, he continues, 'We "'confess we have no faith in any of these fancies; and believe, that if all these colours were fairly arranged, on a "'plain board, according to the most rigid rules of this supposed harmony, nobody but the author of the theory would "'perceive the smallest beauty in the exhibition, or be the "'least offended by reversing their collocation.' It is a curious fact, that the organ of Colouring in Mr Jeffrey's head is "actually depressed; and it appears that, in the usual manner "of metaphysical writers, he has conceived his own feelings to "be an infallible standard of those of human nature in general."

On this statement you make the following commentary in the Review:—"It is worth while perhaps to observe, that "in treating of this faculty, Mr Combe is pleased (at page 301) "to notice the case of an individual with whose speculations "on the beauty of colours he does not agree, and whose errors "on the subject he triumphantly accounts for by recording it "as a curious fact, 'that in his head the organ of Colouring "'*is absolutely depressed!*' A more complete case of destitution "of the faculty could not of course be imagined; and, accordingly, the learned author proceeds most reasonably to infer, "that he must be in the condition of those unfortunate persons "'who cannot distinguish dark-brown from scarlet, or buff "'from orange.' Now, without meaning to call in question "the fact of the depression in his skull, we happen *to know* "that the individual here mentioned has a remarkably fine and "exact perception of colours, so as to be able to match them "from memory with a precision which has been the admiration of many ladies and dress-makers. He has also an uncommon sensibility to their beauty; and spends more time "than most people in gazing on bright flowers and peacocks' "necks, and wondering, he hopes innocently, what can be the "cause of his enjoyment. Even the Phrenologists, we think, "must admit, that, *in his case*, it cannot be the predominance "of the appropriate faculty; since they have ascertained that "he is totally destitute of the organ. But this belongs properly to the chapter of evidence.'

This certainly *does* "belong to the chapter of evi-"dence;" and as one of the grand elements of credibility in a witness is consistency, I shall enter your case as an exception to Phrenology whenever you reconcile the palpable discrepancies of these statements. How could you assert in the Encyclopædia, that "Colour is in "all cases absolutely *indifferent* to the eye," if you were conscious, when you wrote, of possessing "an *uncommon sensi-"bility to their beauty?*" How could you stigmatize as "*pedantry and jargon*" the doctrine of "the harmony and "composition of tints, and the charms and difficulties of a "judicious colouring," and assert, "that if all those colours "were fairly arranged, on a plain board, according to the most "rigid rules of this supposed harmony, nobody but the author "of the theory would perceive *the smallest beauty* in the exhibi-"tion, or be the least offended by reversing their collocation," "when all the time you enjoyed in yourself "a remarkably fine "and exact perception of colours, so as to be able to *match them* "from memory with a precision which has been the admira-"tion of many ladies and dress-makers!!!" Why, you must either have acquired a new talent since you wrote the article Beauty, now some ten years ago, and in that case the *organ* may have increased; or must we adopt, as the only other alternative, the conclusion which you have drawn in regard to me, in the following terms?—"We really have "great difficulty in believing the author to be in good faith "with us, and suspect that few reflecting readers will be able "to get through 'these statements' without many starts of im-"patient surprise, and a general uneasy surmise that they are "a mere exercise of intellectual ingenuity, or an elaborate ex-"periment on public credulity."—*Review, p.* 253.

The limits necessarily prescribed to this Letter render it impossible for me to follow you through your long and confused objections to the organs of "Size, Order, and "Weight," and to analyze and expose all the inconsistencies into which you have fallen. In the spirit of partizanship, already commented on, you omit, or very briefly notice, the faculties stated by Phrenologists as ascertained, and fix upon those which they themselves distinctly mention as

still subjects of inquiry, and represent them as fair examples of their general science. This is particularly the case with Size and Weight; the first of which is stated in the work you review to be only "*probable*," and the second as "conjectural." You omit, too, all mention of the facts by which the opinions advanced are supported; and, in short, leave no means untried to mislead your readers as to the real merits of the System. In treating of Weight, you have done great injustice to the views of Mr Simpson on that subject. His essay is printed at full length in the Phrenological Journal, vol. II. p. 412, and is pretty fully quoted in my work; and, with all deference to your sagacity, it is impossible to read that production, and to attend impartially to the facts by which the principles of it are supported, without being satisfied of the high probability of both faculty and organ. Phrenologists recognize the views of that paper as a valuable contribution to their science; and it will be impossible for reflecting men, who are not absolutely blinded by prejudice, to peruse it without perceiving that it is a chapter of some importance added to the philosophy of mind.

Passing over, therefore, ten pages of loose wrangling in the Review, let us approach your observations on the effects of Size in the organs, on the manifestations of the mind. You say, "Their proposition is, that their thirty-six bumps are "the organs of so many separate faculties, and that the "strength of the endowment is in exact proportion to the size "of the bump. Now, independent of all flaws in the theory, "we think it can be *proved*, by facts that admit of no denial, "that this proposition *neither is* nor *can* by possibility *be true*.

"In the *first* place," you continue, "let us say a word about "*Size*. That the mere bulk or *quantity* of matter, in such wonderful and delicate structures, should be the exclusive measure of their value, without any regard to their *quality* or condition, certainly must appear on the first statement to be a very "improbable allegation." This is a complete misrepresentation of the phrenological doctrine, which is, that, *cæteris paribus*, Size is a measure of power. You studiously omit the qualification of *other things being equal*, although this is constantly kept

in view by Phrenologists:—You proceed, "We cannot "help suspecting that it was nothing but the plain impossi- "bility of ascertaining any thing as to their structure and "quality that drove our dogmatic theorists upon that bold pro- "position. Their assumed organs, however, are all buried "deep under skin and bone of an uniform appearance; and "having nothing, therefore, but Size left to go upon (at least "in the living subject), they seem to have even made up their "minds to say that that was quite enough, and that nothing "else was to be regarded. In the next place, however, *the pro- "position is no less contrary to the analogy of all our known or- "gans than to general probability.* The grand mamma Wolf, in "the fairy tale, does indeed lean a little to the phrenological "heresy, when she tells little Riding-hood that she has large "eyes to see her the better. But with this one venerable ex- "ception, *we rather think it has never been held before that the "strength of vision depended on the size of the eye, the perfection "of hearing on the magnitude of the ear, or the nicety of taste on "the breadth of the tongue or palate.*"

On page 258 of the Review, you say, "We see with our "eyes, hear with our ears, and touch with our hands, or the surface of "the whole body. These are facts, we think, which may be as- "sumed without argument or explanation. Anatomy and experi- "ment show farther, that the *sensibility* of these organs depends "on *the nerves* which belong to them, on the optic and auditory "nerves, for example, as to seeing and hearing, or on the nerves "of touch for many other sensations." Your real proposition, then, must be, that, with the venerable exception of grand mamma Wolf, it has never been held before that the strength of vision depends on the size of the optic nerves, the perfection of hearing on the magnitude of the auditory nerves, or the nicety of taste on the size of the gustatory nerves.

In an early part of this Letter I observed, that your objections have, in general, been anticipated by other opponents of Phrenology, and refuted before you brought them forward. The following extract from a letter written by Dr A. Combe, and published in the Edinburgh and Leith Advertiser of 18th March, 1826, will serve at once to establish this, and to answer your doctrine about the organs of sense:—"It is a fact," says he, "admitted by the highest "physiological authorities, and by the greatest authority of all— "Nature, that the functions of the five senses *are* executed with a "degree of acuteness and intensity exactly proportioned, *cæteris "paribus*, to the development of their respective organs. Monro,

" Blumenbach, Sœmmering, Cuvier, Magendie, Georget, and a whole " host of authors, might be quoted in proof, but one is enough; " and, having Blumenbach at hand, I turn to the section on Smell, " and find as follows:—' *While animals of the most acute smell* " ' *have the nasal organs most extensively evolved,* precisely the " ' same holds in regard to some barbarous nations. For instance, " ' in the head of a North-American Indian,' (represented in one " ' of his plates), ' *the internal nares are of an extraordinary* " ' *size,*' &c. And again, ' The nearest to this, in point of mag- " ' nitude, are the internal nares of the Ethiopians, from among " ' whom I have seen heads very different from each other, *but* " ' *each possessing a nasal organ much larger than that describ-* " ' *ed by Sœmmering.*'—' *These anatomical observations ac-* " ' *cord with the accounts given by the most respectable travel-* " ' *lers concerning the wonderful acuteness of smell possessed by* " ' *these savages.*'

" In like manner, Dr Monro, *primus,* no mean authority to put " against a nameless pamphleteer, in treating, in his Comparative " Anatomy, of the large organ of smell in the dog, says, ' the sensi- " ' bility (of smell) *seems to be increased in proportion to the sur-* " ' *face;* AND THIS WILL ALSO BE FOUND TO TAKE PLACE IN ALL " ' THE OTHER SENSES.' A late French physiological writer is " equally explicit. In treating of the nerves, M. Georget says, " ' *The volume of these organs* bears a uniform relation, in all the " ' different animals, to the *extent* and *force* of the sensations and " ' movements over which they preside. Thus, the nerve of smell " ' in the dog is *larger than the five nerves of the external senses* " ' *in man.*' "

A large *eye* too takes in more light, and a large ear more impulses of air than small ones; so that the venerable " Grand Mamma Wolf" really turns out to be a sounder physiological authority than the " Oracle" of the Edinburgh Review!

The principle, that size in the organ, *cœteris paribus,* determines the power of manifestation is admitted by physiologists to apply equally to the brain. Magendie says, " *The* " *volume of the brain is generally in direct proportion to the capa-* " *city of the mind.* We ought not to suppose, however, that " every man having a large *head* is necessarily a person of superior " intelligence, for there are many causes of an augmentation of the " volume of the *head* beside the *size of the brain,* but it is rarely " found, that a man distinguished by his mental faculties has not a " large head. The only way of estimating the volume of the brain, " in a living person, is to measure the dimensions of the skull; " every other means, even that proposed by *Camper,* is uncertain." —*Compendium of Physiology, p.* 104, *edition* 1826.

" All the world knows," you continue, " and the Phrenologists " themselves admit, that the vigour of any faculty may be improv-

"ed by exercise and education; and the strength of any propensity "by habitual indulgence, though these changes are not accompanied "by any increase in the size of the organ. But is not this admit-"ted and most familiar fact in absolute and glaring contradiction to "the fundamental assumption of the System?"—P. 302.

This objection is already answered in the following passage of the "System," of which, of course, you take no notice:—

"Suppose that two individuals possess an organization exactly simi-"lar, but that one is highly educated, and the other left entirely to the "impulses of nature, the former will manifest his faculties with "higher *power* than the latter; and hence it is argued, that size is "not in all cases a measure of energy.

"Here, however, the requisite of *cæteris paribus* does not hold. "An important condition is altered, and the Phrenologist uniformly "allows for the effects of education, before drawing positive conclu-"sions.* It may be supposed, that, if exercise thus increases "power, it is impossible to draw the line of distinction between "energy derived from this cause and that which proceeds from size "in the organs, and hence that the real effects of size can never be "determined. The answer to this objection is, that education may "cause the faculties to manifest themselves with the highest degree "of energy *which the size of the organs will permit*, but that size "fixes a limit which education cannot surpass. DENNIS, we may "presume, received some improvement from education; but it did "not render him equal to POPE, much less to SHAKSPEARE or "MILTON: therefore, if we take two individuals whose brains are "equally healthy, but whose organs differ in size, and educate them "alike, the advantages in power and attainment will be greatest in "the direct ratio of the size in favour of the largest brain. Thus, "the objection ends in this,—that, if we compare brains in oppo-"site conditions, we may be led into error—which is granted; but "this is not in opposition to the doctrine, that, *cæteris paribus*, "size determines power. Finally, extreme deficiency in size pro-"duces incapacity for education, as in idiots; while extreme deve-"lopment, if healthy, as in SHAKSPEARE, BURNS, MOZART, anti-"cipates its effects, in so far that the individuals educate them-"selves.

"In saying, then, that, *cæteris paribus*, size is a measure of "power, Phrenologists demand no concessions which are not made "to physiologists in general; among whom, in this instance, they "rank themselves."

The next objection is, that "A diseased state of the "organ *always makes its operations* more vigorous and energetic; "and *no instance is* mentioned in which the occasional obscuration "of any faculty is referred to such a cause."—P. 305. This asser-tion is at utter variance with fact. On pages 333—4 of

* Phrenological Transactions, p. 308.

the System, a variety of cases are mentioned in which disease of the organ was accompanied by obscuration of the faculty.

"The imaginary disease," you continue, "has often no other "local indication but this increase of mental vigour, and is indeed, in "most cases, plainly imagined or assumed merely to account for "that phenomenon. It proves, at all events, that faculties may "have a vigour quite incommensurate with the size of their organs "—which is *precisely the reverse* of what Phrenology teaches. "It proves that the state or quality of the organ, or of something "else, quite independent of its size, may determine the state of the "faculty, and that size, therefore, is no criterion whatever. If we "find a man with a very small organ, and a very vigorous manifes-"tation of its supposed faculty, it is, to be sure, very easy to say, "that this is owing, not to the size, but the condition of the organ; "but it is saying what fundamentally contradicts the whole phreno-"logical doctrine; and though it introduces another, pretty nearly "as absurd, it completely puts an end to the former."

The answer to this objection also is explicitly given in the System; but you pass it over. It is as follows:

"It is proper next to advert to certain conditions which may co-"exist in the brain with size, and to attend to their effects. Power "in the manifestations, and size in the organ, are, in the general "case, proportionate; and when differences in size are considerable, "no circumstance, consistent with health, will render the manifes-"tations equal in power; one brain, however, may be more per-"fect in constitution than another, and, in consequence, may act "more vigorously, although not larger in dimensions; but these "differences are slight and their effects limited. Size then is not "the *only* requisite to the manifestation of great mental power; the "brain must possess also a healthy constitution, and that degree of "activity which is the usual accompaniment of health. Now, the "brain, like other parts of the body, may be affected with certain "diseases which do not diminish or increase its magnitude, and yet "impair its functions; and, in such cases, great size may be pre-"sent, and very imperfect manifestations appear; or it may be at-"tacked with other diseases, such as inflammation, or any of these "particular affections whose nature is unknown, but to which the "name of Mania is given in Nosology, and which greatly exalt its "action; and then very forcible manifestations may proceed from "a brain comparatively small; but it is no less true, that when a "larger brain is excited to the same degree by the same causes, the "manifestations become increased in energy in proportion to the "increase of size. These cases, therefore, form no valid objection "to Phrenology. The Phrenologist ascertains, by previous inquiry, "that the brain is in a state of health. If it is not, he makes the "necessary limitations in drawing his conclusions."*—P. 46.

* This subject is discussed at greater length in the Phrenological Journal, No II. p. 300.

You add to your last objection the following recondite commentary:—"In some cases our author represents the faculty "as inordinately excited by disease, in persons who have the organ "of very small dimensions; in others he is guilty of the *double* absurdity of leaving it to disease to produce any manifestation of "the faculty, although the organ has all along been unusually "large, as in the following admirable illustration of Destructiveness:—'When *excited by intoxication, the organ* sometimes becomes ungovernable; and hence arises the destruction of glasses, "'mirrors, chairs, and every frangible object, at the close of many "'a feast. Hence also the temptation, often almost irresistible, experienced by many a worthy citizen, when inebriated, to smash "'a lamp on his progress home. One gentleman assured me, that "'the lamps have appeared to him, when in this state, as it were "'twinkling on his path with a wicked and scornful gleam, and "'that he has frequently lifted his stick to punish their impertinence, when a remnant of reason restrained the meditated blow. "'In him, *Destructiveness is decidedly large*; but, *when sober*, "'there is not a more excellent person.'—P. 109.

"Now," you say, "here we have, first of all, a man with a decidedly large organ, *who yet, in his sound and natural state, "gives no manifestation whatever of the connected propensity*, in "itself a complete falsification of the theory; but then, when disordered with drink, this naturally quiet person becomes mischievous; that is to say, he comes into the state to which drink and "disorder might bring a man with a decidedly *small* organ."—P. 306.

This objection also is already answered in the System. It is there said, that "In no instance is it a matter of indifference to the talents and dispositions of the individual, whether any "particular organ be large or small. If it be large, although its "*abuses* may be prevented by restraint and direction imposed by "the other faculties, still its presence will operate on the mind. If, "for instance, large Combativeness and Destructiveness are combined with a large development of the moral and intellectual organs, "the whole life may be passed without the occurrence of any outrage; and it may be asked, what effect, in this case, do the former "organs produce? We shall find the answer, by supposing all the "other organs to remain large, while those are diminished in size, "and tracing the effects of this change;—the result would be an "undue preponderance of moral and intellectual qualities degenerating into effeminacy. Large Combativeness and Destructiveness "would add the elements of repulsion and aggression to such an extent, as to permit the manifestation of manly enterprise and courage. *Hence, in the case supposed, these organs would be duly "performing their functions when the superficial observer would "imagine them to be entirely superfluous.*"—P. 450. On these principles it did not require intoxication to produce the first

manifestation of Destructiveness in the individual alluded to; and it is not true, in fact, that "drink and disorder" would bring a man with a *small* organ of Destructiveness into the state of breaking lamps.

On p. 307 you say, "A *third* and separate refutation" (alas, that *so many* refutations should be necessary!) "is suggested by "another concession, or necessary distinction, of its supporters. "There is a difference, they have been obliged to admit, be- "tween the *Activity* and the *Power* of their faculties and pro- "pensities; and size is a measure of power only, activity not "manifesting itself by any peculiarity of outward configuration." In the System, it is said, that "*activity* means the *rapidity* with "which the faculties may be manifested. *The largest organs "in each head have the greatest and the smallest the least tend- "ency to natural activity.*"—P. 49. You omit this statement entirely, and proceed with the question, "Is there in reality "any distinction between what is here called *power* and what is "called *activity*, as applied to the 36 phrenological faculties?" You dedicate two pages to the task of proving, "that we can "have no other idea of the power of any faculty, than one "which answers exactly to Mr Combe's definition of its activity."

You, no doubt, quote the definition of activity; but you omit the most important and practical illustrations of the difference between it and power, which, if you had inserted, would have served as a sufficient refutation of all your objections on this head. In the System it is stated, that "The doctrine, that "*power* is a characteristic of the mind, distinguishable at once "from mere intellectual acumen, and also from activity, is one of "great practical importance; and it explains a variety of pheno- "mena of which we previously possessed no theory. In society "we meet with persons whose whole manner is little, whom we "instinctively feel to be unfit for any great enterprise or arduous "duty, and who are, nevertheless, distinguished for amiable feel- "ing and good sense. This springs from a small brain, but favour- "ably proportioned in its parts. Other individuals again, with "far less polish, inferior information, and fewer amiable quali- "ties, impress us with a sentiment of their power, force, energy, "or greatness; we instinctively feel that they have weight, and "that, if acting against us, they would prove formidable oppo- "nents. This arises from great size. BUONAPARTE, who had "an admirable tact in judging of human nature, distinguishes "between mere cleverness and force of character, and almost "always prefers the latter. In his Memoirs, he speaks of some "of his generals as possessing talents, intellect, book-learning, "but as still being nobody, as wanting that weight and compre- "hensiveness which fit a man for great enterprises; while he

"adverts to others as possessing limited intellect and little judg-
"ment, but prodigious force of character; and characterizes
"them as admirably adapted by this qualification to lead soldiers
"through peril and difficulty, provided they be put on the right
"path by minds superior to their own. MURAT was such a
"man; and BUONAPARTE appears, on the whole, to have liked
"such officers, for they did not trouble him with thinking for
"themselves, while they possessed energy adequate to the exe-
"cution of his most gigantic designs."—*System of Phrenology*, p. 435.

"*Activity* in the organs, on the other hand, gives liveliness,
"quickness, and rapidity; and is a more frequent concomitant
"of a moderate-sized brain than of a large one. Dr SPURZ-
"HEIM thinks that long fibres contribute to activity. Mode-
"rate size of the brain, with favourable combination, and much
"activity, will constitute what is commonly understood by a
"*clever* man in ordinary life; such an individual will form ideas
"rapidly, do a great deal of work, show tact and discrimination,
"and prove himself really a valuable and useful member of so-
"ciety; but then he must not be overloaded with difficulties,
"or encumbered with obstacles, nor must the field in which he
"is called on to labour be too extensive."—*Id.* p. 439.

"When *power* and *activity unite* in an individual, they consti-
"tute the perfection of genius. This I conceive to have been
"the case in HOMER and in SHAKESPEARE. Vivacious buoy-
"ancy, ease, and fertility, arising from activity, joined with
"depth, strength, comprehensiveness, and masculine energy of
"mind, the result of great size, place these authors above all
"others whom the world has ever seen."—*Id.* p. 440.

It is almost superfluous to add to these illustrations; but as you cite instances of particular faculties, and ask what is the distinction between power and activity in them, it may be proper briefly to answer some of your inquiries. Your words are, "When we say, for example, that a man has Destruc-
"tiveness uncommonly powerful, what do we mean but that he
"is unusually *ready* to injure and destroy? All men have some-
"thing, it seems, of this amiable propensity; and the only dif-
"ference is, that those who have it least are the *slowest* to give
"way to it, and those who have it most, the *quickest*. The
"whole difference, therefore, is in what is here called *its activity*."
Is it true, then, that this is the only difference? When we see represented on the stage the character of an ill-natured old woman, whose whole existence is little else than a series of manifestations of Destructiveness, can any thing be more *quick*, and, at the same time, more ludicrously *feeble*, than the flashes of ill-nature which are then exhibited? It

is, indeed, the contrast between these qualities that forms the charm of the representation. Take, again, the example of a Meg Merrilees, uttering the most dreadful imprecations of a tremendous Destructiveness, do we not feel in this character an overwhelming *power* of passion altogether different from the activity of the other? We laugh at the one and tremble before the other; and this difference of feeling in the spectator does not arise, as you maintain, "merely from difference in the muscles of the hand or arm" of the actors, for there is no question of physical violence in either case,—but solely from difference in their mental energies. So completely is this the truth, and so distinct are the qualities of power and activity, that I would peril the decision of this point, on the fact, that the ablest representatives of the former set of characters on all the stages of Europe have smaller brains than the ablest representatives of the second class; and that they cannot with success interchange; the small brain cannot rise to the deep pathos of the large one, and the large brain cannot divest itself of its accompanying mental intensity, the very absence of which constitutes the peculiar aptitude of the small brain for the parts which it represents.

You ask, what constitutes a great endowment of Wit, Language, Imitation, Locality, and Individuality, but a "rapid," "copious," and "easy" manifestation of these powers? Did you ever meet with "a chattering creature" in society? If you have had this misfortune, you must have found, by painful experience, that nothing could exceed the "rapidity," "copiousness," and "ease" of his discourse; but that nothing could fall farther short of the energy and intensity of a Shakspeare. As you enjoy the "admiration "of many ladies and dress-makers," you, of course, have been no stranger at musical entertainments: did you ever observe, then, that some ladies send forth from the pianoforte volumes of sound so rich in melody and intensely deep in power, that they melt the very soul of the listener; while there are other performers perfect in execution, correct in time, and strict observers of every rule of art, whose music is still

meagre and destitute of every quality fitted to excite and cherish emotion; a large organ of Tune and large brain are essential to the first, and these will be found smaller in the latter.

You amuse yourself and your readers with picturing "a "mighty colourist bringing his tardy energies to act in a "flower-garden, and labouring towards tremendous mani-"festations of his faculty," &c. If you would know where such manifestations are in reality to be found, I would refer you to the works of that *mighty colourist Titian*, whose Venuses and Danaes are made by the power of colour to start from the canvass with all the energy of life,—to the gorgeous displays of colouring in the paintings of Rubens, who, with all the palpable defects of his taste in regard to form, his squab Cupids and Dutch-built Faiths and Charities, strikes the critic dumb with admiration by the force of colour alone. Above all, to the marvellous effects produced by mere colour in the chiaro-scuro of Rembrandt, where, by throwing an excess of brilliancy on one part of the picture, while the other is immersed in the deepest shade, he gives the appearance as of the sparkling of gems, or the radiation of light itself. I would refer you, lastly, to the mild rich glow in the colouring of Claude, where trees, temples, and waters, sleeping under the rays of his setting suns, are only exceeded in beauty by the pencil of that great and inimitable colourist—Nature. Allow me farther to observe, that, whether you are able to feel it or no, there is a *power of* conception and imagination in respect to *colour*, in the instances here mentioned, altogether beyond the reach of the most active little sorter of ribbands, male or female, that ever bustled behind or on the outside of a counter. A boarding-school Miss, when choosing the threads for her sampler, or papers for a fillagree tea-caddy, may have as *quick* a perception of the difference of shades, and exercise her organ of colour as actively as Titian or Rubens could for the soul of them; but what a difference in the effect produced, *i. e.* in the *power* of manifestation!

"There is," you say, "a *fourth* refutation, and that totally in-

"dependent of admissions, to be derived from the changes that "are so familiarly observed to take place in the characters and "propensities of men in the course of their lives, while the ele-"vations on their skulls remain as they were from the begin-"ning."—P. 311. "Is there any thing so common, for instance, "as to see a young spendthrift turned into an old miser? A man "who was scandalously prodigal from 20 to 40, becoming ex-"travagantly avaricious from 50 to 80?"—"Are there not "many amorous youths who degenerate into absolute woman-"haters in their middle age?"—P. 312. I have occasionally heard of such cases, but never having seen any, I can neither admit, nor deny, nor explain them from practical observation; but, *2dly*, they are in direct opposition to your own statement on p. 302,—"That all the world knows, and the "Phrenologists themselves admit, that the vigour of any faculty "may be improved by exercise and education, and *the strength* "*of any propensity by habitual indulgence.*"—No doubt certain *modifications* of character do sometimes take place in the course of the lives of individuals; but these are totally distinct from those here cited from your pages. In the System of Phrenology, under the title of "Combinations in Activi-"ty," p. 454, the case is supposed of "two individuals, in "each of whom *all the organs* are developed in *an average* "*degree;*" and it is explained, that if the one be educated in moral and intellectual pursuits, this training will occasion the predominance of the higher faculties in activity in him; while, if the other be exposed to the temptations of vice, aided by ignorance, the lower faculties will in him become most active. It is added, "the principle now under discus-"sion is not inconsistent with the influence of size; because it "is only in individuals in whom the *organs are nearly on an* "*equality in point of size, that so great effects can be produced* by "combinations in activity. In such cases, the Phrenologist, in "estimating the effects of size, always inquires into the educa-"tion bestowed."—"If an individual is very deficient in the "higher organs, he will remain vulgar in consequence of this "defect, although born and educated in the best society, and in "spite of every effort to communicate refinement by training; "while, on the other hand, if a very favourable development "of the organs of the higher sentiments and intellect is possess-"ed, the individual, in whatever rank he moves, will have the "stamp of nature's nobility."—P. 455.

If we suppose the case of a young man in whom all the

organs exist in nearly equal relative proportions, and who in his youth was exposed to the solicitations of profligate associates, but in his maturer years has had the good fortune to change his external circumstances, and come within the habitual influence of religious, moral, and intellectual society, it is quite obvious, that, without the least dereliction of phrenological principle, he may, in the latter condition, exhibit a great improvement of character; but this is totally different from a prodigal becoming a miser, or an amorous youth a woman-hater. And, besides, the phrenological statement must never be overlooked, that it is only where the organs are pretty much in equilibrio that such modifications, as are here admitted, actually occur; because this accords precisely with the fact in nature, that it is only *some profligates* who are reclaimable, while others set at defiance all the efforts of piety and philanthropy to accomplish their reformation. If there is not *some natural* obstacle to a change of character, why do we not *all* change for the better? Why do you, for example, not assume the profundity of Bacon, the elevation of Milton, and the fertility of Shakspeare? Why has any parent a wayward child, whose pride, selfishness, or cunning, he cannot subdue? Phrenology answers, because, in the one case, we cannot confer on ourselves such large organs of intellect as those illustrious men possessed; and, in the other, cannot eradicate from the brains of children large organs of Self-esteem and Secretiveness. The changes of character that Phrenology recognises are similar to those which the lion undergoes in a cage; the stimulus of hunger is sedulously averted, while bars and bolts are added to restrain his ferocity, and a degree of tameness is thus produced; but he is still *in nature* a lion. In like manner, by withdrawing excitement to the propensities, and adding the restraints of moral and intellectual influence, a man, who, in different circumstances, was vicious, may be rendered to some extent moral; but his nature is not changed. If we restore the temptations, and withdraw the restraints, he will return, like

a sow that is washed, to wallowing in the mire. This subject is ably discussed in an essay by Mr Lyon, published in the Christian Instructor for December, 1823, and in another paper in the Phrenological Journal, vol. I. p. 555.

Having now answered at considerable length those of your objections which go to the principles of Phrenology, I shall very briefly advert to such of them as relate more immediately to details.

You say, "the last and most effectual, or at least most tangi-
" ble refutation is deduced from the actual want of any thing like
" distinct organs in the brain," (p. 311,) and again, "In the only or-
' gans of which we know any thing there is no such wondrous uni-
' formity. The eye is a machine of a very different structure from
' the ear—the olfactory apparatus radically distinct from the gus-
" tatory; it would be strange, therefore, if we venerated the Deity,
" and were impelled to break lamps, by the state of two cones of the
" same substance lying under one bone! But there are no such
' cones, nor any traces of the 36 organs, except the elevations at
' the surface."—P. 313. Note.

Here, however, in this "your last, most effectual, and most tangible refutation," you are equally wrong as in your FOUR preceding refutations. Allow me to call to your recollection what you have stated on page 258, viz. that "Ana-
" tomy and experiment show farther, that sensibility of these or-
" gans" (of sight, hearing, and touch,) "depends on the *nerves*
" which belong to them—on the optic and auditory nerves, for ex-
" ample, as to seeing and hearing, or on the nerves of touch for
" many other sensations;" and again, in the same page, that "the
" *nerves* belonging to each of these senses seem to form its only ma-
" terial organ," and that "it is upon *their* peculiar structure or
" action that our sensations depend." Be it observed too, that the emphatic italics in these sentences are your own, and show your anxiety to have the fact mentioned well understood. Now if the "wondrous uniformity" of which you complain in the cerebral organs has really nothing analogous in any of our other organs, in all of which you think there is a distinctness of structure at once indicative of a distinctness of function, I would ask you, simply, to explain, how it has happened that for so many hundred years anatomists and physiologists ld have been at variance in regard to the three nerves of

the tongue, and how they could not decide among themselves which was really the nerve of *taste*, which of *motion*, and which of *touch*? taste, motion, and touch being surely, *at least*, as distinct in their nature as the phrenological faculties of Veneration and Destructiveness, which you are surprised at finding acting through the medium of organs formed of the *same substance*.—When you tell us that the five senses depend for their sensibility on *nerves*, which are their "*only material organs*," did you, "not being learned in anatomy," imagine that each of these nerves was formed of such a different and dissimilar substance, that, by *looking* at them, you could point out the particular sense for which each was destined? If you did so, you are either in a mistake as to what is possible, or more gifted than ordinary observers. *Sensation* and *motion* again are nearly as dissimilar in their nature as any two of the phrenological faculties, and yet so far are these from being connected with organs more dissimilar in substance or appearance than those of the brain, that you yourself, in a note to the page already quoted, inform your readers that *only now* Mr Charles Bell, aided by Magendie and Flourens, has made it *highly probable* that "*the* "*nerves which minister to sensation are different from those* "*which produce voluntary motion*;" and if you had been skilled in anatomy you would have been able to give precisely the same good reason for this being not only a very modern, but as yet not an universally-received discovery, as may be given for the lateness of the discovery of the true functions of the brain. You complain that the cones in the brain, though executing different functions, are not divided by visible partitions, or made of different kinds of substance. When you stated this as an objection, did you know that the nerves of sensation and motion are composed of similar substances not separated by any visible partitions, but running undistinguishably blended in one common sheath?

It may be mentioned also, that Dr Barclay started objections

precisely similar several years ago, in his work on Life and Organization, and that they are answered by Dr A. Combe in the Transactions of the Phrenological Society, p. 397.

You say that you have been assured by persons learned in anatomy, that all that is true in Drs Gall and Spurzheim's account of the brain "had been previously established by Reil and others;" and, in a note at the end of your review, you tell us that Dr Gordon, in "a masterly work," and an "admirable production, has clearly demonstrated, 1st, that the phre-"nological doctors have *no sort of claim to originality*, as to the far "greater part of the anatomical facts they have held out as their "discoveries; and, 2d, that all that is *really original* in their ana-"tomy is *quite unsound and erroneous*, and founded either on most "idle conjectures, or on a mere trick in the manner of operation, "scarcely reconcileable with the dignity of scientific investigation." As you seem never to have thought it necessary to read Dr Spurzheim's answer to that "admirable production," the opinions of which you thus implicitly adopt, you will no doubt be surprised to learn that Drs Gall and Spurzheim have been infinitely more particular than Dr Gordon himself, in tracing the history of the anatomy of the brain, and *in giving to each discoverer the merit really due to him;* and that they themselves had quoted the very authors, and in several instances the very passages of those authors, which Dr Gordon long afterwards adduced to show their bad faith. When you repeat an assertion that first appeared in your own Review, No 49, and which has been refuted again and again, that "all that is true in their" (Drs G. and S.'s) "account of the brain "had been previously established by Reil and others," it is obvious that you have not considered it necessary to read Dr Spurzheim's answer to Dr Gordon. It is there stated at p. 51, that at Halle, in the year 1805, "Professors Reil and "Loder, and numerous gentlemen of the profession, honoured us "with their presence at the public lectures and demonstrations. With "Loder we repeated several times the anatomical demonstrations, "and once we dissected with Reil a brain *quietly* in his own room. "He was so much pleased with our demonstrations, that he gave to "Dr Gall some drawings with which he was formerly occupied, *de* "*structura nervorum et cerebelli.*" "Thus," continues Dr S., "I

"beg to observe, that in the summer of 1805, we demonstrated to "Reil the same leading points in the anatomy of the brain which "we still maintain;" and it was after this (in 1809) that Reil published views essentially the same as those demonstrated by Gall and Spurzheim. Farther, in the Phrenological Journal, vol. I. p. 78, you will find evidence that *Reil himself* did not hesitate to declare, "that he had obtained more information from the dissection of the brain performed by Gall, than he "had believed it possible for a man to discover in his whole life-"time." In this testimony to the anatomical merits of the "phre-"nological doctors" Loder heartily concurs. If all that is really original in their anatomy is, as you assert, unsound, erroneous, and founded only on idle conjecture and mere trick, is it not somewhat astonishing that Reil, to whom you gratuitously ascribe the merits of the discoveries, should himself speak of them in such terms? and further, that so competent a judge as Cuvier should, in giving a summary of the anatomy of the brain in 1822, use the following words:—"On "sait aujour d'hui et *surtout par les dernières recherches de M. M.* "*Gall et Spurzheim, que la moelle épinière, &c.,*" and go on to describe the structure of the brain *precisely as explained by the phrenological doctors*, to whom alone Cuvier here refers. (Vide Revue Encyclopedique, November, 1822, p. 237.) If what you allege is really correct, is it not equally surprising that M. J. Cloquet, a distinguished anatomist of Paris, in a much-admired, very expensive, and splendid folio work, in 40 Nos. with lithographic plates, entitled "Anatomie de l'Homme," now in the course of publication, *has copied every one of the plates of the human brain contained in Drs Gall and Spurzheim's great work?* He has done this with very slight acknowledgments of gratitude to their authors indeed; but the simple fact of his esteeming them as the most accurate, and engraving them in such a work, shows the degree of credit to which your Review, and "the admirable production" of your authority, Dr Gordon, are entitled, when you "venture to affirm" (in No 49 of the Review, p. 265,) "that there is not one of these figures which accords with nature;"

that the representations in plates VI. and XI. "are particularly "inaccurate;" that others "do not in the least degree approach to "accuracy;" and on p. 267, that in several plates "the omissions "are great, and in a considerable number the errors extravagant." Is it not surprising, that in a place like Paris, where, from the abundance of subjects, every one can so easily verify the anatomical statements of Gall and Spurzheim, their descriptions should now be those adopted by the established professors and teachers of the science? I have already cited Cuvier and Cloquet, and I may safely add, that the late lamented Beclard, professor of anatomy at the Faculty of Medicine, whose genius is incontestable, and whose reputation is already European, although he was cut off in his prime, describes the structure in terms scarcely different from those of the phrenological doctors themselves.* Besides, in London, in 1826, Dr Spurzheim was entreated by the medical students to teach them the anatomy of the brain, and they raised a subscription to recompense him for doing so. These statements may seem tedious and unnecessary, but truth required them to be brought forward to dissipate the deception which you, unintentionally and in ignorance, endeavour to practise on those who pin their faith to your dicta, on the erroneous supposition that you are acquainted with the subject on which you are writing. Can you peruse the testimonies now adduced, and still "venture to affirm" that your own conduct is, in this instance, "reconcileable with the dignity of scien-"tific investigation?"

On p. 317, you quote the case of a Welshman in St Thomas's Hospital, "who had received a considerable injury of "the head, but from which he ultimately recovered, and "who, *when he became convalescent*, spoke a language which "no one about him could comprehend." It turned out that he had recovered the use of the Welsh language which he had learned in his youth, but, owing to long disuse, had

* [illegible] Additions to Bichat, p. 38.

subsequently forgotten. After citing the case, you proceed: "The phenomenon is explained by supposing that *a part* of the "organ of Language was injured, and that the effects of this "injury were, 1*st*, to *destroy* for the time, that part of the ma-"chinery which served for the recollection of *English* words, "and, 2*d*, to *restore* to a serviceable state, that part which had "been originally used for recollecting *Welsh* ones, but had long "been so much rusted and decayed as to be quite unfit for ser-"vice. *These are not metaphors employed to assist our concep-"tion of an obscure fact, or to give a sort of coherence to a strange "statement, they* ARE ALLEGED BY THE PHRENOLOGISTS *as se-"rious and literal truths, affording a plain and satisfactory ex-"planation of a very extraordinary occurrence.*" Now, would any mortal believe that every word of these explanations and statements is a pure fiction of your own, gratuitously put into the mouths of the Phrenologists, apparently for no purpose but to afford scope for ridicule. Not only are there no such assertions or expositions in my work, but there is nothing approaching to them. After quoting from *an opponent of Phrenology* the case of the Welshman, the only remark made upon it by me is, "Such a fact as this is to-"tally inexplicable on any principle, except that of the existence of "organs by which the faculties are manifested; for it could not be "the mind itself that was affected, and its faculties impaired by the "fever, or which recovered long-lost knowledge by the influence of "this disease."—*System of Phrenology*, p. 315.

On page 318 of the Review, it is said, "We have left room "enough, we dare say, for *cavil* and *misrepresentation* on the "part of those who think those the best weapons of controver-"sy; it is not, however, to them that we address ourselves, "and we care nothing at all for their hostility." There are no limits certainly to the abuse of words; but if your Review is deliberately exhibited as a specimen of what *you* mean by *candour* and *scrupulosity*, no doubt this answer to it *may* be viewed as replete with "*cavil* and *misrepresenta-"tion*."

You attempt another refutation of Phrenology, by affirming, that a man may not only be *well banged* on all his organs, but that he may be deprived of the greater number of them altogether, without injury to any mental faculty. Instead

of wasting time in answering at length, a proposition worthy indeed of the author of the discovery, that insects perform all their functions as well without, as with heads, I shall merely state, that the principle of a plurality of organs, as applied to the explanation of the phenomena attendant on partial injuries of the brain, has been recognized by the best professional authorities, as the most satisfactory and consistent that has ever been propounded. In the Medico-Chirurgical Review for October, 1826, the following passage occurs:—

"The last of these questions" (the objection arising from injuries of the brain) "is investigated in an elaborate paper furnished to the "System," by Dr A. Combe, who succeeds completely in removing the objection. His reasonings to us seem unanswerable, and unfold views which the physician can apply to the best purposes: the Essay altogether is satisfactory."—P. 466.

On page 296, you say, "If it were really true, that certain very visible and well-defined bumps on the skull were the necessary organs of all our faculties and propensities,—just as our eyes are of sight and our ears of hearing,—it is, in the first place, inconceivable, that the discovery should have remained to be made in the beginning of the 19th century."

The same profound objection goes to show, that the discovery of the revolution of the globe could not be true, because it was not made by Copernicus till 1510, nor defended by Galileo till 1608; that Harvey's discovery of the circulation of the blood must be a fable, because mankind continued ignorant of it till 1619; and that gas-light must be a perfect nonentity, because it was unknown till our own day! In the introduction to the "System" it is explained how the discovery was not made sooner; *Dissection* does not reveal the *functions* of any organ, and *Consciousness* does not intimate even the existence of organs of the mental faculties; nevertheless, anatomists prior to Dr Gall studied the brain chiefly by dissection, and metaphysicians studied the mind by reflection on their own consciousness; while he adopted a method entirely new, that of comparing the power of manifesting the various faculties with the size of particular parts

of the brain. It is, therefore, not strange, that he should arrive at results which the imperfections of their methods rendered it impossible for them to reach.

You proceed:—"In the second place, it is still more inconceivable, that, after the discovery was made, there should be *any body* who could pretend to doubt of its reality. The means of verifying it, one would think, must have been such as not to leave a pretext for the slightest hesitation; and the fact that, after twenty years preaching in its favour, it is far more generally rejected than believed, might seem to afford pretty conclusive evidence against the possibility of its truth."—P. 296.

In answer, I beg to refer you to Mr Locke's observations, cited on p. 9 of this Letter, and to the following extract from Professor Playfair's "Dissertation," prefixed to the Supplement of the Encyclopædia Britannica:—

"It must not be supposed," says he, "that so great a revolution in science, as that which was made by the new analysis, (by Newton,) could be brought about entirely without opposition, as in every society there are some who think themselves interested to maintain things in the condition wherein they have found them. The considerations are indeed sufficiently obvious, which, in the moral and political world, tend to produce this effect, and to give a stability to human institutions often so little proportionate to their real value, or to their general utility. Even in matters purely intellectual, and in which the abstract truths of arithmetic and geometry seem alone concerned, *the prejudices*, the *selfishness*, or *the vanity* of those who pursue them, *not unfrequently combine to resist improvement*, and *often engage no inconsiderable degree of talent in drawing back, instead of pushing forward, the machine of science*. The *introduction of methods entirely new must often change the relative place of the men engaged in scientific pursuits*, and *must oblige many, after descending from the stations they formerly occupied, to take a lower position in the scale of intellectual improvement*. The enmity of such men, if they be not animated by a spirit of real candour and the love of truth, is likely to be directed against methods by which their vanity is mortified and their importance lessened."—*Dissertation, part 2d*, p. 27.

Mr Playfair, again, speaking of the discoveries of Newton in regard to the composition of light, says, "But all were not equally candid with the Dutch philosopher, [Huygens], and though the discovery now communicated had every thing to recommend it which can arise from what is great, new,

" and singular, though it *was not a theory or system of opinions,* " *but the generalization of facts made known by experiments,* and " though it was brought forward in a most simple and unpre- " tending form, *a host of enemies appeared, each eager to obtain* " *the unfortunate pre-eminence of being the first to attack conclu-* " *sions which the unanimous voice of posterity was to confirm.*"—(P. 56.) " Among them, one of the first was Father Pardies, " who *wrote* against the *experiments,* and *what he was pleased to* " *call the* HYPOTHESIS *of Newton.* A satisfactory and calm re- " ply convinced him of his mistake, which he had the candour " very readily to acknowledge. A countryman of his, Mariotte, " was more difficult to be reconciled, and *though very conver-* " *sant with experiment, appears never to have succeeded in repeat-* " *ing the experiments of Newton.*"—*Ib.* p. 57.

Here Mr Playfair's arm is raised not only to avenge the illustrious dead, but to protect from insult discoverers of every age. It is impossible to arrest the blow, even although it is you, his friend, who have thrust your head into the line of its descent.

On pages 295 and 296, you make a variety of allegations hostile to Phrenology, and say, that the Phrenologists " know well enough that the great body of the public concurs" with you;—you should have added, " and the whole empire of " China!"—If I have been successful in showing, that it is *impossible* to know any thing at all of the matter, except by practising observations, which you, and the great body of the public, misled by you, *have never done,* it follows that the good people of China are in every respect as competent witnesses against the truth of Phrenology as you and your adherents; and if *numbers* are to decide the question, they are not to be despised. You know well enough, that that portion of the public who have *examined the evidence* are to a man against you; and according to all rules of probation hitherto acted upon, the testimony of ten men informed on a subject outweighs that of a countless multitude whose ignorance is their only qualification. If I am not greatly deceived, you have in the present article over-estimated the extent of public ignorance regarding Phrenology, and relied on it a little more than may be advantageous to your philosophical reputation.

On p. 293, you state, that the whole question is, "whether "it be really *true*, that certain bumps on the head are the or-"gans of certain primitive, distinct, and universal faculties," you admit that "we cannot take upon ourselves to say that "the facts are absolutely false," but excuse yourself, in the following words, for not entering on a scrutiny of this most important of all the points in the discussion. "Suppose," you say, "that we were merely to allege that, so far as our observation "went, the facts (of the Phrenologists) seemed all to be imaginary—"that it was a matter of notoriety, that men with large heads were "*not* generally of superior endowments, nor those with small, defi-"cient in understanding—that in the circle of our acquaintance "there were many kind mothers without any protuberance on the "lower part of their skulls, many men of wit with no triangular "prominences beyond the temples, and many eloquent and loqua-"cious persons, of both sexes, with no unusual projection of the "eyes—that, in fact, we had never happened to meet with any one "individual in whom a marked peculiarity of character or disposi-"tion was accompanied by any of their external indications, and "that we daily saw remarkable enough bumps on the heads of very "ordinary people—that most of those with whom we conversed had "made the same observations, and concurred in the same results," &c.

"They would call on us to name our instances, and would "cavil at them when they were named; or, because we declin-"ed submitting the heads of respectable ladies and gentlemen "to an impertinent palpation, and their characters, temper, "and manners, to a still more impertinent discussion,—because "we did not choose to offend many worthy people, by pointing "them out as the owners of bumps, without the corresponding "faculties,—or to engage in a quarterly wrangle about the "Ideality of Dr Chalmers, or the Adhesiveness of Mrs M'Kin-"non, they would complain, that we used allegations which "we refused to verify, and contend, that nothing but a fair "scrutiny was wanting to their success."—P. 296.

No, indeed, the Phrenologists would make no such complaints. In regard to your facts, they would simply remind you, that you entered upon the observation of them avowedly with the conviction, "first, that *there is not the least rea-"son to suppose* that *any* of our faculties, but those which con-"nect us with external objects, or direct the movements of our "bodies, ACT BY MATERIAL ORGANS AT ALL, and that the phre-"nological organs have *no analogy whatever with those of the ex-"ternal senses;* second, that *it is quite plain*, that there *neither*

"*are, nor can be, any such primitive and original faculties* as the "*greater* part of those to which such organs are assigned."—P. 294. They would remark, farther, that the consequences of these impressions would be, first, that you would not, in all probability, take the trouble to become acquainted accurately, with the form and position of organs which you had thus settled to be mere fictions of imagination; and, secondly, that you would be as little likely to study, so as to comprehend distinctly, the functions ascribed to faculties which you had already dismissed, as what neither existed nor could exist; and they would state, with all deference, that a person thus prepossessed was not in the *best condition* for making *impartial* observations, and would not be *over-disposed* to recognize concomitances of organic development with mental manifestations, even although such should actually present themselves. As proofs of the truth of these inferences, they would refer, first, to your ignorance of the situation of the organs manifested, in your placing "COLOUR in the "forehead, and TUNE on the eyebrow, over the *middle of* "*the eye*," p. 259, and describing Concentrativeness on one page, (274,) "as having a goodly organ in the *back* part of "the head, just above Love of Children and below Self-es-"teem;" and on another page, (274,) as having "two dis-"tinct organs of *an angular shape* on the *sides* of the cranium;" secondly, to your blunders concerning the faculties, which are nearly as numerous as your notices of them; and, thirdly, to the surprising circumstance, that you "*never* happened to "meet with *any one individual* in whom a marked peculi-"arity of character or disposition was accompanied by *any* "*of* their external indications," because, unless you had been absolutely resolved not to see, you must, according to the principle of the calculation of chances, have stumbled, *by mere accident*, upon, at least, one concomitance, out of any considerable number of observations.*

* The assertion in the text really *proves*, either that you have never looked, or been unwilling to see. You have frequently met Mr Thomas Moore,

As to calling you to "name your instances," and "engage "in a quarterly wrangle about" the Ideality of Dr Chalmers, "or the Adhesiveness of Mrs M'Kinnon," the Phrenologists would not propose any such offence to your editorial dignity and delicacy. If you wished to come to issue on the facts of the science, they would invite you to the Phrenological Hall, (and this they have done for the last four years, by opening it to public inspection,) they would show you authenticated casts of the skulls of King Robert Bruce, Raphael, La Fontaine, Bellingham, Sheridan, &c.; masks, taken from nature, of *Henri Quatre*, Swift, Burke, Pitt, Fox, &c.; masks from authenticated busts of Voltaire, Franklin, &c.; actual skulls of executed criminals, whose actions were proved before juries; and a great variety of skulls of most of the nations of the globe, whose manners and characters are matters of philosophical history; and they would stand or fall by the accordance or non-accordance of the development of brain in these instances, with the publicly-acknowledged talents and dispositions of the individuals and nations.

You urge, as an additional reason for not appealing to facts, that "we had ourselves known some, and heard from "good authority of many cases of flagrant and ridiculous blun-"ders committed by Phrenologists of the greatest eminence, "which they had neither the candour to acknowledge nor the "confidence to deny."—P. 295. There are several answers to this allegation. *First*, By far the greater number of the alleged blunders of the Phrenologists are gratuitous fictions of the opponents, destitute of all foundation in fact. The following will serve as examples:—It was recorded in Blackwood's Magazine, and reprinted in most of the newspapers of

and you are intimately acquainted with his works. The Westminster Review was led to remark, that in his Life of Sheridan there are 2500 similes, exclusive of metaphors and regularly-built allegories. This is pretty conclusive evidence as to his manifesting the *faculty* of Comparison, as described in the System, p. 339; and I venture to state, from observation, that the organ is so largely developed in his head as to be discernible at the distance of several yards, in the very form assigned to it on the busts: and yet you never saw this concomitance!

Britain and America, that I had drawn a phrenological character from the cast of a turnip, supposing it to be taken from a real skull;—when the very opposite was the fact, namely, that I instantly detected the imposition, and returned the cast to the person who sent it, with a doggerel parody of the Man of Thessaly pasted on its surface.* Farther, in a large company an individual stated, that the editor of a certain newspaper, in Glasgow, had invited me to examine the heads of his printers, and make observations on their talents and dispositions; that I had done so, and blundered in the completest manner in every instance, from the foreman down to the youngest *devil*. The narrator gave authority for his statement; and was, withal, so minute and circumstantial in his account, that not a shadow of doubt remained on the minds of his audience of its literal correctness. It possessed, however, precisely the same degree of truth that characterizes your representation of my doctrine about the Welshman's organ of language, cited in p. 69 of this Letter;

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* The parody was the following:—

There was a man in Edinburg,
And he was wond'rous wise;
He went into a turnip-field,
And cast about his eyes.

And when he cast his eyes about,
He saw the turnips fine;
"How many heads are there," says he,
"That likeness bear to mine?

"*So very like* they are, indeed,
No sage, I'm sure, could know
This turnip-head that I have on
From those that there do grow."

He pull'd a turnip from the ground;
A cast from it was thrown:
He sent it to a Spurzheimite,
And pass'd it for his own.

And so, indeed, it truly was
His own in every sense;
For CAST and JOKE alike were made,
All at his own expense.

—that is to say, it was purely fictitious. Up to this hour I have never seen the editor of the newspaper alluded to, do not know in what street his printing-office is situated, and in point of fact, have never examined a head in a printing-office of any kind in my life. Again, a "*Lady*" in Edinburgh, who had procured a sketch of her natural dispositions, inferred from the development of her brain, by a Phrenologist quite unacquainted with her individually, was pleased to commit the original manuscript to the flames;—to substitute a sketch of her own,—to get this lithographed, and to circulate it among her friends as a phrenological production, and as a specimen of the infallible accuracy of that science! The substituted representation bore the same resemblance to the original that your account of the natural language of Self-esteem bears to my description of it, when you say that it makes "a man *walk* backwards,"—my proposition being, that it makes him carry "his *head* high and *reclining* backwards." I could add many more proofs that the alleged blunders of the Phrenologists are, in general, merely "weak inventions of the enemy;" but these must suffice.—In the *second* place, however, admitting, as I freely admit, that the votaries of this study have committed occasional errors, I would ask, who is the man that can legitimately pretend to infallibility? and what is the science that ever was, or can be, founded and improved, without some unsuccessful experiments and inaccurate observations occurring to impede its progress? Does a chemist never fail in an experiment, or a mathematician err in a calculation, or is an engineer never disappointed in the expected results of his combinations? and yet who that pretends to a spark of philosophy would urge these errors of individual minds as objections against the sciences themselves?—But, in the *third* place, who is He that taunts Phrenologists with their errors? If Dr Gall or Dr Spurzheim, not to mention so humble an individual as myself, had committed, in all their works together, one-tenth part of the blunders, in fact, in philosophy, and in physiology,

which you have exhibited in these sixty-six pages of your Review, fewer refutations would have sufficed to lay them prostrate at your feet;—you would not have required to direct against them a first, a second, and a third assault, separated by periods of twelve years, and still to wonder that their doctrines were not utterly exploded. Acting upon your own principle, I might be justifiable in maintaining, that as you have finally exhibited great ignorance of the principles of human nature, mental and physiological, admitted by the most celebrated philosophers, and established by the most incontestable facts, all your previous criticisms in belles lettres, morals, and philosophy, and your eloquent speeches, too, in support of political liberty and the dearest interests of mankind, ought to be regarded as a mere collection of absurdities,—as entirely destitute of philosophic principle,—and, in consequence, all of them utterly unworthy of the admiration and regard of an enlightened age. This conclusion would be even more logical, and capable of being supported by a greater show of reason, than your inferences from the errors of Phrenologists; because your mistakes relate to fundamental principles, and wherever these are vitiated, the whole superstructure, it may be argued, must be unsound. But I altogether disclaim any such rule of judgment. The fire of genius and a naturally acute understanding have conferred upon you an instinctive sagacity that has led you right, and given intrinsic value to your speculations, wherever you have not been blinded and misled, as in the case of Phrenology, by a vast and overwhelming prejudice; and it would be as unjust in any one to seek to dim the lustre of your otherwise well-merited reputation by this one error, egregious although it be, as it is unhandsome in you to urge the mistakes of individual Phrenologists as objections against the science which they cultivate.

I regret, that, in addition to all the other points of your article, which it has been imperative on me to controvert, I am obliged to call in question, and reject, an indirect

compliment which you are pleased to bestow upon my work, not, as, perhaps, you anticipate, because it is not sufficiently flattering to my Self-esteem, but because it is ill-founded and unjust. You say, that Phrenology, in my hands, has "assumed, FOR THE FIRST TIME, an aspect not absolutely "ludicrous, by my retrenching many of the ridiculous illus-"trations and inconsistent assumptions of *its inventors*," &c. Such an assertion could be made only in utter ignorance of the writings of Drs Gall and Spurzheim,—men whose profound intellects and extensive information place them in the highest rank of philosophical authors.

This letter, like your review, has turned out rather long and desultory; and I beg leave, in concluding, briefly to recapitulate the topics on which it has touched. I have endeavoured then, to shew that Phrenology is more widely extended, and deeply rooted in the public estimation, than you appear to be aware of;—that your grand proposition, of the internal mental faculties not acting by means of organs at all, is refuted, by the known effects of opium and wine, and also discountenanced by the authority of your own review, of Cullen, Gregory, and Magendie;—that your objection to the assignment of separate faculties to the mind, is obviated by Mr Welsh's metaphysical answer, and absolutely refuted by the successive appearance of the mental powers in youth, by the phenomena of partial genius, of dreaming, somnambulism, idiocy, and monomania;—that in your denial of the phrenological faculties, as primitive principles of mind, you stand opposed to Reid, Kames, Stewart, Brown, and the greatest metaphysicians of Britain, who admit of faculties similar to seven-tenths of them;—that in your attempts to resolve several of these faculties into one, as the love of young women, of children, &c., into Benevolence, and Hope and Fear into mere negations of each other, you refute yourself;—that your objections to Concentrativeness, Individuality, Size, and Weight, are founded on erroneous representations of the phrenological statements and conclusions;—that on Colouring, the phrene-

logical theory is consistent in itself, and with nature; while your *doctrine* in the Encyclopædia, and *fact* in the Review, on this point, are at variance with each other;—that your objections to *Size* in the organs, as a measure of power in the case of the external senses, are refuted by the authority of Blumenbach, Sœmmering, Monro, &c.; all of whom teach, that this rule holds, in regard to the nerves of the senses, confirming thereby the opinions of "grand-mamma wolf," and upsetting yours;—that Magendie teaches the same doctrine, in regard to the brain and internal faculties;—that the reality of the distinction between *power* and *activity*, as separate qualities of mind, which you deny, is supported by the opinion of Bonaparte, and proved, besides, by examples of characters on the stage;—that this distinction holds even in the case of colouring, as is established by the power displayed by Titian, Rubens, and Audubon on canvass, contrasted with the activity of an assorter of ribbons, or of a miss selecting threads for her sampler;—that your objections, founded on the effects of education and disease in the mental faculties, are rendered plausible, solely by your omitting the qualification, constantly stated by the Phrenologists, that *Size* determines *power*, *only* when OTHER THINGS ARE EQUAL; and by misrepresenting their doctrine, which is this, that if the *same* education, or the *same* stimulus of disease is applied to two brains, one large, and the other small, the effects produced will be great or small in the direct ratio of the size of the brain;—that modifications of character to some extent are perfectly in accordance with phrenological principles; but that changes of talents and dispositions have their limits in nature, and in Phrenology also;—that your objections to the phrenological organs not being radically distinct in their appearances, are equally applicable to many of the nerves, and particularly to the nerves of motion and feeling, which are as little distinguishable from each other in structure and appearance, as the organs in the brain, and yet are ascertained to perform separate functions;

—that your contempt of the anatomical discoveries of Drs Gall and Spurzheim, is founded in ignorance, and discountenanced by the greatest modern anatomists,—while your assignment of the merit of such part of them as you admit to be true, to Reil, is refuted by the testimony of Reil himself; —that the treatment which Phrenology has met with from you and other critical authorities, is accounted for by Professor Playfair, when discussing the reception given to the discoveries of Newton;—that the Phrenologists have offered you means of verifying or refuting their facts, not inconsistent with either your dignity or delicacy, but of which you have sedulously declined to avail yourself;—that most of the blunders imputed to Phrenologists are fictions of the opponents, while their real errors, although they may affect the reputation of individuals, constitute no valid objection against the science;—and, finally, that, even in the indirect praise which you bestow on the System of Phrenology, the same lack of knowledge and just discrimination is conspicuous which characterizes all the other parts of your criticism.

I have the honour to be,

SIR,

Your most obedient, very humble servant,

GEO. COMBE.

Edinburgh, October 31, 1826.

Note.—The preceding Letter was originally written and printed for this Journal; and it was only in consequence of the interests of Phrenology demanding a more speedy answer to Mr Jeffrey's criticism than could have been afforded by waiting the regular period of our publication, that a separate impression of a thousand copies was thrown off and sold to the public. Within four weeks a second edition of the Letter was required. Although many of our readers may have purchased it before receiving the present publication, yet, to our subscribers in distant parts of the country and abroad, it will, in all probability, be new; besides, we hope that few will regret being presented with it in this more permanent form, as it constitutes an important step in the history of the science. Mr Combe has favoured us with an answer to one of Mr Jeffrey's objections which he reckoned too purely phrenological to be addressed to the public, but which he requests us to present to our

readers, who are better qualified to understand and appreciate it;—a new light is thrown by it on the admirable adaptation of the phrenological faculties to each other and to the external world, and on the degree of consistency and comparative completeness which the science has already attained. We subjoin the paragraph. Its place, if incorporated in the Letter, would have been after the quotation ending with "difficulty in the conception," on line 9th from the top of page 29.—EDITOR.

Mr Jeffrey says, that, with the exception of the external senses, "the other functions of mind do not connect us with matter," and that, therefore, there is not only no reason for supposing the existence of organs for them, but a "corresponding difficulty in the conception."

The answer to this is, that *all* the functions of mind occasionally connect us with matter, and have organs admirably adapted to their several uses. We do not perceive wisdom and virtue existing in the abstract; but see corporeal beings manifesting certain motives from which we infer the existence of these qualities in them. The faculties destined to the perception of the qualities of external objects have organs in the brain, and also an apparatus to bring them into connexion with these qualities; thus the organ of Colouring is aided by the eyes, and the organ of Tune by the ears. The faculties again that appear more purely mental are subserved by all the organs and apparatus that take cognizance of external matter; Cautiousness, for instance, is aided by the eyes, and also by the organs of Form, Colouring, and Size, in receiving impressions from any material object or being threatening danger; while Conscientiousness is assisted by the foregoing organs, and also by those of Comparison and Causality, in giving rise to its peculiar emotions relative to human actions. Finally, these internal faculties are provided with an additional medium of communication, viz. the organ of Language, by which the sentiment of Veneration, for instance, in one man communicates its emotions to the same faculty in another. Language is to the internal faculties what the ears are to Tune; so that, in place of having no instruments of connexion with external objects, which Mr Jeffrey thinks ought to be their condition, they in fact possess a variety of modes of communication,—an arrangement that appears wise in itself and well-suited to the importance of their functions.

P.S.—I have just heard it questioned, whether the copies of the sketch circulated by the "Lady" were lithographed. My information on this point was derived from a gentleman who had seen several copies of it so precisely similar in appearance, that he believed them to be lithographed. The fact of the version circulated by her being materially different from the original falls under my own knowledge.—G. C.

December 8, 1826.

ARTICLE II.

The ANATOMY *of the* BRAIN, *with a General View of the* NERVOUS SYSTEM, *by G.* SPURZHEIM, *M.D. &c., translated from an unpublished French MS. by R.* WILLIS, *Member of the Royal College of Surgeons in London, with eleven plates, pp. 238.—London, Highley; Edinburgh, Hill and Son.*

WE are glad to inform our readers, that Dr Spurzheim has at last presented the English public with an account of the anatomy of the brain in the very accessible form of a moderate-sized octavo, written in their own language, and illustrated by numerous excellent lithographic plates, many of them reduced copies of those which have contributed so much to the celebrity and usefulness of the great French work published under the joint names of Dr Gall and himself, and which has given not only an immense impulse but A RIGHT DIRECTION to the examination of the structure and functions of the nervous system in general. On the continent of Europe the result of their labours is now everywhere conspicuous in the silent adoption of their anatomical views by the most distinguished teachers and authors of the present day, and in the increasing attention which is everywhere paid to the discovery of the functions of the brain. There, as here, the real authors of the change may industriously be kept out of view, or the change itself be imputed to a different cause, by those who prefer appropriating the discoveries and ideas of others to the magnanimity of avowing the source from which they have derived them; but the great object is attained, the range of science is extended, and, sooner or later, history will pronounce judgment, and give the honour to whom it is really due.

As an anatomist, Dr Spurzheim ranks among the highest authorities of the present day. His labours have contributed

in no ordinary degree to unfolding the true structure of the brain, and to the discovery of the successive additions which it receives as we ascend in the scale of the animal creation. We wish we could stop to particularize what he has accomplished apart from Dr Gall; but for the present our limits oblige us to confine ourselves to the following quotation from his preface, and to pass on without comment to the subject matter of his treatise.—

"Having completed my studies in 1804, I was associated with "Dr Gall, and devoted myself especially to anatomical inquiries. "At this period Dr Gall, in the Anatomy, spoke of the decussa- "tion of the pyramidal bodies, of their passage through the pons "varolii, of eleven layers of longitudinal and transverse fibres in "the pons, of the continuation of the optic nerve to the anterior "pair of the quadrigeminal bodies, of the exterior bundles of the "crura of the brain diverging beneath the optic nerves in the di- "rection which Vieussens, Monro, Vicq d'Azyr, and Reil had "followed, the first by means of scraping, the others by cutting the "substance of the brain. Dr Gall showed further the continuation "of the anterior commissure across the striated bodies; he also "spoke of the unfolding of the brain that happens in hydrocephalus. "The notion he had conceived of this, however, was not correct; "for he thought that the convolutions resulted from the duplica- "ture of a membrane, believing that the cerebral crura entered the "hemispheres on one side, expanded there, and then folded back "on themselves by the juxta-position of the convolutions. The "true structure of the convolutions, and their connexion with the "rest of the cerebral mass, were not described until our joint Me- "moir was presented to the French Institute in 1808.

"The mechanical direction which the anatomical investigations "had taken did not appear to me satisfactory. Guiding myself in "my inquiries by physiological views, always comparing structure "with function, I discovered the law of the successive additions to the "cerebral parts; the divergence in every direction of the crural "bundles towards the convolutions; the difference between the "diverging fibres and those of union; the generality of commis- "sures; the true connexion of the convolutions with the rest of the "cerebral mass, and the peculiar structure which admits of the "convolutions being unfolded (an event which occurs in hydroce- "phalus of the cavities), whilst the mass lying at their bottoms, "and belonging, for the most part, to the apparatus of union, or of "the commissures, is pushed by the water between the two layers "composing them; lastly, I demonstrated the structure of the "nervous mass of the spine, and I flatter myself with having ar- "rived at the best method of dissecting the brain, and exposing its "parts."—P. 11.

The first section of Dr Spurzheim's work is occupied with the consideration of the two substances of which the nervous system is composed. The one is gelatinous or pulpy, and usually of a greyish or brownish hue, and is generally called the cortical or cineritious substance; the other is fibrous, and of a more or less perfect white colour, and is called the white, medullary, or fibrous substance. Pulpiness, and not colour, is the distinguishing character of the former, and, from inattention to this, some anatomists have maintained that the white or fibrous substance may exist without the pulpy. There are animals, for instance, whose humours or blood is white; but the existence of a circulating fluid is not on that account altogether denied. In the same way the pulpy substance varies in complexion in different species of animals and even in the same species. It is very pale in those who die of consumption or dropsy.

In the mammalia the pulpy substance occurs on the surface of all the convolutions of the brain and cerebellum, in the striated bodies and optic thalami, in the interior of the crura cerebri, annular protuberance, corpus dentatum, cerebellum, medulla oblongata, and spinal cord, and in all the ganglions of the body, and is always in connexion with the fibrous substance. It has an immense quantity of blood-vessels distributed through it, but its true structure is still unknown.

The white or nervous substance is essentially fibrous, as was maintained by Lewenhœck, Vieussens, and Steno. This may be made evident by scraping a recent brain, or by maceration in alcohol or acids. From the uniform concomitance and proportion observable between the two substances, and from the pulpy preceding in existence the fibrous matter, Drs Gall and Spurzheim were led to consider the former as the source of the latter. By this they do not mean to assert that the one *grows out of the other*, but only to announce the fact of a gelatinous and greyish state of the brain preceding its fibrous and white condition, in the same way as

bone begins by being gelatinous, then cartilaginous, and ultimately solid and earthy. The essential circumstance, however, is the fact that the fibrous does not exist without the pulpy, and that the one is proportioned to the other. As to the distinctive uses of each little is known.

After showing that the brain does not give origin to all other parts of the nervous system, Dr Spurzheim lays it down as a first and most important anatomical principle, that the nervous system "IS NOT AN UNIT, BUT CONSISTS OF "MANY ESSENTIALLY DIFFERENT PARTS, WHICH HAVE "THEIR OWN INDIVIDUAL ORIGINS, AND ARE MUTUALLY IN "COMMUNICATION;" and, in relation to this principle, he proceeds to treat, 1st, Of the mode in which the individual parts of the nervous system are formed. 2d, Of the order of development of these parts; and, 3d, Of their reciprocal relations.

Dr Spurzheim proceeds in his second section to prove that, in accordance with the above principle, the nervous system must be divided into different masses, and to show that the division most in harmony with nature is that adopted by Dr Gall and himself; comprehending, 1st, The nervous masses essential to motion and to the five senses; and, 2d, Those composing the organs of the affective and intellectual functions. All these parts are independent of and not proportioned to each other, and any one may exist or be wanting without affecting the remainder; and this is the only test of nature having erected the limits.

The third section, therefore, treats of the nervous masses of voluntary motion, and of the external senses, including the spinal cord, with its nerves, and those of the head commonly styled *cerebral*.

The spinal nerves are destined to the functions of feeling and voluntary motion; the cerebral, or more properly the *cranial*, are less voluminous, and subserve not only voluntary motion, but taste, hearing, sight, and smell. Dr Spurzheim often insisted on the necessity of sensation, motion, and every

other primitive function having a distinct apparatus, however much they may apparently be confounded together; and he instanced the case of the three branches of the fifth pair, all seeming to arise from one root, and yet one being the nerve of taste and the others of motion. Since that time Mr Charles Bell endeavours to prove, by the force of facts, that every part receiving more than one nerve performs more than one function, and that a new nerve is supplied for every additional function. He has shown also, that the portio dura, or facial nerve, long supposed to minister to sensation in common with other nerves, conveys no impression of pain when cut or torn, but serves only to place the parts on which it is ramified under the influence of the respiratory motions. Lesions of the fifth pair, on the contrary, produce pain, and the parts on which it is ramified become insensible when its branches are cut across.

After noticing the experiments of Magendie and others in proof of sensibility depending on the dorsal, and motion on the abdominal roots of the spinal nerves, Dr Spurzheim says, "I do not believe that the only office of the spinal cord, with its "nervous roots, is to establish a communication between external "impressions and the brain, and between the brain and the instru-"ments of motion, the muscles. To me it seems probable that a "very small part of the spinal cord suffices for these purposes; "the particular portion, or organ, however, cannot, in the present "state of our knowledge, be specified." "I rather conceive that "they (the spinal cord and nerves) aid in maintaining the powers "of those parts to which they are distributed; for instance, that the "muscles, or instruments of motion, acquire their power, in fact, "through the influence of their nerves, whilst the will to make the "muscles act resides in the brain."—P. 46. But the subject, he adds, is still involved in much obscurity.

In regard to the structure of the spinal cord, Dr Spurzheim remarks, that it is composed of two similar halves, one on each side of the mesial plane. These halves are parted to a certain depth by two longitudinal clefts, the one deep, but not conspicuous, on the dorsal, and the other shallow, but conspicuous, on the abdominal surface, and are united between these fissures by a commissure or apparatus of union.

This commissure is pierced in its interior by a canal, which is more or less distinct in different animals, and is especially visible during the earliest periods of life. In the human fœtus this canal is generally obliterated about the fifth month; but some authors mention having seen it in advanced old age. It seems to be a continuation of the aqueduct of Sylvius.

The corresponding parts of each half of the spinal cord are voluminous in the ratio of their implanted nerves. This fact is strikingly exemplified by comparing the spinal cord of animals whose superior are larger than their inferior extremities with those of others whose inferior are of greater size than their superior limbs.

The interior of each of the halves of the spinal cord contains a mass of grey matter, always proportioned to its size and to the nervous roots issuing from it. This pulpy or grey matter is disposed in a crescent-form on either side of the apparatus of union.

Besides this division of the cord into vertical halves, it is also divided, although much less distinctly, as it were from side to side, into an abdominal or anterior surface, and a dorsal or posterior, and all the nerves issuing from the spine derive a root from each of these halves. The posterior or dorsal roots, and the corresponding or dorsal half of the spinal cord, are larger than the abdominal or anterior. The intervertebral ganglions are proportioned in size to the dorsal roots. The latter frequently inosculate, and filaments from one pair of nerves often run to join the fasciculi composing another. The anterior or abdominal roots communicate with the nerves of the thorax and abdomen.

Drs Gall and Spurzheim have for many years maintained, that the spinal cord of man and animals is enlarged, and contains a larger quantity of grey matter at those places where the great nerves of the extremities are detached than at any others. Some anatomists still deny this; but it may be more easily seen in the ox or horse than in man. Even in man, however, if the spinal cord is stripped of its dura mater and

arachnoid covering, and held profile-wise against the light, the undulated line of its edges will be abundantly obvious. For some other particulars we are obliged to refer to the book itself.

The medulla oblongata is generally but erroneously confounded with the rest of the spinal cord. It bears no proportion to the latter in size. Its volume varies greatly in different classes of animals, and is determined by the nerves that arise from it, and by the bundles that proceed to the brain and cerebellum. In many of the mammalia it is larger than in man, from the great size of the nerves issuing from it.

Properly speaking, no part of the nervous system can be said to be derived from another. Each is in truth independent, but connected. We shall not enter into any details about the origin of the nerves, farther than to notice, that the optic nerves arise from the anterior pair of quadrigeminal bodies, and not from the optic thalami, as is still commonly thought in this country, although not on the continent. The anatomical, physiological, and pathological evidence of this fact adduced by Dr Spurzheim is quite incontrovertible and demonstrative.

We come now to the fourth section, viz. the best mode of dissecting the brain. Cuvier tells us, that "the most "accredited method of the schools, and that usually recommended "in books of anatomy, is to take away successive slices of the organ "(the brain,) and to remark the appearances offered by each. This "is the easiest in practice for the demonstration, but it is the most "difficult for the imagination. *The true relations of parts, which "are always seen cut across, escape not the pupil alone, but the "master himself.*" This is much the same as examining the anatomy of the thigh by cutting off successive transverse slices, and noticing the appearances of each slice. Accordingly, many authors before Gall and Spurzheim exposed its faultiness, and tried to pursue a better method; but to these distinguished men is unquestionably due the credit of proposing the only complete method yet known, and now so successfully practised by the best continental anatomists. The opponents of their physiological doctrines no doubt contest their claim

to originality in this as in many other things, and ingeniously refer to the works of Vieussens, Varolius, Willis, Santorini, &c. for proofs of their assertion; but they take special care not to inform their readers that these very authors are historically quoted by Drs Gall and Spurzheim themselves, and that to all appearance it is in reality to the pages of these gentlemen that their opponents are indebted for a knowledge of the writings referred to, seeing that their now valuable contents were utterly unnoticed by the best anatomical writers and teachers till *after* the publication of Gall and Spurzheim's works. We hope soon to take a historical view of the matter, and therefore for the present willingly pass on to the consideration of the subject more immediately before us.

Viewing the brain not as a single organ, but as an assemblage of particular apparatuses destined to special and determinate functions, Dr Spurzheim begins the dissection at the place where the proper cerebral masses are added to the nervous parts already described, (at the medulla oblongata), and traces them in their continuations and in their connexions with each other, and with the nerves of the five senses and of voluntary motions, in a manner precisely analogous to that which is followed in the anatomical demonstration of the other parts of the body. On account of the great delicacy of structure of some parts, Dr Spurzheim prefers scraping to cutting, as better adapted for the purpose.

The brain should be removed from the cranium, care being taken not to tear the crura at the superior edge of the annular protuberance (an accident which is very apt to occur), nor to injure the medulla oblongata at the lower edge of the same part, and to cut the spinal mass so low down as to obtain, besides the entire medulla oblongata, the upper part of the true spinal cord. The brain, thus freed from the skull, is then to be put into a plate with the basis uppermost. In this position all the appearances presented by the base of the brain are visible. The first part we proceed to examine, after the nerves already noticed, is the cerebellum.

Before examining the cerebellum, Dr Spurzheim lays before his readers numerous proofs of the brain being an aggregate of many distinct parts or organs, and shows very beautifully that it is not by anatomy or physiology separately, that we can ever arrive at the determination of the number and functions of these parts either in man or animals, but solely by combining physiological with anatomical observation. He is, we believe, the first who has insisted on this very important point, and in all his works he has clearly kept it in view.

The cerebellum exists in all vertebral animals; but its form and size vary exceedingly. The anatomical principle laid down in regard to the regularity of proportion between the pulpy or cineritious and fibrous or white substances, and to the occurrence of pulpy matter at the origins of nervous masses, is confirmed by the structure of the cerebellum. At the place of its attachment to the medulla oblongata, there is always an accumulation of pulpy substance proportioned in quantity to the size of the cerebellum. In man it composes an irregularly-shaped mass serrated at the edges; hence its name of *corpus dentatum*. Dr Spurzheim calls it the ganglion of the cerebellum. This ganglion is very distinct in man, in many of the mammalia, and in birds. In some of these animals its small size and paler colour have caused it to be overlooked; but we have already said pulpiness and not colour is its true characteristic.

In forming the cerebellum, nature has in all animals pursued the same plan. Two bundles constantly bring it into connexion with the two sides of the medulla oblongata: these are of variable size; they meet a greater or smaller quantity of grey substance, and proceed strengthened in proportion; they then regularly compose a primary portion, which, in the lowest tribes, is smooth superficially, but which, as we said, appears furrowed transversely, or divided into lamellæ, and becomes complicated by the addition of lateral masses, laminated in like manner. From the ganglion, or corpus dentatum, numerous bundles proceed; one, with its

fellow of the opposite side, forms the vermiform process, or primary portion of the cerebellum; others proceed backwards, upwards, downwards, and outwards, and expand into layers disposed horizontally.

In the mammalia the cerebellum is augmented by the addition of a mass known by the names of Pons Varolii, tuber annulare, &c., the transverse fibres of which evidently belong and are proportioned in size to the lateral portions of the cerebellum. The merit of discovering this relation is exclusively due to Drs Gall and Spurzheim.

To demonstrate the connexion of the cerebellum with a bundle of the corpus restiforme, the medulla oblongata must be pushed to one side, and the auditory nerve and a thin layer interposed between the medulla and the cerebellum scraped off with the handle of the knife. The second bundle of the restiform body, reckoning from the posterior pyramid, will then be seen to plunge into the cerebellum. By entering the point of the knife at the insertion of this bundle, and cutting the cerebellum vertically, so that about two-thirds of its substance may be left externally, and the other third remain internally, the communication of the cerebellum with the medulla oblongata; its ganglion, or corpus dentatum, from the entrance of the connecting bundle of the restiforme body to about its middle; the ramifications of the white substance, and the peripheral extremities of the various branches universally covered with cineritious matter constituting the appearance denominated arbor vitæ will be exposed.

To see that the uniting fibres of the cerebellum composing the annular protuberance or commissure are distinct from those of the bundle that connects it with the medulla oblongata, the last-named part must be turned aside, and the vocal, glossopharyngeal, facial, and auditory nerves removed with the handle of the scalpel; the fibres of union will now be seen gathering themselves from the peripheral parts, and lying over the bundle that springs from the medulla oblongata, and plunges into the cerebellar ganglion.

We come now to the brain. Anatomists have erred greatly in taking the human brain as the type or standard of all others, and judging of the presence or absence of its various parts in other animals by contrasting their appearances with those of man. The only safe rule is to begin at the simplest brain which we can find, and to trace the various modifications and additions which it receives as we ascend in the scale of creation, and to be guided in this investigation not by mere form or situation, *but by the function which it performs.* There is no other way of escaping the serious error of mistaking one part for another totally different. Thus, if we were not guided by the function which accompanies it, it would be utterly impossible for any anatomist to perceive that the olfactory nerves of the skate, flounder, fowl, seal, and ox, were in reality analogous masses. And it is quite certain that the different parts of the brain are, to say the least, not less modified in different animals than the olfactory nerves alluded to. Hence it is in vain to expect a perfect comparative anatomy of the brain, without a knowledge of the affective and intellectual faculties of animals, and of the functions performed by the different cerebral organs.

The brain is an aggregate of many parts, each performing a distinct function. But, speaking generally, these may be divided into two masses, one constituting the organs of the intellectual and the other those of the affective faculties. The anterior pyramidal bodies are the rudiments of the former, and the olivary and part of the restiform bodies are the rudiments of the latter; the separation between them being pretty distinct from the medulla up as far as the optic thalami and striated bodies.

The pyramidal bodies are scarcely perceptible in birds, and still less in fishes and reptiles, but they are apparent in the lowest of the mammalia. In man they usually commence about twelve or fifteen lines below the annular protuberance, and increase in size as they ascend. The primary fibres of each do not issue from the same side as that on which they

lin, but uniting, in the first instance, into two, three, or as many as five little cords, they cross the mesial line of the body one above another from below upwards; those of the right side arising from the left, and *vice versa*. This is termed their decussation. This structure was accurately described in 1709 by Mistichelli, and afterwards by Petit, Lieutaud, Santorini, and Winslow. Among the moderns, Sabatier, Boyer, Dumas, Bichat, and Chaussier, deny its existence. To see it, make a slight cut through the pia mater in the mesial line without implicating the cords beneath, then separate the edges gently, and the decussation will appear.

A few fibres are detached from each pyramidal across to the olivary body of the same side, as if to place the two in communication.

The pyramidal bodies proceed upwards, and, just before entering the pons varolii, are somewhat contracted in their thickness. Immediately on entering it, they separate into several bundles, and are mingled with cineritious substance. Many new fibres arise and join the others; all advance, some in layers, and some intersecting the bundles of the annular protuberance. The pyramidal bodies are thus so much increased, that, on emerging from the pons, they compose the anterior and outer two-third parts of the cerebral crura.

To see the passage of the pyramidal bodies, an incision of about a line in depth must be made across the transverse fibres of the pons. These fibres, are now to be separated from the longitudinal layers by pushing the former aside by the handle of the scalpel, cautiously placed under them; the longitudinal fibres will then be distinctly seen.

The great bundles called crura of the brain thus appear to be, in part at least, a continuation of the pyramidal bodies increased in size and perfection. These crura as they advance also contain cineritious matter in their interior, from which other and additional fibres arise, and go to increase their size.

In the mammalia, the crura are evidently divided into two parts, viz. an anterior and external, and a posterior internal mass, separated by a superficial furrow. In man the first part belonging to the pyramidal bodies is much larger in proportion to the others than in the inferior animals. But before pursuing further the pyramidal portion of the crura, let us examine the posterior portion.

The medulla oblongata is composed, besides the pyramidal, of the olivary and restiform bodies. The restiform bodies contain the origins of the primary portion of the cerebellum and of the vocal, glossopharyngeal, facial, and trigeminal nerves. The remaining fibres of these, and the fasciculi of the olivary bodies, mount behind the ganglion of the pyramidal bodies in the annular protuberance, and joining themselves with, aid in the completion of the cerebral crura. In this course, they gain some increase in size, inconsiderable, however, compared with that of the pyramidal bundles. The olivary bodies are themselves true ganglions, and present the general forms or modifications observable in the ganglion or dentated body of the cerebellum; and their size varies greatly in different individuals. They contain both cineritious and fibrous substance.

These anterior and posterior portions of the crura cerebri are the roots or primary bundles of the hemispheres; but they are of course afterwards immensely increased in size. The first great augmentation takes place at the upper extremity of the anterior portion, where the optic nerve winds over it; or, in other words, at the *striated bodies*. After this, the fibres advance of unequal lengths, and, expanding into layers covered on their peripheral extremities with cineritious substance, ultimately form the inferior, anterior, and external convolutions of the front and middle cerebral lobes.

To show that the lower and inner convolutions of the middle lobe are formed by the anterior and outer bundles of the crura, the middle lobe must be removed, which, from the depth of the fissure of sylvius, is easily effected. Some con-

volutions formerly concealed will be brought into view, and the bundles mentioned will be seen to belong to the middle lobe and anterior part of the posterior lobe.

If the entire outer part of the striated bodies be removed, the manner in which the convolutions, situated along the middle region of the hemispheres on a level with the temples, arise from the bundles in continuation with the pyramidal bodies, will be made apparent. The pyramidal bodies, their ganglions in the annular protuberance, the anterior and outer portions of the cerebral crura, and the convolutions in which their bundles terminate, are always developed in the direct ratio of each other.

The posterior and inner bundles of the crura plunge into a thick, massy, and firm ganglion, flattened in the middle, and unequal above, known by the erroneous appellation of optic thalamus. These ganglions are developed in the direct ratio of the convolutions depending on them, and forming the upper and posterior parts of the hemispheres. In the interior of these ganglions there are a great number of very fine nervous filaments; these unite at its superior edge into bundles, which then diverge towards the convolutions in the form of rays.

The two portions of the crura cerebri may be separated from each other, either by a blow-pipe or a stream of water before they enter their ganglions; but after that any farther partition becomes impossible. The anterior bundles of the thalamus traverse the striated bodies, and are distinctly seen. The masses styled optic thalami and striated bodies, therefore, are true ganglions, in which the primary bundles of the brain are increased in their progress to completion in the convolutions. The faultiness of the ordinary mode of dissection will now be apparent, which, instead of tracing the masses from their rudimentary state upwards to completion, mutilates and destroys the parts in their complete state.

One circumstance it is important to remark. The nervous fasciculi are LESS NUMEROUS BUT LARGER in the posterior and

middle than in the anterior region. In the latter they ARE VERY NUMEROUS, BUT ALSO VERY SMALL. This explains why the organs situated in the forehead are observed to be smaller and more numerous than those which lie in the occipital region.

Drs Gall and Spurzheim were the first to discover the true purpose of the optic thalami, and to ascertain the real origin of the optic nerve from the quadrigeminal bodies.

The convolutions of the brain consist internally of white fibres, covered externally with cineritious substance. These white fibres are of unequal length. Many of them terminate almost immediately beyond the walls of the ventricles; others extend to distances greater as they run more towards the centre of the convolutions; and it is in consequence of this structure that convolutions appear, the short fibres reaching only to the bottom of the anfractuosity, and the long ones to the surface of the convolutions.

When a convolution is cut across vertically, the white substance will be observed of greater thickness at the bottom than at the top. This is explained by the different lengths and terminations of the fibres already mentioned. A clean cut shows the white substance as a simple mass; but it may nevertheless be shown to consist of two distinct layers meeting in the middle line, and simply agglutinated by a very delicate nevrilema; and this structure is of great importance in understanding the pathological appearances of the brain, as in hydrocephalus, in which the convolutions are unfolded without destroying their functions.

It was, in fact, a case of this kind that led Drs G. and S. to investigate the structure of the brain long after their discovery of many of the organs. A woman of fifty-four, whose head was greatly enlarged, was still as active and intelligent as her companions; whence Dr Gall inferred, as Tulpius had done before him, that the brain could not be disorganized or destroyed in the way that was generally supposed, but that its structure must be very different from what it was believed

to be to admit of such a change without destruction of its function. When this woman died, Dr Gall found about four pounds of limpid serum in the ventricles. The convolutions of the upper part of the forehead and of the coronal surface had entirely disappeared; but nearer the base they were distinct in different degrees. In the interior of the cavities the fibrous structure was very conspicuous. Dr Spurzheim saw this head dissected at Dr Gall's house, and from that moment their anatomical inquiries received a new impulse; and, after many experiments, they succeeded in imitating to a considerable extent the changes produced by disease.

If a convolution be cut vertically across to its base, a very gentle pressure with the finger on the cut surface will suffice to separate its two fibrous layers. At the base of the convolutions this separation is arrested by an intercrossing of fibres, afterwards to be noticed. The same separation may be easily effected in a convolution hardened in alcohol or diluted acid; and it always will be found to occur in the middle line, and to present smooth surfaces, without any appearance of laceration. It may also be accomplished on a fresh convolution by directing a small stream of air from a blow-pipe, or water from a syringe, upon the cut surface. And even from within the ventricle, after lacerating a few fibres at the base of the convolutions, a portion of a hemisphere may easily be unfolded. Keeping this structure in view, it is easy to conceive to what an extent the hemispheres may change in appearance without much actual disorganization, and without any change except elongation of fibre, which, as in the optic nerve for example, we know does not destroy function.

In the comparative anatomy of the brain, it is not enough to show that animals have a brain. It is necesary to determine the particular organs composing the hemispheres, the resemblances to the three lobes of man, and to the individual portions of each. From not attending to this, Cuvier, Tiede-

mann, Serres, and others, deny the existence of the posterior lobe in any animals except man and the quadrumana; and they ground their opinion solely on the cerebellum not being covered by the brain as it is in man. But this is demonstrated to be a mistake, as is proved both by the structure and physiology; seeing that all the parts which in man go to form the posterior lobes, and the corresponding functions, are acknowledged to exist in the inferior animals. But we must pass on, and refer our readers to Dr Spurzheim's pages for full proof.

Such is the exposition of the diverging system of the cerebral masses; and so far, at least, the anatomical views of Drs Gall and Spurzheim are generally admitted to be correct. We should now proceed to discuss the convenging fibres, commissures, or fibres of union, about which many anatomists still entertain doubts; but to do this with any degree of justice would encroach too much on the limits of our present Number; we shall, therefore, delay this branch till our next; and in the mean time beg most earnestly to recommend the work itself to the careful study, especially of our medical readers. It is cheap and concise; and the plates which it contains increase exceedingly its practical value. Indeed, without these, we doubt whether our own abstract will be sufficiently clear for ordinary readers, although, with the view of ensuring accuracy, we have as far as possible adhered to the words of Dr Spurzheim. As we said before, we have purposely avoided the discussion of disputed points in regard either to originality or facts, as we hope to touch upon these in a future historical sketch.

ARTICLE III.

Letter from Dr A. Combe to the Editor of the Edinburgh and Leith Advertiser.[*]

Sir,—In your critique on the pamphlet, entitled "Sir William Hamilton and Phrenology," you notice one passage which you consider worthy of a serious answer, because it contains a statement of facts apparently at variance with the principles of that science.

The argument, as quoted by you, resolves itself in three points:—*First*, That the acuteness and intensity of the functions of the external senses bear no sort of relation to the size of the respective organs of these senses. *Second*, That therefore the Phrenologists, in teaching that the intensity of the internal faculties, such as Benevolence, Veneration, &c., bears a relation, *cæteris paribus*, to the *size* of the cerebral organs, are guilty of a glaring contradiction, seeing that "*the mind, which in one instance despises the dimensions of organs, in another servilely depends upon them,*" and that "the divine intelligence of a man" is thus made "a being of such bloated proportions, that it requires space as a condition of its power;" and, lastly, that it is thus made "more laborious to pity or to love than to see or to taste;" and that "one set of feelings thus demand an extent and play of their physical organs, for which the others have no necessity. *Third*, the complaint is made, that "of these anomalies, in the very principles and explanation of the science, the volumes of Phrenology give no solution!" To these three charges I answer, that the facts assumed in the first are *not true;* that the anomaly described in the second does not exist; and that the author's acquaintance with the "volumes of Phrenology" has quite as little of reality in it as his facts and anomalies. *First*, It is a fact admitted by the highest

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[*] Part of this letter is copied into the answer to Mr Jeffrey; but it contains so many valuable observations that we are induced to transfer it entire to the pages of the Journal. It was first published in March 1826.—Editor.

physiological authorities, and by the greatest authority of all —Nature, that the functions of the five senses *are* executed with a degree of acuteness and intensity exactly proportioned, *cæteris paribus*, to the development of their respective organs. Monro, Blumenbach, Sœmmering, Cuvier, Magendie, Georget, and a whole host of authors, might be quoted in proof, but one is enough; and, having Blumenbach at hand, I turn to the section on Smell, and find as follows:—' *While animals* " *of the most acute smell have the nasal organs most extensively* " *evolved*, precisely the same holds in regard to some barbarous na- " tions. For instance, in the head of a North-American Indian,' " (represented in one of his plates), ' *the internal nares are of an* " *extraordinary size*,' &c. And again, ' The nearest to this, in " point of magnitude, are the internal nares of the Ethiopians, from " among whom I have seen heads very different from each other, *but* " *each possessing a nasal organ much larger than that described* " *by Sœmmering*.'—' *These anatomical observations accord with* " *the accounts given by the most respectable travellers concerning* " *the wonderful acuteness of smell possessed by these savages*."

In like manner, Dr Monro, *primus*, no mean authority to put against a nameless pamphleteer, in treating, in his Comparative Anatomy, of the large organ of smell in the dog, says, " the sensibility (of smell) *seems to be increased in proportion* " *to the surface*; AND THIS WILL ALSO BE FOUND TO TAKE PLACE " IN ALL THE OTHER SENSES.' A late French physiological writer is equally explicit. In treating of the nerves, M. Georget says " *The volume of these organs* bears a uniform relation, in all " the different animals, to the *extent* and *force* of the sensations and " movements over which they preside. Thus, the nerve of smell " in the dog is *larger than the five nerves of the external senses* " *in man*."

Secondly, Having shown that the functions of the external senses *are* influenced by the *size* of their organs, it follows that if the same rule holds in regard to the internal faculties; if neither the former nor the latter " *despise the dimensions* " *of their organs*," and if it is *not* " more laborious to pity " or to love than to see or taste," nature is guilty of no anomaly. Her internal organs and faculties are constituted on principles strictly harmonizing with those which regulate her external organs and senses. The anomaly complained of,

therefore, exists nowhere but in the imagination of the hapless author of the pamphlet, and consequently stands in need of no explanation.

Thirdly, In regard to the author's acquaintance with the "volumes of Phrenology," if he had ever read them, he would never have been guilty of stating that the external senses despise the dimensions of their organs. Dr Spurzheim, in p. 259, of his Phrenology, says, "the principal condition "to an acute taste is certainly *large gustatory nerves spread over* "*a considerable surface;* but in this point many animals surpass "man." At p. 262, he continues,—"Many animals excel man in "acuteness of smell; *their olfactory apparatus being much larger.* At p. 264, in explaining the greater acuteness of hearing of some animals, he says, "It is anatomically proved that the "organ *of hearing is in many animals much larger and more per-* "*fect than in man.*" Dr Spurzheim, besides, mentions the names of many animals in which this proportion of size of organ to acuteness of sense is admitted by all. What state of mind, then, must the writer of the pamphlet have been in, when he gravely asserted that the senses were not affected by the size of their organs, and charged as a sin against the works on Phrenology, that they gave no solution of a non-existing anomaly?

Our author does not even stop here. "Does intensity in "these matters (seeing, hearing, smelling, &c.) increase with bulk? "Or does a giant feel more keenly than a dwarf? Assuredly the "instructions of experience are exactly the reverse!!!" So says the author; but what says nature? She, we have seen, answers his first question in the affirmative. Now for the second; an ant, when in a passion, fights with deadly fury, and a bee feels anger as well as a bear; but is the passion of the insect equal in *absolute quantity or intensity* to that of the bear? Do we not perceive that a shred of the rage of the latter would more than equal all the passion of the former? It is, no doubt, a towering passion for a *bee*, but it would be a very little one for a dog, and still a smaller one for a man. The mite, which walks with due solemnity on the mouldering sur-

face of a cheese, has legs which support and bear it along. The ponderous elephant, which moves slowly over space, has also legs with which he accomplishes his purpose; but will our author say that the elephant would walk as nimbly, supported on the legs of a mite, as on his own, and that intensity in these matters does not increase with bulk?

This analogy is perfectly fair, because the dwarf and the bee feel, smell, and see, well for a dwarf and a bee, and so does the mite walk well enough for a mite; but when you come to say, that, therefore, the *intensity* of the dwarf's and the bee's feelings equals that of a giant's and a dog's, and that the intensity of muscular power of a mite equals that of an elephant, the absurdity becomes strikingly apparent, and the true conclusion is perceived. A. C.

ARTICLE IV.

Phrenological Review of "*Thoughts on Religion and other Subjects. By Blaise Pascal. A New Translation, by the Rev. Edward Craig, A. M. Oxon,* 1825."

(FROM A CORRESPONDENT.)

Phrenology, if true, although a recently-discovered science, will yet be found in harmony and accordance with the soundest principles of thinking, and with the most accurate views of human nature, which have in preceding times been established by the most highly-gifted individuals of the human race. In like manner, in the material world, the sublime systems of Copernicus and Newton would scarcely have survived the minds which first conceived them, had not the succeeding experiments of all the sons of science proved their *truth*. But this point being proved, how futile have been all the censures which ignorance and folly, although veiling themselves in the sacerdotal robe, and enforced by the hand of power, once thundered forth against them! Equally vain

and futile will prove all anathemas against Phrenology on the score of its folly—its impiety—its dangerous tendency, when, by an accumulation of proof no longer to be withstood by any fair and competent inquirer, it shall be clearly set forth as *true;* or, in other words, as the right explanation of a portion of the divine creation, and that portion the most important, of man, the head of this lower world.

Most satisfactory evidence, both direct and indirect, has already been brought to bear upon this subject; but in the present article we mean to confine ourselves to the argument in its favour, which will result from the perception, that the views of an individual who has long been ranked amongst the most deeply-thinking of the sons of literature, and who lived two centuries before the discovery of Phrenology, are yet in perfect and striking accordance with its inductions.

We avail ourselves of this opportunity to notice the valuable addition to our *translated* literature which the present translator of this excellent work has given to the public, of a version more complete, free, elegant, and national, than has previously appeared in our language. Pascal may now be considered as naturalized amongst us, and fitted with an English dress which appears to suit him as well as his native costume.

Before we commence our task we will advert for a moment to Mr Dugald Stewart's theory, who states, that "a genius "for mathematics is gradually formed by particular habits "of study or of business." Not *exactly in accordance,* however, with this principle of philosophy is the following extract from the memoir of Pascal's life:—"To trace effects "up to their causes was one of his chief pleasures, &c. "His fa- "ther, however, fearful that this evidently strong predilection for "scientific pursuits would delay his progress in the attainment of "classical learning, agreed with his friends that they should refrain "from speaking of such topics in his presence, and this opposition to "his evidently ruling tendency was on principle carried so far, that, "on his making an application to his father to be permitted to learn "mathematics, the permission was positively withheld, till he should "have mastered the Greek and Latin languages. In the mean "time he obtained no other information on the subject, but that "[illegible] was a science which related to the extension of bodies,

"that it taught the mode of forming accurate figures, and pointed "out the relations which existed between them. But beyond this "general information he was forbidden to inquire; and all books "on the subject were positively forbidden to him. This vague de-"finition, however, was the ray of light which guided him onward "in mathematical study. It became the subject of continued "thought. In his play-hours he would shut himself up in an "empty room, and draw with chalk, on the floor, triangles, paral-"lelograms, and circles, without knowing their scientific names. "He would compare these several figures, and would examine the "relations that their several lines bore to each other; and in this "way he gradually arrived at the proof of the fact, that the sum "of all the angles of a triangle is equal to two right angles, which "is the 32d proposition of the 1st book of Euclid. The young "geometer had just attained this point, when his father surprised "him deeply occupied in the prohibited study."

Now any reader of common sense must, on reading the preceding account, feel convinced, that, however Pascal's "genius for mathematics" might have been improved and brought to perfection by these "habits of study," still the *genius* must have been innate which could, unaided by the instruction or guidance of others, and even in defiance of the paternal prohibition, have devised and successfully pursued "habits of study" so peculiarly his own. The memoir goes on to state, that "at twelve years of age Pascal "read through the Elements of Euclid, without feeling the need of "any explanation from teachers; and at sixteen he composed a "treatise on conic sections, which was considered to possess very "extraordinary merit." In the face of such examples, how can any *soi-disant* philosopher continue to assert, that all men are born with equal mental faculties, and that the differences observable among them are owing either to education, or to the accidental circumstances in which they are placed?

It thus appears evident that Pascal's own history is a convincing proof of the truth of Phrenology. We will now endeavour to show the perfect accordance of some of his views and thoughts with the phrenological system, although the limits to which we must necessarily confine ourselves will render our consideration of this subject very cursory and imperfect. We shall take his thoughts just as they occur to us.

"Things have various qualities, and the mind various inclina-

"tions; *for nothing presents itself simply to the mind, neither does* "*the mind apply itself simply to any subject.* Hence the same "thing will at different times produce tears or laughter." This is because there exists a plurality of organs of the mind; many of them frequently act simultaneously, and it is probably seldom that one acts alone. But were the organ of the mind one and indivisible, the *converse* of Pascal's observation would be true; *every thing* would present itself simply to the mind, and *the mind would apply itself simply to every subject.* In such a case, what would become of the metaphysician's favourite theme, the association of ideas? This effect, in a phrenological view, is resolvable into organs acting in combination with each other, and mutually exciting each other, (in a ratio proportionate to their degrees of natural force and activity) until such frequent acts of certain of the mental faculties in combination constitute the habit, which is defined to be "a power in a man of doing any thing ac-"quired by frequent doing it."

"A man may be possessed of sound sense, yet not be able to ap-"ply it equally to all subjects; for there are evidently men who "are highly judicious in certain lines of thought, but who fail in "others." This assertion is highly phrenological, and its truth is proved by every day's experience; but it is only explicable on the ground that there exists a plurality of organs of the mind.

"There are two sorts of minds, the one fathoms rapidly and deep-"ly the principles of things, and this is the spirit of accurate discri-"mination;" (in other words, the result of Comparison, Causality, "and Wit;) "the other comprehends a great many principles with-"out confusing them, and this is the spirit of mathematics," (given "by a larger development of the knowing organs.) "The one is "energy and clearness of mind, the other is expansion of mind. "Now the one may exist without the other; the mind may be "powerful, but narrow; or it may be expanded and feeble." Could a Phrenologist more clearly set forth the difference between the effects of a large development of the reflective faculties *alone*, or of the knowing organs *alone*, in an individual?

"The acute mind, accustomed to judge at a glance, is so astonished "when it finds presented to it a series of mathematical propositions "where it understands but little, and when to enter into them, it is "necessary to go previously through a host of definitions and dry

"principles, that, not having been accustomed thus to examine in "detail, it turns away in disgust." This is the case where large reflective faculties are combined with an inferior development of Individuality, Locality, Form, &c.; and thus it is explained why many of the highly-gifted intellects, who in their maturer years come forward as the master-spirits of their age, distinguish themselves but little in the course of their academic studies.

"We are more forcibly persuaded, in general, by the reasons "which we ourselves search out, than by those which are the sug-"gestion of the minds of others," because Causality is more strongly exercised in *discovering* than in merely *comprehending* reasons, and because the *combination* of faculties is different in each individual.

"Mind has its own order of proceeding, which is by principles "and demonstrations; the heart has another. We do not prove "that we ought to be loved by setting forth systematically the "causes of love; that would be ridiculous." The mental organization of man, on phrenological principles, consists of feelings or propensities, moral sentiments, and intellectual faculties; and each organ must be acted upon by its appropriate motive. In accordance with this system is the apostolical declaration, "I will pray with the spirit, and I will pray with "the understanding also."

"There are men who speak well, but who do not write well. "The place, the circumstances, &c. excite them, and elicit from "their mind more than they would find in it without that extra-"ordinary stimulus." A large development of Language, Ideality, and Comparison, with a favourable endowment of the organs of the moral sentiments, will suffice to constitute an interesting speaker, especially on subjects of devotion or charity. Should the topics to be discussed relate to matters of fact and business, then a good development of Individuality, aided by several other of the knowing organs, will be requisite; but to constitute a fine writer upon elevated subjects, will be required, in addition to all the above-named faculties, an extraordinary development of Causality, Concentrativeness, and Wit. It is no wonder then that there have been so few very fine writers.

"This is my dog," say the children; "that sunny seat is mine." "There is the beginning and the exemplification of the usurpation "of the whole earth." This is the natural acting of *Acquisitiveness* and *Self-esteem*, which are innate and not acquired feelings.

"Pity for the unfortunate is no proof of virtue; on the contrary, "it is found desirable to make this demonstration of humanity, and "to acquire at no expense the reputation of tenderness. Pity there-"fore is little worth." The pity here spoken of is the result of Love of Approbation, not of Benevolence; for the latter would *act* if it could; the pity of the former is then merely counterfeit.

"Though men have no interest in what they are saying, it will "not do to infer from that absolutely that they are not guilty of "falsehood; for there are some who lie simply for lying sake." This is a painful truth, too fully evidenced by examples in high and low life, such as Louis the Eleventh, J. G. &c. This vice is the result of a very large *Secretiveness*, large *Wonder*, with a deficient endowment of *Conscientiousness*, and an absence of all religious principle.

"I cannot admire the man who possesses one virtue in high "perfection, if he does not at the same time possess the oppo-"site virtue in an equal degree, as in the case of Epaminondas, who "united the extremes of valour and of meekness." A *universally* good development is required to form a character of superior excellence. On a similar view of the universality of virtue or holiness, the Scripture says, speaking of the law of God, as it is required to reign in the heart of man, "If a man of-"fend in one point he is guilty of all."

"This I is hateful; and those who do not renounce it, who seek "no further than to cover it, are always hateful also. It is essentially "unjust, because it will be the centre of all things; it is an an-"noyance to others, because it will serve itself by them; for each "individual I is the enemy and would be the tyrant of all the others."

This offensive I is the result of a too predominant development of the organs of Self-esteem and Love of Approbation; it establishes the reign of selfishness upon the ruins of the reign of love; nor will its baneful influence be ever exterminated from the human mind, except by the dominion of that charity which is the gift of God, and which "seek-"eth not her own."

"Man is evidently made for thinking. Thought is all "his dignity and all his worth." The reflective faculties are indeed excellent, and their organs are not possessed by the animal creation.

"The heart has its reasons, of which reason knows no-"thing. It is the heart which feels God, and not the rea-soning powers." Every one must feel the truth of the sen-timent thus beautifully expressed in popular language. To render it phrenological, we must substitute "*moral senti-ments* for *heart*;" and how far more philosophical and rational is the statement thus rendered! There are few *Anti*-phrenologists who do not believe that "the brain is generally the "organ of the mind." Is then the organ of the mind, or the intellectual part of man, totally dissevered from and un-connected with the organ of his feelings and affections? It would be almost as comprehensible that the intellect of a man should reside in one body, and the affections of the same individual in another.

"The way of God, who does all things well, is to plant "religion in the understanding by reasoning, and in the "heart by his grace." Substituting *intellectual faculties* for "*understanding*," and *moral sentiments* for "*heart*," how perfectly phrenological is this passage, and how does it show the harmony between Christianity and Phrenology! God has endowed man with intellectual faculties, and he shows him that in his Creator all wisdom centres, and that holiness is happiness. God has given man moral feelings, or affec-tions, and he offers to him motives for the exercise of his unbounded submission, love, and reverence.

"What think you is the object of those men who are playing at "tennis with such intense interest of mind and effort of body?— "merely to boast the next day, among their friends, that they had "played better than another. *There* is the spring of their de-"votedness. Others again, in the same way, toil in their closets "to show the *savans* that they have solved a question in algebra "which was never solved before. Others expose themselves, with "at least equal folly, to the greatest dangers, to boast at length "of some place that they have taken." The Love of Approbation is the motive which stimulates to all these exertions.

"That queen of error, whom we call Fancy, or Opinion, is the "more deceitful because she does not deceive always. She would "be the infallible rule of truth, if she were the infallible rule of "falsehood. Who confers reputation? Who gives respect and ve-"neration to persons, to books, to great men? Who but opinion? "Opinion settles every thing. She constitutes beauty, justice, "happiness, which is the whole of this world." What gives this power to "opinion," but that innate *Love of Approbation* which exists, in various degrees of force, in every human being? The large development of this organ forms a national peculiarity in the heads of the French people generally, and their manners, their customs, their modes of thinking and acting, are formed, to a wonderful extent, upon the basis of this feeling *alone*.

"Do not wonder that this wise man reasons ill just now; a fly is "buzzing by his ear; it is quite enough to unfit him for giving good "counsel. If you wish him to see the rights of the case, drive away "that insect which suspends his reasoning powers, and frets that "mighty mind which governs cities and kingdoms." How forcibly does this passage express the dependence of the mental powers on physical organization! How perfectly does it accord with the language of one of the ablest advocates of our science!* "The human mind, placed in a material world, cannot "act, or be acted upon, but through the medium of an organic ap-"paratus." Yet, as this same writer continues, "the laws of "thought have been expounded with as much neglect of organization "as if we had already shuffled off this mortal coil!"

"I can readily conceive of a man without hands or feet, and I "could conceive of him without a *head*, if experience had not taught "me that by this he thinks." Pascal here states his conviction, that the brain is the organ of the mind.

"It is dangerous to show man unreservedly how nearly he re-"sembles the brute creation, without pointing out at the same time "his greatness. It is dangerous also to exhibit his greatness ex-"clusively without his degradation. It is yet more dangerous to "leave him ignorant of both, but it is highly profitable to teach "him both together." Phrenology teaches that the nature of man is animal, moral, and intellectual.

"Pride has so thoroughly got possession of us, that we are pre-"pared to sacrifice life with joy, if it may but be talked of." The

* See Combe's System of Phrenology—Introduction.

sentiment of *Self-esteem* is innate, and its predominant action is pride.

"Notwithstanding the sight of all those miseries which wring us "and threaten our destruction, we have still an instinct that we "cannot repress, which elevates us above our sorrows." The sentiment of *Hope* is likewise innate; hence it is inextinguishable; and how invaluable is its assistance to suffering humanity!

"The most important concern in life is the choice of an occupa- "tion; yet chance seems to decide it; custom makes masons, sol- "diers, bricklayers, &c. Now we do not conceive that nature is so "uniform. It is custom which does this, and carries nature with "it. There are cases, however, in which nature prevails, and binds "man to his specific object, in defiance of custom, whether bad or "good." "It is a lamentable thing," says Dr Spurzheim, "that few "persons stand in the situations for which nature particularly fitted "them. This soldier ought to have been a clergyman, that clergyman "a soldier; and here we see a shoemaker who was intended for a "poet, and there an advocate who was designed for a shoemaker."

"The will is one of the principal sources of belief; not that it "produces belief, but that things appear true or false to us accord- "ing to the way they are looked at." Mr G. Combe says, "The "propensities and sentiments shed the light through which the oc- "currences of the world reach the mind, and reflection perceives "the objects as they appear under this illumination." These passages appear quite accordant with one another.

"Do you wish men to speak well of you? then never speak well "of yourself." This is the modesty produced by Love of Approbation, Consciousness, and reflection, and it is very common. "Two "faces which resemble each other, neither of which is ludicrous "alone, excite a smile from their resemblance when seen together." "Wit," says Mr G. Combe, "appears to consist chiefly in an intellec- "tual perception of difference; of congruity amid incongruity." The fact mentioned by Pascal appears an illustration of this definition of wit. An unexpected *congruity* is perceived in the two faces which strikingly resemble each other amid the *incongruity* of their belonging to two distinct individuals, and by this perception at once of resemblance and difference the organ of wit is agreeably affected, and a smile is excited. It appears from the above definition, *why* the effusions of wit have always been assigned so high a rank amongst the operations of the mind, since it requires more ingenuity to discover two things

which are at the same time alike and different, than two things which are simply alike or simply different.

"When a discourse paints a passion or an effect naturally, we "find in ourselves the truth of what we hear, *and which was there* "*without our knowing it;* and we feel induced to love him who "causes us to discover it, for he does not show us *his* good, but *our* "*own.*" "Each propensity, sentiment, and faculty," says Mr Combe, "may be called into activity by presentment of its object. "Happiness consists in the harmonious gratification of the faculties, "and the very essence of gratification is activity."

The limits within which we must necessarily confine our observations forbid our extending them further. But we trust we have shown in some degree, however inadequately, the striking accordance which exists between Pascal's views of human nature and those to which Phrenology leads us. It is a proof of the extraordinary penetration which this great intellect possessed, that its unaided contemplations anticipated in some measure the result of the discoveries of two centuries; whilst, on the other hand, Phrenology affords us a light whereby we can explain many of Pascal's sublime, but often obscure thoughts, and expound the reason of things where, perhaps, he perceived only the effect.

ARTICLE V.

CASES OF MORBID CHANGE IN THE BRAIN.

THE first case is one of Hypertrophy of the Brain, recorded in the *Archives Generales de Médécine,** by Scoutetten, D. M.P., Aide-Major à l' Hopital Militaire de Metz.

Antoine Peisset, a boy of 5½ years of age, born of healthy and well-constituted parents, presented a very large head, equal in size to that of a full-grown adult, and which had

* Vol. vii. p. 41.

been developed insensibly. The forehead was high, but not prominent, and the occipital protuberances had acquired a great magnitude. For a long time he did not complain of pain, and was only annoyed by the weight of the head, which, in running, was suddenly projected forwards, and caused him to fall. This inconvenience gradually increased, and in the last year of his life occurred very often. The intelligence of the young patient presented nothing remarkable; he understood and retained very well whatever was said to him, but surpassed in nothing other children of his own age. When he sat down and remained quiet, it very often happened that he fell into a profound sleep, but with no unusual appearance.

All the functions of young Peisset were performed with regularity, and no apparent cause had yet occurred to disturb them, when on a sudden, on the 1st day of September, 1823, the appetite disappeared, thirst became urgent, and dull pain was felt in the epigastrium. The abdomen remained soft; the pulse was hard, full, and frequent; in regard to the encephalon there was little alteration in the intellectual functions; but there was a considerable drowsiness which ceased when spoken to. The alvine evacuations were rather scanty, but were promoted by castor-oil and other means, which caused the expulsion of several worms without any amendment.

During fifteen days the morbid phenomena offered no perceptible change, and nothing was ordered but emollients and light soups.

On the sixteenth day an increase of all the symptoms suddenly occurred; the intellectual functions were completely abolished; the pupil of the eye was dilated, but the iris retained its contractility; respiration became difficult; the pulse became slower and softer; and at four in the afternoon the young patient expired without any unusual nervous symptom.

DISSECTION.

Head very voluminous, evidently larger than that of an adult of great stature. The posterior *ovale* is especially very much enlarged; the eyes do not project beyond the sockets; the abdomen is not large; and the inferior extremities are rather slender.

On opening the skull, the latter is found to be from one and a half to two lines in thickness; the dura-mater is strongly adherent to the skull, and its vessels distended, but without alteration of structure; the pia-mater, very red in all its points, presents in several places very visible sanguinolent exudations, as well as several white laminæ, formed by its thickening, and all its folds and the choroid plexus are strongly injected. The very voluminous brain presents in all its parts a consistence greater than that generally observed in a child of five years. Its substance, of a rosy hue, offered no appearance of degeneration. The unusual development of the brain had taken place chiefly at the *upper* and *posterior* part of the hemispheres; and this is demonstrated by my having to make a perpendicular incision of nearly three inches before arriving at the ventricles, while below these there was only one inch of substance. The ventricles contained a very small quantity of reddish serosity.

M. Scoutetten gives this case of hypertrophy of the brain as a specimen of an exceedingly rare and curious affection never before observed; and he takes occasion to express his astonishment, that the intellectual faculties did not present any extraordinary degree either of precocity or activity; and he adds, that if a few more such cases shall occur, it will be necessary for physiologists to admit, that the great development of the cerebral masses *is not always* attended with a great degree of intelligence. In both of these respects, however, M. Scoutetten is wrong. Other cases of a similar morbid growth are on record, and living instances not unfrequently present themselves, though to a less extent, in

rickety and scrofulous children, the size of many of whose heads strikes every one as out of all proportion to their feeble bodies. In many of these cases, where considerable activity or irritability exists, there is a corresponding precocity of mental power, which often excites the fondest hopes and the warmest admiration of the parents, but which, under injudicious management, ends in bitter disappointment. Urged on by the brilliant maturity of the youthful mind, and not aware how much of the effect is dependent on an irritability bordering on active disease, the parents, by way of encouraging and fostering talent and genius, too often defeat their object, and either altogether exhaust the little real energy existing, or, by exciting too much and too long, pave the way for a train of convulsive and nervous symptoms which put a period to life itself; where, by a more judicious training, and by exercise proportioned to the state of the constitution, talent and health might ultimately have been secured on a more solid basis. Many little prodigies thus sink into an untimely grave, or, by pure exhaustion, become unfit for any even ordinary mental exertion, and pass through life, not like beings moved by their own internal resources, but constantly requiring the aid of others to help them on their way.

Others again of these large-headed children, who, like that mentioned by Scoutetten, show no superiority during their earlier years, occasionally shine forth at the age of maturity as beings of a higher order than their earlier manifestations gave any reason to expect. This happens when, by the lapse of time, favourable circumstances and restored constitution, the development, which originally sprang from disease, becomes animated with the full vigour of health. It is absurd, then, in M. Scoutetten to say, that if several such cases as that of young Peisset should occur, we shall then be forced to admit, that *size* is *not* the *only condition* of superior power; for, without waiting any longer, we have already facts more numerous than a man's small brain can hold to prove, that *other conditions as well as size must be attended to;* and if the Phrenologists become tiresome by constantly

calling attention to the *ceteris paribus*, their excuse is, that still it is overlooked, not by the vulgar only, but by men of professional and philosophical eminence; and although they are themselves almost sick with the repetition, and would gladly have it understood rather than expressed, yet, while the public remains deaf to the sound, they, disagreeable as it is to themselves, and to those who do listen, must only cry the longer and the louder, till they succeed in forcing general attention.

Thus, in the case more immediately under consideration, it was solely from M. Scoutetten not attending to the signs of diseases which he had previously enumerated, both as regarding the increased vascularity and consistency of the brain, and the sanguinolent exudations, and white laminæ and thickening of the pia-mater, and from not attending to the fact which he himself had stated of the unusual development having taken place chiefly at *the upper and posterior parts of the hemispheres*, or region of the sentiments and propensities, not in the anterior part, or where the organs of the intellect are situated, that he was led to wonder that the same effect does not always follow from causes essentially different; whereas, if he had considered for a moment, that a large head, remarkable for intellectual power, differs from the one described in the very important conditions of health, and of great development of the anterior part of the brain, he would at once have recognised, that, although size was a principal condition of power, yet it was not so much so as to supersede all other circumstances. In other words, he would have expected similar effects to present themselves only where the causes producing them were also similar.

As the growth and decrease of the brain are involved in considerable obscurity, it may be worth while to lay before our readers rather a singular case which came under the notice of the celebrated Baron Larrey, and which is narrated at p. 41 of that author's *Memoires de Chirurgie*, &c. It is remarkable as an instance of an increased size of the head from disease being followed by a diminished power in all the

sensitive and intellectual functions, and by the decrease consequent upon recovery being attended with the restoration of these functions to their usual state of activity.

A young trumpeter of the *chasseurs de l'avgarde*, after a fall from his horse, on the head, was tormented for *two years* with epileptic attacks so close upon each other, that they often came on twice in one day. The skull was deformed, and had acquired such a size in a short time, that his uniform-hat, received at entering the regiment, was now five or six lines too strait for him. The eyes were very prominent and almost immoveable, the face discoloured, the pulse slow and *caudal*, the respiration laborious; the contractions of the heart were distant and scarcely sensible. The extremities almost always cold. Standing and walking were accomplished with difficulty, and all the sensitive functions, and sight in particular, as well as the mental faculties, were very much weakened; lastly, every thing remained *une gêne et une compression sans doute concentrique du cerveau*, the effects of which augmented in proportion to the variations of the atmosphere and other determinate causes. After a large bleeding from the jugular, the application of several cupping-glasses to the nape and temples, that of ice to the head, and mustard-baths to the feet, and the internal use of calomel, 15 moxas were applied round the head, and especially in the course of the original lateral and posterior fontanels. The symptoms diminished gradually and progressively, so as to render the attacks slighter and rarer, till at last they disappeared entirely, and the patient was perfectly cured before the end of *ten months*. All the animal and sensitive functions were soon re-established; and a remarkable thing is, that the *voute du crane* was reduced in its circumference, the primitive conformation of these bones was gradually reproduced, and, when the trumpeter left the hospital, his hat, at first too tight, was now four or five lines too wide; so that a reduction of eight or ten lines had taken place in the circumference of the head.

This enlargement and subsequent diminution in the size of the head have been so little observed, that one naturally inclines to ask, was it not the integuments that were swelled and again restored? From Baron Larrey's express mention of the skull, and from the decrease extending to four or five lines below what the patient's head had originally been, and from Larrey's accuracy of observation, it is difficult to raise any well-founded doubt, and, knowing, as we do, that the brain not unfrequently decreases in size from disease, and that the head assumes also an increase of volume, in hydrocephalus for instance, we cannot do otherwise than receive the case related, and apply to further observation for farther information. Baron Larrey's practice was bold and decided, and its success was the best proof of its being judicious.

Phrenologists are often told by their opponents, that if the new philosophy were true, surgical cases would unquestionably be found to afford it the most direct support. We have already, on more than one occasion, explained the difficulties attendant on this mode of investigation in so far as *discovery* of function is concerned, and have endeavoured to show, that no man unacquainted with the true philosophy of mind, and with the situation and boundaries of the cerebral organs, is qualified to make accurate and conclusive observations. We have cited, in proof of this, the vagueness of that testimony which is founded on the patient being able to answer a single question or two, and which is often held sufficient for affirming that *all the faculties* are unimpaired; and we have shown that any part of two-thirds of the whole brain connected with the sentiments and propensities might thus be injured with lesion of function, and yet from the other third, or organs of the intellectual faculties, remaining untouched, the whole senses or faculties of the mind would be said to be retained in full vigour. A case illustrative of some of these remarks presents itself, and is worth mentioning: it is also by Scoutetten, p. 39.

Bigal, aged 24, soldier in the 56th regiment of the line, was returning from Bourges in 1824, where *he had been condemned to hard labour* (travaux forcés), *and where he had been several times sick*, when he entered the military hospital at Metz to be cured of a chronic disease. Not a word is said about the state of his head or mind till three days before his death, when an œdematous swelling of the forehead and of the left eyelid, with slight headache, were remarked; in the evening the tongue was red and dry, thirst great, skin hot, pulse quick and hard; delirium, which was interrupted by asking him a question; vomiting, drowsiness, dull eye, and stiffness in the upper extremities. Died next day.

On dissection, a good deal of disease existed in the abdomen, which is foreign to our present purpose. On opening the head, *à la partie la plus réculée* of the posterior lobe of the brain, two small ulcerations were manifest, which interested only the grey matter; they were so disposed that one was superior, the other inferior; the latter was of an oblong oval shape, about *six lines* in length; the former was less extensive, and about a line in breadth. The section of the tissues rendered evident a vascular sanguineous injection greater in proportion to its proximity to the ulcerations, and which gave a colour to the grey matter like that of lees of wine. The rest of the brain was sound. The pia-mater presented a very marked vascularity, especially at THE POSTERIOR AND LATERAL PARTS OF THE LOBES OF THE ENCEPHALON, where a little blood was even extravasated; in other parts there was a serous infiltration, giving to the pia-mater a gelatinous appearance.

Here then is a case of extreme interest to the Phrenologist, and yet to the non-phrenological surgeon it is altogether without importance, in so far at least as the laws of mind are concerned. The chief seat of the cerebral disease is stated to have been in the *posterior lateral parts of the lobes*, which are ascertained to be the organs of some of the most

active and energetic propensities of our nature. But as the intellect was not apparently deranged, and as, generally speaking, its operations alone are inquired into as connected with the brain, it seems never to have occurred to the medical attendant to make any remarks on the state of the temper or feelings, and, accordingly, the only point that transpires in regard to them is, that Rigal was on his way from Bourges, where he had been condemned to hard labour, and where he had been frequently sick. But he must have been condemned for some crime; and yet so little had curiosity been excited to the verification of the physiological functions of the part diseased, or to the discovery of a new one, that no allusion is made to the subject, and not a word is said in regard to any possible connexion existing between the disease and the crime, or between the crime and the general character. The phrenological surgeon, on the other hand, with the principles of his science clearly before him, would have been most anxious to ascertain whether Rigal's habitual conduct was in accordance with the indications of his development, and whether his character had undergone any change after the invasion of the disease. And, knowing the function of the part affected, he would have been curious to know whether he had been guilty of any act of violence arising from morbidly active Combativeness, or whether the crime and disease were really connected; but, for want of the preliminary knowledge, and the leading motive thence arising, many such opportunities of investigation are lost for ever.

M. Scoutetten's case and many others lose half their value from the vagueness of description as to the precise local seat of the affection; and if the lines defining the phrenological organs served no higher purpose than the lines of latitude and longitude on a map, viz. that of identifying parts, still they would merit universal adoption, and science would be a gainer.

ARTICLE VI.

Phrenological Analysis of ILL-TEMPER, ILL-HUMOUR, *and* ILL-NATURE, *compared with the Analysis of the same Defects of Character attempted by the New Monthly Magazine for July*, 1826.

It is none of the least attractive features of Phrenology that, as a road to the intellectual and moral character of our fellows and ourselves, it is as short as it is certain. We once chanced to listen to a very skilful and just exposition by an able *non*-phrenological friend, of the kind and degree of talent to which a certain English chemist owes his high rank in the scientific world. There was much sagacity, with some confusion, in the statement, which occupied many minutes. We were curious enough to try the effect of a phrenological analysis; and found that we could put the whole of our friend's speech into as many words as were necessary to express the size and proportions of a few organs which indicate certain primitive intellectual powers; and, had we seen the actual forehead, we could have come to the same conclusion without the aid of the speech, which, as a speech, we much admired.

It is so rare an occurrence, that philosophers, who especially distinguish themselves by despising and vituperating our views of nature, favour us with a specimen of their own; that when it does happen, the opportunity for a comparison is not to be lost. In the New Monthly Magazine, edited by a gentleman of the most distinguished literary name, and read extensively as the current wisdom of the day, we were lately attracted by an article entitled "*English Malady*," which we found was not indigestion, but *Ill-humour*. This not being the only "Ill that flesh is heir to," the occasion is taken to define, distinguish, and illustrate ill-temper and ill-

nature, as well as ill-humour. Now, as we think, with great deference, that the New Monthly has made hotch-potch of the subject, wherein they differ from all other magazines and reviews that venture at random into the field of human nature only as a variety of the *inutile*, we shall endeavour to set the three affections in question upon a phrenological basis, and from that position do our best to recall the Magazine from its wanderings.

The proper order, according to the degree of their aggravation, is ill-temper, ill-humour, and ill-nature.

I. Ill-temper.—When any quality has a contrary, the extremes always throw light on each other. Let us then keep in view good-temper, or, as it is eminently called, temper. Temper is defined in Johnson, "a due mixture of contrary qualities." This is a good definition so far as it goes; but it has the fault of all the old definitions of the components of human nature, it is useless from its generality; the qualities duly mixed are not specified. Phrenology points out that here the contrary, or rather the antagonizing qualities are, on the one hand, the primitive impulse to anger, and, on the other, the feelings that restrain it, namely, kindness, deference, justice, fear to offend, self-respect, reflection. All, or a due proportion of these last acting more powerfully than the impulse to anger, anger will not be manifested. This may occur in two ways, either when the restraints are so powerful as to overmaster a positively strong impulse to anger, or when the impulse to anger is moderate, and the balancing feelings and reflection have less to do. The first case will be restrained anger, the latter will be positive calmness and gentleness; but both, as a due mixture of the feelings, will constitute temper. Ill-temper is the want of the due mixture now described, from which follows the frequent manifestation of the impulse to anger in excess. Now, anger being an essential function of the propensity hitherto, for want of a more comprehensive name, called Destructiveness, and generally,

when of the noisy and boisterous sort, in alliance with Combativeness, ill-temper is just too-easily-excited Combativeness and Destructiveness. This inconvenient weakness in its excess generally holds an inverse ratio to the endowment of reflecting power. It is common in idiots, in whom it acts as a pure animal impulse. But in the ill-tempered, a large organ of Destructiveness may coexist with large organs of Benevolence and Conscientiousness, which will operate spontaneously the moment the activity of Destructiveness abates, and the individual will be kind and just, nay, generous and candid, till again irritated. This is so common as to have founded a sort of aphorism, that the warm-tempered are always warm-hearted. There is, however, no grounds for so general a rule; for the warm-tempered may *not* have a large Benevolence and Conscientiousness. This, to be sure, as we shall afterwards show, will connect them with the ill-humoured, and even the ill-natured; but these two last are also ill-tempered, and not warm-hearted. But it is phrenologically true, that the simply warm-tempered man is also kind and just; for, unless he has also large Benevolence and Conscientiousness, he is more than warm-tempered, he is ill-humoured, perhaps ill-natured. The kind-hearted passionate man, nevertheless, is often a great nuisance. The recurrence of his fits, as regulating the duration of his calm and kindly intervals, is an important inquiry. We knew a servant who, after many years' forbearance with a hasty master, was at last forced to give up his place as untenable; and gave as the reason his master's violent temper. He was told that he well knew that "it was no sooner *on* than it was *off*." This he granted, but replied, "that it was no sooner *off* than it was *on*."

We may add as a characteristic of the merely ill-tempered, that, however they may fret, and fume, and even imprecate, they will not seriously hurt or injure; the better feelings of Benevolence and Justice will start into activity even during the anger, and restrain the hand, if lifted for a cruel or

dangerous purpose. Although this illustration of the phrenological analysis of ill-temper be long, the analysis itself, which is all that one who thinks phrenologically needs when any phenomenon of human nature is contemplated by him, is simply this, that ill-temper, *per se*, without ill-humour and ill-nature, is large and easily-excited Combativeness and Destructiveness coexisting with large Benevolence and Conscientiousness; and, in cases of excess, without average reflecting power.*

II. Ill-humour.—This is a person's selfish engrossment with his own discontented feelings; that peevishness, or sullenness, or moroseness, which, when on him, he has the inclination to establish as the tone of his circle. The ill-humoured man is intensely selfish, and, during his fit, is altogether unconscious that any one else has a right to have human feelings. Now selfishness is the preponderance of the feelings whose object is self; in other words, of the propensities and lower sentiments over the higher sentiments, which spontaneously suggest regard to the feelings of others. It follows that ill-humour will appear in the direct ratio of the preponderance of the selfish over the social feelings, whenever the selfish feelings are disagreeably excited. We shall find ill-humour, therefore, in one or other of three degrees; 1*st*, When an individual has all or most of the animal propensities, from No 1 to No 9, large and active, while Benevolence and Conscientiousness, though absolutely capable of their legitimate application to kind and just consideration of others, are not of such power as to counterbalance the strong and active base of the brain. Disappointment in love, loss at play, a bad

* It may be thought, after this exposition, that ill-temper is rather too strong a term for mere warmth, without any other unamiable feeling. We had ourselves that impression, but adopted it for the sake of *symmetry*, taking care to limit its meaning. We rather think it is the generic term which will cover all the three defects under consideration. We so understand the term ill-tempered man.

dinner, a stint of liquor, a fit of anger, a dispute, will throw such an individual back on self, and render him a discontented and ill-humoured companion. *2d*, Add to this development, in another subject, a very large Love of Approbation, and let that most selfish and irritable of human feelings be disagreeably affected, or, as it is called, mortified, and aggravated ill-humour, with increased implacability, will be the consequence. The very existence of that entity called a fellow-creature is then forgotten. *3d*, There is yet necessary another obvious element to establish what may be called the tyranny of ill-humour, and that is a large Self-esteem. The two first individuals mentioned, particularly the second, will rather seclude themselves, and will only be unpleasant objects of contemplation, but not actual visitations, unless you excite their anger by making light of their sufferings, or venture, as Shakspeare says, to "claw them in their humour;" but your ill-humoured despot is your Self-esteemer. He takes the chair, gives the key-note of discontent to the company, and in his presence no happy dog shall bark, or cheerful bird sing.

It is evident how it may happen that the ill-humoured man may be both kind and just when the fit is off. He *has* Benevolence and Justice, though not in the highest endowment; and these will work when the selfish feelings are quiescent; but only then. We say he may be kind and just; for we doubt if that degree of the better feelings which the lower when excited can so completely master, is an endowment which admits of the higher effects of generosity or candour.

III. Ill-nature.—This last of the three can now be easily distinguished from both warm temper and ill-humour. Seeing that the ill-natured are necessarily ill-humoured, although the ill-humoured may not be ill-natured, ill-nature is an *advance* of the unfavourable compared to ill-humour, How then is it produced? There needs no positive increase

of the selfish feelings, including Self-esteem and Love of Approbation. The contingent of the ill-humoured in these is quite sufficient for the ill-natured; so that the ill-natured are neither more nor less selfish than the ill-humoured. The difference is this, the merely ill-humoured can be kind and just, the ill-natured cannot; in phrenological language, the ill-natured are still more deficient in Benevolence and Conscientiousness than the ill-humoured. Johnson's definition of ill-natured is just, namely, "habitually malevolent, wanting kindness or good-will, mischievous." Injustice is implied in malevolence and mischief; for the ill-natured are notoriously unjust.

It will readily appear that the ill-natured man acts more *on the offensive* than the ill-humoured. The latter snarls within the bounds of his own straw; but the former carries the war into his neighbour's territory; nay, pursues him to his privacy, and rejoices in dragging him forth, and holding him up to reproach, scorn, or ridicule. If the ill-natured are yet farther armed with wit, like Voltaire, sarcasm and satire will be their weapons, Destructiveness giving wit that biting quality. If they have not wit, their ill-nature will be the direct and vulgar expressions of mere malice. The spirit, however, is the same in both.

From this analysis we are inclined to believe, and it may be verified in nature, that ill or warm temper, ill-humour, and ill-nature, are three degrees, of which the first only can exist alone; while the second includes the first, and the last both the first and second. Thus, 1*st*, Ill-temper is only large and active Combativeness and Destructiveness coexisting with kindly, just, and even generous and candid feelings; 2*d*, Ill-humour includes large and active Destructiveness, and superadds a generally large animal, and therefore selfish endowment, with some degrees less, than in ill-temper, of the higher or social sentiments; and, 3*d*, Ill-nature has all which belongs to ill-humour, with a still greater deficiency of Benevolence and Conscientiousness. A tolerably-skilled Phrenolo-

gist, then, could, by inspecting three such heads, point out the merely warm-tempered man,—the ill-tempered and ill-humoured man,—and the ill-tempered, ill-humoured, and ill-natured man,—by their organization respectively.

Let us now see how the New Monthly Magazine, which happened to be rather forward in deriding, without, in the slightest degree, comprehending the view of human nature offered by Phrenology,* defines, distinguishes, and accounts for the three complaints in question:—

"An ill-tempered man is impatient of trifling annoyances; is "roused, by petty provocations, to hasty and unmeasured language "and actions, but is generally as easily appeased; his fire being, "like that of a straw, as evanescent as it is sudden. Such an indi-"vidual, when the corns of his irritability are not trodden upon, "may be gay, cheerful, and benevolent. In general, however, he is "an unsafe companion; and to converse with him is to inhabit over "a volcano.†

"An ill-natured man is one who has a perverse pleasure in the "misfortunes of his fellow-creatures; one who enjoys all the vexa-"tions and disappointments of his neighbours; not because they af-"ford materials for laughter, but because they give pain to the vic-"tims.

"Very different from these personages is the ill-humoured man. "Such a man may be just, generous, and, upon great occasions, com-"passionate and friendly; but, in his ordinary intercourse with so-"ciety, he overflows with an unceasing stream of bitterness. All his "remarks are severe, harsh, and annoying; and in the moments of "his relaxation, in the hour of social enjoyment, he is morose, snap-"pish, and insolent."

In general these definitions are just, and we shall pass them with a remark or two:—1*st*, Ill-nature should not precede, but follow ill-humour, as decidedly entitled to top the climax; 2*d*, The ill-humoured man is never generous, although he may, "when called out by great occasions," be just, compassionate, and friendly; for selfishness will lurk in all he does, and prevent him ever ascending to the generous; 3*d*, On the other hand, "an unceasing stream of bit-"terness" infringes too much on the offensive, the province

* See our Fourth Number, vol. i. p. 534.

† A pound of gunpowder had, as a metaphor, been better chosen; in respect of its sufficiency for the occasion, as well as its quiescence and explosiveness.

of ill-nature; *4th*, The misfortunes of his neighbour gratify the ill-natured man's love of laughter, only if he superadds Wit to his unsocial and malevolent tendencies.

But distinctions likewise (and these are more difficult yet than definitions) are tried by this writer. Any such attempts, without the guiding principle which Phrenology furnishes, are efforts of sagacity for the occasion; and are of course unlike the effort of sagacity of every other speculator who handles the specific subject; nay, of the same speculator at another time. Of the distinctive kinds, degrees, modes of operation and manifestation of the *intellectual* powers, there is such a blank in the old philosophy, that minute discriminating attempts in these are rarely made at all, and still more rarely successfully; so that the most general terms, such as talent, ability, cleverness, profundity, and their contraries, are the only refuge. But writers and talkers of all descriptions, without distinction of age or sex, dabble in the *feelings*; and we are often reminded, by their expositions, of a boy's endeavour to identify and secure certain specified live eels among a number in a tub, in all the convolution, involution, and evolution of that most slippery experiment. If he succeeds in apprehending the desired individual, it has eluded his firmest grasp before he can identify it; while eager to repossess it, he takes up a stranger, which is likewise again among the mass before he knows the delusive fact. Of the three *Ills* which the writer before us would discriminate, he catches A, B, and C pretty regularly, and names them; after which all perception of their identities and differences fail him; A slips through his fingers before he is done with it, and B is caught for the rest of the distinction; anon C is believed to be in its turn the subject of demonstration; when it is B over again which is held up to view, and the experimentalist never the wiser.

"The ill-humoured man *differs* from the ill-natured in this, that "he does not rejoice in misfortunes, but takes pleasure only in seeing "his friends uncomfortable; and he has no delight even in this mea-"sure of annoyance, if he himself is not the author of it. Again,

"he differs from the ill-tempered man, because the latter must have "some one to be angry with; whereas the ill-humoured man is at "odds with himself; the ill-tempered man must have external occa-"sion for excitement; the ill-humoured goes out of himself to seek "for the food of his humour.

"An *ill-humoured* man, in the bosom of his family, sits like a "spider in the centre of its web, in watchful and unceasing malice "against all around him. No sooner does a burst of cheerfulness "explode in his presence, than he hastens to repress it by a sarcasm "or a rebuke. He studies the weaknesses of his friends in order to "play upon them with more effect; and as the hackney-coachman "'makes a raw' on his horse's shoulder to flog his callous hide to "better purpose, so the *ill-natured* man delights to awaken an out-"raged feeling,—to notice an imperfection,—to shock a prejudice, "and, in one word, to say to every individual the most unpleasant "and vexatious things that recur to his recollection. The great "pretext for this *cantankerous** indulgence is, that the party loves "to speak his mind. He, forsooth, is a plain, downright man, who "always utters what he thinks, and he is too good an English-"man to make cringes and congées like a foreigner."

These attempted distinctions, we humbly think, are a mass of confusion, into which a Phrenologist could never have fallen. He knows that the ill-humoured man takes no *pleasure* in seeing either his friends or his enemies uncomfortable, or in being himself the author of the annoyance. These, as pleasures, are within the function of the ill-natured man:

> "Men that make
> "Envy and crooked Malice nourishment,
> "Dare bite the best." SHAKSPEARE.

Here, then, is a wrong feeling caught up for illustration. The author is describing ill-nature, while he is exhibiting ill-humour as the *corpus demonstrationis*.

The distinction between ill or irascible temper and ill-humour is not more correct, inasmuch as external circumstances excite ill-humour as much as they do ill-temper. Ill-humour is engrossment with the disagreeable affection of the selfish feelings, which feelings are affected both agreeably and disagreeably by the external objects suited for each purpose. Phrenology discriminates these external objects; but external

* *Sic in origine.*

objects they are; so that here the author has offered a distinction without a difference.*

In the latter paragraph, where the ill-humoured man is compared to a spider, so palpably is the *ill-natured* man described, that we could almost suspect the printer and not the author of the blunder. It is the ill-natured man, not the ill-humoured man, that "establishes a *raw*, and awakens an outraged feeling." Indeed the writer lets slip the eel in his hand before the sentence is done, and catches another; so that although ill-humour begins the passage, *ill-nature* ends it. The "pretext" which follows is likewise more the pretext of the ill-natured than of the ill-humoured. The latter is too much occupied with his own disagreeable feelings to set up for the plain speaker, or *character* as it is called. That, besides, often comes of mere pride and vanity, without either ill-nature or ill-humour, and is one of the thousand and one self-defeating attempts to gain a little paltry power and distinction.

But perhaps the simple explanations afforded by Phrenology are never more conspicuous than when contrasted with the attempts which the old school makes to *account* for the phenomena of human nature. As a specimen of what the unphrenological reading public will not only bear, but absolutely take for sound and original thinking, we extract the following *bijou*:—

"The last modification of disposition (ill-humour) is decidedly "English; and whether it be attributable to '*les bouillards d'Angle-*" '*terre*,' to the beef-and-puddingizing, the anxious money-getting, "or other causes peculiar to England and Englishmen, it is rarely "to be met with on the continent in the same intensity in which it "prevails at home. Individuals, indeed, of all nations may be "subject to occasional fits of spleen and discontent, but it is among "Englishmen exclusively that we find ill-humour an *etat*, a *maniere* "*d'etre*, which clings to a man at all periods of life; and is neither "mitigated by the successes of love, of vanity, or of ambition; nor "requires to be awakened by disappointment and vexation.

* Our phrenological readers will at once see that we exclude hypochondria or insanity, in which both anger and ill-humour may proceed from internal activity of the feelings alone.

"Ill-humour is a distinctly constitutional disease; and as its oc-
"casional paroxysms are rarely brought on by the more serious
"evils of existence, but are excited by a perverse accumulation of
"petty annoyances, so the disposition itself does not appear to de-
"pend on any notable deviation from health, but to arise from
"*some obscure* hitch or embarrassment in the more intimate move-
"ments of the frame, which, without tending to sickness or dissolu-
"tion, is destructive of that diffusive animal pleasure which, in
"happier constitutions, is derived from the mere sentiment of ex-
"istence. It should seem as if, in persons thus constituted, the ca-
"pillary systems were so many fountains of irritation, from which
"flow in upon the *sensorium* an accumulated torrent of *inappre-*
"*ciable impressions*, which do not engender pain, but yet fret the
"dispositions like a gummed velvet, and throw the mind upon the
"external world in search of these causes of uneasiness which are in
"reality internal. 'The humours of the body,' says a moral
"writer, 'imperceptibly influence the will, so that they enter, for
"'a large part, into all our actions, without our being aware of it;
"'and thus it is that the ill-humoured man punishes, in his friends,
"'the outrages of some peccant lymph circulating in his own veins,
"'and revenges himself nobly on society for the offences of his liver
"'or pancreas.'"

But ill-humour, it seems, is the English malady; so prevalent, too, "that, whether we look into the parlour, the
"*nursery*, or the saloon; whether we examine the dinner-party or
"the family-circle; whether we follow the people into their domes-
"tic interior, or accompany them in their public amusements, there
"is in England infinitely less cheerfulness, good-humour, and ease
"in the social intercourse of the people, than are to be found in the
"society of any other of the European nations.

The Phrenologist sees at a glance that all this is wordy nonsense. Ill-humour he knows to be disagreeably-affected selfish feelings,—these feelings holding a decided preponderance over the social. If the Magazine is right, there must exist in the universal English people, greater selfishness and more moderate Benevolence and Justice than in any other European nation! It is quite wild to mistake the effects of that license which the laws of England do not deny to all the *really* ill-humoured who choose to vent the feeling in political grumbling, for the actual poll of a greater number of discontented men in England, than in countries where the malcontent must swallow his political resentment. To the Phrenologist there

is less real ill-humour in the genuine English character than in any other in Europe. "Of all the unsettled humours of the land," ill-humour the least abounds in that substantially happy people; and if this writer will go more clear-sightedly into the parlour and the nursery, he will find, not ill-humour, but gravity,—the effect of a large Self-esteem, or self-respect, which the English do eminently possess, but which is as different in feeling from ill-humour, as it is in dignity from the jigs, and grimaces, and monkey-tricks of some nations of the continent.

We may yet find an opportunity of aiming at nobler game than the anthropology of the New Monthly Magazine. The *human nature* of some philosophers of the highest name,—of the elegant and profound Theorist of Moral Sentiments himself,—will be found to be distortion when the square and plummet of Phrenology are applied to it. We conclude at present by submitting it as an exercise to our phrenological readers, to try either to reduce to sense and precision, or to declare the impracticability of so doing, the following *show* of thought and expression with which the article we have been examining commences:—

"The English language is rich in terms for expressing the various "shades and *nuances* of intellectual and sensitive endowments and "infirmities. Unlike the French, who are confined to one poor '*l'es-*" '*prit*,' we have wit, fancy, imagination, sense, humour, fear, ap-" prehension, and many other expressions of *modality;* for all of "which the aforesaid *l'esprit* is for the most part compelled to do "duty alone and unassisted; so likewise our mother tongue indi-" cates no less than three distinct modifications of that malevolence "with which too frequently we regard our friends and associates,—" ill-temper, ill-nature, and ill-humour."

ARTICLE VII.

DINNER OF THE PHRENOLOGICAL SOCIETY.

The Phrenological Society dined in Barry's Hotel, Prince's Street, on Thursday, 23d November, 1826; Mr William Scott, President of the Society, in the chair; Mr James Simpson, Vice-president; and a large number of the Members present.

After an elegant and sumptuous dinner, provided in the best style by Mr Barry, and the cloth being removed, Mr Scott gave, "The King;" next, "The Phrenological So-"ciety;" and subsequently, "The Health of Mr George "Combe;" prefacing the last toast with some observations on the debt of gratitude which the Society owed to this gentleman. He had been the means, said Mr Scott, of calling the attention of the greatest part of the members to the science; he had taught many of them its truths and applications; and he continued his exertions in the cause with unabating perseverance and success,—circumstances which justified the President in proposing his health at this early stage of their proceedings.

Mr George Combe returned thanks, and begged to direct the attention of the meeting to the great founder of the science,—Dr Gall. It was unnecessary for him to dwell on the merits of this highly-gifted individual, they being known to every one who had enrolled his name in a Phrenological Society. He would only observe, that Dr Gall had discovered the functions of the brain; involving in its consequences the true philosophy of human nature, animal, moral, and intellectual;—that, for the first time since the world began, mankind had been enabled, by this discovery, to compare their individual and social institutions, their codes of morality and religion, and their various practical principles,

with the actual nature of man. How much would be found defective he needed not to tell; but at the bare idea of how much might be improved, his mind swelled with the liveliest hope. In fact, imagination sunk under the contemplation of thevastness of Dr Gall's discovery, and of the consequences which are in its train. These statements might be viewed as extravagant ravings of enthusiasm by those who knew nothing of the science beyond the opprobrious epithets with which it had been loaded by its opponents; but on its real merits the judgment of a Phrenological Society was the decision of posterity. Those whom he now addressed had studied and comprehended the principles; they had examined the evidence, and had traced the consequences of the discovery; and what they now saw, felt, and anticipated, was the shadow thrown before of what posterity, when equally enlightened, would feel, and see, and practically experience. If, then, we would have regarded it as an unspeakable felicity to have been enrolled among the admirers, not to say the supporters and defenders, of Galileo, of Harvey, of Newton, of Locke, or of any other of the great and good men who had been persecuted by their contemporaries for conferring the greatest blessings on their race,—if we would have rejoiced in an opportunity of offering to them the humble tribute of our most sincere and deep-felt gratitude and homage, and of exhibiting to them, in our admiration, a real, though feeble, specimen of the applause which an enlightened and benefited posterity would never cease to shower upon their names;—how greatly may we exult in having it this day in our power to express all these emotions towards a man who has conferred on the world a gift not inferior to the greatest that was ever proffered to it by these his illustrious predecessors, who has undergone, and who now endures a measure of opprobrium and abuse on this account alone, to be equalled only by the magnitude of his merits, and who yet lives, and is capable of receiving this our humble testimony of esteem. Much as we admire Dr Gall as a great discoverer and a pro-

found philosopher, there was another point of view in which Mr C. was desirous of introducing him; and it was only on such an occasion as this that a becoming opportunity was afforded of doing so. He referred to Dr Gall's appearance, character, and manners, as an individual. Mr C. had not enjoyed the honour of his personal acquaintance, but, with permission, he would read a graphic and eloquent description of him which he had very recently received. It was from the pen of a gentleman well known to the Society for his exertions in the cause of Phrenology, and of whom they had on former occasions expressed their highest approbation, namely, Dr Elliotson of London. (*Applause.*)

"I have seen Dr Gall," says Dr Elliotson,—"seen much of him, "and had repeated conversations with him on phrenological points, "and on the history of the discoveries. He lectures in Paris, to a "class of above one hundred, at the Athenée Royale. His course "consists of sixty or seventy lectures, and he spends several days in "dissecting. When, at the end of the hour, he asks whether he "shall proceed? the audience applaud violently, and he often con-"tinues two, and upwards of three hours. Dr Gall ranks high in "Paris; he is physician to ten ambassadors,—has great practice,— "is considered a *savant*,—and bears himself, and lives handsomely "like a gentleman.

"Gall's head is magnificent; and his countenance, dress, and "manners, with the depth, continuousness, liberality, and simpli-"city of his remarks, show you, that you are in company with a "profound philosopher,—a perfect gentleman,—and a most kind-"hearted friend. He is perfectly free from affectation or quackery; "pursues truth only, regardless of all consequences; and has sought "it at an immense expense, and free from all interested motives. "He knows the importance and the reality of his discoveries; and "though perfectly modest and simple, forms the just estimate of "himself that posterity will form, and feels secure of immortality. "I advised him to write some popular work, but he objected; said "he had written for the studious only,—for those who desired to "understand the subject thoroughly; that he had composed a "work for posterity; and must leave to others the occupation of "writing for loungers. Till within the last two or three years he "has been considerably out of pocket by Phrenology. It was de-"lightful to see the good old man every day sitting on his sofa, or "sitting up in bed (for he was ill at the time), surrounded by his "friends, all listening to him, while he spoke knowledge in the most "amiable manner, attending to every question, and allowing some "more voluble, though not less admiring than the rest, to interrupt "him, patiently resuming his arguments when they had finished.

"He is incessantly meditating and observing, so untrue is it that he "labours no longer. He encourages all to work, telling them, that "much remains yet to be done, and mentions points upon which he "wishes them to make observations for the purpose of solving va-"rious difficulties." (*Loud and enthusiastic applause.*)

Mr Combe would not detract from the effect of this description by adding a single word of his own; he begged to give the health of Dr Gall; great honour and prosperity to him; and may he be allowed to live till he see his merits appreciated by Europe and the world, as they now are by the Phrenological Society.—(*Great applause.*)

Dr A. Combe, having next craved a toast, rose to propose the health of an individual whose name was inseparably connected with that of Dr Gall, and with the history of the science, and to whom the British Phrenologists, and they in particular, were under deep obligations;—he alluded to Dr Spurzheim.

To do justice to the merits of Dr Spurzheim would require an eloquence and a power of detail which no Phrenologist would look for in combination with so scanty a development of Ideality and of Language as that which he possessed. He must, therefore, come to the conclusion, that, in devolving upon him the agreeable duty of testifying their respect and admiration of that gentleman, his fellow-members had acted under the conviction, that Dr Spurzheim's discoveries and writings were so well known to all, as to render either individual enumeration or expressions of praise altogether unnecessary; but it was so rare an occurrence for his diminutive faculty of Language to be found addressing a meeting like this, that now that its activity was fairly roused, he was willing at least to *attempt* to recall a few among the many and valuable services conferred by Dr Spurzheim on every branch of science to which he had hitherto devoted the energies of his powerful mind.

As an anatomist, as a philosopher, and as a physician, Dr Spurzheim, he said, was almost equally distinguished. In the

cultivation of that vast field, so long a barren waste, and now so fruitful and attractive, viz. the human and comparative anatomy of the nervous system, he had manifested mental attributes of the very highest order, and displayed a scope and comprehensiveness of mind, and an extent and accuracy of observation, that ceased to astonish only when viewed in connexion with the splendid development of his forehead. In conjunction with Dr Gall, he had invented a method of dissecting the brain, which was, for the first time, in unison with the soundest principles of reason and of physiology, and by the application of which he had effected important discoveries in the structure of that organ; but, superior as the mode of dissection unquestionably was, and valuable as were these individual discoveries, still he could not but regard the beautiful practical exposition, which his writings afforded, of the great leading principle of *always studying structure in relation with function, and function in relation with structure*, as constituting the chief and distinguishing feature in his anatomical and physiological excellence. When stated in as many words, this principle seems very simple, and even trite; but it was not the less to Dr Spurzheim's credit that he seemed to have been the first to appreciate its real magnitude, and to inculcate practically the necessity of faithfully adhering to it as a guide. The instability and imperfections of the systems of mental philosophy antecedent to Phrenology, showed how *little* had been or could be accomplished, by the utmost exertions of the profoundest men, *without* the guidance of this principle, in the lapse of many centuries. The stability and present comparative perfection of the phrenological system showed how *much* had been and could be accomplished in the course of a few years by the unaided exertions of one, or rather two individuals acting *with* this principle. In like manner, the crude and contradictory, and, as they were called by a late unphrenological writer, utterly incomprehensible notions entertained in regard to the anatomy of the human brain; and the very mode of dissection

still practised in this country, by which, as Cuvier admits, "*the true relations of parts, which are always seen cut across, "escape not the pupil alone, but the master himself*," amply testified how *little* had been accomplished in this department *without* a leading principle, after the most careful and patient scrutiny by the best anatomists of past centuries; while the present comparatively advanced state of the human mind, and rapid progress of the comparative anatomy of the nervous system, showed as incontestably how much could be accomplished by a very few individuals in a very few years with the aid of a correct principle to guide them.

It was, in fact, said Dr C., the cautious application of this principle of invariably connecting function with structure, that had enabled Dr Spurzheim, in conjunction with Dr Gall, to establish the identity of parts altogether dissimilar in appearance, and therefore generally regarded as different; to demonstrate that what were supposed to be the optic thalami in birds, were in reality the bigeminal tubercles only enlarged in size, in proportion to the greater size of the nerve to which they give origin; to prove the existence of the posterior lobes in the mammalia, to many of which they are or were denied by Cuvier and others, who regarded only the mechanical situation of the parts; to prove that the identity of a part must be determined by its functions, and not by its mere form and situation, and thus to place the comparative anatomy of the nervous system at its outset on a sure and solid basis; and, lastly, it was the application of this very principle, and this was the surest test of its value, that had enabled other late inquirers in the same field to obtain in a few months a rich harvest of fruitful and consistent results, which would formerly have been held sufficient to reward the labours of a lifetime.

As a physiologist and as a philosopher, Dr Spurzheim was equally entitled to their respect and admiration. His application of Phrenology to the advancement of education unfolded views and principles of great practical value; and it was only to

be regretted that, from the condensed form in which they were brought forward, it would be so long before they could be either fully or generally appreciated. But his merits were not confined to the successful application of the new philosophy viewed as a science. Phrenology itself owed much to Dr Spurzheim. Not only had he succeeded in discovering the primitive functions of several faculties whose manifestations alone were known to Dr Gall, but he was himself the discoverer of eight out of the thirty-four organs and faculties now admitted, and when he added, that Conscientiousness was among the number, it would argue little for its development in themselves were they to be slow in acknowledging their debt of gratitude. But with all these claims to their warmest regard they were as familiar as he was, and he would not weary them with detail.

As a physician, in that particular department to which he had chiefly directed his attention, Dr Spurzheim seemed to Dr C. to stand pre-eminent. It were needless, he said, to describe the contradictions in opinion and in practice which existed in regard to the subject of insanity before the publication of Dr Spurzheim's admirable elucidation in 1816. It is too well known that for many years mental affections were regarded as so completely beyond the reach of medical aid, that few professional men ever thought of bestowing either time or attention upon their investigation; and that, notwithstanding their acknowledged importance, these affections were thus either allowed to run their course unobserved and unchecked, or the patient was handed over to the custody of a keeper, to be dealt with exactly as his sense, humanity, caprice, or cruelty happened to predominate. Dr Spurzheim saw and lamented the magnitude of this evil, and longed to apply to its removal the torch of Phrenology. And accordingly, in 1816, laid his work before the English public; but it was the characteristic of Dr Spurzheim's mind to deal with principles rather than with details, to furnish a faithful guide to others rather than to explore the field himself with micro-

scropic minuteness. The consequence was, that the true value of his labours could not be justly appreciated till other minds should have had time to carry his principles into practice, and to produce positive testimony of their excellence. This was remarkably the case with his professional writings, which, for the same reason, were as yet comparatively little known to the generality of practitioners, but to which, nevertheless, much, very much of the marked advance which this branch of medical science had of late made, especially in a neighbouring country, could be most distinctly traced. By fixing the seat of insanity, and providing sure and immovable landmarks by which to distinguish the different affections from which it arises, and the different kinds of curative measures which ought to be had recourse to, and by exposing the principles by which the moral treatment might be most effectually conducted and adapted to every individual case, Dr Spurzheim had at once narrowed the field of inquiry, marked out the limits within which it is profitable to attempt its cultivation, unfolded the causes of its former sterility, and put instruments and means in the hands of every willing labourer, by the use of which he is made morally certain of adding to his stock of useful knowledge; and he had thus the high merit of having laid the foundation of improvements which, in no long time, bid fair to remove the stigma so long attached to this department of medicine.

Dr C. then said, that he would no longer detain the Society, but would simply propose "To the health and happiness of Dr Spurzheim."—(*This toast was received with loud and continued applause.*)

Mr David Bridges, jun., in an elegant and animated speech, adverted to the excellent qualities of sentiment and intellect which distinguished and adorned the President of the Society: he briefly adverted to his contributions to its instruction and entertainment, and concluded by giving the health of Mr Scott.

Mr Scott returned thanks, and craved a toast; it was to the health of the Founders of the Phrenological Society. When, said he, we look back to the time and the circumstances in which these individuals instituted this Society, there was in that single act a display of moral intrepidity and of enlightened sagacity that entitled them to our sincerest gratitude and esteem. They braved the world's contempt when it was in its highest flood; they stood forth as the public and avowed champions of the science when every other friend had shrunk from the pelting of the pitiless storm; now, when their seedling plant had become a vigorous and wide-spreading tree, "proof to the tempest shock," it became us to remember with honour the authors of its existence, and the vigorous defenders of its infancy. He would read from the list the founders of the Society, among whom he included all who had joined it in the first year of its institution: these were Mr George Combe, Mr Brownlee, Dr Andrew Combe, Rev. David Welsh, Mr Fleming, Mr Ritchie, the Rev. Alexander Stewart, Dr Robert Willis, Sir Geo. S. Mackenzie, and Mr James Stewart.

Mr James Bridges rose to propose the health of the Secretary of the Society. After alluding to the able and zealous manner in which he had discharged the duties of that office, to his essays on the application of Phrenology to the elucidation of the political institutions of nations, &c., he proposed the health of Mr Lyon.

Mr Lyon returned thanks, and proposed the health of Mr Simpson, the Vice-president. Mr S. was an early, zealous, and intelligent Phrenologist; he had enriched the records of the science with elegant, interesting, and original communications, and, in his individual character, was endeared to every member of the Society, by the many excellent qualities to which Mr Lyon paid an appropriate tribute.

Mr SIMPSON expressed himself most sensible of the compliment paid him, and proceeded:—But let me escape from common-place on that luckless topic self, and call a very different theme, with which my heart is full; and, Sir, full be the cup to the toast—brim full, for it is to "the CAUSE "OF PHRENOLOGY OVER THE WORLD."

[The enunciation of this toast was enthusiastically applauded. Mr S. proceeded.] Having boldly struck the chord, I must not shrink from the clang my own hand has made; yet do I feel that it is a pitch above me, and that I have mistaken the ardour of my feelings for the power of my utterance. Have you ever been struck, sir, with a marked and beautiful parallel between the fortunes of infant Liberty and infant Phrenology? Liberty was a seedling of the German woods, but it was not—it is not yet planted out over the German plains. To Britain the exotic early found its way; soon struck deep its roots into a more kindly soil, and is now the majestic tree that shelters all the land. The light of Phrenology, in like manner, first glimmered and was extinguished on the Danube; but the star which set to Germany rose to Britain. Hither came the genius of the nascent truth to claim the better inheritance of British intellect, British energy, and British virtue.

Manifold is our country's originality in all that imparts knowledge, and power, and happiness to man. But some of her best, her most familiar blessings—her free institutions—her press—her religion—some of her noblest boasts and glories, were once infant strangers on her shores, adopted by her as a nursing mother, and trained to a vigour, unknown elsewhere, in her fostering bosom. Phrenology, since its arrival in Britain, has grown in stature and in gracefulness. No imperial rescript, as in its native land, has fettered its limbs, or "curtailed it of its fair proportions." No royal edict, as in France, has excised its commerce, and stinted a vast population of its moral nutriment. No conclave, as in Rome,

has proscribed and suppressed it, denouncing it,—be it marked to its eternal honour,—in the very formula of bigotry which sent Galileo, and would send Gall, to a dungeon.* Opponents in our own land, many a one, it is true, have tried to stifle it in its tender age; but the unadvised efforts of all and each have only raised the fame of the infant Hercules. Prejudice was once a tide which it had to stem; it is now an inert mass which it will surmount.

If Britain be the most fruitful producer, she must be, she *is*, the chief *exporter*. This is evident to the gifted founders of the science themselves; and, I doubt not, influences one of them in his admirable resolution to settle in this country.† From Britain Divine truth is dawning on the heathen; and from Britain has begun to spread over the world,—handmaid to the knowledge of God,—this the true knowledge of man. The voice has gone forth, and America, that land of unfettered intellect, has been the first to echo the sound. Anon from India we are cheered with a distinct articulate reverberation,

> "More worth than all the wealth that loads the breeze
> "When Coromandel's ships return from Indian seas."

May the lofty ethics of Phrenology change the moral face of these distant lands; cast a flood of light on America's path to the sacred eminence of liberty and virtue; make the truth plainer than the day, that Benevolence and Justice are an empire's pillars and a people's glory, till Britain and America shall be rivals, not in base effusion of selfishness and pride, but in the ardour of their practice of the highest maxims at once of Phrenology and Christianity, that it is a nation's noblest exercise of power and highest display of wis-

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* At a sitting of the Academy of the Catholic Religion at Rome the craniological doctrines of Dr Gall were denounced as "contrary to morality and the "Catholic Religion."

This recent news from Rome was only wanted to complete the triumph of Phrenology. Its opponents here may congratulate themselves on this addition to their "*majority*."—EDITOR.

† Dr Spurzheim has made arrangements to reside permanently in London.

dom, "to do justice, to love mercy, and to walk humbly." What then shall become of war,—that most *unphrenological* of all possible applications of the faculties of man!

A word now to Continental Europe: and, first, a health to the Phrenologists of France, where they are numerous and enlightened in spite of their fetters; and next to those of Denmark. The masculine intellect of the countrymen of Tycho Brahe, guided by a Hoppe and an Otto, has already drawn largely on the Phrenology of Britain, and, I say it with pride, of Scotland, where these two distinguished physicians have many a kindly alma-mater association. Hoppe and Otto are names known to science, and erst will be better known. They are spreading the science in *German* as well as in Danish, and will probably be the means of giving it at second-hand to the country of its discovery. To these let us add a health to Drs Caldwell and Bell of America, to Dr Patterson of India; and, returning from abroad, let us remember withal our able and excellent friends, husbandmen in a vast field of observation, Dr Elliotson, Mr Wheatson, and the London Phrenological Society; along with these let us drink to the honour of their fellow-labourers in every quarter of the British isles, and every time we meet may the sentiment expand in its application, "THE CAUSE OF PHRENOLOGY OVER THE WORLD."

Mr GEORGE COMBE proposed the health of a gentleman who had taken a very early, a deep, long-continued, and active interest in the cause of Phrenology, and to whom this Society was indebted for the foundation of its collection of casts and skulls, as well as for many subsequent contributions and donations; it was scarcely necessary for him to name "Sir Geo. S. Mackenzie," (*cheers*). Mr C. paid a just tribute to the merits of Sir Geo. Mackenzie as a Phrenologist, and the toast was drank with acclamation.

Mr SIMPSON craved a toast, and said,—With permission of the company, I beg to dedicate this cup to the health and

welfare of a distinguished individual placed in such circumstances in relation to us, that, were we *un*phrenological controversialists, actuated merely by selfish love of victory and corresponding indifference to truth, his name would be the signal for a shout of vulgar triumph. I, at least, should not have been the person to put in such hazard the name of a gentleman whom I have long and habitually admired for his talents and respected for his virtues, and whose friendship I have often personally experienced. But I am confident that it will be received here with kindly, respectful,—I had almost said grateful feelings, demonstrating that our valued doctrine of the supremacy of the moral sentiments is a living, practical principle, and not an empty sound. Thus guarded from misapprehension,—thus secured from the remotest chance of misrepresentation,—confident that you will hear the name with the same generous cordiality with which you would hail the person, were he, by a strange chance, at this moment to come among you,—I freely and fearlessly intrust to you that name, which belongs, if not to one of our best friends, at least to our loftiest foe, FRANCIS JEFFREY. [The cordial applause which here interrupted the speaker showed that he had rightly estimated the sympathies of his audience.] I need not state distinctions to you between the feelings here to be cherished and the feelings to be suppressed. I do not mean to rob you of one atom of your satisfaction, that truth has prevailed;—prevailed, not in the opinion of Phrenologists alone, but by the unqualified suffrage of every educated and impartial person who has perused and understood *both* sides of the controversy. *Your* agreeable surprise was not the success of the defence, but the actual appearance of sixty-five *mortal* printed pages, from the Pinnacle of Literature itself, in direct assault against our science and its pretensions.*

* In the Introductory Statement to the Phrenological Journal, published three years ago, is the following passage:—"We have not a shadow of doubt, "that, if the Editor of the Edinburgh Review could, he would most gladly "recall this most imprudent manifesto (the article in the 49th Number). Our

Had that attack, in its manner, instead of preserving a gentlemanlike good temper and playful humour,—sufficiently contemptuous no doubt, but amusing even to the Phrenologist,—broken all bounds of moderation, still was our indulgence due to it. In the present stage of the science the good done by it is immense. The rank of the assailant is another word for the power of the assailed; and many able though deeply prejudiced men have taken an interest in *this* combat, who would not, in human chances, have been furnished with a motive of sufficient strength to open a book on the subject, during all the remaining days of their respective lives. It is no novelty to Phrenologists to be told, that

> "Some feelings are to mortals given
> "With *more* of earth in them than heaven."

Yet could the intellect of this gifted man, "from passion's dross refined and clear,"—clear without a dimming cloud of prepossession,—be applied to the cogent evidences and symmetrical system of Phrenology, how different would be his convictions! But it is human feelings that constitute moral impossibility, and moral impossibility is here. Mr Jeffrey were more than man, did he not wrap closer and closer the "old cloak about him." The penalty, the heavy penalty is his. Let *us* not superadd one unfriendly feeling, but heartily and cordially drink to the health and happiness of Mr Jeffrey, and never wish him worse than that he may yet become an accomplished Phrenologist.

This toast was received with several rounds of applause.

Mr George Combe apologized for again rising to crave a toast; but the health which had just been given reminded him of an act of justice that was due to a member of the So-

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"belief is, that he will not again meddle with the subject, although he will "thereby be placed in an awkward predicament, if Phrenology becomes, as it "cannot fail to do, a subject of general interest. The *old refutation* will not "suit the present state of the science. A NEW ATTEMPT BY THE EDIN-"BURGH REVIEW WOULD BE GOOD FORTUNE QUITE BEYOND OUR "HOPES!"—EDITOR.

ciety, who had not only been an early and a steady friend to Phrenology, omitting no opportunity of promoting its diffusion, but who, on a recent occasion, had been the *first* to answer the attack of Mr Jeffrey, and whose refutation had been so prompt, so complete, and so widely circulated, that Phrenology would have stood unscathed by the Reviewer, although no other defender had appeared; he alluded to Mr William Ritchie, the author of an able and eloquent article, signed Metaphysico-Phrenologus, which appeared in the Scotsman on the third day after the publication of Mr Jeffrey's attack. Mr C. read a letter from Bungay in Suffolk, mentioning that the article had been reprinted there, and widely circulated; and he had heard also, that it had excited much interest among the Phrenologists in other parts of England as well as in Scotland. He proposed the health of Mr Ritchie.

Mr Ritchie returned thanks, and said he would endeavour to perform a duty which had been requested of him,—that of proposing The Memory of the late Professor Dr. Thomas Brown,—rather than lose the pleasure of spending the evening where he now was; and though entirely unprepared in a rhetorical sense, he would own that on this subject he could never be altogether unprepared in point of feeling. His best method therefore would be to tell them simply how he first came to take a peculiar interest in the writings of Dr Brown. In early life he had read Kames' *Art of Thinking*,—a work in which it was recommended to young persons to form the habit of *thinking in language*, or of allowing thought to outstrip expression as seldom as possible, as also of reducing their opinions of what they read to writing. He had endeavoured to follow the advice in both respects, with some profit certainly, even as to the former, though, as the meeting must perceive, from his development of Language, with no great success. As to the latter, it was in every one's power to follow it. In the years 1804 and

1805 he had been occupied, as leisure permitted, in perusing the works of Reid and some other metaphysicians. He was not altogether satisfied with their views respecting evidence and belief,—cause and effect,—and Love of Approbation was whispering, that he had taken views of his own more sound, and not unimportant, when Dr Brown's publication on the Leslieau controversy, or the first edition of his Essay on Cause and Effect, made its appearance. On perusal, he was mortified to find that Dr Brown had proceeded farther in the same track; but mortification soon gave way to a better feeling,—admiration;—and, though anticipated and outstripped, he followed with alacrity and pleasure; for intellectual light and moral integrity were before him. From that time forward he had read greedily whatever Dr Brown wrote, and he had been rewarded not only with instruction in metaphysical science, but with the purest and best sort of moral gratification. What had struck him (Mr R.), however, the moment he knew any thing of Phrenology, and what was more peculiarly deserving of attention from the meeting, was, that, in his metaphysical doctrines, the late Professor of Moral Philosophy approached very nearly to their own. The whole of them are based on the position, that laws and tendencies have been imposed upon and given to man, from which he cannot shake himself free, and which affect and substantially characterize his whole nature, physical, moral, and intellectual. Nor did he stop there. He saw, and consequently avowed, that there were constitutional and specific differences among individuals, both as to mind and dispositions. And what was this but the plain metaphysics of Phrenology? With the exception of Gall, Spurzheim, and their friend Mr Combe, indeed, Dr Brown had done more to place the philosophical doctrines of Phrenology on a sure basis than any other writer with whom he (Mr R.) was acquainted. Had this metaphysician lived he would no doubt have become a Phrenologist. His thirst for knowledge was too strong to have allowed the proofs which have now been

accumulated to escape his attention; he was too intrepid a thinker to shun the subject from fear; he was too honest a man to have felt a conviction of the truth of Phrenology without proclaiming it. But whatever might be thought of this theory, they would all concur in admiring the character of the late Dr Brown. His intellect was acute and philosophical,—his moral feelings of the highest order,—for he was at once benevolent, intrepid, and conscientious. They had no longer the high privilege of enjoying the society of the man, but there still remained to them his writings, which stimulate the intellect, satisfy the judgment, and afford also a healing balm to the heart. In travelling through his pages, we walk as it were in moral sunshine, Ideality shedding its brightest rays over the most refined and excellent products of Benevolence and Conscientiousness. After proposing "The memory of Dr Thomas Brown, late Professor of Moral Philosophy in the University of Edinburgh," which was received with very marked respect, Mr R. begged to mention two things more which had just occurred to him: the one was an anecdote of Dr Brown, the other a saying of his biographer. It was the practice of Dr Brown to make up his own views on each subject before reading the author who treated of it; and his object in doing so was, that, after perusal, he might settle where the truth lay,—what was the cause of the differences in opinion betwixt them,—whether it arose from accidental circumstances *or the character of intellect.* This was indeed being very nearly a Phrenologist. The felicitous saying of Mr Welsh, one of the ablest and most respected members of our own Society,—one who knew Dr Brown as well as he understood the profoundest of his speculations,—was, That by means of the rare union of mental powers and moral worth to which I have feebly attempted to do justice, "Dr Brown was able to make his house at once a school for the intellect, and a home to the heart."

The CHAIRMAN said,—He would now propose the health of a gentleman whose merit was only exceeded by his modesty. He alluded to Dr A. Combe, who, in his own peculiar department—the physiological,—had conferred great and lasting obligations on the cause of Phrenology. He need only mention the able and triumphant manner in which he had defended the science against the attacks of Dr John Gordon—of Dr Roget—of Dr Barclay—of Dr Rudolphi,—and, on the occasion of the recent attack in the Edinburgh Review, he believed it was to him they owed the vindication of the philosophical and physiological reputation of Grandmamma Wolf. (*Applause.*)

Dr COMBE returned thanks for the honour done him, and begged to add, since Mr Scott had alluded to the subject, that he intended, on an early meeting in another place, to bring forward further evidence of a forcible kind in support of the physiological opinions of the venerable personage whose large eyes and long ears had been so unhappily attacked by a late celebrated and able antagonist. He regretted that he could not say so much in defence of the moral as of the physiological principles of that four-footed, sharp-sighted, and long-eared authority; but still he did not think that on that account alone her testimony was to be considered as proving absolutely the opposite of what she affirmed, especially when, as in the present case, they all knew, that, for once at least in her life, she was speaking the plain and simple truth.

Mr LYON craved a toast, and said,—In rising to propose the health of the Clerical Members of the Society, I do not think that this is either the time or the place to enlarge on the importance and practical utility of Phrenology in guiding the labours of a pastor among his flock, and still less to advert to the harmony which exists between the truths of Phrenology and those of Christianity. I would rather embrace this opportunity of expressing our obligations, not merely to

those of our clerical friends who have openly come forward and joined our ranks, but also to those clergymen, particularly of our national church, who have more or less avowed their conviction of the truth of our science, and who have had the *honour* of being sneered at as "the learned theolo-"gical doctors who are said to patronize this absurd theory." This avowal, I am persuaded, has contributed in no small degree to the rapid progress which the science has made in this country. We know the powerful influence of the sentiment of *Veneration*. Many, particularly of the other sex, have had their prejudices softened or removed, and have been induced to examine the evidences of Phrenology, simply by knowing that some of our most eminent divines have either given the science their favourable regard, or have altogether embraced its doctrines. Many are the grounds on which the clergy of the church of Scotland claim our gratitude and respect; and I consider myself warranted to state this as an additional claim,—that among them a belief of the doctrines of our science is rapidly and extensively spreading. The present generation may not, but a future generation assuredly will record it to the honour of the clergy of Scotland, that they were the first to appreciate and to embrace a science which was scowled upon by the literati and dilletanti of the day; and when learned professors would overwhelm us with fatalism, materialism, nihilism, atheism, and I know not how many other *isms*, we may oppose authority to authority, and marvel how it should come to pass, that the defence of religion against the inroads of Phrenology should be maintained in Royal Societies, when our authorised teachers see in it nothing to dread, but much to commend.

Mr Welsh has already been mentioned as the founder of the Society; and when I think of the objections which have been made to our science, that it is not (or rather I should now say, *was* not) countenanced by the medical profession, and that it is hostile to religion and Christianity, let it be remembered, that the founders of the science itself were *phy-*

sicians, and that the founder of the first Phrenological Society was a *clergyman*. I beg to propose the healths of "Mr Welsh, Mr Grierson, Mr Stewart, Mr Buchanan, Mr Irvine, Mr Whitson, and Mr Wardlaw, the Clerical Members of the Society."

The Rev. Mr GRIERSON of Dunblane returned thanks, and the Chairman then gave—"THE MEDICAL MEMBERS "OF THE SOCIETY."

Dr ROBERT HAMILTON returned thanks; and, adverting to the objection, that Phrenology was disowned by the medical profession, he remarked, that, to refute this assertion, it was necessary only to attend for a moment to facts. The founders of the science were medical men of no mean eminence in their profession; and the roll of every Phrenological Society, particularly those of London and Edinburgh, proved that the medical constituted no mean proportion of the total members. He pointed out the advantages that medical science was destined to reap from Phrenology; and congratulated the Society, that this important truth had been avowed and spiritedly maintained in a quarter which could not fail of influencing the medical profession in general; he alluded to the late Analysis of Mr Combe's System in the Medico-Chirurgical Review. The Editor of that work (to the high merits and extensive influence of which he paid a just tribute), had unhesitatingly "recognised in the science "of its principles a legitimate and useful subject of profes-"sional inquiry," and boldly advocated "the utility" of Phrenology "to the true philosophy of medicine." Dr Hamilton concluded by proposing "The health of Dr John-"ston, Editor of the Medico-Chirurgical Review." (*Much applause.*)

The CHAIRMAN observed, that Phrenology, as the science of human nature, was interesting and practically useful to

every profession; that the clerical and medical members had already been given; but there remained another class of professional men who had embraced the cause of Phrenology,—reduced it instantly to practice,—and whose works were calculated at once to illustrate and adorn it; their healths he now begged leave to propose; he alluded to the artists, viz. Mr Stewart, Mr Joseph, Mr Douglas, Mr Rennie, Mr Uwins, Mr P. Gibson, Mr Morrison, and Mr Stewart Watson, members of the Society.

Mr Douglas, miniature-painter, returned thanks. He had great pleasure in acknowledging the benefits he had derived from Phrenology in his art. If it had done nothing more than presented him with a mapped outline of the head, and called his attention to the propriety of delineating all its parts and proportions with minuteness and accuracy, it would have still deserved his warmest acknowledgments; but, connected as Phrenology was with the philosophy of expression, he conceived it impossible for any one to understand the ultimate principles of this branch of his art who was ignorant of the science. He only regretted that, from the calls upon his time, he had it not in his power practically to promote its diffusion.

Mr G. Combe begged to propose the health of Dr James Kennedy of Tamworth. He was not permitted at present to mention all that Phrenology owed to Dr Kennedy, but when his exertions were divulged, he would be acknowledged as one of the most zealous and efficient supporters of the cause. He was a focus of phrenological light in Staffordshire, and, aided by some able and intelligent friends, diffused its principles through an extensive district by means of several newspapers and journals. Several of these articles had been read by gentlemen now present, and they could appreciate their value. On the faith of their testimony he would propose "The health of Dr Kennedy."

Mr JAMES BRIDGES proposed the "Editor of the Phrenological Journal."

Several other toasts were given; after which Mr Scott left the chair at twelve o'clock, when the meeting broke up. The greatest conviviality prevailed during the evening; the toasts were received with great interest, and followed by acclamations of applause.

ARTICLE VIII.

LETTER FROM SECRETARY OF DUNDEE MECHANICS' SOCIETY TO MR GEORGE COMBE.

Dundee, 8th December, 1826.

RESPECTED SIR,—Every one acquainted with the science of Phrenology will at once perceive that it forms the basis of a pure morality, and will consequently feel gratified to hear of its wider dissemination among mankind. Under this impression I beg leave to inform you of its progress here,—a progress which has in truth exceeded our most sanguine expectations. When, in March last, a few of us, all equally ignorant of the science, formed ourselves into a society for the purpose of becoming acquainted with its truth (which a more thorough knowledge of its principles, aided by observation, has to our minds completely established), we little anticipated that, in the short interval which has elapsed, we should number, as we now do, between forty and fifty members. Originally we met in a private house; but, after the rapid increase of members, we engaged a hall, where we meet once a fortnight, when a lecture is delivered, or an essay connected with the science is read by one of the members; after which measurements and developments are taken, and other routine business of the society disposed of. But it is

not among the members *only* that the science is discussed; it has found its way throughout the town, and has in some measure given the tone to the language of our citizens. Notwithstanding we continue to meet with opposition from some of those whose education and station in society should teach them to be more tolerant *even* of error; and when Mr Jeffrey's last tirade against *his own** Phrenology made its appearance, it was hailed by them with more than party zeal, and quotations from their champion were thrown at us in abundance; but since the appearance of your able reply, not a few of them have owned themselves vanquished, and the others have for the present sunk into silence. Meanwhile the science is extending on every side, and has found its way to cottage-hearths, seated at the foot of the Grampians, whither we have received orders for your invaluable publications.

Trusting for the Society a continuance of your advice and assistance,

I am, respected Sir,

Yours most respectfully,

ALEXANDER SMART, *Sec.*

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* It is certainly Mr Jeffrey's *own* Phrenology, for no Phrenologist in Europe would own it for his.

ARTICLE IX.

A LECTURE *on* PHRENOLOGY, *as illustrative of the Moral and Intellectual Capacities of Man. By* DISNEY ALEXANDER, *M. D., one of the Physicians to the General Dispensary, and the Pauper Lunatic Asylum in Wakefield. London; Baldwin, Cradock, and Joy. Edinburgh; John Anderson, Jun.; and J. Stanfield, Wakefield, pp.* 44.

THE author informs us in his advertisement, that "the "present essay is the *First* of a series of *Lectures on the Application of Phrenology* to the study and development of the human "character; comprising Observations on the Dramatic Writings of "Shakspeare, and some of the more usual Phenomena of Mental "Derangement.

"These essays were originally composed with a view to their *delivery*, for the benefit of the Wakefield General Dispensary. Circumstances, which it is not necessary to state, having arisen to "frustrate the author's intention, he has been induced to commit "the 'Introductory Lecture' to the press, in the hope that it may "be a means of reviving in the minds of some of his readers an *interest* in the subject, or at least of recalling their *attention* to a "science which, with all its alleged imperfections, and in despite of "all the contempt and obloquy that have been poured upon it, appears to him amply entitled to consideration and respect."

He observes, that one of the marks of true science is, that it instantly becomes available to purposes of utility; and in his introductory pages he shows that this quality belongs, in an eminent degree, to Phrenology. "No sooner," says he, "was this system evolved and promulgated, than it was found capable of being applied to, and of affording a satisfactory solution "of those eccentricities, and apparent incongruities, in the dispositions, talents, and actions of men, which have in all ages baffled "the ingenuity of the most acute and erudite philosophers. Those "who have studied the subject, and who have consequently accustomed themselves to *think* phrenologically, are able, in all cases of "*real* character, even the most anomalous, to discern that combination of the organs which produces the manifestations perceived; "and whenever a character is well or accurately defined, though existing merely in the *imagination* of the writer, they have no difficulty or hesitation in applying to its development the same mode "of analysis."

Dr Alexander notices the sketch of the character of Iago

which appeared in our Journal, and correctly appreciates both the object and utility of that production. We are aware that it was subjected to ridicule by half-informed Phrenologists, and still more so by ignorant opponents; but Dr A. entertains a different opinion of it:—"The thoroughly-instructed Phrenologist will reap much pleasure from "tracing, in his own mind, the *principle* on which the author of "the sketch proceeded, in deducing from the well-known character "of the man this combination of the primitive faculties." He mentions, that he had performed a similar experiment himself in regard to the character of Hamlet, and with similar success. He proceeds,—"We admit that the argument in favour of "our science which is thus afforded is not of that obvious and palpable kind, which is likely at once to carry conviction to a mind "but newly-directed to the inquiry, and perhaps very superficially "acquainted with its principles; and we are far from resting the "merits of the system on any such foundation. But to those who "have made some progress in the study, this *application* of the subject is, though an indirect, a most beautiful and convincing proof "that 'Nature and Phrenology are one.' They discover in it the "elements of the most various and opposite appearances which the "mind of man does or can assume. They are enabled to explain "phenomena, and to account for inconsistencies which, upon any "other theory, it would be extremely difficult, if not impossible, satisfactorily to solve; and, if a system so luminous and coherent "must be deemed, after all, no more than an *ingenious illusion* existing in the inventive faculties of Gall and Spurzheim, its opponents assert what, in truth, is harder to be believed than the "proposition which they themselves reject on the ground of its incredibility."

On the doctrine of the Combinations the author makes the following very just remarks:—"The modifying influence of circumstances and combinations is admitted in regard to "every *other* science; why should it be excluded in *this*? In chemistry, for instance, the gaseous and earthly constituents, into "which different portions of matter have been resolved, are known to "assume very different forms, and to produce very different effects, "according to the different *substances*, or the different *proportions* "of those substances to which they may be united.* In these cases,

* "For example (as in the various and well-known preparations of mercury), "one combination of elementary ingredients produces a medicine of singular "efficacy; *another* combination of the *same* materials, but differing in their relative proportions, yields a mortal poison. And thus it is in human nature; "*one* combination of the faculties may produce the profane sceptic or midnight "murderer; and *another* a Fenelon, a Howard, or a Fry, glowing with piety "towards God and benevolence to man."

"so far from any *objection* being founded on the admission of the "*modifying influences of circumstances and combinations*, to account for the production of a given effect, it is perfectly understood, that it is the study of the *latter* which forms the chief beauty "and utility of the science itself; so it is here. In the observation "and explanation of the effects produced by the *varied combinations of the simple powers*, the science of Phrenology may be properly said to consist. The discovery of the powers themselves, as "connected with and indicated by the presence of their respective "organs, is, no doubt, highly important, as constituting the *foundation* on which the *superstructure* rests. But this is allied rather "to the department of *natural* history than to the philosophy of "*mind*. It is the study of *these diversified results, and their* "*practical application to the phenomena of human life*, which "should form the grand object of the moral and scientific inquirer; "and without this the mere knowledge of the primitive powers, *abstractedly considered*, is of little comparative interest or importance."

After these and several other preliminary observations, Dr A. proceeds to treat of the particular organs, viz. Amativeness, Self-esteem, Benevolence, and Ideality, with a variety of their combinations. He is in general correct in principle, elegant in composition, and also striking and felicitous in illustrations. Altogether we are gratified with the work, and recommend it as well worthy of perusal.

NOTICES.

Dr Spurzheim has left Paris with an intention of settling permanently in England. He has just concluded a course of lectures on Phrenology at Cambridge. In spring, 1827, he will lecture in Bath and Bristol; in November following, he, by special engagement, will return to Cambridge and lecture; he will immediately thereafter proceed to Edinburgh, and lecture here in December 1827, and January 1828. At Cambridge, Dr S. has been received with distinguished respect. The use of one of the public lecture-rooms of that University was granted to him by license from the Vice-Chancellor. His audience exceeded one hundred in number, and comprised men of the first name and influence in the University. He lectured on a dissection of the brain more than once in the lecture-room of the anatomical professor. "He was feasted in "college-halls (says an eminent scholar of Cambridge, in a letter "to a friend in Edinburgh,) every day he was here. Our anatomical, and, I believe, our medical professors, are amongst those "most favourably disposed to his science. W——'s belief is becom-

"ing stronger; S—— is still a scoffer. Combe's answer to Jeffrey "is here."

Contrasted with this highly-liberal conduct of Cambridge, we are mortified to record the following anecdote, which, with one or two honourable exceptions, is too much characteristic of the spirit of the professors of Scotland. A professor of moral philosophy in a northern university gave out "Attention" as the subject of an essay to his class. One of the students, after citing the doctrine of Mr Dugald Stewart, stated objections to it, and ventured to give an extract from Mr Combe's Essays, as containing a more satisfactory and consistent view of that supposed faculty. The professor criticised this essay with great severity, told his class that Mr Combe, he understood, was a respectable man in his own profession, but utterly ignorant of metaphysics; he begged that no allusion might hereafter be made to his theories, and, in particular, warned his students against allowing themselves to be led astray by the monstrous absurdities of the phrenological doctrines!

The best apology that can be made for this exhibition is the kind of left-handed prudence which it displays. The moment the young men attending the universities become acquainted with Phrenology, it will be impossible for them to listen with respect to the vague, inconsistent, and useless generalities now taught to them as the philosophy of mind; and the professor in question probably had a secret presentiment of this, which prompted him to avert the light as far and for as long a period as possible from the eyes of his students. We suspect, however, he will defeat his own object; for knowledge that is interdicted is only the more ardently desired, and generally obtained.

COPENHAGEN.—We receive the most favourable accounts from Dr Otto. In our next, an extract of a letter from him and an article from the pen of Dr Hoppe shall appear.

AMERICA.—We are prevented by the want of space from giving a long and interesting letter from Dr Caldwell of Lexington. It shall appear in our next.

LONDON.—The London Phrenological Society resumed its meetings in October. We shall give its proceedings in our next.

We have perused with much pleasure the "Two Letters to a "Friend in Oxford, in reply to the Strictures of the Edinburgh "Review." We shall notice them in our next Number.

OPPOSITION TO PHRENOLOGY.—The opponents pretty generally admit, that Mr Jeffrey has not been successful in his attack on Phrenology; but many of them add, that, unfortunately, he took up wrong grounds, and did not urge the strongest objections against it, implying thereby, that the individual who states this is in possession of arguments that would have demolished the fabric entirely. The fact however is, that no opponent either has or can have a well-founded objection to Phrenology, because, it being true, and all truth being consistent, no solid argument against it can possibly

exist; but every one has his particular *prejudice*, which to his own mind appears an insuperable objection; and because the prejudice of one man differs from that of another, he imagines, as long as his own has not been refuted, that the science has never been assailed with the most effectual weapons. Dr Roget stated his prejudices, and they were answered; Dr Barclay stated his, and they were refuted; then Mr Jeffrey favoured the world with his, and they have been replied to. But, as if these great men had been mere blunderers, forth comes Dr Milligan for the second or third time with his prepossessions, and flourishes them off as if they were something quite superior to those of his predecessors. They appear so to him because they are his own, and because they possess the novelty of being done up in the form of an algebraic proposition. We cannot afford time and space to refute the absurdities of every man who chooses to put his prejudices in print; and we have answered Roget, Barclay, and Jeffrey, only because their authority might have misled others, if their errors had not been pointed out. From the nature of Dr Milligan's prejudices, however, so little danger is to be apprehended, that we not only leave him in entire possession of the field, but hereby give notice to all who desire to see an algebraic refutation of our science, that they will find one in the 5th Number of the Edinburgh Journal of Medical Science, just published, and another in the notes appended to the second edition of Dr Milligan's translation of Magendie's Physiology; both stated to be from the pen of Dr Milligan himself.

THE

PHRENOLOGICAL JOURNAL.

No XIV.

ARTICLE I.

ON THE INFLUENCE OF ORGANIC SIZE ON ENERGY OF FUNCTION, PARTICULARLY AS APPLIED TO THE ORGANS OF THE EXTERNAL SENSES AND BRAIN.

(*Read to the Phrenological Society on 30th November, 1826, by Dr* ANDREW COMBE.)

To an individual unacquainted with physiology, and whose attention has never before been directed to the observation of the mutual connexion of mind and matter, and who is not aware of the actual extent to which the mental manifestations are affected by every change in the condition of the brain, no part of the phrenological doctrines seems at first sight so "inherently absurd" and destitute of foundation, as that fundamental principle which affirms power or energy of function to be always, *ceteris paribus*, in exact relation to the size of the organ; and yet so far is this from being "contrary to the analogy of all our known organs,"* as is generally supposed by the unthinking, and taught even by men of no mean reputation, that *it is in reality a general law of nature, pervading all created objects, animate and inanimate*, and, consequently, affecting the brain in common with every other part of the body. As this, however, is a cardinal

* Edinburgh Review, No 88, p. 301.

point, in regard to which much confusion and misapprehension prevail, it may not be amiss to dedicate a few pages to its elucidation.

The principle of Size, as maintained and demonstrated by the Phrenologists, it may be proper to repeat, is, not that organic Size is the *only*, but that it is ONE condition, *and a most important one, in producing energy of function;* and that hence, WHERE ALL OTHER CONDITIONS ARE EQUAL, there increase of Size will invariably indicate increased intensity of function. Now, it is no small presumption in favour of the inherent truth of this proposition, that no opponent has yet ventured either to deny or to dispute it, without having first mis-stated or misrepresented its meaning. For, instead of fairly grappling with it, as laid down in all the phrenological writings, those of our opponents who have ever attacked it, and Mr Jeffrey among the number, have chosen uniformly to represent it as affirming, that organic size is the *only* and *exclusive* condition of energy of function, and have brought wit, fact, and argument into play, to upset, not our statement, but this their own absurd misrepresentation; and having succeeded in this very easy attempt, they have done their best to make the world believe that they had actually withdrawn the prop which alone supported the phrenological edifice, and that of course the latter was fast crumbling to its fall. How much they have erred in thus proceeding, and how little of consistency and of truth is to be found in such statements and opinions, as, in support of their cause, they have hazarded in regard to the organs of sense and external nature in general, will presently appear, when we shall have shown that the principle in dispute, instead of being contrary to, is in reality in strict harmony with, "the analogy of all "our known organs."

In physics, the relation between Size and Power is universally acknowledged, and is susceptible of mathematical demonstration, for it is nearly synonimous with the hitherto undisputed axiom of a whole being greater than a part. Every

large organ is, *ceteris paribus*, made up of a greater number of integrant parts than a small one; and if, in the small one, each of these parts is equivalent in force to a given quantity, it necessarily follows, all other circumstances being equal, that the force of the large will exceed that of the small organ by the united quantity of all the additional individual parts; and no way of escaping this conclusion can be got, except the unfair one of keeping the *ceteris paribus* out of view. If this were not the case, we would as soon expect to see a breach effected in the massive walls of a fortification, by a rapid and sustained discharge of musketry, as under the reiterated blows of heavy artillery. But it is the animal kingdom which chiefly concerns our present argument, and to it we therefore proceed.

It will scarcely be disputed, that the strength of the bones is always, *ceteris paribus*, proportioned to their size; and the slightest consideration will satisfy any one that the same principle applies equally to the muscular system, which, indeed, its structure sufficiently demonstrates. Muscles are composed of a great number of nearly parallel fleshy fibres, each equal in itself to a given force. If then the bulk of the muscles is increased either by a greater thickness, or by an additional number of such fibres, it is physically certain, even *à priori*, that the amount of force which they are capable of exerting will be increased in exact proportion. The great increase of muscular power consequent upon the increased size of the muscular fibres in the arm of a blacksmith, or in the leg of an opera-dancer, is a familiar example of the one, as the powerful vigour of the singularly muscular dray, contrasted with the slender, though active, frame of the race horse is of the other. The same principle is familiarly recognized in the fable of the old man showing his sons how easy it is to snap asunder any individual stick of a bundle, but how difficult to overcome their *united* powers of resistance.

Although muscular, like cerebral size, is, *ceteris paribus*, a measure of power, still it is by no means the *only* condition. There are circumstances in which great muscular

energy is required in combination with as small muscular bulk as is possible to be attained, and there are others where bulk is of no consequence. To effect this modification, a beautiful arrangement is made by Nature, and in strict accordance with the principle we are now proving.

Motion is the result of muscular contraction, but muscular contraction takes place only in consequence of the stimulus of the will conveyed by the nerve, whose ramifications form a part of the muscle itself. Hence strong contraction may arise either from large muscle and moderate stimulus, or from moderate muscles and strong stimulus. Thus, in fishes, which live and move in a medium almost in equilibrium with their own bodies, and which, of course, require no active effort to support themselves in a position different from that given by the ordinary laws of gravitation, and in which, consequently, increased bulk is attended with no material disadvantages, the power of motion depends in a high degree on the great size of muscle, and in a small degree on nervous excitement or size of nerve. But in men and other animals, who require a constant effort to preserve their upright position, and in whom increase of muscular bulk would add directly to the sum of the difficulty, by adding to the weight, the same end is accomplished by an increase in the supply of nervous excitement, or, in other words, by a relatively much larger nerve in proportion to the muscle which it is destined to supply. In birds, again, where the disproportion between their own gravity and that of the air is so strikingly great, and where, consequently, every additional muscular fibre would but add, by its weight, to the difficulty of rising from the ground, the same relative increase of nerve over muscle is carried to a still greater degree. But in this arrangement, the law of Size is still in force; for, in all of these instances, wherever the supply of nervous energy and other conditions are found to be equal, there Size of muscle invariably indicates the degree of power. Had the power of motion in birds depended on Size of muscle alone, and these organs been proportionally as large as in fishes, they must of necessity either have remained

for ever chained to the surface of the earth like man, or they must have perished, from absolute inability to fill the place which Nature had destined for them in the scale of creation; and Size in one part of the organ has thus been given to obviate the disadvantages which it would have entailed had it been possessed by the other.

It may be objected, that the biggest men are not always the most powerful in bodily strength; and that the maniac, or an individual in the delirium of fever, is often able to overcome the united efforts of several persons to restrain him. But this is still in strict accordance with our principle; for the other conditions are not the same; and it is quite certain, that if they were, if a big muscular man, for instance, were subjected to the same morbid excitement as the smaller, he would display an energy of motion greater than the other, in exact proportion to the greater size of his muscles; and it is no exception to this, to produce a bulky individual of a weak lymphatic constitution, made up of water and fat, rather than of muscle, and to say that he has less bodily energy than another individual of smaller size, but of a bilious and firm habit, and in whom the muscular system is at its highest state of perfection. The very contrasting of such individuals, without attending to the *ceteris paribus*, is a total departure from the principle which we are advocating, and, consequently, need not now occupy our attention.

That the law of Size holds in regard to the blood-vessels and heart is self-evident to every one who knows that a tube of three inches diameter will transmit more water than a tube of only one inch. And the same may be said in regard to the lungs, liver, kidneys, and every other part. If a liver, suppose of four square inches, can secrete four ounces of bile, it is perfectly manifest, that one of eight square inches will be able, all other things being equal, to secrete a quantity greater in proportion to its greater size. If this law did not hold true, what would be the advantage of large and capacious over small and confined lungs? There could be none.

In regard to the nerves or organs of sensation also, which

in function and structure approximate more closely to the brain, the disputed proposition of Size being a measure, or element of power, is easily demonstrable.

Speaking generally, there are two classes of nerves distributed over the body, those of motion and those of sensation or feeling. In accordance with our principle, the nerves of motion are, in most instances, greatly smaller than those of sensation, and for this reason; in producing motion, the muscle is the essential or chief apparatus, and the nerve is required only to communicate to it the impulse or stimulus; but in sensation the reverse is the case, the nerve itself is the chief instrument, and the part on which it is ramified is merely a medium for putting it in relation with the specific qualities which it is destined to recognize. Thus the eyeball is merely an instrument constructed in accordance with the laws of light, by means of which the proper impression may be made on the optic nerve, and thence transmitted to the mind. In accordance with this principle of Size being a chief element in power, we find that the olfactory, the optic, and other nerves of sensation, have a constant and often enormous excess of volume over the muscular nerves, or those of motion, in the same animal; and that as a general law, the nerves of sensation are always proportioned in size to the extent to which sensation is possessed. It is stated by a late very able writer,* that in the spinal nerves of man, for example, the dorsal roots, or those belonging to sensation in the nerves supplying the arm, have at once an excess of volume and of surface at least *five times greater*, both for each individual fibre, and for the bundle resulting from them, than the anterior roots, or those belonging to motion. And the rationale of this is evident; for it is in the hand that the greatest power of touch resides, and it is by these nerves that the hand is supplied.

Another fact, mentioned by the same author, shows clearly the universality of the disputed principle. The roots of sen-

* Desmoulins, Anatomie des Systèmes Nerveux des Animaux à vertèbres, p. 775.

sation in the spinal nerves going to the arm are about five times larger than the corresponding roots at other parts of the spinal cord, which, it must be observed, are distributed to parts where touch is imperfectly possessed. He adds, that, comparing the size or mass of each kind of nerve with the extent of skin and muscle on which each is ramified, the nerve of sensation will be found in the mammalia often more than a hundred times more voluminous than that of motion; and that, allowing for the greater thickness of muscle, this disproportion will be enormously increased. And as an instance, he mentions that the single nerve of feeling ramified, on the tactile extremity of the proboscis of the elephant, exceeds in size the united volume of all the muscular nerves of that organ.

Having just shown, that in animals possessed of acute sensation, the corresponding nerves greatly predominate over those of motion, I may now add, in corroboration of our principle, that in other animals, in which muscular power greatly predominates over feeling, the balance between the nerves becomes changed. In the horse and the ox, for example, which, from the nature of their covering, have very imperfect touch, with great bodily strength, the sum total of the muscular roots in the nerves going to the four limbs exceeds, by at least one-third, that of the sensitive roots, where in man the proportions were inversely as five or six to one. In like manner, in birds and reptiles with scaly skins and limited touch, the same preponderance of the nerve of motion over that of sensation obtains. And what is curious enough, wherever nature has given a higher degree of sensation or touch to any particular part, there the corresponding nerve is invariably increased. This is observed, for example, in the nerves of the tail in some species of monkeys, in those of the wings in some bats, and in those of the claws of some species of birds, and the increased size is confined exclusively to the part possessed of the increased function.

We come now to consider particular modifications of sen-

sation exhibited in the organs of the external senses; and here also we shall have little difficulty in establishing the existence of the law of Size.

In studying the influence of Size on the functions of the external senses, we must take especial care not to confound accidental with essential circumstances, or to mistake a part for a whole. Thus every external sense is composed of, first, an instrument or medium on which the impression is made; and, second, a nerve to conduct or to transmit that impression to the mind and brain. But as these two conditions are variously modified, and not at all necessarily proportioned to each other in different animals, it follows, that if we take one part as a type of the whole, and argue from it under this supposition, we shall inevitably err. And here, as we shall presently show, is precisely the source of the notable blunders of the critical authority already alluded to.

All the external senses being modifications of general sensation, depend primarily and essentially on the presence and activity of a special nerve for the exercise of their functions; but, besides this, something more is required, by which the special nerve of each sense may be brought into communication with the particular qualities of external objects which it is destined to feel. This medium is what is generally called the *organ* of that sense. Thus, the external ear, the tympanum, the vestibule, and the canals of the internal ear, are the parts by means of which the vibratory properties of the atmosphere, from which sound arises, are brought into relation with the auditory nerve. These parts, then, are the seats of the impressions made by the atmospherical undulations, but they are no more. It is the *nerve* that is ramified on them which alone feels the impression, and transmits it to the brain. In like manner, the eye, with all its humours and membranes, is merely an apparatus formed in relation to the properties of light, and on which the luminous image may be depicted, and its qualities brought under the cognizance of the *nerve* of vision. The ear, the eye, the membrane of the

nostrils, the tongue, and the skin, are thus only *media*, or instruments, in a great measure passive, having natural relations to the different properties of sound, light, &c. by which the respective *nerves* may become acquainted with their own objects; and they differ from each other in structure, only because light, sound, and sapidity, differ from each other so essentially, that light might shine on the ear or on the nose, or the air vibrate upon the eyeball, to the end of time, without conveying an image or suggesting a sound to the mind. The nerves are thus the true organs of the senses, as they are of sensation in general; and, consequently, if the principle of Size applies to them, extent, acuteness, and power of function ought to be looked for, *ceteris paribus*, in connexion with size of nerve, more than with mere size of the passive part of the apparatus. Such, accordingly, is the uniform and invariable fact; and when the real functions of the other component parts of the respective organs are kept in view, there also increase of Size will, *ceteris paribus*, be invariably found accompanied by increased energy of function. To show this, let us examine each sense in detail, and begin with the mechanism of smell.

The organ of smell consists in man and in most other animals of three distinct parts, each performing a distinct function, and each contributing to the perfection of the united whole. These are, 1*st*, The external projecting part known familiarly as the nose; 2*d*, An internal cavity communicating with this external appendage, and containing what are called the spongy or convoluted bones, over which is spread the thin, fine membrane on which the odoriferous particles make their impression, and which, from its discoverer, or, rather, its describer, is called the Schneiderian membrane; and, 3*dly*, The olfactory nerve, which is ramified over that membrane, and which receives and transmits the impressions of smell to the mind. All of these concur in increasing the intensity of the sense, and each concurs with an energy or power, *ceteris paribus*, exactly proportioned to its size; and the opposite of

this can be maintained only by confounding one part with another, and by viewing the external appendage as the real seat of the function. A moment's reflection will demonstrate what has been said.

The external nose adds to the energy of smell only by directing a greater volume of air loaded with odoriferous particles into the nasal cavity than could otherwise have reached it. Its situation, form, and size, relatively to the internal nostrils, fit it admirably for this purpose, as, from their lightness, odours tend to rise, and in their progress are thus intercepted by the broad base of the nose opening downwards. It is quite certain, then, that this offers no exception to the phrenological principle of Size being a condition of power; for it is indisputable, that, according to all physical laws, a larger funnel will receive and concentrate a greater sum of atmospherical particles than a smaller one. And it is observed that, in accordance with this, those who have the external nose flattened, small, or destroyed by disease, have a corresponding inferiority of function; and it has been noticed, that individuals in whom the sense of smell had been impaired by the destruction of the external appendage, have regained their former state by mounting noses of wax, pasteboard, or silver, for the sake of ornament only; and as neither wax, pasteboard, nor silver, are naturally endowed either with nerves or with any power of sensation, it follows of necessity that both the original and the substitutes act not from any special quality, but merely as physical agents under physical laws, or, in other words, that they are not themselves the seat of smell, but passive conductors leading to the latter.

The true seat of smell, or part on which the odorous particles make their impression, is the pituitary membrane lining the internal nares; and, so far as it is concerned, nothing is more certain than that, *ceteris paribus*, it is always proportioned in surface and extent to the intensity or power of function. Even in the different tribes of man, this coincidence is so remarkable as often to have arrested attention. Blu-

menbach speaks of the internal nares of the North American Indian being of an extraordinary size; and adds, that he has observed the same excess, though to rather a less degree, in a number of Ethiopian skulls, which differed from each other in almost every other respect. These anatomical observations, he takes occasion to notice, are in perfect harmony with the wonderful acuteness of smell possessed by these savages.

In animals, in like manner, the intensity of smell depends greatly on the extent of surface presented by the internal nares and Schneiderian membrane; and a curious mechanism is observed in many of them, whereby this condition may be carried to an enormous extent without adding much to the bulk of the head or face. Among the mammalia, man and monkeys present the smallest extent. The dog, the elephant, the whale, and even the cow and the horse, present a very large surface, formed by an immense number of convolutions or folds in the spongy bones, and by a great variety of cells and sinuses in the other adjoining bones, and all of which are lined by the pituitary membrane. Dr Monro *primus* states, that most quadrupeds have the spongy bones large, and divided into a great number of excessively-fine thin lamella; "and that the sensibility seems to increase in proportion to the "surface in this and in all the other senses," we conclude, he says, not only *a priori*, but from actual experience. In many fishes, the same predominance of the organ and power of smell is remarkably conspicuous; while in animals of feeble smell, the moderate extent of the nasal cavities is in equal accordance with the more imperfect function.

The influence of Size on the function of the third part of the apparatus is not less palpable. I allude to the olfactory nerve, which perceives and transmits to the brain the impression made on the membrane. As a general rule, it bears a fixed relation to the extent of surface over which it is distributed, and it was long since proved by Drs Gall and Spurzheim, that its size is always proportioned in the different species to the power of smell. Hence it is small in man and in

the monkey tribe, scarcely, if at all, perceptible in the dolphin, large in the dog and the horse, and altogether enormous in the whale and the skate, in which it actually exceeds in diameter the spinal marrow itself. In the mole it is of extraordinary size, while the optic nerve is very small. In the eagle the reverse is observed, the optic being very large and the olfactory small.

In some animals, indeed, the ganglion whence the olfactory nerve arises is so large as to have been mistaken for the brain itself. In the skate, according to Desmoulins, that ganglion forms at least one-third, and in some species of whales even so high as one-half of the whole cerebral mass, in exact accordance with the increased power of function in these animals.

The organ of hearing, like that of smell, consists of three distinct parts: 1. An external ear, auricle, or instrument for collecting and concentrating atmospherical vibrations; 2. An internal ear or apparatus destined to receive the mechanical impressions of sound; and, 3. An auditory nerve to perceive and transmit these to the brain and mind. Like the external nose, the auricle or external ear is an accessory only, and not an essential part, and in many animals is not to be found. Where it does exist, however, it invariably executes its peculiar function with a force, *ceteris paribus*, proportioned to its size, and, therefore, forms no exception to the general law. Each of the other parts also, when considered in relation to its own uses, contrary to the opinion of the learned reviewer, invariably presents an intensity or power of function proportioned, *ceteris paribus*, to its size, and is thus in strict harmony with the phrenological principle alluded to.

Thus it can be physically demonstrated, that, all other things being equal, the external ear or auricle will receive, concentrate, and transmit to the internal organ a number and mass of atmospherical vibrations exactly proportioned to the extent of its development. A beautiful and apposite illustration of this is to be seen in the enormous de-

velopment of that part, said to equal in size that of a section of the whole body, in some species of bats, which are known to possess extraordinary delicacy of hearing. The principle is, in fact, practically acknowledged, and daily acted upon, even by men who theoretically deny it; and who, when become dull of hearing, do not scruple to lessen the defect by artificially increasing the size of the despised auricle by means of the hand placed behind it, or by the still more methodical use of an ear-trumpet, which is neither more nor less than a large auricle of a peculiar shape and great dimensions. But as the auricle is not an essential part, so neither is the power of hearing in every instance proportioned to its size alone; for in some animals it is altogether wanting, and in many others, possessed of acute hearing, it is scarcely perceptible. Where it does exist, however, it adds to the perfection of this sense in exact proportion to the extent of its development; and it is on this principle that Dr Monro *primus* states, that the "external ear in different quadrupeds "is differently framed, but always calculated to the creatures' "manner of life;" and that "thus hares and such other ani-"mals as are daily exposed to insults from beasts of prey, "have LARGE ears directed backwards, their eyes warning "them of danger before," &c.

The internal ear, or true receptacle of sonorous impressions, obeys the same law of Size; but it is so complicated and variously modified in structure to suit the wants and habits of different kinds of animals, and the uses of its numerous constituent parts are still so imperfectly known, that it would take up too much time to prove the reality of the relation between its size and energy of function. But here, as in every other instance, if we keep in view the *ceteris paribus*, the rule will be found invariable; and it is, in fact, admitted on all hands, that in many animals, whose superiority of function is proverbial, the vestibule and semicircular canals are both much larger and more perfect than the corresponding parts of the human ear.

In regard to the auditory nerve, or part which perceives and transmits the impressions made on the ear, it is equally certain that size is, *ceteris paribus*, a measure of intensity. In accordance with this we find Desmoulins declaring, that its proportion increases in exact relation to the difficulties of the medium in which the animal lives, and to the feebleness of the impressions which it requires to recognize; and that it is for this reason that the auditory nerve is *twenty times* more developed relatively to the size of the animal in fishes than in the mammalia or birds. It has long been known also, that most of the mammalia far exceed man in the acuteness of their hearing, and that they equally excel him in the proportional size of the auditory nerve. This is generally admitted, and may be readily verified by comparing the great size of the nerve in the sheep, the cow, or the horse, with its moderate size in man. So far then as hearing is concerned, the phrenological principle of Size is clearly unexceptionable.

We come now to the sense of Taste, and here also we must distinguish existing differences. The tongue and palate are merely the surfaces on which the impressions are made, and the gustatory nerve is the real organ of this sense. Dr Spurzheim then was quite in harmony with the soundest physiological laws, when he stated, that "the *principal condition* to an acute taste is certainly *large gustatory nerves* "*spread over a considerable surface*;" and that therefore the acuter taste of many animals was sufficiently accounted for by their larger nerves spread over a larger surface. Comparative anatomy, indeed, puts this proposition beyond doubt, and shows that the nerve of Taste is proportionally much larger in most animals than in man. The nervous papillæ disseminated over the pharynx, the palate, the tongue, the interior of the cheeks and the lips, are both much larger and more numerous. And in many animals, on purpose to extend the surface of the organ of Taste, the palate is lined with a membrane disposed in furrows, and sown with nervous papillæ; and, generally speaking, the apparatus which serves

for eating is larger in them than in man. And when we reflect that, in accordance with this, their chief enjoyment arises from the unceasing gratification of this sense, it will not be easy to deny them a corresponding superiority of function.

The fact, that many birds possess a very acute taste, shows that it is not to the tongue alone that we must look for its seat. The palate of some birds of prey is very copiously supplied with nervous filaments in exact conformity to their known acuteness of sense. Blumenbach has found in the duck the organs of taste very largely developed, more so than in the goose; and it is quite ascertained that the former possesses the power to an exquisite degree.

The same observation of greater size giving greater power of taste has been noticed by physiological writers even in man himself. Thus Rullier assigns the excess of the development of the mouth and its contents in negroes as the condition which confers on them the acuteness and extent of taste for which they are remarkable;* and it is, moreover, perfectly ascertained, that the abridgment of this extent of surface by disease, by the loss of the tongue for example, is followed by a corresponding diminution of function; and the sense is not altogether destroyed, only because the tongue is not alone the seat of its operations. It must, however, be remembered, that the tongue is an organ of motion as well as of taste, and that it is as essential for deglutition as for the reception of sapid impressions; and hence that it is, properly speaking, the relative size of the gustatory nerve, and not the absolute size of the tongue, that regulates the intensity of taste.

Again, the venerable quadruped, whose physiological opinion is so contemptuously treated by Mr Jeffrey, was equally sound when she affirmed, that she had large eyes to see the better; and the error which that gentleman advocates has obviously arisen from confounding distinct parts as a common whole. Wherever the general plan and structure of the organ of vi-

* Dictionnaire de Medecine, vol. x. p. 309.

sion are at all analogous, there increased size invariably indicates increased function. The scarcely perceptible eye of the mole, and the scarcely more evident eye of the bat, are in exact harmony with their imperfect vision; while the large eye of the cat, the eagle, and the falcon, are remarkably in unison with the strong visual powers of these animals. But here also the *ceteris paribus* must never be lost sight of in estimating the influence of organic Size.

Considered physiologically, the apparatus of vision must be divided into two distinct parts—the eyeball, or recipient of luminous rays and impressions, and the optic nerve and retina, which perceive and transmit these impressions to the mind. The former, like the corresponding part of the auditory apparatus, is in a great degree a passive instrument, which fulfils its function, not from any vital properties, but in consequence of the physical qualities of its component parts, and therefore in obedience to the ordinary laws of matter. Its function is to receive and to refract the luminous rays directed upon it, so as to form a distinct image upon the retina; and the proof that it is purely passive in doing so is, that the eye of an ox, or of any other animal, will, after death, and after being separated for some hours from the head, form an image on the retina almost as perfectly as during life; and consequently the eyeball comes strictly under the general physical law of increase of size, all other things being equal, giving increase of power.

Keeping in view then its peculiar function, it becomes quite an undeniable proposition, that a large eye will, all other circumstances of convexity, structure, and proportion of parts being equal, admit a greater quantity of luminous rays than a small one, and thus contribute to the perfection of vision by taking in a *wider field* at one time; but to add *acuteness* or *intensity* to extent, something more is required, as I shall now show.

To feel, or to perceive, as we have already pointed out, is a function of the nervous system, and hence all the exter-

nal senses require, as their *essential* condition, the presence and operation of a special nerve. In the case of vision this is the optic nerve. Now, if the phrenological principle applies to all the senses without exception, *acuteness* or *intensity* of vision ought to be indicated, *ceteris paribus*, by the size of the optic nerve. Accordingly, the most extensive investigation proves this to be the case. The eyeball being constructed in relation to the physical properties of light, serves merely to place the nerve or real organ of sensation in communication with the luminous rays; and thus, while the *passive* or *recipient* power is proportioned to the size of the eyeball, the *active* or *percipient* bears an uniform relation to the size of the nerve and of its expansion in the retina.

When, for instance, we compare the organs of vision in the falcon, the eagle, or the vulture, which perceive at a glance, and from the greatest conceivable altitudes, and in a horizon of several miles, a hare, a partridge, or a reptile, often from their colour, analogous to that of the soil invisible to us at half-gunshot, with those of other birds, as some species of goose and swans, which rise to equal heights, but which, like man, do not distinguish minute objects, but are guided in their flights by general outline, by rivers, mountains, or plains, we find the difference of function in the former to depend chiefly on an enormous preponderance of the nervous apparatus belonging to the eye, and the regular gradation of which in relation with the function is very remarkable. In the stryx flammea or screech-owl, for instance, whose sight is imperfect, the ganglions from which the optic nerves arise are estimated by Desmoulins as not exceeding in size one-twentieth, while in the eagle the same parts represent at least one-third of the whole encephalic mass, the nerves themselves being in the same ratio.

In like manner, according to Desmoulins, in the gallinacea, which see little more than the surface with which they are in actual contact, the eye is proportionally much smaller, the nerve thinner and longer, and the optic lobe also much smaller than in the duck tribe, whose sight is proportionally more

acute; and in the falcon the organ, nerve, and power of vision, all reach their maximum of development. In birds of prey, with piercing sight, the optic ganglions are said to exceed in size those of birds of ordinary vision by at least five or six times. Indeed it was the great size of these very ganglions in birds in general that led to their being mistaken for the optic thalami, until Gall and Spurzheim pointed out the error and its cause.

I have heard that admirable ornithologist, M. Audubon, give an account of the habits of the vulture, which accord precisely with the doctrine here laid down in regard to the influence of organic size both on sight and smell. It has been a very commonly received opinion, that vultures and other birds of prey are attracted to the carrion by the smell which it emits. But nothing, said M. Audubon, could be more erroneous than this, as the power of smell is in these animals extremely imperfect, while vision is as remarkably acute. To prove this, M. Audubon had repeatedly left dead animals under a sort of shed, by which they were screened from sight, but to which any bird could have easy access; and although they remained till the stench became perfectly intolerable, no vulture or other bird ever approached them; but if in this state the carrion was exposed to view, it invariably happened that in the course of a few hours it was attacked and devoured.

To prove that it was vision alone that enabled these birds to distinguish their prey, M. Audubon next made a train from the shed to a little distance with fresh blood, and although no smell was at all perceptible, it invariably happened that, in a very short time, the bird was attracted to the spot, and, following the line of blood, entered the shed and devoured the flesh, still too recent to emit any odour. But if any considerable space was left between the visible trace and the concealed object, however strong the odour which it emitted, the bird never seemed to suspect its presence. And in accordance with these facts, and with the law of size giving

energy of function, M. Audubon mentioned, and indeed it is generally known, that these predatory birds are almost as remarkable for deficiency in the size of the nerve of smell as we have shown them to be for excess in that of vision.

To effect the purpose of increasing the size of the optic nerve in these animals without adding injuriously to that of the eye itself, an admirable contrivance has been resorted to. Instead of forming a single membrane lining only the inner surface of the posterior chamber of the eye, as in man and animals of ordinary vision, and consequently only equalling in extent the sphere of the eye to which it belongs, the retina in these quick-sighted birds of prey is found to be composed of a great number of folds, each hanging loose into the eye, and augmenting, in an extraordinary degree, not only the extent of nervous surface, but the mass of nervous matter, since, according to the estimate of Desmoulins, from whom I take this account, the actual thickness of the membrane of the retina is equal in all animals, from man and the ox, to the eagle and the duck, with the exception of the lamprey, and consequently the nervous mass in the eye of the eagle for example, exceeds in proportion that of man by the quantity which goes to form the folds already alluded to. This structure exists at its maximum in eagles, vultures, and falcons, and surely this is in harmony with their noted acuteness and intensity of vision.

The utility of disposing this increase of nervous matter in folds is obvious enough. Had the additional mass gone merely to add to the thickness of the retina, great part of it would, from its opaqueness preventing the transmission of the luminous rays, have existed in vain, but by being thus disposed in folds formed of layers sufficiently thin and transparent to allow of the passage of the rays of light through to their ultimate destination in the choroid coat, every nervous point is brought into direct contact with the light, and from the sum of the whole arises the intensity. Desmoulins calculates, that in the royal eagle four folds exist in a space that

in an ordinary eye may be counted one, and as each fold consists of a membrane folded on itself, and thus presents in reality four sides, consequently every ray of light comes in contact with sixteen points of nervous surface instead of two, where the retina is, as in man, a single membrane. This calculation may be erroneous, but it is more than sufficient to establish the relation existing between size of organ and energy of function, which it is our present object to prove.

In further corroboration of the same principle, it may be mentioned, that when these quick-sighted animals are deprived of the exercise of the sense of vision in so far as regards objects placed at great distances, and for the perception of which alone strong vision is required, the nervous folds begin to diminish, and ultimately disappear, leaving the retina single, as in animals of ordinary vision. M. Desmoulins observed this diminution in the otherwise healthy eyes of a royal eagle dead at the Menagerie in Paris; and in another, become blind before death from ophthalmia, he found the retina quite smooth, and without a vestige of any fold, and the optic nerves reduced in size by two-thinds. That this atrophy resulted from the diminution and privation of function was proved by Magendie producing the same phenomena in the eye of a pigeon, by simply excluding it from the light for twelve consecutive days; and this being the case, can the relation between size and energy of function be for a moment reasonably doubted?

Not only indeed has organic size been generally regarded by physiologists and anatomists as a measure of energy of function in the case of the five external senses, but what is more to our purpose, the same principle has been notoriously admitted and acted upon in all ages by the most celebrated authors as unquestionably applicable to the brain itself, and has never yet been called in question, except for the interested and prejudiced purpose of opposing Dr Gall. Indeed the slightest examination will suffice to show, that all the methods of investigation hitherto thought of for discovering the func-

tions of the brain, which have succeeded in arresting for a moment the attention of philosophers, or which have led to the establishment of any general or important truth, rest on this basis of size alone. But, as this is a point of some consequence to our argument, I shall make no excuse for examining it more in detail.

The first proposition of this kind which I shall notice is, that which, admitting the brain to be the organ of mind, affirms the intensity of its functions to bear a direct relation to its general or absolute size. Thus man has a larger brain than most animals of much greater dimensions than himself; and from observing this fact, Aristotle, Erasistratus, Pliny, Galen, and many modern writers, inferred that superiority of function, and consequently of intelligence, depended always on the *absolute size* of that organ. But although this rule holds in a general manner, it is still liable to many exceptions, the elephant and some cetaceous animals having larger brains, but much more limited intellect than man. The dog and the monkey also have a smaller cerebral mass than the horse, the ox, or the ass, and yet the former greatly excel the latter in point of intelligence. Here then is one method which recognises distinctly the phrenological principle of Size, and, as will readily be understood, it fails in leading to individual truth, only because it erroneously takes for granted the singleness of structure and function of the cerebral apparatus, and attempts to find *one* general function proportioned in intensity to the size of *one* supposed general organ, without considering that, if this were the case, the only possible difference that could exist between animals with large brains and animals with small brains would be simply a greater or less degree of the same qualities of intellect and of propensity; and that thus a sheep, whose brain is nearly of the same size as that of the tiger, ought necessarily to possess the same ferocity and energy which distinguish the latter. Here then the fault lies not in the principle, but in its erroneous application.

Other physiologists, perceiving the palpable objection to the first method, have recourse to a second, still founded on the principle of Size, which they hope will be found without any exceptions. They propose to measure the extent of intelligence and instinct by comparing the proportion which the mass of brain bears to that of the whole body; and here again the general but not the individual results are in harmony with experience. Thus, although the brain of the elephant is absolutely larger than that of man, yet, when compared to the bulk of its body, the proportion becomes infinitely smaller, and this difficulty is got over. But, unfortunately, Sœmmering, Blumenbach, and Cuvier, soon found that the sparrow, the redbreast, the wren, the canary, and some species of monkeys, have a brain much larger in proportion to their bodies than man himself. This rule, therefore, would not do; and its fallacy arose from expecting to find an uniform proportion existing between parts totally dissimilar, and of totally different functions. Its failure, therefore, so far from forming any objection to the principle on which it is founded, serves only to show, that the *ceteris paribus* have been lost sight of in its application.

Sœmmering and some other physiologists finding this rule fail, thought they had found out another still in accordance with the principle of Size. It was, that the volume of the brain, compared to that of the nerves, would give an exact measure of the degree of intelligence; and, generally speaking, man has certainly greatly the advantage of most animals in the excess of proportion of his cerebral mass compared to that of the nerves. But this is again instituting a comparison between distinct and independent parts, and therefore it is not without many exceptions; for in the monkey, in the dolphin, and in many birds, the proportion is higher than in man, and the intelligence is infinitely less. Besides, as each nerve performs a distinct function, there is no sort of proportion between the size of different nerves in different animals, and therefore no standard of comparison. In one animal, for in-

stance, the optic, in another the auditory, in a third the nerves of motion, and in a fourth those of sensation, greatly predominate, without any necessary proportion between any or all of them and the brain; and hence this method is not satisfactory, although it was, and I believe still is, patronised by Cuvier.

Cuvier, Sœmmering, and Ebel, however, regard the proportion between the size of the brain and that of the spinal cord as the most infallible measure of intelligence; because, they say, it is by this proportion that we estimate how far the organ of mind prevails over the external senses; but as these two parts are perfectly distinct, and perform independent functions, it often happens, that the proportion does not indicate the truth, and hence it cannot be used as a correct measure. Cuvier himself acknowledges exceptions, and cites the dolphin as one; but, in proposing this rule, the principle of Size is again admitted as a measure of function.

Other physiologists, as Richerand, Dumeril, and even Cuvier and Sœmmering too, have recourse to another modification of the same principle, and affirm, that intelligence is in exact proportion to the degree in which the size of the brain preponderates over that of the face; man is, according to them, at the top of the scale; and the most stupid and ferocious, from their enormous jaw-bones and small brains, are at the foot. And this arises, they add, from the whole existence of these animals being concentrated in the exercise of the senses of taste and smell, whose organs are thus extensively evolved. Cuvier indeed tells us, that the ancients had perceived this rule, and on this account gave to their heroes, sages, and demi-gods, large and prominent foreheads, in unison with moderate-sized faces. This idea has even been very generally received among the public; but it is not strictly in harmony with experience. For it is not in reality the large brain in proportion to the small face that gives the superiority of intellect, but the large anterior cerebral lobe itself; and it is a matter of perfect indifference to the corresponding mental

functions, whether the adjoining face is large or small. Leo X., Montaigne, Racine, Mirabeau, and Franklin, had all large brains, joined with large faces. Bossuet, Kant, and Voltaire, had, on the contrary, the same large size of brain, but with proportionally much smaller faces. The small size of the face in the latter would indicate an inferiority in the functions which are executed by its component parts; but it would certainly neither add to, nor detract from, the energy of the cerebral functions, the brain itself remaining the same.

The celebrated facial angle of Camper, which some affect to consider as very superior to the method of Dr Gall, is itself founded on the obnoxious principle of Size being an indication of energy,—and it would be well for those who object to the groundwork of Phrenology to recollect this fact. Camper's angle is formed, as is well known, by drawing one line from the incisory teeth in the anterior part of the upper-jaw to the meatus auditorius, and prolonging another from the same part to the most elevated part of the forehead. The more nearly the angle formed by the junction of these two lines approaches to a right angle, or, in other words, the larger the anterior cerebral mass, the higher will be the degree of intelligence, and *vice versa*, which, as a general rule, is quite true; and Lavater has formed a scale of perfection in conformity with it from the frog up to the Apollo Belvidere. As nature affords numberless facts in accordance with it, the facial angle has been almost universally received, even by anatomists and physiologists; and, in spite of opposite facts, many philosophers still feel very averse to abandon it; and Cuvier furnishes a long list of animals in its support. But although this method leads in many instances to accurate results, and is in perfect harmony with the principle of Size, still it fails from overlooking obstacles to its universal application.

In the *first* place, it is incomplete, and measures only the anterior parts of the brain, leaving the upper and back parts altogether out of consideration. *2dly*, From the small size of

the jaw in the infant, the facial angle is then, according to Cuvier, one of 90°, while in decrepid old age it dwindles to 50°; it therefore changes at different periods of life, without indicating a corresponding change in the degree of intelligence. *3dly*, The mass of brain being the same in two individuals, one with a large projecting jaw like a negro, and other with a small jaw like Voltaire, the angle will indicate a difference of 10, 15, or 20 degrees, where no difference of intelligence really exists. *4thly*, According to Blumenbach, three-fourths of the animals known to man have the same facial angle existing *with every possible difference in the kind and degree of faculties which they possess*. *5thly*, The external table of the skull is in many animals at such a distance from the internal as to afford no index whatever to the size of the brain. The elephant is a familiar example. Hence, and for many other reasons, Camper's invention is inapplicable, and does not offer results in harmony with experience.

The last method which I shall mention as founded on the principle of Size, is that which proposes to compare the size of the brain with that of the cerebellum. But the same objections apply to this as to all the preceding plans; and the mention of them here is valuable, only from demonstrating, that so far is the fundamental phrenological principle of Size being, *ceteris paribus*, a measure of power, from being a new or an unfounded proposition emanating from the fancy of an enthusiast, it is one of the oldest, best-established, and most universally-received in the whole range of modern physiology, or of modern science; and, consequently, that when any of the more zealous than enlightened opponents of Phrenology think proper to dispute its truth, it is rather for them to adduce evidence in support of an opinion which is in direct opposition to that which observation has led mankind in all ages to adopt, than for us to trouble the million with evidence to convert the incredulity of the one. The only question which remains for us to answer is the very natural inquiry, how does Dr Gall, in *his* application of the universally-acknowledged prin-

ciple, contrive to surmount the obstacles which have hitherto shipwrecked all his predecessors?—and it is this we shall now attempt to answer.

We have already seen, that the error of supposing the external senses not to be influenced by the size of their organs has arisen not from any fault in the principle itself, but entirely from overlooking the existing distinction of parts, and from confounding functions in themselves separate and independent, and, therefore, not necessarily proportioned to each other, or, in other words, from the *ceteris* not being *paribus*. Now this is precisely the rock on which the successive attempts at discovery of the cerebral functions have also split, and by accidentally avoiding which Dr Gall has been so peculiarly successful. The brain is not a single organ performing in all animals a single function; it is an aggregate of parts appropriated to different uses; and consequently, unless we distinguish these from each other, and apply the principle of Size to each separately, it will be utterly impossible to invent any method which will so far supersede the *ceteris paribus* as to be susceptible of universal application. Thus, before we can expect to arrive at a true and invariable result, by comparing the absolute size of the whole brain of one animal with its absolute size in another, it will be necessary to show,—1*st*, That the brains of all animals are composed of analogous parts performing similar functions; and, 2*dly*, That these parts invariably bear the same proportions to each other; or, in other words, 1*st*, That all animals are endowed with precisely the same faculties of instinct, of propensity, and of intelligence; and, 2*dly*, That they all possess these in the same invariable proportion to each other, which is the same as to say that a tiger and a lamb have kindred qualities, or to announce a proposition at variance with all surrounding nature.

Again, if even in the same species, as in man, different parts of the brain perform different functions, and differ in every different individual in their relative proportions to each

other, can it reasonably be expected that absolute size, in *whatever part* it may chiefly exist, should indicate absolute intensity of the particular functions of *intellect?* Thus it is not rare to meet with a brain which, from the great size of posterior lobes, or organs of the propensities, surpasses in absolute size another brain, of which the chief development is in the anterior lobes or organs of intellect. Now the rule of absolute Size, applied here to the neglect of the palpable difference of parts, would rate the former as the highest in point of intelligence, when experience would prove the reverse to be true; and the apparent discrepancy might lead the experimenter to doubt the infallibility of the principle of Size, where a little more knowledge would have shown the fault to lie only in the mode of its application; and it is here that Phrenology has been eminently successful, from comparing intensity of *individual function with size of individual organ*, instead of grouping together distinct and independent parts, and expecting a general and invariable result to spring from every variety in the proportions of these parts.

The same insuperable objection lies against comparing the mass of brain with the mass of nerves. The former is not homogeneous, and, as a whole, it bears no proportion to the size of the nerves, because the functions of the latter are quite different from those of the former. In one animal, for instance, the anterior or intellectual part of the cerebral mass is considerable, while in another, whose brain as a whole is perhaps larger, the posterior part or organs of the propensities is the most considerable, the mass of nerves being nearly equal in both, and yet the former, with the smaller brain, would unquestionably be the more intelligent; but the latter, on the other hand, would excel in intensity of passion and propensity.

Camper's facial angle, and the other methods already mentioned, fall to the ground from the same defect. The anterior part of the brain measured by the angle is not a single part with a single function, as is taken for granted; and hence the proportions of its component parts being neglected, error

unavoidably arises in drawing general inferences, just as Mr Jeffrey falls into error by mistaking the external nose for the whole organ of smell, and the external ear for the complete organ of hearing, and inferring, from the senses not depending for their acuteness on the size of these parts alone, that therefore Size does not add in any degree to the intensity of their functions.

With these sources of error clearly in view, and with the principle of Size for our guide, it may seem an easy matter to proceed a step farther, and, like Dr Gall, at last to unfold the true uses of the brain. But plainly as these principles *now* open to our view the path of knowledge, it was not by tracing them to their consequences that Dr Gall actually made his discovery. He never thought of this any more than did those who preceded him. It was the casual and repeated observation of the concomitance of great energy in a particular mental power, with great size of a particular and individual part of the brain, that first arrested his attention, and forcibly directed his notice to the inquiry, whether these facts were connected in the relation of cause and effect, and whether other mental powers might not also depend for their energy on size of other individual parts of the brain; and it was not till years after he had satisfied himself by the most extensive and varied experience, that the energy of several at least of the mental qualities bore an uniform relation, *cæteris paribus*, to the size of particular parts of the brain, that the idea occurred to him of tracing the relations of these parts to the general principles of physiological and natural science. This, then, while it proves, that, let Phrenology be what it may, still it is NOT the offspring of theory, affords also strong grounds of probability in favour of its truth, from the circumstance of all its doctrines, picked up as it were piecemeal, being in perfect harmony with the best-established principles of science, and, consequently, offers a strong inducement to every reasonable and inquiring mind to enter upon its serious and candid examination. And if the present paper, by ex-

plaining this consistency and harmony, contribute in any degree to produce the effect just stated, its author will hold himself amply recompensed for the time bestowed in its preparation.

ARTICLE II.

LETTER—DR CALDWELL, PROFESSOR OF THE INSTITUTES OF MEDICINE IN THE UNIVERSITY OF LEXINGTON, UNITED STATES, TO GEORGE LYON, ESQ., SECRETARY OF THE PHRENOLOGICAL SOCIETY.

Lexington, August 1, 1826.

DEAR SIR,—On returning home a few weeks ago from a four months' tour through the Atlantic States, I had the honour and gratification to find, in waiting for me, your very polite and acceptable letter of the 9th of February. The information it imparted, touching the progress and present standing of phrenological science in Great Britain and on the continent, could not be otherwise than eminently grateful to me. Intelligence to the same effect, but not so authentic, I had previously received by letter from travelling friends and other correspondents, and had endeavoured in my lectures to make the proper use of it. Man is essentially an *imitative* and a *sequent* being. Hence a knowledge of the fact, that a doctrine is becoming prevalent and fashionable in a distant country, highly distinguished in literature and science, may be rendered in no small degree operative in the establishment of that doctrine in other places. Nor, provided the doctrine be true, is there any thing blame-worthy in having recourse to such means.

The first volume of the Phrenological Transactions, and seven numbers of the Journal, I have been so fortunate as to receive about six months ago. Subsequent numbers I shall receive in due time and regular order.

These works are not only rich in matter, but are conduct-

ed with excellent judgment and ability and admirable tact. The stream of truth which they put in motion, and which afterwards bears them along on its current, is irresistible. Superstition, prejudice, the folly and obstinacy of ignorance, and *legitimacy in error*, must yield to it as certainly as the stream of the Mississippi or the Oroonoco washes the crumbling alluvion from its banks, or the vessel is swept from her mooring by the gale and the current when her cable is rotten, or her anchorage infirm. To attempt to make head against a current as irresistible as omnipotency itself, (for *truth is omnipotent*, if its Author is so,) by the miserable expedient of stale jests, or the no less pitiful hue and cry of "*materialism, fatalism*, and *the legitimating of crime*," the course pursued and the means employed by the enemies of Phrenology—an attempt, I say, like this, is worthy only of the moral imbecility and intellectual ignorance of those by whom it is adopted. Philosophy rejects such assistance, and manhood disdains it.

In my late tour in the East, of which I have already spoken, I was not forgetful of our favourite science. Besides conversing much on it with many of the most cultivated men of the country, I delivered, by invitation, another course of lectures in the city of Washington, where my lectures in the preceding summer had been instrumental in the establishment of a Phrenological Society,—an institution which, from the peculiar felicity of its situation, and the intelligence, zeal, and activity of its members, promises to be infinitely useful to the science.

During my last course of lectures in Washington, the congress of the nation was in session, and members of it resident in various and distant parts of the Union constituted a considerable portion of my class. To the *whole* of them, as far as I know, the doctrine taught was acceptable, and the evidence adduced in its favour satisfactory and conclusive. *Some of them*, from *sceptics* and *unbelievers*, were not only proselyted, but converted into perfect *phrenological enthusiasts*. Thus, as I trust, has good seed been somewhat *eaten-*

sively sown in a genial soil. And I state, with entire gratification, and much to the credit of our science, that, of my class, those who were most devoted to the study of what are denominated the *severe* or *exact sciences*, were most easily and speedily proselyted, and became the most ardent votaries and the most powerful and dextrous advocates of Phrenology. This was particularly the case with Major K—y, of the U. S. corps of engineers, an officer of great professional worth, and distinguished for his ardent devotion to mathematics. To my first lecture he frankly acknowledged that he came *to laugh*, i. e. *to be amused*, but "remained to pray." In each subsequent lecture he became more and more interested, until, before my course was half-finished, he procured a pair of excellent callipers, and became, in a short time, as seriously and zealously engaged in the admeasurement of intellect as he had ever been before in that of heights, distances, angles, or quantities. Him I consider as my *Paul of Tarsus*, destined to prove a celebrated reformer. As far as my observation has extended, the facility with which an individual who has bent his attention to it becomes convinced of the truth of Phrenology, may be regarded as the measure of the soundness of his judgment, and the strength and excellency of his reflective faculties. Within my knowledge, *no man has ever seriously studied the science without becoming a proselyte; and, once a proselyte, no one has ever apostatized.*

The difference, corporeal and intellectual, between the different *races* of men, has long constituted with me a favourite topic of inquiry. For the radical superiority of the *Caucasian* I have always contended, and have published several essays in defence of my opinion. In verification of this belief Phrenology is conclusive.

During my late tour, I collected, on this subject, a certain amount of information highly satisfactory to myself, and which, to the phrenological world, will not, as I venture to believe, be altogether without interest.

The aborigines of North America are to be regarded, I

think, as a variety of the *Mongolian* race. Certainly they are not of the *Caucasian*. In the course of my tour I had an opportunity of examining and measuring the heads of six nations or tribes of that unfortunate family of men.

In the city of Washington were deputations of chiefs from the Cherokee, the Creek, and the Seminole nations; and in the state of New York, I visited the dwellings of the Oneidas, the Tuscaroras, and the Senekas.

Without going into *details*, I can state only the *result* of my observations and admeasurements, which were often repeated in presence of intelligent and competent witnesses.

The average size of the head of the *Indian* is less than that of the head of the *white man*, by the proportion of from an eighth to a tenth, *certainly from a* tenth *to a* twelfth part of its entire bulk. The chief deficiency in the Indian head lies in the superior and lateral parts of the forehead, where are situated the organs of Comparison, Causality, Wit, Ideality, and Benevolence. The defect in Causality, Wit, and Ideality is most striking. In the organs of Combativeness, Destructiveness, Secretiveness, Caution, and Firmness, the functions of which constitute the dominant elements of the Indian character, the development is bold. The proportion of brain behind the ear is considerably larger in the Indian than in the white man. The organ of Adhesiveness in the former is small.

This analysis, brief and imperfect as it is, unfolds to us much of the philosophy of the Indian character, and enables us, in a particular manner, to understand the cause of the peculiar inaptitude of that race of men for civil life. For, when the wolf, the buffalo, and the panther, shall have been completely domesticated, like the dog, the cow, and the household cat, then, and not before, may we expect to see the *full-blooded* Indian civilized like the white man.

Of the mixt breed, which is very numerous, the cerebral development and the general character approach those of the white man in proportion to the degree of white blood which

individuals possess. On account of the marked superiority of his intellect, a *half-bred* seldom fails to become a *chief.*

A chief of the Creek nation, who, on account of his pre-eminence in eloquence, held the appointment of orator of the delegation, surpassed in a high degree all the others in the development of the organs of Ideality and Comparison. His addresses were replete with *metaphor*, and, for an uneducated speaker, marked with *taste.*

Of the *full-blooded* Indians generally, permit me to remark, that such is their *entire unfitness for civilization*, that every successive effort to mould them to that condition of life, more and more deteriorates their character. Of the *mixt*-bloods this is not true. Hence the only efficient scheme to civilize the Indians, is to *cross the breed.* Attempt any other, and *you will extinguish the race.* To the truth of this the experience of every day bears ample testimony. The real aboriginal Indian is retreating before civilization, and disappearing with the buffalo and the elk, the panther and the grisly bear. Let the benevolent and enthusiastic missionary say what he may, the *forest* is the *natural home* of the Indian. Remove him from it, and, like the imprisoned elephant, he loses the strength and loftiness of his character. He becomes a hot-house plant, and dwindles in all his native efficiences. This *problem* (for so by many it is considered) is solved *only*, but can be solved *easily*, by the lights of Phrenology. On this position it is my purpose to dwell more fully hereafter.

The wisdom of Providence is manifested in the innumerable aptitudes of things that every where present themselves, and in none more clearly than in those which concern the human family. The vast American wilderness, the haunt of the deer and the elk, the bear and the buffalo, required a race of savages to people it. But converted, as it already is, in part, and rapidly as that conversion is daily extending into cultivated fields and populous towns and cities, the abode of civilization, commerce, and the arts, the mere *man of the forest* is no longer wanted, and he is, therefore, passing away.

He has flourished—he was needed; but he is needed no longer, and he therefore decays.

As respects my intended visit to England, of which you have been pleased to speak so obligingly, and for their kindness in relation to which I entreat you to make my acknowledgments acceptable to the members of the Phrenological Society generally, but more especially to Mr Combe—as respects that visit, I say, I still hold it in contemplation, and cherish a hope of carrying it into effect; but not, I think, at an earlier period than the spring of 1828.

In my late tour I received pressing invitations to deliver courses of lectures on Phrenology in two of the large Atlantic cities. With these a compliance was forbidden by a want of time. But I am under a conditional engagement to visit the same places next spring for the same purpose. Should I do this, my voyage to Europe will be prevented for the time, and cannot be effected until the following season.

Although a visit to Europe would be the more gratifying and instructive to me, I think it not improbable that my labours in my own country, humble as they are, are the more *useful*. And I have lived long enough to know, and, I trust, in some instances, to realize the truth, that public usefulness is a worthier object of human desire than personal gratification.

In this republican country of ours we carry every thing *by numbers*. It is here that *vox populi* is truly and practically *vox Dei;* and here *every body reads*, and not a few *think*. I have thoughts of endeavouring to avail myself of this state of things in behalf of Phrenology.

My meditated scheme is, to write and publish a small and cheap work, called *Phrenological Talk, Conversations on Phrenology*, or bearing some such simple and familiar title. In this production, carried on, perhaps, by question and answer, there must be no long or superfluous words, no display of learning, nor any discussion difficult to be understood. Plainness, simplicity, and *common sense*, must be its predominant traits. If I am not mistaken, the true elements of

Phrenology, diffused in this way among the people, might be made to lay a broad and solid basis of thinking on the subject, which nothing could shake, and to awaken a spirit of inquiry which nothing could resist.

Pardon, I pray you, the inordinate length of this letter, and believe me, with sentiments of high consideration,

Dear Sir,

Your very faithful and obedient servant,

CH. CALDWELL.

ARTICLE III.

OF WIT AND THE FEELING OF THE LUDICROUS.

(*By Mr William Scott.*)

IT was a long time ago observed by Dr Gall, and stated in his large work on the functions of the brain, that persons who are witty, and who are fond of sprightly sallies, bon mots, and repartees, have the upper and outer parts of the forehead, immediately before the organs of Ideality, much developed. Dr Gall does not attempt any accurate analysis of the faculty, (to which he gives the name of *Esprit Caustique*, *Esprit de Saillie*,) and states that he cannot describe it better, than by saying, that it is the quality most conspicuous in the writings of Rabelais, Cervantes, Swift, Sterne, Voltaire. In all these authors, and many others in whom a similarity of genius appears, the parts of the forehead before mentioned are prominent and rounded. When this development is excessively large, it is attended with a disposition, apparently irresistible, to view objects in a ludicrous light, and, according to the combination with which it is united, it leads to epigrammatic points and turns of wit, to private sarcasm or general satire, to good-humoured joking and harmless raillery, or to gross buffoonery and caricature.

In the first two editions of Dr Spurzheim's physiognomical system, he has classed this faculty among the intellectual powers, and gives it the name of *Wit*, (Witz, Germ.) He says, that jest, raillery, mockery, ridicule, and irony, belong to it. "It is asserted," he says, "that Wit consists in comparing objects in order to discover their similarity or dissimilarity: but the two preceding faculties (Comparison and Causality) also compare; and comparing in a philosophical way is quite different from comparing wittily.—Thus," he adds "the essence of this faculty consists in its peculiar manner of comparing, which always excites gaiety and laughter."

In his new work on "Phrenology," lately published, Dr Spurzheim departs from this arrangement. He now considers this disposition as belonging to the class of feeling, and states its special function to be "mirthfulness or gayness."

I strongly incline to think that the view previously taken by Dr Spurzheim is the correct one; that this is an intellectual faculty, and that while its function, as well as that of *Comparison* and *Causality* is to compare ideas or feelings together, its special function consists in its peculiar manner of comparing. It does not compare, as *Comparison* does, to discover resemblances or analogies, nor, as *Causality* does, to draw refined distinctions, or to observe close philosophical relations; but it compares for the purpose of discovering broad, violent, extravagant contrasts, and of bringing together ideas the most incongruous, disproportionate, and opposite in existence.

Incongruity.—No subject has been more frequently canvassed than the feeling of the ludicrous, and various theories have been proposed to account for it. It seems to be now generally admitted that it is caused by some kind of incongruity. Dr Beattie states, that "Laughter arises from the view of two or more inconsistent, unsuitable, or incongruous parts, or circumstances considered as united in one complex object or assemblage, or as acquiring a sort of mutual relation from the peculiar manner in which the mind takes notice of them." The same doctrine is thus stated by Akenside:—

"Where'er the power of Ridicule displays
"Her quaint-eyed visage, some incongruous form,
"Some stubborn dissonance of things combined,
"Strikes on the quick observer."

Dr Gerard observes to the same purpose :—" The sense of " ridicule is gratified by an inconsistence and dissonance of circum- " stance in the same object, or objects nearly related in the main ; " or by a similitude or relation unexpected between things, on the " whole opposite and unlike."

Although there is much truth in this, it does not amount to an exact description, far less to a logical definition of the cause of laughter, there being, as Dr Beattie observes, " innu- " merable combinations of congruity and incongruity, of rela- " tion and contrariety, of likeness and dissimilitude, which are " not ludicrous at all." We shall try if it be possible to come a little nearer to an exact description ; and with this view, we shall, in the first place, examine the four species of incongruity which, according to Dr Beattie, excite the feeling of the ludicrous. These four are the following :—

1*st*, When the incongruous particulars are united by mere juxta-position.

2*d*, When they are stated as in the relation of cause and effect.

3*d*, When they are brought together by a comparison founded on some point of similitude.

4*th*, When they are united so as to exhibit an opposition between meanness and dignity.

These do not by any means form a complete enumeration, as we shall afterwards see.

Simple Contrast.—To begin with the case of *juxta-position*, we laugh to see a short fat woman waddling beside a very tall thin man, and obliged to take two or three steps for one of his. A still more incongruous conjunction, perhaps, is a tall awkward woman stooping down to the arm of a little purfled round-bellied mannikin, whom she could apparently carry in her pocket. A country-dance of couples so contrasted, like those given in Hogarth's Analysis of Beauty, could hardly fail, as Dr Beattie observes, to make a beholder merry, whether he believed their union to be the effect of design or of accident.

Any remarkable disproportion in the limbs or features of the face, if unaccompanied with pain or distress, (according to Aristotle), is laughable. No two faces or figures are exactly alike; but there are certain limits within which the varieties are generally confined. When these are transgressed, we come into the region of the ludicrous, and, in general, we may take it as a rule, that the greater the departure from the just proportion the tendency to laugh is the greater. Thus, a nose remarkably large or remarkably little, a mouth or a chin unusually distended, are apt to excite a smile. The laughable effect would be increased by an assemblage of such oddities, either of the same or of opposite kinds. If we saw two people together, one of whom had an enormously long nose, and the other with scarcely any, we could hardly forbear laughing at the contrast. We are told in the Spectator of a wag at Bath who invited a number of people with long chins to dine with him together, and that their meeting was the occasion of much mirth. On the same principle that we laugh at any personal defect or oddity of appearance, we are affected in the same way by old fashions in manners, dress, and furniture; by any thing totally different from what we are accustomed to see used by persons in tolerable condition around us. In either case, we compare what we see with a certain familiar standard, and the laughable effect seems, *ceteris paribus*, to be in proportion to the greatness of the contrast between the standard in our minds and the object before our eyes.

In the cases last mentioned only one side of the contrast is present to the senses, the other is present to the mind; but in those cases where both are bodily present, *juxta-position* is hardly a proper term to express the sort of connexion that is required to give the incongruous assemblage its full ludicrous effect. The contrast between high and low buildings in a city, or between the short, tall, fat, and lean people in a public street, is not ludicrous. To produce this effect there must be some such bond of union among them as to lead us

to consider them as parts of a group; and I would prefer the word "grouping" to that of mere "*juxta-position*," to express this. Provided this grouping is effected, it seems to be quite immaterial by what means, or whether it is by accident or design.

The variety and contrast of occupations and of goods, which we see sometimes united in a country village, appear laughable to a townsman, who has been accustomed to see the different departments in labour, or in trade, more accurately divided. We have seen combinations of this kind as incongruous as that united in the person of Caleb Quotem, who was schoolmaster, parish-clerk and sexton, painter, fiddler, auctioneer and apothecary. The multifarious duties of Davy, Justice Shallow's man, or of Scrub, in the Beaux Stratagem, appear laughable from a similar principle. We are told of the dagger of Hudibras, that

> "It was a serviceable dudgeon
> Either for fighting, or for drudging.
> When it had stabb'd, or broke a head,
> It would scrape trenchers or chip bread.
> Toast cheese or bacon, though it were
> To bait a mouse-trap, 'twould not care.
> 'Twould make clean shoes, and in the earth
> Set leeks and onions, and so forth."

In the account of a lady's library, in the 37th number of the Spectator, the laughable effect seems to depend on the contrast between the books brought together; some of which the author supposes the lady had really purchased for her own use, the rest because she had heard them praised, or seen the authors of them. A few of them are as follows:—

Sir Isaac Newton's Works.
The Grand Cyrus, with a pin stuck in one of the middle leaves.
Pembroke's Arcadia.
Locke on the Human Understanding, with a paper of patches in it.
A Spelling-book.
A Dictionary for the Explanation of Hard Words.
Sherlock upon Death.
The Fifteen Comforts of Matrimony.
Father Malbranche's Search after Truth, translated into English.
A book of Novels.
The Academy of Compliments.

Culpepper's Midwifery.
The Ladies' Calling.
Taylor's Holy Living and Dying.
La Ferte's Instructions for Country-Dancers.

Another instance occurs in the same work, where a lady and her daughters are represented as employing themselves in household affairs, while one read aloud to them Fontenelle's Plurality of Worlds. "It was pretty," says the author, "to "see them dividing their attention between jellies and stars; now "engaged in following the course of a planet, and now in deep con-"sultation about the composition of a pudding." A more laboured picture of the same kind is given in some verses of Sheridan's on a blue stocking lady, famous alike for literature and notability:—

What motley cares Corilla's mind perplex,
Whom maids and metaphors conspire to vex;
In studious deshabille behold her sit,
A letter'd gossip, and a housewife wit,
At once invoking, though with different views,
Her gods, her cook, her milliner, and muse.
Round her strew'd room a frippery chaos lies,
A chequer'd wreck of notable and wise.
Bills, books, caps, couplets, combs, a varied mass,
Oppress the toilet, and obscure the glass.
Unfinish'd here an epigram is laid,
And there a mantua-maker's bill unpaid.
There new-born plays foretaste the town's applause;
There dormant patterns sigh for future gauze.
A moral essay now is all her care;
A satire next, and next a bill of fare.
A scene she now projects, and now a dish,
Here "Act the First,"—and there "Remove with fish."
Now, when this eye in a fine frenzy rolls,
That soberly casts up a bill for coals.
Black pins and daggers in one leaf she sticks,
And tears and threads, and bowls and thimbles mix."

It seems partly on this principle that we laugh at these practical jokes called hoaxes, where all the different trades and professions in a large town, with the emblems and specimens of their respective arts and commodities, are brought to besiege the doors of some unfortunate and unsuspecting wight of whom they are made the innocent persecutors. The joke,

in each particular case, is doubtless in proportion to the incongruity or contrast between the object and subject of the hoax; as in the case where all the medical faculty have been summoned to attend a person who entertains the greatest abhorrence of the whole medical tribe. In Hogarth's print of the Enraged Musician, we might be amused at the union of so many discordant noises, whether we supposed them brought together on purpose or not; but one of the principal causes of our mirth is doubtless the consideration, that all the discords alluded to, the bawling of the ballad-singer, the squalling of children, the screaming of the milk-woman, the hooting of the chimney-sweep, the horn of the fish-seller, the braying of the dustman, the caterwauling of cats, the rumbling of waggons, the creaking and rasping of the knife-grinder's wheel, are all brought into collision with the refined organs of one of the first musical composers of the age, in one of his finest moments of inspiration. It is here that the essence of the contrast consists, and it is this that seems to render the whole group so laughable.

In all the cases which have been mentioned of this species of the ludicrous, arising from the *juxta-position*, or grouping together incongruous particulars, it seems to be a general remark, applicable to the whole, that the greater the contrast between the particulars so joined, the laughable effect is, *ceteris paribus*, the greater.

Of Wit.—I shall now take notice of the case where the contrasted or incongruous ideas are brought together by a comparison founded in some point of similitude. This, I may observe, when done by design, constitutes *what is commonly called Wit*. Dr Beattie observes, that he agrees with Locke, that "wit consists chiefly in the assemblage of ideas, and putting them "together with quickness and variety, wherein can be found any "resemblance or congruity, thereby to make up pleasant pictures "and agreeable visions in the fancy." And he also agrees with Pope, that "an easy delivery as well as perfect conception,"—and with Dryden, that "propriety of words, as well as of thought," are necessary to the formation of true wit. I entirely accede to

all those writers have observed respecting Wit, and think it obvious that this quality, as the word is generally understood in the English language, does not result from one special faculty, but from the nice union and co-operation of a variety of faculties.

The unexpected discovery of a resemblance between two things, in other respects quite unlike, delivered neatly, and in the most appropriate words, constitutes what is called Wit. Now, in order to produce this, we require a faculty to perceive *resemblances*, and this we conceive to be that which Phrenologists call *Comparison*. But there is no Wit in a mere resemblance, unless the difference or contrast be perceived at the same time. Hence we require another faculty to perceive this *contrast*. We have already seen some reasons, and may perhaps soon light upon more, for thinking that this is the faculty connected with the organ No 32. If we are right in this account of its function, it is no doubt necessary to Wit, both in its production and enjoyment; but it is not Wit itself, which, as well as wisdom, depends on no single faculty. To complete the list of faculties necessary to Wit, we farther require a faculty to *concentrate* the operation of the former two, by bringing the resemblances and the contrast under our view at once, and within the narrowest possible point, and a faculty of *Language* to suggest the fittest vehicle for its conveyance; *Secretiveness* is essential to keep the feathered arrow in its quiver until it can be let fly with effect; and *Individuality* is that quiver which retains it until the golden opportunity occurs. It will be remembered in the account we gave of the Life of Sheridan, that this was precisely the combination of powers possessed by that celebrated man,—and to them, and not to the extraordinary endowment of any one faculty, was his reputation as a man of wit undoubtedly to be attributed.

When we talk of *Wit*, then, it behoves us well to distinguish whether we use the term in the popular or the phrenological sense. The one is something which is the joint pro-

duce of a variety of special faculties, the other is a special faculty itself; and both require to be carefully analyzed before we can arrive at the true account of either.

The cases we are now to examine, where the contrasted ideas are brought together by some point of resemblance, will require us to take notice of both. These cases include, as a necessary ingredient, the perception of difference or contrast; and it appears to me, that whatever be the degree or nature of this resemblance, or whatever may be our admiration of the cleverness shown in discovering that resemblance, or our surprise at its unexpected discovery, the laughable effect of the combination is always in proportion to the *contrast* existing between the related or compared ideas; that the most laughable combinations are always those where this contrast is the greatest.

Some of the finest specimens of Wit (in the popular sense) are not laughable. Lord Chesterfield observed, that true wit never excites more than a smile; but in this he is wrong. It may excite laughter or not according to circumstances.

As it is essential to Wit that the resemblance discovered be unexpected, it follows that it should not be quite obvious. We hardly bestow the term Wit upon the discovery of a single point of resemblance, however striking, as this may occur almost to any one; but if to this first or more obvious point of similarity we can add another not so obvious, so as to present a double resemblance to the mind, then it becomes Wit. Thus, Addison observes, when a poet tells us the bosom of his mistress is as white as snow, there is no wit in the comparison, but when he adds, with a sigh, that it is as cold too, it then grows into wit. Cowley, observing the cold regard of his mistress's eyes, and at the same time their power of producing love in him, compares them to burning glasses made of ice; and, finding himself able to live in the greatest extremities of love, he concludes the torrid zone to be habitable.

Among the finest pieces of serious Wit in our language

may be mentioned Addison's verses to Sir Godfrey Kneller, where he compares his portraits of the British kings and queens to the statues carved by Phidias of the heathen gods and goddesses. It is hardly necessary to remind the reader, that the monarchs alluded to were Charles II., noted for his attachment to the fair sex, and who was preserved after the battle of Worcester by climbing into an oak; James II., who abdicated the throne; William III., who was fond of war, as his queen, Mary II., was of tapestry; Anne, who was married to a subject, and whose son died before herself; and, lastly, George I., in whose reign a dangerous rebellion was suppressed in the Highlands:—

Wise Phidias thus, his skill to prove,
Thro' many a god advanced to Jove,
And taught the polish'd rocks to shine,
With many a lineament divine,
Till Greece amazed, and half afraid,
Th' assembled deities survey'd.
First, *Pan*, who wont to chase the fair,
And loved the spreading oak, was there.
Old *Saturn* next, with upcast eyes,
Beheld his abdicated skies;
Then mighty *Mars*, for war renown'd,
In adamantine armour frown'd.
By him the childless goddess rose,
Minerva, studious to compose
Her twisted threads, the web she strung,
And o'er a loom of marble hung.
Thetis, the troubled ocean's queen,
Match'd with a mortal, next was seen,
Reclining o'er a funeral urn,
Her short-lived darling son to mourn.
The last was he whose thunder slew
The Titan race, a rebel crew,
Who, from an hundred hills allied,
In impious league the king defied.

There never was a finer specimen of this species of Wit than one which occurs in the romance of Kenilworth, where the author compares the mind of Queen Elizabeth to one of those ancient druidical monuments called rocking-stones. "The finger of Cupid, boy as he is painted, could put her "feelings in motion, but the power of Hercules could not "have destroyed their equilibrium."

I may mention one instance more, worthy of a better place and a better subject, from the Flash song in the Beggar's Opera :—

> See the ball I hold;
> Let the chemists toil like asses,
> Our fire their fire surpasses,
> And turns all our *lead* to *gold*.

It would be easy to state numerous examples of this kind of wit, which, like the above, have nothing laughable about them. I wish now to produce instances of similes which excite laughter. The following well-known ones from Hudibras may serve our purpose :—

> Rhymes the rudders are of verses,
> With which, like ships, they steer their courses.

Rhymes are compared to the rudders of ships, partly, I suppose, because they come in at the tail of the verse, and partly because they influence greatly the direction of the author's ideas. The following description of morning is equally original :—

> Now, like a lobster boil'd, the morn
> From black to red began to turn.

The following accumulation of similitudes in Swift's Tale of a Tub may amuse at once from their oddity, their variety, and their number :—" Wisdom is a fox, which, after long " hunting, will at last cost you the pains to dig out; it is a cheese " which, by how much the richer, has the thicker, homelier, and " coarser coat, and whereof, to a judicious palate, the maggots are " the best; it is a sack-posset, wherein the deeper you go you will " find it the sweeter. Wisdom is a hen, whose cackling we must va- " lue and consider, because it is attended with an egg; but then, " lastly, it is a nut, which, unless you choose with judgment, may " cost you a tooth, and pay you with nothing but a worm."

I now quote from the writings of the same author, another similitude, which is rather more amplified than is usual with him. It occurs in the Drapier's letters, where he is phillipizing against poor Mr Wood and his brass halfpence. He mentions, that he had received some hints from an eminent person in aid of his argument, some of which he had spoiled by endeavouring to make them of a piece with his own

productions, and the rest he was not able to manage:—"I "was," says he, "in the case of David; I could not move in the ar- "mour of Saul, and therefore I rather chose to attack this uncir- "cumcised Philistine (Wood, I mean,) with a sling and a stone. "And I may say, for Wood's honour as well as my own, that he "resembles Goliath in many circumstances very applicable to the "present purpose; for Goliath had a helmet of brass upon his head, "and he was armed with a coat-of-mail, and the weight of the coat "was five thousand shekels of brass, and he had greaves of brass "upon his legs, and a target of brass between his shoulders. In "short, he was like Mr Wood, all over brass, and he defied the "armies of the living God. Goliath's conditions of combat were like- "wise the same with that of Wood; if he prevail against us, then "shall we be his servants. But if it happen that I prevail over "him, I renounce the other part of the condition; he shall never be "a servant of mine, for I do not think him fit to be trusted in any "honest man's shop."

Now, let us consider how it happens, that one set of similitudes just now quoted appears highly ludicrous, while the others are not in the least so. In both, we have the discovery of one or more points of resemblance, when we did not expect to find any; but the difference between the two sets of cases seems to be this. In the comparisons which are serious, and do not excite laughter, the objects compared, however actually different, do not excite any very opposite emotions. When the author of Waverley compares the mind of England's Elizabeth to a druidical pillar, one object of a great and dignified kind is compared to another of a similar character. Both of them address themselves to our Veneration and Ideality, and no discordant feeling of a lower description comes in to mar the impression. But when the gigantic Goliath, the champion of the enemies of God's people, the terror of the house of Judah, and before whom all her stoutest warriors trembled, is compared to so insignificant a person as one William Wood, an old brass-founder and hardwareman, a dealer in old copper, brass kettles, coal-skuttles, and warming-pans, the contrast cannot fail to strike every one as far more remarkable than the resemblance. Here we have not one great and elevated object compared to another that is great and elevated, but we have a great and

elevated object compared to one that is devoid of the smallest dignity. The one excites terror and wonder and awe, the other only contempt,—the two objects excite a totally opposite set of feelings. It seems to be in consequence of this, that, in the instances of serious wit, we think chiefly of the *resemblance*, and the difference, though sufficiently obvious, is not dwelt upon; it occurs only so far as to give a sort of relief to the resemblance, and to occasion that pleasing surprise at its discovery which this species of wit excites. But in the ludicrous simile the resemblance is merely a sort of hook and eye to tie two things together which are the most opposite in nature. What strikes us most here is the *difference*, and though surprised certainly at the discovery of a resemblance between two things so prodigiously unlike, it is the contrast that chiefly occupies our attention; and it is this, as appears to me, which is the cause of our laughter.

It would answer no purpose to go through the other cases quoted, which every one can easily do for himself after the principle is stated. I shall only give two other instances of this kind of Wit, one of them grave and the other ludicrous, which may help to illustrate my position.

Sir Lucius O'Trigger, in the Rivals, tells Acres, that "his "valour should be as keen, but at the same time as polish-"ed, as his sword." The thought may have been borrowed from the following very witty and polished epigram, where it is most ingeniously applied as descriptive of wit itself:—

True Wit is like the brilliant stone,
  Dug from an Indian mine,
Which boasts two various powers in one,
  To cut as well as shine.
Genius, like that, if polish'd right,
  With the same gifts abounds,
Appears at once both *keen* and *bright*,
  And sparkles while it wounds.

I beg to contrast this with the following:—

One day, in Chelsea meadows walking,
Of poetry and such things talking,
  Says Ralph, a merry wag,

"An epigram, if smart and good,
In all its circumstances, should
Be like a jelly-bag."
"Your simile, I own, is new;
But how wilt make it out?" says Hugh.
Quoth Ralph, "I'll tell thee, friend,—
It should be *wide at top*, and fit
To hold a budget full of wit,
And *pointed* at the *end*."

In the first of these epigrams, where Wit is compared to a diamond, both the ideas are of an elegant kind, and there is nothing in either to disturb the feeling which is excited by the other. Here we attend to the resemblance almost alone, and as that strikes us as ingenious and surprising, it communicates a sort of calm pleasure. Ideality and Comparison are equally gratified, and we feel it, at the same time, to be witty and beautiful. But, in the other instance, our Ideality is sadly disturbed by the introduction of a large ugly bag of flannel, one of the most inelegant pieces of culinary apparatus that can be conceived. When this is compared to an epigram, the difference strikes us far more strongly than the resemblance; the ideas are not only unlike, but productive of quite opposite feelings and associations, and hence the laughable effect.

We may state, as belonging to this class of cases, the paranomasia, or pun, where there is no resemblance whatever in the things themselves, but only in the sound of the words by which they are designated. Here also the ludicrous effect seems to be in exact proportion to the *contrast* between the ideas which this resemblance of sound happens to bring together. It is quite unnecessary to give examples.

Of Absurdity.—The next species of the ludicrous to be noticed is, where the incongruous particulars are stated as in the relation of cause and effect. It is necessary to this that the matters so stated as cause and effect respectively, be totally different from the true ones, and that they be, indeed, as opposite to them as possible. When this is done uncon-

ciously, and from a deficiency of intellect or due information, it is mere absurdity. When, on the contrary, it is done by design, and for the purpose of raising a laugh, it is a species of humour; and to this last *Secretiveness* is essential. Some instances of both may be stated.

When events are attributed either to some very inadequate cause, or something quite different from the real cause, or where any one endeavours to produce a certain effect with means either utterly inefficient, or beyond measure greater than is needful; these all savour of absurdity, and appear laughable to those who possess juster views. Causality sees the proper relations and fitnesses of things; and when something is presented to us totally different from this proper relation and fitness, we are amused in proportion to the contrast between the real cause and effect and the assumed ones. It is in this way that we smile at the inconsequent attempts at reasoning, and fruitless activity of mind and body in children, in madmen, in persons who are foolish or intoxicated, weak, superannuated, or superstitious. We smile at the conceit of one who took a course of tincture of sage to give him confidence in public speaking. We laugh at the account given of two gentlemen of this city, who, returning home in a state of inebriety, took it in their heads that the Tron Church was standing awry, and endeavoured to push it into its place. We laugh at the story of Sancho Panza tumbling into a pit which he conceived to be of a fearful depth, and hanging a whole night by a beam, with the constant terror of being dashed in pieces, while his feet all the time were within two inches of the ground.

A little mettlesome cur, attacking a mail-coach in its career through a country town, appears sufficiently ridiculous; and we laugh at the abortive fury of an angry boy striking some herculean fellow, who could with ease throw him over the house. Nothing is more laughable than these manifestations of Self-esteem, where the individual attributes to his own insignificant efforts, effects which are the result of very superior means, like the fly which sat upon a chariot-wheel, and

said "What a mighty dust I am raising!" An instance may be given from the "memoirs of P. P., clerk of this parish," where he gives an account of the weekly assembly at the Rose and Crown alehouse, wherein, says he, "I, though "unworthy, did preside. Yea, I did read unto them the Posthoy of "Mr Roper, and the written letter of Mr Dyer, upon which we "communed afterwards among ourselves. Our society was com-"posed of the following persons: Robert Jenkins, farrier,—Amos "Turner, collar-maker,—George Pilcocks, late exciseman,—Thomas "White, wheelwright,—and myself.

"Now were the eyes of the parish turned upon these our weekly "councils. In a short space the minister came among us: he spake "concerning us and our councils to a multitude of other ministers "at the visitation, and they spake thereof unto the ministers at "London, so that even the bishops heard and marvelled thereat. "Moreover Sir Thomas, member of parliament, spake of the same "to other members of parliament, who spake thereof unto the "peers of the realm. So thus did our councils enter into the "hearts of our generals and our lawgivers, and from henceforth "even as we devised, thus did they."

The ludicrous effect of attributing effects to causes quite different from the real ones is increased by some appearance of verisimilitude or colour of resemblance to the real cause. We only stare at the stupidity of the countryman, who said that the building of the steeple of Tenterden church was the cause of Goodwin sands, as we not only can trace no connexion between these two phenomena, but nothing that in the least resembles the shadow of a connexion. But we are amused with the story of a gasconading officer, who, during a hot season, when thunder-storms had prevailed, had been telling some incredible stories of the loudness of his voice, when one replied, "For God's sake, don't begin so here, or you "will sour all the beer in the cellar."

It seems to be this verisimilitude, or colour of resemblance, which leads to that sort of blunders in which our neighbours of Ireland are considered so eminent. The genuine Irish bull seems to proceed from a development in which Comparison is much larger than Causality or Wit, and Cautiousness is least of all; so that every resemblance which strikes is laid hold of, and blurted out at random, without waiting to

try its agreement with just reasoning or accurate information. The Irishman, who attempted to defend himself from the imputation of having stolen a gun, by alleging that he had got it a great while ago, when it was a little pistol, was misled by such an unfounded analogy between the productions of art and those of the vegetable world. A more pardonable error, because proceeding from ignorance in a matter with which he could not be presumed to be acquainted, was that of the Highlander who found a watch among the spoil at Prestonpans, and, on its stopping for want of being wound up, naturally enough supposed that "she was dead." But one of the most famous instances of the true absurd occurs in the well-known story of Paddy Blake, who, being told of an echo at Killarney, which repeated a sound forty times, said, that was nothing to an echo in his father's garden. If you say to it, "How d'ye do, Paddy Blake?" it will answer "Pretty well, I thank you, sir."

Humour.—Absurdity is often affected, assumed, or described, for the purpose of producing laughter, by those whose powers of Causality and Wit are of a superior order, and then it becomes what is called *Humour*. Swift's account of the tailor of Ladoga, who took Gulliver's measure with a quadrant, and calculated the cut and proportions of his clothes upon mathematical principles, is in the highest degree absurd, and at the same time humorous; as is his account of the projector, who proposed to compose treatises on all manners of arts and sciences by means of machinery. There was no small humour in the reproof which was given to one who told some incredible story relative to the powers of a machine which he had lately invented, by a person who said, that was nothing to what he had seen in Germany in a flax-mill, the construction of which was so perfect, that, if you put in the green flax as it was pulled at the one end, it came out *frilled* shirts at the other.

The following deep disquisition in the Tale of a Tub contains within it a vein of satirical reflection against the fals

pretenders to inspiration; but what I notice it for here, is the apparent absurdity of the cover under which this satire is conveyed. "The learned Eolists maintain the original "cause of all things to be wind, from which principle this whole "universe was at first produced, and into which it must at last be "resolved; that the same breath which had kindled and blew up "the flame of nature should one day blow it out.

"This is what the *adepti* understand by their *anima mundi*, that "is to say, the spirit or breath, or wind of the world. For whether "you please to call the *forma informans* of man by the name of "*spiritus, animus, afflatus*, or *anima*, what are all these but several "appellations for wind, which is the ruling element in every com-"pound, and into which they all resolve upon their corruption? "Farther, what is life itself, but, as it is commonly called, the breath "of our nostrils?" "We must here observe, that all learning "was esteemed among them to be compounded from the same "principle; because, first, it is generally affirmed or confessed, "that learning *puffeth man up*; and, secondly, they proved it by "the following syllogism:—'Words are but wind, learning is "'nothing but words; *ergo* learning is nothing but wind.'"

In the following passages from Hudibras, the incongruity arising from contrast joined to some colour of resemblance, is happily united to the absurd, in ridicule of the practices of knavish astrologers, who pretended to discover concealed delinquencies by the stars:—

> They'll search a planet's house to know
> Who broke or robb'd a house below;
> Examine Venus, or the Moon,
> Who stole a thimble or a spoon.
> They'll question Mars, and by his look
> Detect who t'was that nimm'd a cloak:
> Make Mercury confess, and peach
> The thieves that he himself did teach.
> They'll find i' th' physiognomies
> O' th' planets, all men's destinies,
> Like him who took the doctor's bill,
> And swallow'd it instead of pill.

Under this head of Absurdity may be reckoned that species of ironical writing, such as Swift's Directions to Servants, Advices to Officers in the Army, The Academy for Grown Horsemen, and the like, where all goes by the rules of contrary, and where every thing is recommended which is exactly the reverse of what is right and proper. Into all these

as well as every other species of ironical or humorous writing, the *contrast* between what is openly said and what is covertly intended, between the absurd and foolish reasons assigned and those which must occur to any person of ordinary judgment, forms certainly one of the most material elements of incongruity employed, and the only one indeed which seems always to be necessary to the laughable effect. The ludicrous tendency seems, moreover, as in the other cases mentioned, to be always in proportion to the degree of this contrast; and hence I conceive, that if there be any faculty more than others connected with the ludicrous, it must be that which perceives and delights in contrasts. I shall just add a single instance more of the absurd, to which my readers may apply the remarks that have been made:—

It blew a hard storm. In the utmost confusion
The sailors all crowded to get absolution.
Which done, and the weight of the sins they'd confess'd,
Being transferr'd, as they thought, from themselves to the priest,
To lighten the ship, and conclude their devotion,
They toss'd the poor parson souse into the ocean.

ODDITY.—It is not merely deviations from just reasoning and correct judgment that appear absurd, but almost every thing that is in any great or striking degree *different* from what it ought to be. Any remarkable deviation from established modes and customs is laughable, unless some sufficient reason appears to justify it. This is called Oddity. Antiquated fashions appear odd from the contrast they exhibit to those which are prevalent. The customs of foreign countries appear laughable to those who have never seen any but those of their own. Hence the ignorant and uneducated are more apt to laugh at foreign customs than the better-informed classes; for these last have seen manners of various kinds, and are acquainted in some degree with the circumstances which have given rise to them.

All sorts of blunders and mistakes are laughable, when a person intends to do one thing, and, through ignorance and awkwardness, does something quite *different*. The laughable effect is increased, if the act, when properly performed, is digni-

fied and graceful, and the real performance quite the contrary; of which an apposite instance may be given in the awkward exploits of a tyro in the art of horsemanship, when, instead of the rider being able to vault with ease into his seat, and to turn and wind the noble creature which he bestrides, as if he formed a part of himself,—the horse, on the contrary, takes matters into his own hands, and the unfortunate wight, reduced to a state of utter helplessness, and, quitting the reins, grasps firmly by the mane, only trying to save himself from the ignominy of a fall. The *contrast* between this and the ease, courage, and security of a practised and accomplished horseman, which it naturally suggests to us, appears to be one great element in the laughter which such an exhibition excites.

Of Dignity and Meanness.—The last circumstance mentioned by Dr Beattie, as giving rise to the ludicrous, is the opposition between dignity and meanness. But I rather question if this can be regarded as a separate source of laughter. I rather conceive it to be merely one of the forms of incongruity arising from contrast, there being no greater contrast than that between meanness and dignity. I have already observed it to be one circumstance attending incongruous combinations, that the particulars opposed to each other suggested opposite trains of ideas and emotions; and this seems just to be a class of cases which falls under the general rule.

It has often been remarked, that the more solemn, grave, and dignified a subject may be, it is the easier by introducing some mean thought or degrading comparison to throw it into ridicule. So much is this the case, that it has been often observed, there is but a step between the sublime and the ridiculous; a step too which is very easily passed, and which it requires some skill to avoid, when we aim at a more than ordinary degree of elevation or pathos. Abundant examples this error may be found in the Treatise on the Bathos.

It is well known, that we are nowhere more easily moved to laugh than in places which are peculiarly dignified and solemn. Circumstances often have this tendency, occurring in a church, or court of justice, which would pass unobserved any where else.

The uniting of mean thoughts to such as are dignified is one of the principal engines of ridicule, when it is wished to lower any person or thing in our estimation. The means used for this purpose seem to be, to keep the more dignified subject as much as possible in the back-ground, and to bring forward the mean or degrading matter with which it is associated in such a prominent way as to overshadow it, and call our attention from it. The consequence is, that the serious feelings which the first would excite are hardly called into action, while the low feelings are not only excited more strongly, but are strengthened by the mixed feeling of the ludicrous which the contrast inspires.—When to all this is joined a certain affection of Self-esteem, the result is, that complex emotion which we call scorn or contempt. I do not mean to enter here into the question, how far this instrument of ridicule may be legitimately employed; I shall merely give a specimen of its application, to show how much, indeed how entirely, its effect depends upon *contrast*. The author alludes to the universal cry for reformation, and against the measures of the court, in the reign of Charles the First, and his object is to throw ridicule on the reformers:—

When tinkers bawl'd aloud to settle
Church-discipline, for patching kettle;
No sow-gelder did blow his horn
To geld a cat, but cried *Reform*.
The oyster-women lock'd their fish up,
And trudged away to cry *No Bishop*.
The mousetrap men laid savealls by,
'Gainst *evil Counsellors* to cry.
Botchers left old clothes in the lurch,
And fell to turn and patch *the Church*.
Some cried *the Covenant*, instead
Of pudding, pies, and gingerbread;
And some, for brooms, old boots, and shoes,
Bawl'd out to purge the *Commons-house*.

Instead of kitchen-stuff, some cry
A gospel-preaching ministry;
And some, for old suits, coats, or cloak,
No surplices, or *service-book.*

The comic writers abound in instances of these manifestations of Self-esteem, where persons in the lowest possible circumstances pique themselves upon certain imagined claims to consideration and dignity. The contrast between the assumed importance and the real meanness is a never-failing source of the ludicrous. Honest Dogberry thus sums up his own pretensions to public estimation:—"I am a wise fellow, and "which is more, an officer; and which is more, a householder; and "which is more, as pretty a piece of flesh as any is in Messina; and "one that knows the law, go to; and a rich fellow enough, go to; "and a fellow that hath had losses; and one that hath two gowns, "and every thing handsome about him." Take the following instance from Goldsmith, where Tony Lumpkin is discovered carousing in an alehouse with several shabby fellows:—

"1*st Fellow.* The squire is going to knock himself down for a "song.

"2*d Fel.* I loves to hear him sing, bekeays he never gives us no-"thing that's low.

"3*d Fel.* O d—n any thing that's low, I can't bear it.

"4*th Fel.* The genteel thing's the genteel thing at any time, if "so be that a gentleman be's in a concatenation accordingly.

"*Fel.* I like the maxum of it, Master Muggins.—What though "I am obligated to dance a bear, a man may be a gentleman for all "that. May this be my poison if my bear ever dances but to the very "genteelest of tunes,—'Water parted,' or the minuet in Ariadne."

Burlesque and Mock-Heroic.—There are two modes of writing which belong to this species of the ludicrous, the subject of which is the same, namely, the uniting together the dignified and the mean—*burlesque* and *mock-heroic.* In burlesque, great and dignified persons and actions are purposely degraded by vulgar language and mean circumstances. In the other, mean and vulgar thoughts are clothed in all the pomp of the most inflated diction. Butler is the greatest master we have in the burlesque; but this description applies particularly to his style, the mere outward garb and covering of his matter. Under this grotesque outside he has con-

trived to weave together such a tissue of wit and humour, of apparent absurdity and real satire, as perhaps never was crammed within the same space. Instances of all these may be produced without end from this extraordinary work. The following is one of pure burlesque, where he thus brings down our lofty notions of a Roman triumph:—

—As th' aldermen of Rome,
Their foes at training overcome,
Well mounted, in their best array,
Upon a carre, and who but they,
And follow'd by a world of tall lads,
Who merry dittys troll'd and ballads,
Did ride with many a good morrow,
Crying, "Hey for our town!" through the borough.

One of the happiest specimens of the mock-heroic (which to all its other excellencies unites that of brevity) is the Splendid Shilling of Phillips; in which, after deploring the other evils of poverty, he thus feelingly describes the inroads of time upon the integrity of his lower garments:—

Afflictions great; but greater still remain,
My galligaskins, that have long withstood
The winter's fury and encroaching frosts,
By time subdued, (what will not time subdue?)
An horrid chasm disclose, with orifice
Wide, discontinuous; at which the winds
Eurus and Auster, and the dreadful force
Of Boreas, that congeals the Cronian waves,
Tumultuous enter with dire chilly blasts,
Portending agues.

Parody and Travestie.—One of the most common contrivances for bringing together dignity and meanness is parody, which consists in a ridiculous imitation of some well-known composition, and, if possible, one which, from the beauty of its style, is calculated to make a deep and lasting impression, and to dwell in the recollection. The parodist chooses a subject as low as you please, and as far removed as possible from that of the object of imitation, and he dresses this up as nearly as he can in the form and even in the very words of his prototype. Of course, no one acquainted with the original can read the parody without having the former

instantly and vividly brought back to his recollection; and the wider the contrast between the two, the ludicrous effect will always be the greater. Another contrivance for the same end is what is called *Travestie*, where the subject of a grave or elegant poem, or composition of any kind, is adopted as closely as possible, and related in low and colloquial language, in place of the high-sounding and poetical phrase which adorns the original. The first of these modes, that of parody, may be compared to dressing up a cinder-wench in the clothes of a dutchess; and the travestie, to disguising the great lady in the rags of Cinderella.

Various other devices may be fallen upon to produce a similar effect, of which I may only notice the mock-bravura in singing, the effect of which is infinitely enhanced by uniting to all the trills and graces of that species of music the words of some old ridiculous street-ballad. I need not remind such of my readers as may happen to have witnessed it, of the intensely ridiculous effect produced by an eminent amateur in singing the "Auld Wife ayont the Fire," with variations, in the style of Mr Braham. It is scarcely possible to conceive any *contrast* betweeen matter and manner which shall be greater than this.

Exaggeration and Diminution.—In the course of the preceding analysis I have endeavoured to show, that, in all cases of ludicrous combination, contrast is a necessary element, and one which, in some shape or another, appears ever to be present. Two or more ideas, or objects, are brought together in some way or another, either by simple grouping, or by the discovery of some point of resemblance, or by being stated in the relation of cause and effect, or by some other bond of connexion, no matter what, and we invariably find, that the more complete the opposition and contrast between the ideas thus congregated, the laughable effect is the greater. I therefore think, that we are almost already entitled to conclude, that *contrast* forms the essence of the ludicrous. A

farther proof of this, however, occurs in the well-known effect of *exaggeration* and *diminution*, which are nothing else than means used for increasing of *contrast*, and which are among the most effective and the most familiar modes of producing the ludicrous, or of increasing its effect. When any peculiarity exists, which we wish to represent in a ludicrous light, the means generally adopted for the purpose are to represent it as much greater than it really is. This is the principle of all species of *caricature*; and every one will allow how much it adds to the ludicrous effect of any representation. In painting, if it is wished to represent a person who has a long nose, this feature is extended to a length absolutely enormous; if the contrary, it is diminished to a mere wart. If the individual is thin, as in the instance of the late Mr Pitt, the caricaturist represents him as a mere lath or whipping-post; if he is fat, like his great rival Mr Fox, he is swelled out to the shape and size of a tun. This is not confined to painting. It is hardly possible to carry ridicule on personal defects farther than is done in Falstaff's remarks upon Bardolph and Justice Shallow; and it is obvious, that the effect is mainly produced by simple exaggeration in the one case and diminution in the other. To make Shallow's leanness more conspicuous he contrasts it with his own bulk. "If I were "sawed into quantities," says he, "I would make four dozen of "such bearded hermit-staves as Master Shallow." "I do remem- "ber him at Clement's Inn, like a man made after supper of a "cheese-paring; when he was naked, he was, for all the world, like "a forked radish, with a head fantastically carved upon it with a "knife; he was so forlorn, that his dimensions to any thick sight were "invisible. He was the very genius of famine.—And now is this "vice's dagger become a squire, and talks as familiarly of John of "Gaunt as though he had been sworn brother to him; and I'll be "sworn, he never saw him but once, in the Tilt-yard; and then "he broke his head for crowding among the marshal's men.—I saw "it—and told John of Gaunt he beat his own name, for you might "have trussed him and all his apparel into an eel-skin.—The case "of a treble hautboy was a mansion for him—a court—and now "has he land and beeves."

Cervantes, &c.—I have purposely delayed, until this period of the analysis, taking notice of what is alluded to by Dr

Gall as the distinguishing quality in the writings of Cervantes, Rabelais, Sterne, &c. We have now found, in an analysis of a great variety of kinds of laughable composition, that one element which is common to the whole of them is some species of contrast. Now, what is the most remarkable distinguishing quality in the writers above-mentioned but this, that they seem to take the greatest delight in assembling together ideas the most opposite and incongruous, and in exhibiting contrasts the most striking and even extravagant, which they can by any means bring into juxta-position with one another? It will be observed, that most of these writers prepare for the odd and incongruous combinations intended, by laying a ground of contrasts, even in the first conception of their *dramatis personæ*. To take for an instance the great work of Cervantes. Is has often been observed, that the author has, in his two principal characters, the Knight and his Squire, assembled together a greater number of contrarieties than ever perhaps met in two individuals. The Knight, as Dr Beattie observes, tall and raw-boned, the Squire, short and fat; the one, brave, solemn, generous, learned, and courteous; the other, not less remarkable for cowardice, levity, selfishness, ignorance, and rusticity; the one, absurdly enamoured of an ideal mistress; the other ridiculously fond of his ass; the one devoted to glory, the other the slave of his belly; the one all honour and veracity; the other given to thieving and lying. In the Knight himself we have the amazing contrast between the greatness of his contemplations and the meanness of his equipment, the grandeur of his designs and the unutterable folly of most of his actions. His madness, confined to a single point, but so confirmed upon that one as to maintain its hold against the evidence of his senses, leads to situations of the most excessive incongruity, where the contrast between the intention and the act is the greatest possible. The good sense and admirable feeling which the Knight displays on all subjects, knight-errantry alone excepted, and the astounding absurdity of his

[illegible] that, afford a never-failing fund of contrast,

upon which the author draws without limit, and to the inexhaustible entertainment of his readers; for it will be observed, that whatever may be the subject of any of the Knight's discourses and whatever the occasion on which they are delivered, they are sure to lead in the end, though from a point inconceivably remote, to some explosion of absurdity connected with knight-errantry, transcending, if it be possible, all that has gone before it. His immoveable impressions on this subject lead him to attribute events to causes totally different from the real ones, (which we conceive to be the essence of the absurd,) and his belief in enchantment always comes in to solve any difficulty arising from the stubborn intimations of sense. In short, the whole ground-work of these two characters, as well as the situations into which they are led in the progress of the story, teem with contrasts broad, palpable, and extravagant; contrasts which are, on many occasions, carried the length of caricature, and increased by every sort of hyperbole and exaggeration.

In the romance of Rabelais, the contrasts and absurdities introduced are of a far more extravagant kind than in Don Quixote. As a ground for these, the author has made his heroes a race of giants, and, indeed, as of a bulk far exceeding the bounds of ordinary exaggeration; and much of the ludicrous effect arises from the minuteness of detail of their life and conversation, adapted to this enormous stature. Under this apparently preposterous cover, the author conveys a great deal of hidden satire, chiefly directed against the princes and great men of the earth, who fill so much a greater space in the world than they are justly entitled to, or than is compatible with the general well-being of mankind. This author, it may be observed, is excessively indelicate, and, instead of hesitating to "touch the "brink of all we hate," he plunges headlong in, and absolutely wallows and revels among images of the lowest sensuality and nastiness, until the feeling of ridicule almost overpowers that of disgust, and we are compelled to laugh even while

we are holding our noses. He tells us, that on the birth of Gargantua, there were appointed for him seventeen thousand nine hundred and thirty-six cows to furnish him with milk in ordinary, there being no nurse in all that country capable of affording the quantity necessary for his nutriment. It required eleven hundred and five ells and a third of broad cloth to make him a pair of breeches, and a proportionally large quantity for his other garments. We are told of a famous mare which was procured for his own riding, and that being annoyed by the flies in passing through the wood of Beauce, in order to rid herself of them, she lashed with her tail to right and left, and by doing so felled all the trees for many leagues on both sides of the road, and so completely destroyed them, that they have never grown since. This, it seems, contains an allusion to the famous Gabrielle D'Estrees, the mistress of Henry IV., to whom his majesty had made a grant of these forests, which were cut down to procure money for her use. Of a similar kind is the story of Gargantua's getting rid of the multitude which pressed upon him, while he rested himself against the steeple of *Notre Dame*, by the same means as those used by Gulliver for extinguishing the conflagration in the royal palace of Lilliput, on which occasion there were drowned no fewer than two hundred and sixty thousand four hundred and eighteen persons, besides the women and little children. [What the allusion is here I do not know.] Having gone to besiege a castle, he was hit on the temple by a bullet from one of the great guns; and, thinking it to be a grape-stone, he said, "The vintage shall cost "you dear." On his return, we are told, he combed his head with a comb nine hundred feet long, and at every rake made about seven great cannon-balls fall out of his hair, which had lodged there without his knowledge at the storming of the castle. We are told also how at supper he ate up with his salad six unfortunate pilgrims, who escaped by running under the banks of his teeth, from whence he dislodged them with his toothpick, after they had undergone the terror

of three several deaths, and the imminent danger of being drowned in the ocean of wine with which he washed over his victuals. The bare statement of these monstrosities is nothing, abstracted from the style and manner of delivering them, and the variety of absurd, incredible, and incongruous circumstances with which they are united. The circumstantiality and affected accuracy of the details augment the ludicrous effect, and, instead of being given out as any way marvellous, every thing is related in a careless matter-of-course sort of way, as if it was in no respect contrary to our every-day experience. As he advances in his narrative he even increases in extravagance; of which an instance may be given in the account of Pantagruel covering a whole army with his tongue to shelter them from a storm of rain, and of one who peeped into his mouth, declaring, with many protestations of veracity, that he saw a whole colony of people who dwelt in the very entrance of his throat, thence called Gorgers. Panurge's account of his escape from the Turks, by whom he had been put upon a spit and half-roasted, (an operation which cured him of the sciatica,) is in a similar strain of absurdity, as is the account of the voyage undertaken to consult the oracle of the bottle, in the course of which the party proceeded so far north that the words froze as they were uttered, and remained inaudible till thawed by the return of the sun in the following summer. The account of the thawing-process, and of the *Babylonish* confusion arising from the successive melting of orders, counter-orders, exclamations, oaths, cries, curses, prayers, secrets never intended to be revealed, and of natural and artificial noises of all kinds, completely separated from the occasions which produced them, form, as may be supposed, such a combination of contrasts and incongruities as, perhaps, never was before brought together by a human imagination.

As in this kind of writing the story is a mere cover for concealed satire, much of the reader's enjoyment, of course, depends upon his being possessed of the key, or knowing

what it was the author's intention to satirize. The most remarkable feature, however, in this author's writings is not the satire, for there are many writers equally satirical; but it is the absurd, extravagant, and apparently preposterous vehicle which he has chosen for its conveyance, in which we will find, that he has availed himself of all the different kinds of incongruity which we have already enumerated as giving rise to the ludicrous. *Contrast*, broad, palpable, and excessive contrast, runs as an element through the whole composition, and is carried to a length which to many appears, from its very excess, to be tiresome and impertinent, and which, indeed, cannot be properly enjoyed by any who do not possess a development somewhat resembling that of the author.

Swift and Sterne have both borrowed largely from Rabelais. Gulliver's Travels is unquestionably an imitation of the writings of this master, but so altered as to appear with all the air of an original. Gulliver is pruned of nine-tenths of the extravagance of Gargantua and Pantagruel; and one of the principal characteristics is the apparent air of good faith with which he tells his story, and the accuracy of proportion which he preserves in all his details. These, in place of being incongruous and inconsistent, preserve, in a very remarkable degree, the very opposite qualities, in so much as to have deceived some worthy persons into the belief of its being a real history. While, however, there is no incongruity in Gulliver's details, there is abundant ground laid for the exhibition of *contrasts*, particularly in the voyages to Lilliput and Brobdingnag, which are by far the most entertaining of these singular productions. The cause of this difference between the writings of Swift and Rabelais is probably to be found in the different development of these authors. By the portraits which we possess of them, the organ 32 seems to have been most developed in Rabelais; while in Swift 30, 31, and 19, seem to be at least equally developed. If this, as we think is probable, was really the case, it would naturally lead him, even in his search after contrasts, to render these as

consistent as possible, so as to gratify, along with the love of contrast, those of resemblance and relation at the same time.

The case is different with Sterne, in whom the organ 32 appears, from his portraits, to have been very large, indeed the predominant feature in his development. Like Rabelais, he seems to have looked upon every thing through the medium of distortion and caricature; and though in Tristram Shandy he does not go beyond the bounds of ordinary life in search of his characters, yet he has introduced into those he has adopted almost as great a collection of contrasts and oddities as any of the writers hitherto mentioned. As this work is so well known, I need not take up your time in pointing out instances of this, which occur indeed in every page. Nothing can exceed the suddenness and violence of his transitions, or the extraordinary combinations of ideas which he sometimes succeeds in bringing together. I need only refer to the union of the ludicrous and the pathetic, which he has attempted, and, as is generally thought, successfully, in that most hazardous exclamation of my uncle Toby, when, in the overflowing benevolence of his intentions towards Le Fevre, he swears that the unfortunate gentleman "shall not die"—and in the apostrophe, which immediately follows, to "the "accusing spirit."

Sterne's illustrations are almost always drawn from the most opposite and remote sources which it is possible to conceive. With him every idea seems to suggest not its like, but its opposite; and every thing is so exaggerated, or diminished, so separated from that to which it is properly related, and so joined to that with which it has almost nothing in common, that there seems to be in his writings a perpetual jostling and jumbling together of contrarieties and incongruities of all kinds. This tendency to view every thing in a ludicrous light is well expressed in the following sentiment:—"Every thing in this world," said my father, "is big with "jest, and has wit in it, and instruction too, if we could but "find it out." Sterne's mind was of a cast that was better

fitted to find out the wit than the instruction. Such a writer absolutely lives upon absurdities, and luxuriates among the most extravagant fancies; and in the wantonness of his imagination, rather than be baulked of his favourite repast, brings together ideas the greatest and the most contemptible, the most dignified and the most mean, the most refined and the most gross, without regarding the offences given to delicacy or propriety of sentiment, or the risk of lessening the reverence for things sacred. These are faults to which Rabelais, Swift, and Sterne, are all peculiarly liable; and it unfortunately happens, that authors who excel in this style are exceedingly subject to fall into these two opposite faults of ribaldry or profaneness.

That the talent may, however, be exercised in an exquisite degree, without such excesses, we entertain no doubt; in proof of which we may refer to Cervantes, who, in his most humorous and entertaining representations, is never profane, and never descends to sensuality or nastiness. Our own Shakspeare too has furnished us with instances in this way of writing, of the richest kind, to which the most scrupulous can make no exception. I may refer to that wildest of all the creations of his unrivalled fancy, "The Midsummer Night's Dream,"—a composition in which the most luxuriant wit is united to the most beautiful poetry, combined in such a way that we cannot decide which ingredient predominates. Like the other writers we have mentioned, he lays a ground for his contrasts, by bringing upon the scene, on the one hand, those ideal, tiny, elegant, capricious beings, the fairies; and on the other, a set of rude and ignorant mechanicals, the tinkers, coblers, weavers, and bellows-menders of Athens; and having brought the most foolish and conceited of these, whom, for the better contrast, he has ornamented with an ass's head, into the presence of the most beautiful, refined, and elevated of the aerial race, even the fairy-queen herself, he, by means of Oberon's spell, makes her straightway fall in love with him. In the scenes which

follow, we have just enough and no more of the incongruities which may be extracted from a junction so preposterous. The introduction of Bottom to these airy essences, Peaseblossom, Cobweb, Moth, and Mustardseed, and the conversation between them, are characterized by the purest taste. The contented stupidity with which he lolls on his flowery couch, and has his hairy muzzle scratched by their tiny fingers, is quite exquisite. Titania's dotage, and his reception of all her cares and kindness, are conceived with equal tact and delicacy, without the introduction of any vulgar or sensual ideas. We cannot resist giving a specimen :—

"*Bottom.* Where's Monsieur Mustardseed?
"*Mustardseed.* Ready.
"*Bot.* Give me your neif, Monsieur Mustardseed. Pray you, "leave your courtesy, good Monsieur.
"*Must.* What's your will?
"*Bot.* Nothing, good Monsieur, but to help Cavaliero Pease-"blossom to scratch. I must to the barber's, Monsieur; for, me-"thinks, I am marvellous hairy about the face, and I am such a "tender ass, if my hair do but tickle me I must scratch.
"*Titania.* What, wilt thou hear some music, my sweet love?
"*Bot.* I have a reasonable good ear in music; let us have the "tongs and the bones.
"*Tit.* Or say, sweet love, what thou desirest to eat?
"*Bot.* Truly, a peck of provender. I could munch your good "dry oats. Methinks I have a great desire to a bottle of hay: "Good hay, sweet hay hath no fellow.
"*Tit.* I have a venturous fairy that shall seek
"The squirrel's hoard, and fetch thee new nuts.
"*Bot.* I had rather have an handful or two of dried pease. But "I pray you let none of your people stir me; I have an exposition "of sleep come upon me.
"*Tit.* Sleep then, and I will wind thee in my arms.
"Fairies, begone, and be all ways away.
"So doth the woodbine, the sweet honeysuckle
"Gently entwist,—the female ivy so
"Enrings the barky fingers of the elm.
"O, how I love thee! how I dote on thee!"

In our enumeration of authors remarkable for a great endowment of the organ and faculty now under consideration, it would be unpardonable to omit Voltaire, whose bust shows a very large development of the organ in question, and whose works are no less remarkable for that quality of mind which

we have supposed to be connected with it. The talents of this highly-gifted person were so vast and so various, and he has written so much, and in so many different departments of literature, that it might be thought difficult to show what quality was most conspicuous in his writings; but here we must distinguish between his poetical and his prose writings. In the former he aimed at equalling or excelling those exquisite models which the world already possessed in various languages. In his epic poems, and still more in his tragedies, he was bound to observe a set of rules, the transgression of which is no where more severely forbidden than it is by the French. But in his letters, in his tales, and in many of his writings, which are intended to be considered as philosophical, he gives a loose to that vein of mockery and satire which almost perpetually appears lurking even under his most serious compositions. Great as his Comparison and Causality undoubtedly are, they are not a match for his Wit, or rather for that faculty which delights in violent incongruities and extravagant contrasts. Like "my father" in Tristram Shandy, he discovers these, or what he imagines to be such, everywhere, not merely in the puny works and absurd opinions or actions of his fellow-creatures, but in the arrangements and dispensations of the great Author of Nature. Not satisfied with levelling to the dust the hollow and pernicious structures of superstition, priestcraft, tyranny, and imposture, which have caused and are still causing so much misery in the world, he attacks with the same weapons the sacred Majesty of Heaven itself, and the Oracles of Divine Truth, delivered in mercy to be the guide, the solace, the stay, and the salvation of mankind. What in Swift or Sterne is only an occasional ebullition of wantonness or vanity, is in Voltaire a fixed and systematic purpose to destroy and utterly subvert the foundations of all religious faith. The object is not everywhere avowed, but it is everywhere apparent, and he never omits an opportunity, openly or covertly, to aim a blow, or let fly an arrow, against all that the

greatest, and wisest, and most excellent of men have ever esteemed worthy of the profoundest reverence. Deeply as all this is to be deplored, and great as the immediate mischief has been which has resulted from it, the consequences have in the end been just what every lover of humanity will rejoice in. For while superstition and imposture, priestcraft and tyranny, are gradually disappearing, and crumbling through their own inherent rottenness, the great foundations of our religion stand secure and unshaken in their own majestic simplicity, and every weapon aimed against them has recoiled upon the head of its miserable author. Such and so unhappy are the consequences which may result from the love of incongruity, contrast, and paradox, when not kept under control by these far more useful and important faculties, Comparison and Causality. The former may occasionally serve for the detection and exposure of *error*; but the latter are the powers conferred upon us for the far higher purpose of the discovery of truth; and unless they predominate in the intellect, the other will, if not kept under due regulation, afford a tendency towards universal scepticism, withering and blighting all our best and most consoling feelings, and leaving us naked, and shivering, and defenceless, without God, and without hope in the world.

I have now finished the second part of my proposed analysis, the consideration, namely, of that quality of mind most conspicuous in those authors who are most remarkable for a great development of the organ 32; and here, as in the former part of the inquiry, I think the result has been, that the great and universal ingredient which runs in one shape or another through all their writings is the love of *contrast*. It changes, no doubt, its form, its application, and almost its very nature, according to the combination in which it exists with the other powers; but still I think any one who has attended sufficiently to the first part of the analysis will be satisfied that contrast lies at the bottom of all.

THEORY OF LAUGHTER.—We are now prepared to inquire a little more minutely into the *feeling* of the ludicrous, and to investigate more nearly the origin, source, and cause of that pleasing convulsion of the *faculties* called *laughter*. I think it cannot be that this feeling is the special function of a single faculty, or that it is more than incidentally connected with the organ 32; for I have known many persons easily moved to laughter in whom this organ is extremely moderate. This, I believe, is a common observation. On the other hand, many who have this organ largely developed are not much addicted to laughter. Swift, in whom the organ must have been large, seldom or never laughed. The heartiest, the loudest, and the longest-continued laughter is neither produced by any species of Wit, nor is the indulgence of it confined to those in whom Wit is predominant. There is no doubt a kind of laughter which arises from the mere animal feelings attendant upon buoyant health, and which has nothing to do with any mental faculty, but seems to be the effect solely of some physical influence acting upon the organs. But as far as we can trace it, I think that there are two circumstances which we find in every instance of laughter not simply physical. The one is, that there are two different and even opposite kinds of feeling excited in the mind; and the other is, that one of these feelings, at least, belongs to the department of the *lower* propensities. It appears to me that when we laugh, it is always *partly* from the gratification of one or more of the propensities; but we do not laugh from this cause alone; when we laugh there is always in the mind a contrariety of emotion, a kind of jarring, however slight, between the propensities and sentiments, or between one of the lower propensities and *another* whose function is higher. Thus, in the intercourse between the sexes, the direct gratification of animal desire does not excite laughter; but let an idea be started which tends that way, and is checked by

Self-esteem and Love of Approbation, or even a little by Conscientiousness, and the effect is instantly to excite laughter. The amusement in a game of hunt the slipper, forfeits, kisses and commands, or plain romping, between young persons of opposite sex, is plainly attributable to this. The shouts of merriment which pursue the half-laughing, half-frightened, but not much-displeased damsel, while she flies from the deprecated kiss, are obviously to be accounted for by a certain light play of opposing feelings. The lower propensities would say *yes*, the higher say *no*. The latter are not, after all, very seriously alarmed, for the matter at worst is not of any great importance; but still there is a slight jarring, and to this, I think, we must attribute the attendant laughter.

To the same cause, I think, is to be attributed the laughter which arises among boys and *Irishmen*, in indulging, without any very seriously mischievous intent, their faculties of Combativeness and Destructiveness. These cannot be exercised in their fullest extent without offending the feeling of Benevolence. But within any tolerable limits the risible feeling is quite irresistible. The delight of the mob at seeing a beau fall in the kennel takes its rise partly at least from this source. They laugh so long as they think the injury has only happened to his clothes. Benevolence is just affected in that slight way as to give a farther zest to the gratification of the lower propensity; but if the poor man breaks his leg in the fall, the feelings instantly take a different turn, and the higher sentiments being strongly affected, the lower are instantly repressed, and all ludicrous emotion disappears. We laugh at the unfortunate situation of John Gilpin, when run away with by the Calander's horse; at the successive loss of his hat, wig, and cloak; at the breaking of the bottles, and loss of the wine, running down his horse's flanks; at his losing his dinner, and being carried, will he nill he, ten miles into the country, suffering all the while the extreme terror of falling and breaking his

bones. We feel that it is almost wicked to laugh at this; Benevolence would dictate a very different feeling; yet nevertheless we feel laughter inevitable. There can be no doubt that it is the propensities, and these alone, which are gratified by such an exhibition.

From the same cause arises the loud, and hearty, and continued laughter of children at their play. Every trick they can invent to tease, and annoy, and inflict little personal inconveniences on each other, causes a fresh burst of merriment, in which the object of the petty assault not unfrequently joins. Thus it is that the mistakes, jostlings, knocks, and falls, which occur perpetually in their games, are so delightful to boys, and cause such an agreeable collision of feelings, that what would at another time be regarded as a tolerably severe blow, is often passed without notice, until its effects become visible by a contusion. This is what is peculiarly called *fun*; and where Combativeness is large, is almost sure to end in something very like actual fighting, without seeming to check the mirth, or diminish the enjoyment. But we see how instantaneously this is put an end to by the occurrence of any real mischief, or any accident which threatens serious consequences. The play of light and opposing feeling is then ended, and a single emotion of a stronger and more engrossing nature, pity or fear (Benevolence or Cautiousness), occupies the mind, until its effects are over, and the feelings again restored to their ordinary equilibrium.

Before quitting this subject, I cannot resist mentioning an entertainment which has long been a favourite one, not merely with children, to whom, however, it is peculiarly delightful, but even with grown persons of all ranks, and of which the grave and the learned have been known to partake, when they can do it without too much compromising their dignity. I allude to that fun-exciting, side-shaking hero of itinerant celebrity, *Punch*, with the regular accompaniments of his Wife and Miss Polly, the Lawyer, the

Doctor, the Hangman, and the Devil. This ingenious entertainment seems to combine almost every possible species of incongruity, of which, certainly, no inconsiderable part arises from the deception by which puppets of wood and wire are made to appear gifted with the powers of motion and speech. In this way it is so managed, that although the performance is addressed entirely and exclusively to the *lower* propensities, yet all idea of reality is so completely laid aside, that the higher sentiments are not offended as they would be under any other circumstances. Punch is in fact a most scandalous and atrocious character; a personification of the *lower* propensities in their highest activity, unrestrained by any of the higher sentiments. He kisses his wife, or, what is quite the same to him, Miss Polly, before company, without the least regard to decency, and knocks them on the head the next minute, without ceremony and without much provocation. His constant appeals on all occasions to the cudgel, and the manner in which he lays it on, to right and left, without hesitation or remorse, are among the most delightful circumstances attending Punch. Every stroke causes a shout of tumultuous laughter among the juvenile spectators. The appearance of *bona fide* beating is gratifying in the highest degree to Combativeness and Destructiveness; while Benevolence is set at ease, by the reflection, that all this fracas is only the knocking together of two senseless pieces of wood. I conceive, however, that the sentiments (which of themselves are blind) are affected in some slight degree, even by what has the appearance of offending them; but that intellect coming in every moment to assure us there is no real mischief, the result is just that sort of tickling of the faculties which causes laughter.

Secretiveness is often greatly concerned in producing laughter, not only in the simple form in which it is gratified in the games of Hide and Seek, Blind Man's Buff, or what

is well known in Scotland by the name of "Boggle about "the Stack,"—when

——— Latentis proditur intimo
Gratus puellæ risus ab angulo;

or in the more-refined stratagems and disguises which it suggests to the man of wit, but also in the broad and palpable shape of direct lying and thieving. When these are performed gravely and well, without any felonious intent, when the lie is only told to excite a momentary stare, and is explained before it can answer any purpose of serious deceit, or when the ring or handkerchief is neatly abstracted to show a little dexterity, or to reprimand inattention, they produce no other effect than a laugh. It serves no purpose to comment on the folly of this sort of amusement, or to say there is no wit in it. This is all quite true, but it is equally so that many things in which there is no wit are abundantly laughable, and may discompose the gravity of the most sedate philosopher. Our ancestors who, to say the truth, were much greater boys than we are, have, by immemorial usage, set apart one day in the year for this peculiar gratification of Secretiveness; and on the first of April, Conscientiousness is, by common consent, allowed to take a nap, and every one may lawfully utter as many lies as he pleases.

Dr Beattie has remarked, that nothing can be a more complete specimen of incongruity than the character of a knave; and the reason why it is not laughable in ordinary life is, that any real instance of knavery so offends the higher sentiments, and so excites our indignation against the offender, that these feelings overpower and keep down the lighter emotions of ridicule. When, however, knavery is represented in such a way as not to excite these stronger feelings, it is irresistibly laughable. The rogueries of the clown in a pantomime, where all idea is banished of the reality of crime, and nothing given but its incongruity, are highly ludicrous. I may here mention an entertainment described in the Travels of Campbell of Barbreck, seen by him in Aleppo, which

was sufficient to discompose the gravity of that gravest of all people, the Turks. This was a show, somewhat in the style of the *Ombres Chinoises*, where a man behind the scenes spoke for all the characters; and the author says, the dialogue and incident appeared to him to be executed with a degree of the *vis comica* superior to any thing he had seen in Europe. The plot was founded on a law of that country, that if a man repudiated his wife *thrice* he cannot take her back, unless she be previously married and divorced by another man. "To obviate this, husbands who repent having divorced their wives a third time, employ a man to marry them and restore them again, and he who does this office is called a hullah. In the piece before us, however, the lady and the hullah like each other so well, that they agree not to separate. The husband brings them before the Cadi to enforce a separation; and the scene before the Cadi was as ludicrous and as keen a satire upon these magistrates as can well be conceived, though of a low kind.

"The piece was introduced with a grand nuptial procession, in which the master displayed the powers of his voice, by uttering a variety of the most *opposite* tones in the whole gamut of the human voice; sometimes speaking, sometimes squeaking like a hurt child; sometimes huzzaing as a man, woman, or child; sometimes neighing like a horse, and sometimes interspersing it with such sounds as commonly occur in crowds, in such a manner as astonished me; while the concomitant action of the images, grotesque beyond measure, kept up the laugh; horses kicking and throwing their riders; asses biting those near them, and kicking those behind them, who retire limping in the most ludicrous manner; while their great standing character in all pieces, *Karaghuse*, (the same as our Punch,) raised a general roar of obstreperous mirth even from the Turks, with his whimsical action, of which, I must say, that though nonsensical, indecent, and sometimes even disgusting, it was, on the whole, the most finished composition of low ribaldry and fun that I ever beheld.

"When they come before the Cadi, he is seated in his divan of justice; but as soon as the complaint is opened and answered, he rises and comes forward between the contending parties. Here he turns to one, and demands in a terrific tone what he has to say, while the other puts cash in his hand behind, and in proportion as the cash is counted in, increases the terror of his voice. He then pockets the money and turns to the other, and demands what he has to offer, while, in like manner, he receives the bribes from his adversary, and puts it in an opposite pocket. This alternate application lasts till the purses of both are exhausted, when, giving a great groan, he retires on one side to reckon the money of each, when, balancing them, he finds plaintiff better than defendant by three half-pence, and

"pronounces judgment accordingly. The defendant appeals to the "Bashaw; they go before him; *Karaghuse*, however, takes the "defendant aside, and in a dialogue, which was pointed, witty, and "bitterly satirical, develops to him the whole system of magistra-"tical injustice, advises him to bribe the Bashaw, and, declaring "his zeal for all young people fond of amorous enjoyment, (which "he is at some pains to enlarge upon to the excess of indelicacy,) "offers him the aid of his purse. The advice is followed; the "bribe is accepted; the Cadi's decree is reversed, and himself dis-"graced; and the mob at once hustle him and bear the hullah "home to his bride with clamours of joy. Here again the master "showed his extraordinary powers, giving not only, as before, dis-"tinct and opposite tones of voice, but huddling together a num-"ber of different sounds with such skill and rapidity, that it was "scarcely possible to resist the persuasion that they were the "issue of a large tumultuous crowd of men and animals. With "this extravagant *melange* the curtain dropped, and the perform-"ance ended."

In the performance here described every species of contrast, absurdity, and exaggeration seems to be united in all their most incongruous forms. It is addressed throughout to the *lower* propensities, and vice itself is so caricatured as, in place of indignation, to excite only laughter. Such a representation made in the theatre by actual living performers would disgust rather than amuse us; but when made by a set of figures not six inches high, all idea of reality is so completely excluded, that the sentiments feel comparatively at ease, and leave the propensities to enjoy their full measure of gratification, the sentiments only interfering so far as to give its full effect to the feeling of incongruity, and the result is what is described by this author, the most intense, irresistible, noisy, and tumultuous laughter.

My theory, then, is, that laughter is occasioned by a slight degree of opposition between the *lower* propensities and the sentiments; and that, in the enjoyment which attends it, it is the former chiefly which are gratified, while the latter are always in some sort opposed to it. If this be sound doctrine, it may disappoint those who have have been accustomed to regard laughter among the purest and most innocent of our pleasures; but I think it will be found to harmonize with the opinions of our most approved moralists.

Addison writes thus concerning it in the Spectator, No 381:—

"I have always preferred cheerfulness to mirth. The latter I con-
"sider as an act, the former as a habit of the mind. Mirth is short
"and transient, cheerfulness fixed and permanent. Those are often
"raised into the greatest transports of mirth who are subject to the
"greatest depressions of melancholy. On the contrary, cheerful-
"ness, though it does not give the mind such an exquisite gladness,
"prevents us from falling into any depths of sorrow. Mirth is like
"a flash of lightning, that breaks through a gloom of clouds and
"glitters for a moment; cheerfulness keeps up a kind of day-
"light in the mind, and fills it with a steady and perpetual se-
"renity.

"Men of austere principles look upon mirth as too wanton and dis-
"solute for a state of probation, and as filled with a certain triumph
"and insolence of heart that is inconsistent with a life which is
"every moment obnoxious to the greatest dangers. Writers of this
"complexion have observed, that the sacred Person who was the
"great pattern of perfection was never seen to laugh."

This may be all true; but yet, as men are at present constituted, laughing is too agreeable a relaxation of the faculties to be altogether abandoned. I can even conceive, that in our imperfect state it may have its use in clearing away the clouds that are apt to gather over our higher faculties when too long or too painfully exercised, as winds disperse the vapours of the atmosphere. I agree, however, with the same writer, who elsewhere observes, that cheerfulness should, if possible, be the permanent habit of the mind, and mirth only an occasional indulgence. I am far from being so puritanical as to suppose, that, when kept within due bounds, it may not be enjoyed with perfect blamelessness, but with those who pursue it too eagerly, it may be extremely difficult so to restrain it. The propensities are an essential part of our nature, and we cannot refuse them, from time to time, their proper and legitimate indulgence; but if indulged too eagerly or too long, they are extremely apt to break from under the control of the sentiments. It is but a step from the overflowing of harmless mirth to the verge of folly, and this cannot be long indulged in consistently with innocence:—

Where lives the man who has not tried
How mirth can into folly glide,
And folly into sin?

The wisest of men has observed, that "sorrow is better "than laughter." Tears arise from an affection, not necessarily painful, of the sentiments, particularly *Benevolence*, *Veneration*, *Hope*, *Wonder*, and *Ideality*; and this affection, if not too severe or too long continued, is accompanied with pleasure of its kind, and, by exercising these sentiments, is even advantageous. Hence it is added,—"By the sadness of "the countenance the heart is made better." We are not told this of laughter, but the contrary. Fools are more addicted to laughter than wise men. Those in whom the higher sentiments predominate greatly over the propensities seldom laugh.

Conscientiousness, when very active, seems to be a considerable represser of laughter. There are some worthy persons in whom this sentiment is strong, and the feeling of incongruity proportionally weak, who are not only extremely slow in perceiving the point of a joke, but, even when this has been completely explained to them, cannot be prevailed upon to laugh, until they are satisfied that all the particulars are strictly true. They annoy you with their doubts, that the story is "too good to be true," that it is "beholden to "the maker," and many other saws of a similar kind. This turn of mind, though sufficiently provoking to the retailers of jokes, is more worthy of respect, and more indicative of valuable qualities, than that of those who pass their lives in a perpetual giggle, and who are eternally teasing you with stale and unprofitable jesting.

Although I certainly consider that the propensities are most gratified in laughter, it is an essential part of the theory that the sentiments are concerned in it also, and that the slight opposition which they offer is a necessary ingredient in the play of feelings from which laughter arises. We do not laugh when the propensities are gratified to the full, unopposed or unmarked by the sentiments. The brutes are incapable of laughter; and I conceive the reason to be, that they are destitute of the higher sentiments, and that, there-

fore, with them the alternate play of feeling alluded to can have no existence.

If the above theory be correct, laughter should be most common at that period of life when the propensities are in their pristine vigour, and before the sentiments are come to the maturity of serious and energetic action. It should also be most frequent with those in whom the organs of both propensities and sentiments are in a free and unconstrained state, prompt to answer at every call, and maintaining that nice balance which I may call a trembling equilibrium. It is in youth chiefly where we find these conditions coexisting; and, accordingly, it is in the young in whom the faculties are fresh and vigorous, unbroken by care, and unfatigued by long or toilsome exertion, and in whom the propensities in particular are most generally active, that we find the tendency to laughter most conspicuous. It is repressed in age, when the fibres get rigid or languid, and when, consequently, there must be less of that light play of feeling we have spoken of. It is equally repressed in those whose faculties are fatigued with labour or study, or weighed down by any enduring painful affection, that of grief for instance, or of depression arising from misfortune,—the sickness of heart arising from hope deferred, or the self-condemnation consequent upon crime. If any of the sentiments are thus strongly excited in any one direction, it prevents any lighter feeling from being attended to.

Some combinations of original development may, no doubt, give a greater tendency to laughter than others. The organ 32, being large, is undoubtedly favourable to it; but if Secretiveness be large also, the individual may probably be more gratified by making others laugh, than by laughing openly himself. This is the development, as I have elsewhere stated, which gives rise to what is called Humour; and the individuals who possess it, though enjoying the ludicrous with the most intense relish, have the power of refraining from its open manifestation. In other respects, that

combination is probably most favourable to the feeling of the ludicrous which is equally balanced between the lower propensities and higher sentiments. If the sentiments predominate very much, the individual will probably be more apt to imitate Heraclitus than Democritus, and will oftener feel inclined to weep for the crimes and miseries of mankind, than to laugh at their follies.

But there are other kinds of laughter besides that of innocent mirth. There is the laugh of brutality and insolence, approaching what we might conceive of the laughter of fiends.—(I may here mention, what is, indeed, no argument, but which shows that the ordinary sense of mankind is in favour of the theory, that, though we speak of the laughter of demons, we never imagined the possibility that angels or glorified spirits should laugh. Does not this amount to a tacit acknowledgment, that laughter arises primarily from the lower propensities?)—Destructiveness and Self-esteem, all the harsh and selfish and anti-social feelings, are expressed by this laugh, unmingled with Benevolence, unmodified by Conscientiousness. The higher sentiments being feeble, are overpowered by the strength and activity of the propensities, and only excite a jar of the feelings alike horrid and disgusting. Such is the laugh of the ruffian, when beauty and innocence are exposed defenceless to his brutality. Such is the laugh of the infuriated mob, when the objects of their hatred, their fear, or their envy, fall within their power; when, loosened from every restraint of authority, they are rejoicing and glorying in the work of destruction; when palaces are in flames, and when collections of literature and the arts, of whose value they are utterly ignorant, are consigned to spoliation and ruin. There is the laugh of despair, the most awful and heart-rending expression of anguish, wrung from the wretch in the last sad extremity of unendurable calamity. There is that most fearful symptom of a mind entirely overthrown,—

> "Moody madness laughing wild
> "Amid severest woe."

These are the alternations of laughter and tears that succeed each other so rapidly in hysterical affections. All these kinds of laughter seem, even more obviously than the more moderate and agreeable exhibitions of the affections, to arise from the alternate opposing and irregular action of the propensities and sentiments. It seems quite obvious, that the laughter in these extreme cases does not proceed from any one feeling or faculty, but from a jarring or discordant state of several faculties actively opposed to each other; and this affords a further confirmation of the theory of its production in the ordinary case; for it is certainly an affection *sui generis*, and the conditions of its existence must be in all cases the same.

We now come to apply this to the subject we have been considering; and here I beg to return to what I stated when treating of the nature of Wit. I then mentioned, that in those witty comparisons which excited laughter, the ideas compared were always of such a nature as to excite different and even opposite trains of ideas and emotions. Now it is the existence of opposite emotions, or, to speak phrenologically, the activity of opposite sets of faculties at the same time, that we have since, by a different train of investigation, come to consider to be the cause of laughter. It is obvious that these results entirely coincide, and therefore each forms a strong argument in support of the other. Now if laughter, or the feeling of the ludicrous, arises from the play of opposing or *contrasted feelings*, then a faculty which presents the mind with *contrasts*, or which places before us two objects or ideas which are calculated to excite opposite feelings, is just the description of faculty which we would conceive to be best calculated for the production of ludicrous combinations. But this is just what by a different process we have concluded to be the peculiar and original function of the organ 32. The proof, therefore, that we have arrived at the true original function of this organ, and that we have also found the true theory of laughter, seems to be exceed-

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ingly strong, seeing that we have arrived at both conclusions by two separate and independent trains of observation and reasoning.

Our belief in the correctness of these conclusions is strengthened by a consideration of their extreme simplicity, and of the ease with which, in the assumption of their truth, we can explain the most complicated phenomena respecting wit and humour, and respecting laughter and the ludicrous in general. If we have in this instance succeeded in developing the true principles of these phenomena, we have to thank Drs Gall and Spurzheim for having shown us the way. We have merely pursued the path which they have indicated, and we take no farther merit to ourselves than that of having faithfully followed the guidance of such able instructors.

ARTICLE IV.

SECOND LETTER BY GEORGE COMBE TO FRANCIS JEFFREY, ESQ. IN ANSWER TO HIS NOTE ON PHRENOLOGY, IN NO 89 OF THE EDINBURGH REVIEW.

Sir,

In a note to the 89th Number of the Edinburgh Review, you have honoured me by replying to my letter to you on the subject of Phrenology. You are pleased to say, that "the Phrenologists have taken their physic, on the whole, "very quietly." They have less merit in this than you perhaps are aware of. The greater number of the objections urged by you lie on the surface, and no reflecting man, moderately acquainted with metaphysics and anatomy, could possibly become a Phrenologist without solving them for himself. The correctness of this observation is established by the fact, that the most formidable of your positions have

been overturned by mere quotations from works of several years standing, in the hands of every one who has made Phrenology his study. Our virtue, therefore, was small in not being angry at the repetition of a dose which each of us had administered to himself; which, besides, had been prescribed for us by many benevolent opponents before you; and, finally, an antidote to which we knew that we possessed.

You state, that you have adverted to two detached points in my letter, not "on account of their bearing on the argument, but because they directly impeach one of them, the integrity or credit of an individual, and the other, the truth or fairness of a particular statement in the Review." Permit me to assure you, that nothing was farther from my purpose than to impeach the integrity or credit of so highly and so justly esteemed an individual as yourself; my objections touched only the *logical* consistency of your arguments in the Encyclopædia, and statements in the Review. And, with the greatest deference, no circumstance connected with your attack on Phrenology is so striking to those who have observed your general acuteness in reasoning, as the inconsistency in logic that pervades almost every part of it. Even in the present note, produced expressly for the purpose of supporting your consistency, you characterize my pamphlet as "written, not only with much acuteness, but, with the two exceptions we have noticed, with great *propriety* and *fairness*;" while, in the very same line, you add, "we certainly think it *entirely sophistical and evasive*." Here, then, a pamphlet designated as "entirely sophistical" is said to be "written with great propriety;" and, although altogether "evasive," it is still distinguished by "great fairness." What an odd notion of "propriety" in pamphlet-writing you must entertain, if you perceive no incongruity in these criticisms. But to proceed to the proper subject of your note.

In the System of Phrenology, p. 297, in treating of the organ of colouring, it is said, that "*the faculty gives delight*

" *in contemplating colours*, and *a vivid feeling of their harmony* " *and discord.* Those in whom the organ is deficient, experience " no interest in colouring, and are almost insensible to difference of " shade." Several cases are then detailed in support of the last proposition. For example,—Mr Robert Tucker is referred to, " whose eyesight was not deficient, but who was able neither to " distinguish nor to recollect many of the primitive colours when " shown to him."—" The organ is reported to be *decidedly deficient* " *in this gentleman's head.*" Mr James Milne is next mentioned as possessing acute vision, but being incapable of distinguishing some colours.—" As to the different colours, *he knows* " *blues and yellows certainly;* but he cannot distinguish browns, " greens, and reds. He never mistakes black and white objects; " he distinguishes easily between a black and a blue, and is able " even to tell whether a black be a good or a bad one. In the " rainbow he perceives only the yellow and the blue distinctly; he " sees that there are other shades or tints in it, but what they are " he cannot distinguish, and is quite unable to name them."—" A " mask of Mr Milne is sold in the shops, and in it the organs of " Form, Size, and Constructiveness, are well developed; while that " of colouring is *decidedly deficient*, there being a depression in the " part corresponding to this organ, into which the point of the finger falls on passing it along. As a contrast, the reader may compare it with the masks of Mr David Wilkie, Mr Haydon, Mr " Douglas, or Mr Williams, all eminent painters, and, as the organ " is large in these masks, a very marked difference will be perceptible."

After some farther remarks to the same effect, your article on Beauty in the Encyclopædia is adverted to, and the passage is quoted in which you state, " that colour is in all " cases absolutely indifferent to the eye," and that " if all these colours were fairly arranged on a plain board, according to the most " rigid rules of this supposed harmony, nobody but the author of " the theory would perceive the smallest beauty in the exhibition, " or be the least offended by reversing their collocation." The System then proceeds, " It is a curious fact, that the organ of " colouring in Mr Jeffrey's head is actually depressed; and it appears that, in the usual manner of metaphysical writers, he has " conceived his own feelings to be an infallible standard of those of " human nature in general. It is quite true that the *eye* is affected only by the degrees of light; but by this expression the mind is " here obviously meant. The author, when speaking in the next " sentence of the gamut, draws no distinction between the powers " of the mind and those of the eye. Those individuals, then, whose " cases I have cited, and who cannot distinguish dark-brown from " scarlet, buff from orange, or violet from pink, would probably

" subscribe to Mr. Jeffrey's positions. But other individuals, such " as Wilkie and Haydon, have an intense sensibility to shades of " every hue and of every degree; and some painters have assured " me, that they experience a very decided emotion on contemplat- " ing colours, independent of every association; and declare that " they perceive harmony, congruity, and incongruity in their ar- " rangements, even on a plain board, as certainly and distinctly as " they distinguish harmony and discord in sound."—P. 301.

This passage formed the whole original subject of controversy; and I beg to remark, that the organ of colouring is not stated to be absolutely wanting in your head, but merely to be "depressed," that is to say, deficient in comparison with the development of the same organ in the heads of the painters. My whole proposition, then, was, that unless you had been deficient to a considerable extent in the organ of colouring, you could not have denied *direct* beauty in colours, and harmony and discord in their arrangements.

In answer to this you stated in No 88 of the Review, " First, that he (the author of the article Beauty) has a remark- " ably fine and exact *perception* of colours, so as to be able to match " them from memory with precision."

In reply, I beg to observe, that in the System of Phrenology, p. 377, it is said, that " PERCEPTION *is the lowest degree* " of activity of the knowing and reflecting faculties; and if no idea " is formed when the object is presented, the individual is *destitute* " of the power of manifesting the faculty, whose function is to per- " ceive objects of that kind. Thus, when tones are produced, he " who cannot perceive the melody of them is destitute of the power " of manifesting the faculty of tune.—When a coloured object is " presented, and the individual cannot perceive, so as to distinguish " the shades, he is *destitute* of the power of manifesting the faculty " of colour."

It was never asserted that you are destitute of the power of manifesting the faculty of colouring; and it is quite consistent with the doctrine here laid down, that you should be able to *perceive* differences of hues although the organ be "depressed," the act of perception being the lowest degree of activity of the faculty. You say, however, that you "match colours from memory with precision;" and this also is not at variance with the organ being depressed; for memory is said to "imply a new conception of impressions pre-

"viously received, attended with the idea of past time, and consci-
"ousness of their former existence; and it follows the order of the
"events as they happened in nature. *Each organ will enable the*
"*mind to recall the impressions which it at first received.*" P. 393.
It is mentioned that perception is the lowest and memory a higher degree of activity of the knowing and reflecting faculties, and some cases are cited in which perception was enjoyed, but not memory. "Mr Sloane *perceives* the *differences*
"of shades when they are presented to his eyes, but has so little of
"the organ of colouring that he does not recollect so as to be able to
"name them separately." I have compared the masks of Mr Sloane's forehead, of your's, and of the painters, Haydon, Douglas, and Audubon, and find the organ in Mr Sloane's mask considerably deficient, in yours also deficient, but not so much so, while in the painters it is large and elevated.

The painters, as I have said, assured me that they enjoy *direct* pleasure from perceiving colours, and distinguish harmony and discord in their arrangement, and I attributed this power to their large development of the organ. The real question then is,—Do you enjoy this *high degree* of the faculty, or do you not?

It appeared to me that your expressions in No 88 of the Review were calculated to convey the idea, that you did possess this high endowment. You say, that the Reviewer
"spends more time than most people in gazing on bright flowers
"and peacocks' necks, and wondering, he hopes innocently, *what*
"*can be the cause of his enjoyment.*"

This looks very like *direct pleasure*, independent of association, from viewing colours; and if this were the real psychological fact, then we should be presented with a "depressed" organ performing the high functions assigned to an elevated one, and of course Phrenology would be at fault. My object in contrasting the passage in the article Beauty with the statements in the Review was to induce you, if possible, to speak a little more explicitly on the extent of your power of perceiving colours. You have done so in the note to No 89, and, with all deference, I think that the Phrenologists have now your own authority for saying, that the de-

gree of your mental perception is in exact accordance with the size of the organ in your head.

In No 89 you no longer "wonder what can be the *cause* "of your enjoyment in gazing on bright flowers and pea-"cocks' necks." You explicitly maintain, that the beauty of all colours "depends *entirely* on the associations with "which they are connected; and while it is admitted that certain "combinations will generally excite the same associations in those "who are devoted to the same pursuits, it is denied that these are "either universal or unvarying, or that the feeling they undoubted-"ly excite can ever be referred to the organic action of the coloured "light on the sense." You add, "that, when it was said that co-"lours were absolutely indifferent *to the eye*, nothing else was or "could be meant, than that their beauty *did not arise* from the "physical effect of the coloured rays on the organ, but from the "*associations* to which that and all the other undeniable beauty "in the universe was then referred." And again, "The theory "is, that colours are beautiful, not in consequence of the mere or-"ganic operation of their physical qualities on the eye, but in con-"sequence of their habitual association with certain simple emotions "or mental qualities, of which they remind us in a great variety of "ways. Thus Blue, for example, is said to be beautiful, because it "is the colour of the unclouded sky;—Green, because it is that of "vernal woods and summer meadows;—and Red, because it re-"minds us of the season of roses, or of the blushes of youth and in-"nocence."

From this statement, it obviously follows, that when you gaze on bright flowers and peacocks' necks, you are not delighted by the colours themselves of these objects, but that your mind passes away from them, and dwells on "certain "simple emotions or mental qualities, of which they remind "you in a great variety of ways." Thus, the red of the rose is nothing to you as a mere colour,—it does not, for one instant, detain your mind on *itself* as a lovely object,—it makes no grateful "organic impression on your sense,"—but is pleasing merely because it reminds you of the season in which it is produced, or of the blushes of youth and innocence: the blue of the peacock's neck, again, as mere blue, has no attractions; but is beautiful to your mind only because it excites the recollection of "the unclouded sky."

The painters already alluded to, in whom the organ is

large, state, that all this is the very opposite of the sources of their pleasure from colours; and affirm, that they enjoy a *direct* agreeable impression from them, altogether independent of association. Some of them have added, that the very circumstance of your preferring bright flowers and peacocks' necks, indicates a weak perception of colours, because a strong stimulus appears requisite to excite it. This inference, they say, is rendered still more certain by the fact that, according to your own statement, even these striking objects do not detain your mind a moment on themselves, but serve only to usher in extraneous emotions. These two circumstances accordingly coincide in the completest manner with a "depressed" organ.

Suppose a theorist were to assert, that there is no direct beauty in melody, and no harmony and discord between different sounds, but that nevertheless he perceives great beauty in music, and enjoys much delight in hearing a performance on the bugle, or bass-drum; and suppose that we proceeded to ask him what could be the source of his delight, and that he were to answer, "Oh, the notes themselves give me no "pleasure, but the bugle reminds me of the splendid and "elegant uniforms, the waving plumes, the finely-formed and "high-spirited horses of the lancers; and the bass-drum re-"calls the summer evening parade, with the loveliness of "earth and sky in that delightful season, and all the fasci-"nations of female beauty and fashion that animate and adorn "the scene, and hence music gives me the highest gratifica-"tion!" If such a statement were made, who, that enjoys a sensibility to music, would not say, that Phrenology would be at fault, if such a man were not deficient in the organ of Tune. The individual supposed would never dwell for a moment on the notes of the bugle, or the time of the drum; these to him would be mere sounds exciting in his mind ideas of the lancers and the parade; which objects alone would be the real sources of his enjoyment and causes of his admiration. This case is an exact parallel to yours. Colours are

to you nothing in themselves; they only touch a train of extrinsic emotions, in which your whole gratification is founded. It would be a decided objection to Phrenology, therefore, if in your head the organ of colouring were in any other condition than "depressed."

The second topic adverted to you in your note, is the Welshman's organ of Language. The subject of controversy here was the following:—"A Welshman in St Thomas's Hospital had received a considerable injury of the head, but from which he ultimately recovered, and *when he became convalescent*, spoke a language which no one about him could comprehend." It turned out that he had recovered the use of the Welsh language which he had learned in his youth, but, owing to long disuse, had subsequently forgotten. After citing the case, you proceeded in the Review as follows:—"The phenomenon is explained by supposing that a *part* of the organ of language was injured, and that the effects of this injury were, 1st, to *destroy* for the time that part of the machinery which served for the recollection of *English* words, and, 2d, to *restore* to a serviceable state that part which had been originally used for recollecting *Welsh* ones, but had long been so much rusted and decayed as to be quite unfit for service. *These are not metaphors employed to assist our conception of an obscure fact, or to give a sort of coherence to a strange statement; they* are alleged by the Phrenologists *as serious and literal truths, affording a plain and satisfactory explanation of a very extraordinary occurrence.*" My remark on this passage was the following:—"Now, would any mortal believe that every word of these explanations and statements is a fiction of your own, gratuitously put into the mouths of the Phrenologists, apparently for no purpose but to afford scope for ridicule? Not only are there no such assertions or expositions in my work, but there is nothing approaching to them."

You now admit that the passage disowned by me was not intended to be given as my statement, but that the ideas in it were merely imputed "inferences from" my book. With this explanation of your intentions I am perfectly satisfied, and most readily acquit you of any purpose of misrepresentation; but I beg to make a few observations "on the soundness of the inferences or deductions by which you attempt to fasten down these propositions on the Phrenologists."

In page 8 of the System of Phrenology (the book you were reviewing), it is stated that one set of philosophers have taught that the mind is a mere combination of matter, and "endeavoured to explain its functions by supposed mechanical motions in its parts; but this course of proceeding is equally erroneous as the other; and the only legitimate and philosophical method of investigation is that which is pursued by Phrenologists, namely, *observing the laws which regulate the union of the mental and corporeal parts of man,* WITHOUT PRETENDING TO DISCOVER THE ESSENCE OR *modus operandi* OF EITHER."

It has been my endeavour, in the whole of my writings, to keep this principle in view; and I am not aware of having attempted, in any instance, to explain the *mode of operation* of the organs in manifesting the mental faculties. This being the case, I appeal to every intelligent man, whether your commentary was a legitimate deduction from the case,* on my principles.

You inform the Phrenologists that you "part with them, not only in peace, but in amity;" and also, that "if we find, at the end of a few more years, that the science is still known by name among persons of sense, we may think it our duty to look once more into its pretensions, and give ourselves another chance of conversion." Were I disposed to be critical, I might perhaps allege, that this last sentence indicates a latent suspicion that, after all, you have not succeeded in demolishing Phrenology, to the satisfaction even of your own judgment; and that it may be quite as creditable to be found hereafter among its friends as heading the luckless column of names destined to an unhappy immortality as its opponents. But I waive all such sinister interpretations, and sincerely rejoice in the announcement of a resolution so truly liberal and philosophical. That Phrenology, like every real science, "will flourish in immortal youth," is, with me, not matter of doubt, but of certain anticipation. Could the kind wishes of the Phrenologists procure for you a life as long, vigorous,

* You say that it is not mentioned in my work that this case is quoted from an opponent; but the authority is given at the bottom of the page, in these words:—"Tupper's Inquiry into Gall's System, p. 33,"—and every one conversant with Phrenology knows that Tupper is an opponent.

and glorious, as awaits this science, their Benevolence would thrill with joy in bestowing on society so rich a boon; but although this is beyond their power, a humbler hope may be entertained—and sincerely do they cherish it—that you may live to display still greater wit, eloquence, and ingenuity, in defence of their cause, than you have exhibited in opposing it. In all cordiality, then, I conclude the present controversy, and trust that, when next I shall resume the pen in reference to you, it shall be to announce that—Mr Jeffrey is at length a Phrenologist.

I have the honour to be, &c.

GEO. COMBE.

Edinburgh, February 1, 1827.

ARTICLE V.

LETTER FROM THE HONOURABLE D. G. HALLYBURTON TO GEORGE LYON, ESQ.

Hallyburton House, Monday Evening, January 29, 1827.

MY DEAR SIR,

HAVING understood from yourself and others of my friends, members of the Phrenological Society, that casts from certain busts which I brought from Italy might be an acceptable present, I now beg leave to send them, and to request that you will, in my name, solicit the Society to make these casts welcome to their already valuable collection. I hope I am myself too much of a Phrenologist not to know, that accurate copies of any heads, whose manifestations of character are matter of notoriety or of well-attested history, are truly valuable. The question then will immediately arise, Are these busts faithful representatives of the men whose names they bear? They are fac-similes of my copies in marble,

and any merit which may belong to them as *casts* is due to Mr Baxter, figure-maker in Edinburgh, who certainly spared no pains to do them well.

My casts, again, are accurate copies of the original busts now in Italy, and upon these I must beg leave to make a few remarks. Michael Angelo and the poet Ariosto flourished in the latter part of the fifteenth century, and lived a good way down in the sixteenth. The busts are the recognized and well-authenticated portraits of those great men, and were probably executed not long before the year 1540. At this period, as is well known, the arts of painting, sculpture, and architecture had, in Italy, reached the highest point of perfection, and were attended with the highest rewards. Galileo lived nearly a century later; this bust, too, passes current in Tuscany as the original portrait of their favourite philosopher. Upon the whole, there can be no question as to the *identity* of all the three. Their resemblance to the originals may probably be trusted to a great degree of accuracy, so far as the foreheads and posterior parts of the head are concerned. The other parts must, no doubt, be received with due allowance for the carelessness of artists who were not Phrenologists. I may remark here, that all the observations which occur in the larger French work of Drs Gall and Spurzheim, and which have been repeated in later publications, respecting the *Ideality* of Ariosto, the *forming*, *constructing*, and generally *artist* head of Buonarotti, and the expanded, philosophic front of Galileo, have been suggested by busts which, like mine, are derived from the *prototypes* now in Florence. I believe that the original bust of Ariosto being of a colossal size was to make it suitable to its situation on his monument in the town of Ferrara. I suspect it is in one sense not original, but had been copied from a bust of the poet taken during his life, and of the natural size. So much for these modern Italians.

We may now ascend through ages of darkness and barbarism to the days of Cicero and of Cæsar. Everybody

knows, that during several centuries of that period, the works of Grecian and Roman art were exposed to the destroying propensities of Goths and other barbarians, and occasionally, it is said, of misdirected zeal in certain converts to Christianity; for at one time the church of Rome had not learned to cherish the fine arts as useful accessaries to her pomp and circumstance. The finest works of sculpture were, therefore, literally trodden under foot. The *history* of every statue, I suppose, without exception, had been lost, and tradition, so rife in other matters within the jurisdiction of Rome, was here silent.

It was not earlier, I believe, than the thirteenth or fourteenth century, that the remains of ancient art began to be considered as objects of curiosity and instruction, and, with a growing spirit of veneration, to be excavated from among the rubbish of ancient Rome and of other Roman cities. The revival of letters and of the fine arts naturally brought along with them a body of men called antiquaries, who ever since have been sufficiently numerous every where, but in Rome have superabounded.

Many of the Italian and Germanico-Italian antiquarians, however, have been persons of very considerable learning, of great ingenuity, of indefatigable research, and, withal, of sufficient *Combativeness*, to give a zest to their investigations. How far the pure love of truth in these as in other controversies has borne sway, we shall not presume to inquire.

You will at once perceive, that the claims of every statue, bust, &c. becomes a question of circumstantial evidence, and in the courts of antiquity at Rome, as in other courts in other countries, there are always plenty of counsel to plead the cause both of plaintiff and defendant. The discovery of an equestrian statue, in past times, has always been felt in Rome as an *event*; the discovery of a continent could scarcely have roused into greater activity the organs of Wonder, Veneration, and Acquisitiveness; a simple statue, a bust, a finger, or a toe,—all these produce their proportional degrees of in-

terest and of excitement in the circles of the antiquaries. The appearance of a man at the present time in Westminster Hall, or in the Parliament House, claiming some great estate, through a long and puzzling line of feudal ancestors, may be taken as no unfair illustration of the interest which has been excited in modern Rome by a piece of marble, claiming right to occupy, under some well-known name, a niche in the halls of the Vatican or the Capitol. The result, however, of all this is, that in most cases the truth is either attained or approximated; though it would be too much to say that in Rome, as in Great Britain, mistakes have not been committed, and that men of marble as well as men of flesh have not sometimes got into places where they had no right to be.

Adverting now to the portraits of Cæsar and of Cicero, which will shortly be upon your table, it certainly is not in my power to explain all the links in the chain of evidence by which they have been recognized as genuine representatives of those great men. I can only say that they are received as such, after passing the sort of ordeal I have attempted to describe.

The Cæsar has not yet found its way into any of the public museums in Rome. The family to whom it has belonged since it was *deterré*, have not been poor enough, or patriotic enough, to part with it; but it is the most esteemed bust of the dictator now in Rome. Camuccini, their best modern historical painter, (and at all events an excellent *judge* of pictures), took it as his model, in a picture of Cæsar falling under the hand of his assassins at the foot of Pompey's statue. Besides the general evidence in favour of this bust, from its essential resemblance to other busts of Cæsar, (especially one in the Florence gallery), and to the head on several of his coins, I have been struck by one or two coincidences, not altogether trifling in a matter of this sort. Suetonius (the only author, I believe, who says a word about the person of Julius Cæsar), remarks, "fuisse traditur, excelsa statura, teretibus membris

"ore paulo pleniore." Now, in the bust, the prominent lip is quite apparent. Again, a flatterer is said to have remarked to Cæsar, that *his* baldness, unlike that of others, was covered by his crown of laurels. Now a laurel-wreath would by no means have concealed the baldness of Cicero's head for example; but the hair in that of Cæsar having gone off about the situation of the organ of Wonder, or from that to No 33, would be effectually covered by the laurel-crown.

After all, does it not appear, that the artist has rather exaggerated (*caricato*, as the Italians call it,) the strongly-marked lines on Cæsar's head? I certainly think he has done so; yet it is impossible to look at this, as the portrait of Caius Julius Cæsar, without feeling convinced that the original must have had the whole superciliary ridge extraordinarily developed, more especially the organ of Locality; and surely if any human being ever had the perception of localities, in the fullest sense of the word, it must have been that man, —embracing probably the relative *bearings* of every principal place in the then known world—of the heavenly bodies also, in a degree exceeded by few of his day, and carrying in his mind's eye, we need not doubt, a vivid image of every district of country he had ever looked upon. Now if any of our *antiphrenologizing* philosophers could only prove that Julius Cæsar had not upon his skull those prominences which we say do indicate the organs of Locality, he would give a harder blow to the science than any I have yet heard of its receiving. I beg farther to direct the attention of the Society to the extraordinary development, for two inches above each ear, more especially the right one; next to the reflecting organs; to Ideality, which I think are larger than one would suppose on first looking at the bust; lastly, Love of Approbation must have been very large in Cæsar's head.—How is it on the bust?—But, as we have remarked, this is a part of the head on which the fidelity of artists heretofore must not be implicitly trusted.

As to the bust of Cicero, it is the most esteemed of any in

Italy; it differs considerably from another, which is the original of all those we have been accustomed to see in this country, and appears to have been executed at a later period of Cicero's life. The original of that now on your table is one of about 100 busts and masks in the hall of the philosophers in the Museum of the Capitol. This head of Cicero, together with those of Socrates, Aristides, Pindar, and Demosthenes, are the most valued of any in the above collection. For some reason which we cannot exactly tell, this bust of Cicero is above the size of life. I beg leave to make only a very few remarks upon it:—Cicero, like his great contemporary, appears to have been bald-headed; but, as I have before remarked, at a different part of the head, the artist appears to have marked distinctly the line of separation between the hair and the bald crown. Now, in doing this, his attention must have been directed more particularly to the curvature of the mesial line, than if the whole coronal surface had been covered with hair; for very often the *sight* alone cannot distinguish between a line of hair and a line of skull. We may therefore conclude, with little chance of error, that Cicero's head was, as it is marked in the bust, very fully developed at the organ of Veneration. This surely agrees with all we know of his character.—Had there been a marked depression, or even flatness, at that point of the head, we should have said, "This cannot be the head of Cicero." The next remarkable peculiarity is the very large development of Causality, the comparative *smallness* of No 32, and again the expansion at Ideality.

I have called it No 32, but will not give it a name. Where such men as Dr Spurzheim and Mr Scott all at variance, it might be presumptuous to decide between them, more especially without fully stating one's reasons. Be it, therefore, an intellectual faculty, whose function is to seize the minute shades of *difference* in things, or be it, as Dr Spurzheim thinks, a *sentiment* which he thinks good to denominate by the word *Mirthfulness*, must for the present pass *sub silentio*.

Whatever it be, it is clear, that if we put any faith in this bust of Cicero, the organ was relatively small in his head;—perhaps the artist may here have exaggerated a little,—perhaps the depression might not have been quite so great as he represents it, yet it must have existed. No artist of any note would have made such a mistake as this, or invented such a form, in a prominent situation, which forms, as it were, part, and a most important part, of the *countenance*. I for one, therefore, must believe that this peculiarity really existed in the head of Cicero; and in proportion as one believes this, will it be interesting, by a reference to his writings, to detect what faculty was really wanting, or comparatively small, in his mental constitution. Was it an intellectual faculty; that, for instance, of a nice perception of differences in law, in morals, or in questions of policy? or was it, on the other hand, that faculty formerly called Wit, and now denominated Mirthfulness by Dr Spurzheim, which was really not among the higher endowments bestowed upon this great man? I shall beg to leave this question for my own future consideration, and that of any other person who may feel interested in it; and, whatever may be the result, I am sure that every member of the Society will agree with me in thinking, that in this way only can such questions be settled, and that the comparison of cerebral development with mental manifestations, as it has been the path leading to all the great discoveries in Phrenology, must be that which, when further prosecuted, can alone lead to its improvement and perfection.

Yours, my dear Sir,

Most faithfully,

D. G. HALLYBURTON.

ARTICLE VI.

PHRENOLOGICAL EXPERIMENT.

(*Communicated by Dr Elliotson of London.*)

SIR,—I have the honour to belong to a Literary Society in this place, the members of which are much divided on the subject of Phrenology. In a late debate, I ventured to assert, that if a skull was forwarded for the consideration of the Society of which you are the distinguished President, I had no doubt they would be able to detail the character of the individual to whom it belonged. It was agreed that I should do so by this day's coach. I have directed to you the skull of a person with whose previous history they are acquainted.

May I beg you to submit the said skull to the investigation of the Society, and to favour me with the opinion they entertain of its development. On receiving the same I shall in return forward you the history of the subject to whom the skull belonged. The Society is at liberty to take a cast of the skull,—I beg the original may be returned to me. Requesting your indulgence for an intrusion which has the promotion of the science for its only object, I am, Sir,

Your most obedient servant,

A. R.

Chatham, January 6, 1827.

Dr ELLIOTSON, *President of the London Phrenological Society.*

To A. R., Esq., Surgeon, Chatham.

SIR,—I exhibited the skull, with which you favoured me, to the London Phrenological Society at their last meeting, and we were all perfectly agreed upon the character of its original possessor. The Society, however, never delivers a judgment upon character on any phrenological point; but,

when an opinion is desired, leaves any member, or private individual who may think proper, to do so.

I take it for granted, that the deceased was of sound mind; but to be accurate, we should likewise know how far he had been educated, and whether his constitution was active or indolent.

Ignorant of these particulars, I should say, that he was a man of excessively strong passions,—that these were far an overbalance for his intellect,—that he was prone to *great violence*, but *by no means courageous*,—that he was *extremely cautious and sly*, and fond of *getting*—his *sexual desires* must have been strong, but *his love of offspring* very remarkable. I can discover no good quality about him, except the love of his children, if he had any. The most striking *intellectual* quality in him, I should think, was his *wit*. This must have been not only great, but probably of a dry cast. He might also have been a good mimic.

I have the honour to remain

Your obedient humble servant,

JOHN ELLIOTSON.

Grafton Street, London, January 29, 1827.

To Dr Elliotson.

Chatham, February 3, 1827.

SIR,—I had the honour to receive your letter of the 29th ultimo, and much regret that I was unable to forward my notes of the individual whose skull you did me the favour to examine, at the date you requested; they will, however, reach you before the next meeting of the Society. In the mean time, I can assure you, that your explanation of his character is *singularly correct* in every particular, affording a new and powerful proof of the truth of Phrenology.

There are, however, some gentlemen unable to overturn the facts of the case, who now turn round and say, that between the period of receiving my communication (6th January

last) and your answer, there was ample time for you to inquire and find out that I had the medical charge of the convicts at this place; that you would naturally suppose that this was the skull of a felon, and that you could not err much if you ventured to assign to his character all the baser passions. There is only one mode of replying to such opponents, namely, by a straight-forward question and answer between us. And, *first*, until the receipt of this letter, had you any knowledge of my public professional employment? *Secondly*, Is your detail of this felon's character drawn solely and entirely from the shape of the skull? *Thirdly*, Had you any previous information whatever as to his past life, habits, or education?

The answer which I anticipate to these questions will, I doubt not, afford us matter of triumph.

I have the honour to be, Sir,

Your obliged servant,

A. R.

I beg the favour of an early answer. The lower jaw-bone was not in the box. I am in hopes to be able to present the skull to the P. S.; it had better, therefore, not be lost.

To A. R., Esq.

SIR,—I beg to assure you that I drew my conclusions as to the character of the individual *solely* from the size of the various parts of the skull, and that, up to the moment of receiving your letter yesterday, I was totally uninformed respecting him, and indeed respecting yourself, except that it appeared from your letter and your card that your name was R., and that you were a surgeon at Chatham. I was ignorant of the existence of convicts at Chatham, and had had no communication with any person upon any particular in the matter, nor indeed considered any circumstance for an instant, except the character of the skull.

The delay in returning both it and my answer arose from

the circumstance of the box arriving the day after the meeting of our Phrenological Society, to which you requested me to show the skull, so that a fortnight elapsed before I could execute your wishes; and when I did so, of a member requesting the loan of it to make a cast, and detaining it nearly a fortnight. But for this I would have returned it the same day; for an examination of five minutes would have been amply sufficient to enable me to draw the conclusions I sent you.

The suggestion, that I had gained some knowledge privately of the individual, or had taken a hint from any circumstance whatever, might have annoyed me were I not unknown to the gentleman, were I not conscious of detesting every species of duplicity, and were there not something irresistibly laughable in seeing the plain facts of Phrenology give one such power as to produce an astonishment in the minds of those ignorant of them, not dissimilar from that which a little chemical or physical knowledge excited in times of darkness. In those days the power of knowledge was ascribed to the devil; at the present time, such agency being universally disbelieved, the manifestation of power is pronounced a deception. The Phrenologist, conscious of the truth, views the incredulity of the world as a correct measure of the magnitude of his science.

Some gentlemen do not believe I could have drawn so correct a character from examining the skull; but they will cease to wonder, if they find that they themselves can with perfect ease do exactly the converse—pronounce upon the size of the various parts of the skull from their knowledge of the individual. If they know the individual to have been prone to acts of violence, they may assert, that the skull should be very large at the organs of Destructiveness; if very cautious, very large at the organs of Cautiousness; if very fond of children, very large at the organs of Philoprogenitiveness, &c. In Mr G. Combe's excellent *Elements of Phrenology*, the average measurement of twenty heads in several points is given. The average breadth at Destructiveness is $5\frac{1}{10}$ inches; at Cautiousness $5\frac{1}{10}$ inches; the average length

from the meatus auditorius externus to Philoprogenitiveness $4\frac{5}{8}$ inches. These were taken from heads *covered with integuments*, and, moreover, above the common average, because among these twenty were several large heads, and not one small. Yet similar measurements on this *bare* skull will be found, $5\frac{7}{8}$—$5\frac{7}{8}$—$4\frac{7}{8}$.

Allow me earnestly to recommend to the members of your Society Gall's *Fonctions du Cerveau*. It is worth all the other works on Phrenology together, and full of splendid truths for the metaphysician, the moralist, and the legislator, no less than for the physician and the physiologist.

I have the honour to remain

Your obedient humble servant,

JOHN ELLIOTSON.

Grafton Street, London, February 8, 1827.

P. S. You will oblige me by sending, with the history of the individual, a copy of my former letter, as it was hastily written, and I have no notes of it. The lower jaw was forgotten, but is safe.

Account of J. L.

J—— L—— was received into the Dolphin convict-hulk at Chatham in February 1824, from C——e, under sentence of transportation for life. He was in person tall and athletic, with a fine erect carriage, and a stern unbending countenance. He was born of respectable parents at M——, and all his relations were of the class of yeomen. His education, however, was limited to reading and writing. During his early life he evinced an ardent attachment to every species of vulgar sensual enjoyment; the alehouse, games of chance, and particularly cock-fighting: of this worst species of gambling he was for years the noted and well-known supporter. He was also an active poacher, but only of that class denominated hare-panyers or snarers. At the period

of manhood his friends, in the hope of reformation, placed him in a small farm. The vicious habits of a previously bad life, however, were not to be thrown off in a moment, nor was the monotony of farming calculated to efface the vivid impressions of a dissipated youth. On the contrary, being now his own master, his first consideration was how they could be extended. Accordingly, he is reported at this period to have sunk lower in the paths of depravity, and to have formed an intimacy with persons which gave a permanent and deeper shade to his character. Living in the vicinity of the most extensive salt-works in the kingdom, he with them resolved on the formation of a band of smugglers for the plunder of that article, and the sale of it throughout Cheshire, Lancashire, and North Wales. Under this man's direction and command, they pursued this occupation for a long time without the sufferers being able to detect them; and even when he became suspected by the police and excise, he continued to elude their vigilance till, the *duties* being removed, it ceased to be an object of contraband commerce.

If, at the age of twenty, he did not return to the paths of rectitude, it might have been expected that maturer years and the influence of a wife and children would have quieted his evil habits; but, these strengthened with time and by long indulgence, he was now as restless as at the moment of their first impulse. With some of the remains of his former associates, therefore, he now commenced plundering of grain, —an article not easily identified if once fairly removed from the premises. This was sometimes carried to his own farm, (which, it is worthy of remark, he still held at the time of his conviction,) and sometimes direct to the market-place. In this nefarious scheme, however, he was soon detected. In an attempt to plunder a neighbouring farmer, his gang were surprised; they fled to the road, where he was in waiting with their horses, and all escaped, except himself and one companion. They were tried and sentenced to death; but

which sentence was ultimately transmuted into transportation for life.

Such are the general features in the history of a man who was distinguished by the familiar nickname of *Jack Turpin;* and in contemplating the variety of scenes, and the many singular adventures into which it must have thrown him, it becomes a matter of extreme regret that we are not in possession of the knowledge of many particular acts committed by him. Using his gang as servants to his will, he more frequently directed than acted with them. The disposal of his spoil being his chief concern, he had often distant journeys to perform in order to arrange with the purchasers; so that, though the connexion between them was close and intimate, still it had on his part much mystery attached to it. This he maintained even at the bar of justice, and though, after his conviction, an hundred guineas were offered him for a detail of the adventures of his life, he rejected the bribe with scorn. After sentence of death was pronounced, he was seized with an alarming illness, which continued for five months, and being apparently on the verge of eternity, he still kept the same reserve as to the minute details of his life. On his recovery he was removed to the convict-hulk with the view of being conveyed to New South-Wales, but his age being deemed too advanced for the voyage, he was detained to labour at the public works. Here he was orderly, obedient, and respectful to his superiors; but towards his fellow-prisoners he was, with one exception, reserved, keeping them at an immeasurable distance. In May, 1826, his infirmities increasing on him, he was removed to the hospital-ship. Here, by an unvarying system of kindness, the stateliness of his mind unbent so as to induce him to exercise more familiarity; still, however, with the same guarded avowal as to facts, with the following solitary exceptions:—

at though he had led a lawless life, he had never
murder.

2dly, That by his wife he had eight children; that he had also a natural son in North Wales, and he had kept several women in different parts, and at different times, up to the period of his apprehension.

To this scanty detail of facts it only remains to add, the manifestations of character he exhibited after he had become familiar with the patients of the hospital.

In the first place, he exhibited a severe sarcastic wit at the expense of those around him. The manners and language of the kind and benevolent clergyman who officiates at the hospital were the frequent subjects of his mimickry.

In the second place, he exhibited a strong attachment to his children. He frequently spoke of them in the most affectionate manner, and made his last moments respectable by directing them to the disposal of his property among them.

In the third place, he possessed a firm disbelief in the existence of a Deity and of a state of future rewards and punishment, and sank into eternity avowing his disbelief.

Chatham, February 14, 1827. A. R.

To Dr Elliotson.

Sir,—At the meeting of the Rochester Literary Club, the enclosed resolutions were (on the motion of the Rev. Dr Joynes,) unanimously adopted, and, by their direction, I have the honour to forward you the same. Permit me to add the high gratification I feel in being intrusted with the present communication. With great personal esteem,

I have the honour to be, Sir,

Your very obedient servant,

A. R.

Chatham, February 20, 1827.

Resolutions passed at a Meeting of the Rochester Literary Club, held on Thursday, February 15, 1827.

Mr R. having introduced the subject of Phrenology, by an interesting correspondence between himself and Dr Elliotson, the President of the London Phrenological Society, upon the skull of J. L., it was continued by other members till the usual hour of adjournment, when the following resolutions were passed unanimously :—

1*st*, That the character given of L. by Dr Elliotson, from the inspection of the skull, corresponds so exactly with his history, that it is impossible to consider the coincidence as the effect of chance, but that it is an instance which, if supported by many others, affords a strong foundation for the truth of Phrenology.

2*d*, That a copy of the above resolution be forwarded to Dr Elliotson, with the thanks of the Club for his communication, and that Mr R. be requested to transmit the same.

H. P. *Secretary*.

ARTICLE VII.

ADDITIONAL EVIDENCE OF THE EXISTENCE OF A SENSE OF EQUILIBRIUM AS A PRIMITIVE MENTAL POWER, DERIVED FROM THE CONSISTENCY WHICH OBTAINS BETWEEN ITS SUPPOSED FUNCTIONS AND THE RECENT PHYSIOLOGICAL DISCOVERIES OF MR CHARLES BELL.

Mr Charles Bell, some time ago, established by demonstration, that two nerves of distinct functions, viz. *motion* and *feeling*, exist in the same sheath, undistinguishable in sub- from each other by the most powerful microscopic aid. ıct must have been a little startling to the objectors

who allege, that the mental organs are *not distinguishable* in the apparently homogeneous mass of the brain; and from this contend that such organs cannot exist to the end of performing distinct functions.* Mr Bell has come forward again, and bestowed on science another boon of a still more direct and not less valuable description, namely, a demonstration, *that, accompanying the nerves of motion and feeling*, (which are in one sheath), *there is a distinct apparatus of nerves, previously confounded with these nerves, whose function it is to inform the brain of the state of the muscular frame, and thereby enable the animal to regulate its muscular contractions or motions in accordance with the mechanical laws.*

He announced his discovery in a paper read to the Royal Society of London, on 16th February, 1826;† and it is of some importance to observe, that Drs Gall and Spurzheim had distinguished a special *faculty* for weight, momentum, consistency, density, hardness, roughness, &c. many years before, although they had only conjectured its *organ*. Dr Spurzheim in his English work, published in 1815, pointedly concludes, that the perception of these qualities cannot be attributed to the sense of *Touch;* and repeats the same doctrine in his French work subsequently published. We submitted a paper, on the extension of the function, to the consideration of the Phrenological Society of Edinburgh in April, 1824, and again to that of London in the same month. It is published in the Phrenological Journal, vol. ii., page 412. In that paper we endeavoured to show that no animal could exist without a faculty for the perception of equilibrium, whereby it adapts its motions to the mechanical laws of the

* The Edinburgh Review, No 88, makes a sheet-anchor of this luckless objection,—then in profound non-information of Mr Bell's discovery. Mr Combe, in his "Letter," mentions the discovery, but in vain; for the objection "of the admitted want of any *perceptible* organs in the brain" reappears in the postscript reply in No 89, and is held unremoved and unremoveable. The objection itself is fully discussed in Dr A. Combe's answer to Dr Barclay, published in the Phrenological Transactions in 1823.

† Phil. Trans. Royal Soc. of London for 1826, part II. p. 163.

material world; and that that instinct operates constantly and independently of reason; so that the animal "*is never permitted to forget the power of gravitation.*"* The reptile creeps—the fish swims—the bird flies—the quadruped runs and leaps—and man walks erect with his face to heaven, by this instinct, nay regulates his movements, from the first moment that he grasps his mother's finger, or shrinks if her supporting arm even threatens to fail under his infant weight, to the most energetic applications of his manly prowess. We noticed also, that the instinct is possessed by different persons in different degrees, and we adverted to the phenomena which attend its derangement, as intoxication, &c.

In support of these our views, Mr Bell states, that the sense which he has discovered has its seat *somewhere* in the brain, and tells us, that he purposely selected the nerves which originate in that great organ. Indeed the title of his paper is, "On the Nervous Circle which connects the Voluntary "Muscles with the *Brain.*" After reminding the Royal Society that, in his former papers on the nerves, he had demonstrated, by the composition of the roots of the nerves of motion and feeling, that there were really these two distinct nerves in one sheath, and that "but for that discovery we "should have continued to suppose that one nerve could bestow "the very different properties of motion and sensation," he says, "But having satisfied myself that the roots of the spinal nerves had "distinct powers, I followed up the columns of the spinal marrow, "and with a knowledge of the composition of these nerves as a key, "I examined the different properties of the nerves of the encephalon. "Here, *in the head,* the nerves arise simply, and diverge to their "destinations without the close compact or union which the spinal "nerves form; and accordingly the anatomy of these nerves of the "brain affords satisfactory proof of their uses or functions. I am "about to show, that every muscle has *two* nerves of different pro-"perties supplied to it. This I could not have ascertained by exa-"mination of the spinal nerves alone, because of the intimate union "of all their fibres; I had recourse, therefore, to the nerves of the "head. By prosecuting those inquiries which led to the distinction

* This excellent description of the instinct is given by the Edinburgh Review as the reason why it concludes that there is *no* such instinct!

" of the different classes of nerves, I hope now to demonstrate,—*that* " *where nerves of different functions take their origin apart, and* " *run a different course, two nerves must unite in the muscles, in* " *order to perfect the relations betwixt the brain and these muscles.*"

Mr Bell, observing that, when he cut the motor nerve,* or nerve by which a muscle moved, there remained yet entire another nerve in like intimate connexion with the muscle, although motion was lost, it occurred to him to inquire what is the use of the nerve that remains entire. After many ingenious trials, he found in the lower maxillary nerve, which goes to the jaw, a muscular nerve clear in its course, so that he might be enabled to observe what sort of alliance it would form in its ultimate distribution in the muscle. " If all " that is necessary to the action of a muscle be a nerve to excite to " contraction, these branches should have been unaccompanied; " but, on the contrary, I found, that before these motor nerves " entered the several muscles, they were joined by branches of the " nerves which came through the Gasserian ganglion, and which " were *sensitive* nerves.† I found the same result on tracing motor " nerves into the orbit, and that the sensitive division of the fifth " pair of nerves was transmitted to the muscles of the eye, although " these muscles were supplied by the third, fourth, and sixth nerves. " A circumstance observed in minute dissection remained unex- " plained. When motor nerves are proceeding to several muscles, " they form a plexus, that is, an interlacement, and exchange of " fibres takes place. The muscles have no connexion with each " other, they are combined by the nerves; but these nerves, instead " of passing betwixt the muscles, interchange their fibres before " their distribution to them, and by this means combine the muscles " into classes. The question, therefore, may thus be stated:— " Why are nerves, whose office it is to convey *sensation*, profusely " given to muscles in addition to those motor nerves which are given " to excite their *motions*? and why do both classes of muscular nerves " form plexus? To solve this question, we must determine whether " muscles have any other purpose to serve than merely to contract " under the impulse of the motor nerves: for, if they have a *reflec-* " *tive* influence, and if *their condition is to be felt or perceived*, it

* When Mr Bell speaks of the motor nerve as distinct from the nerve whose function he has just discovered, he means that nerve which, to the senses, forms one nerve with the nerve of feeling. Strictly speaking, there are *three* nerves furnished to each muscle, two being in one sheath.

† To prevent mistake, it will be kept in mind, that the word *sensitive* is used here in the extended sense of conveying a sensation, be it what it may, to the brain.

"will presently appear that the motor nerves are not suitable inter-
"nuncii betwixt them and the *sensorium*." This last word is not phrenological; but Mr Bell means by it the perceptive power of the brain, and we will not quarrel with it. The following passage, from its complete accordance, might have had a place in our paper on the "Instinct of Equilibrium:"—"I shall
"first inquire, if it be necessary to the governance of the muscular
"frame, that there be a consciousness of the *state* or degree of ac-
"tion of the muscles? That we have a *sense* of the condition of the
"muscles appears from this, that we feel the effects of over exer-
"tion and weariness, are excruciated by spasms, and feel the irk-
"someness of continued position. We possess a power of *weighing*
"in the hand; *what is this but estimating the muscular force?*
"We are sensible of the *most minute changes* of muscular exertion,
"by which we know the position of the body and limbs when there
"is no other means of knowledge open to us. If a rope-dancer
"measures his steps by the eye, yet, on the other hand, a blind
"man can *balance* his body. In standing, walking, and running,
"every effort of the voluntary power which gives motion to the
"body is directed by *a sense of the condition* of the muscles, and
"without this sense we could not *regulate* their actions." In other words, without an instinct or faculty we could not *weigh*,—we could not estimate *force*,—we could not *balance* the body, we could not stand, walk, or run,—we could not regulate our muscular actions; in short, in the words of our own paper, we could make no certain exertion of animal power.

Mr Bell then proceeds to show, that a motor nerve is not a conductor *towards* the brain, and that it, therefore, cannot perform the office of a *sensitive* nerve. The fact is certain, that each nerve is a conductor of influence *in one direction* only. "It cannot," says Mr Bell, "act both *from* and *to*
"the sensorium." The energy proceeding from the brain towards the muscles precludes the physical probability of a reflex influence in the opposite direction. Water itself cannot flow in two directions, at the same instant, through the same tube. Mr Bell ascertained the different uses of these two nerves of a muscle by alternately irritating and cutting across, so as to leave the matter altogether beyond doubt or error.

Experiments cannot be tried on the living human subject

as upon the unhappy animals that fall into the calmly unmerciful hands of a Flourens or a Magendie; but nature offers the required proofs by exhibiting cases of disease in the human species; and Mr Bell narrates two cases in which the sensibility of the eye was lost, but the motion preserved:—

"A patient of mine having, by a tumour pressing the nerves of the "orbit, lost the *sensibility* of the eye and eyelids, retained the *mo-* "*tion* of the eyelid by the portio dura coming round externally, "and escaping the pressure which injured the other nerves. Here "the course of sensibility backwards to the brain was cut off, "while the course of volition was free; she could not tell whether "the eyelid was open or shut; but being asked to shut the eye that "was already closed, she acted with the orbicular muscle, and "puckered the eyelids. When I touched the eye, there was no "winking, because the *sensitive* fifth pair had lost its power, al-"though she could command the *motion* by voluntary exertion."

The other instance Mr Bell thus describes:—"When the "eye was insensible, touching the eye gave rise to a flush of red-"ness and to inflammation, because the *part* was excited, but the "muscles were not called into action. The relations which connect "the sensibility of the eye with the motions of the eye and eyelid "are established in the roots of the fifth and seventh, in the brain; "the loss of function of the fifth nerve therefore interrupted the "circle.* Here too the motor nerve of the eyelid was perfect, and "the eyelid readily acted under the influence of the will; but when "the eyelid was touched or pricked it communicated no sensa-"tion."

Mr Bell thus draws his conclusion:—"Now it appears "that the muscle has a nerve in addition to the motor nerve, which "being necessary to its perfect function, equally deserves the name "of muscular. This nerve, however, has no *direct* power over the "muscle, but *circuitously through the brain;* and by exciting sen-"sation, it may become the cause of action." He adds, in italics, "*Between the brain and the muscle there is a circle of nerves;* "*one nerve conveys the influence from the brain to the muscle,* "*another gives the sense of the condition of the muscle to the* "*brain.* If the circle be broken by the division of the motor nerve, "motion ceases; if it be broken by the division of the other nerve, "*there is no longer a sense of the condition of the muscle, and,* "*therefore, no regulation of its activity.*"

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* That the word *circle* may not mislead, we may state that, like what is called an endless chain, it means the unbroken course of two nerves,—one of them from the muscle to the brain, and the other back from the brain to the muscle.

This discovery appears to us to embrace three points:—

First. Mr Bell has discovered, that in the animal structure *a specific function, previously unknown as such, belongs to a particular* NERVE; *the purpose of which is to convey to the brain, or, as Mr Bell calls it, the sensorium, in other words, the mind, a specific impression made on the voluntary muscular frame.* This amounts to a demonstration of a nerve analogous to the optic, olfactory, auditory, gustatory, and tactual respectively; and, therefore, the medium of another inlet of knowledge from the material world; in a word, of a *sixth* sense, of which the muscular frame is the external organ. Mr Bell denominates the specific *sensation* so conveyed, "a sense of the *state* of the muscles necessary for the *regulation* of their activity." By the state of the muscle is here meant its actual degree of contraction, in relation to any mode of force that may be applied to it. Mr Bell elsewhere calls it "its degree of action."

Secondly. Both by direct experiments and by observing the effects of disease on this nerve, and on the nerve of motion, Mr Bell has *clearly distinguished the new nerve and the nerve of Motion from each other;* and, moreover, although the nerve of Feeling or Touch is in the same sheath with the nerve of Motion, *he has demonstrated, that this new sense is not derived from the sense of Touch.*

Thirdly. Besides this *distinction*, Mr Bell has pointed out a *connexion* between the nerves of this new sense and the nerves of Motion; which connexion affords a great aid to his demonstration of the *use*, in the animal economy, of the newly-discovered nervous function, which use is the *regulation* of the muscles' action. While the optic nerve, the auditory, the olfactory, and the gustatory, go on their errand to the brain unaccompanied by any nervous apparatus of a *reflex* influence back from the brain to the external organs, *the newly-distinguished nerve is the inseparable companion of the nerve of Motion. The two nerves form a joint apparatus of connexion between the muscle and the brain.*

We see at once the beautiful adaptation of this arrangement to the mechanical relations of animal existence; or, as Mr Bell calls it, the *regulation* of muscular force. The message from without which is carried to the brain by the optic, auditory, olfactory, and gustatory nerves, respectively, requires no answer. These are passively-received impressions, and do not call for instant action. But when an impression, by any mode of force, is made upon a muscle, or suddenly ceases to be made, so as to alter the state of action of that muscle, nature is not contented with the bare announcement of that fact to the brain, as in the case of an odour or a flavour; some muscular action is, in consequence, called for, to suit the muscle to the new circumstances, and, quicker than thought, the influence has sped by the return channel of the nerve of motion, and the obedient muscle has contracted or relaxed in the degree required. Of course, this twofold nervous communication belongs to the *voluntary* muscles only. As it was not necessary that the automatic motion of the heart, stomach, &c. should be under the command of the will, these viscera are not provided either with nerves to announce the state, or with counter nerves to regulate the motions of their muscles.

We have already said, that the founders of Phrenology long ago distinguished, metaphysically, a *faculty* for the perception of mechanical resistance, and, craniologically, conjectured the whereabouts,—for that was all,—of an organ in the brain for that faculty. Here we are called upon to apply Mr Bell's discovery to their metaphysical, not to their craniological hypothesis. But, first, we must introduce into this discussion the late Dr Thomas Brown, whose very name is associated with sound metaphysical views. He too concluded, by the force of his own sagacity, that there is a specific faculty for the perception of mechanical resistance. We do not see the slightest reason to doubt the originality of Dr Brown's hypothesis, on the one hand, nor of that of Doctors Gall and Spurzheim, on the other. The coincidence is at

once an increase of the value of their speculations, and a proof of a congeniality of intellect in these three great men. Dr Brown's hypothesis, however, materially improves on that of Gall and Spurzheim; and as his views, not only in so far as they accompany, but in so far as they go beyond theirs, are established to be just by the discovery of Mr Charles Bell, we have no hesitation in considering Dr Brown's theory the profoundest of the two; and it is delightful to see the lights of an assured induction confirming, as they successively shine forth, the anticipations of the *consciousness* of this the profoundest philosopher that ever worked with that instrument alone.

While Gall and Spurzheim simply concluded that there is a *faculty* for the perception of resistance, Dr Brown's theory is twofold, first that the faculty is a specific *sense*, and, secondly, that the *muscular frame* is the external organ of that sense. Apprehending that his hearers might, from habit, return to the old notion, still generally prevalent, that touch will give the sensation of hardness, roughness, and other modes of resistance, he impresses the doctrine of the new sense on their minds by several times recurring to it. His words, in one lecture,* are,—" The feeling of *resistance* is, I " conceive, to be ascribed, not to our organ of touch, but to our " *muscular frame*, to which I have already more than once direct- " ed your attention, as forming *a distinct organ of sense;* the " affections of which, particularly as existing in combination with " other feelings, and modifying our judgments concerning these, (as " in the case of distant vision for example,) are not less important " than those of our other sensitive organs. The sensations of this " class are, indeed, in common circumstances, so obscure as to be " scarcely heeded or remembered by us; *but there is probably no* " *contraction, even of a single muscle, which is not attended with* " *some faint degree of sensation that distinguishes it from the con-* " *tractions of other muscles, or from other degrees of contraction* " *of the same muscle.*"

After some very eloquent and beautiful illustrations of his theory, by what Dr Brown calls our muscular pleasures, in-

* Brown's Lectures, vol. I. p. 496.

cluding all the delights of motion and exercise, manifested in the bounding of the fawn and the lamb, the frolics of the dog, the gambols of

"The playful children just *let loose* from school,"—

contrasted with the miseries of inaction and indolence suffered by those who are

"Stretched on the rack of a too easy chair"—

and likewise by our muscular pains, often exquisite from fatigue and unchanged position, he repeats,* "It is of great "importance for the applications which we have to make, that you "should be fully aware *that our muscular frame is not merely a* "*part of the living machinery of motion, but it is also truly an or-* "*gan of sense.*" After some farther ingenious illustration, Dr Brown concludes, "The feeling of *resistance* then, I trust, it will "be admitted, and consequently of hardness, and all other modes of "resistance, is a MUSCULAR and not a *tactual* feeling."

The very earnestness with which Dr Brown presses his views, proves how strongly they had taken hold of his own mind, and how difficult the act of discrimination involved in them must be to ordinary intellects. Would that he had lived to apply the physiological discovery of Mr Bell, which, as a feat of physical, is only equalled by his own effort of metaphysical discrimination;†—to see the NERVES physically demonstrated for the very SENSE which he metaphysically distinguished;—and yet more, to see the MUSCULAR FRAME, which he anticipated as the sense's external organ, by these nerves actually connected with the brain! No term short of illustrious sufficiently characterizes the mind which, from its own unaided perspicacity, first announced such a hypothesis to an unheeding, if not opposing, philosophical world. Phrenologists are accused of irreverently and presumingly

* Page 501.

† Dr Brown, although himself a physiologist, concluded it *impossible* to distinguish nerves of other sensations from the nerves of touch with which they are intermingled. Besides resistance, he conjectures that *heat and cold* are addressed to a sense of their own.—*Lectures*, vol. I. p. 485. This, from manifestations in disease, is the opinion of many Phrenologists. If Mr Bell will point out the nerve, we shall really have the *seven* senses.

running down the old metaphysicians; yet no speculators have better appreciated, and taken more delight in making manifest the profound contemplations of Dr Brown.

The demonstration of a sense of resistance, with its external organ and its nerve, although more precise than the hypothesis of Drs Gall and Spurzheim, that there is a distinct *faculty* for the perception of resistance, comprehends that hypothesis; so that Mr Bell's discovery completely supports both conclusions.

But that discovery goes yet farther.

As we are now to proceed to apply the new nerve to our own hypothesis, namely, that there is an instinct or sense of Equilibrium necessary for the regulation of animal movements, we shall do so with becoming diffidence. It is quite obvious how that speculation advances upon, while it includes that of Drs Gall, Spurzheim, and Brown. It seems to afford a glimpse of the purpose of Nature in giving the animal a specific sense of resistance; which the three philosophers alluded to have left an unexplained fact; it sheds some light on the use of that sense. Resistance and counter-resistance, in all the varied ways in which force is applied, are at constant work in nature, and would speedily destroy an animal—could we conceive it existing at all—which either had no sense of resistance, or had that sense only as a sensation without a power to *act* on its suggestions; in other words, to put them to use in maintaining its proper relation to the mechanical laws of matter. We considered every variation of resistance as changing that state of equilibrium, or balance of force, to which all nature tends. We farther considered the equilibrium of the animal body, by a ready adaptation of its muscular power to the variations of resistance to which it is every moment exposed, a primary condition of animal existence. In brief, we concluded, that the animal must have *two* endowments, first, an instant intimation when its equilibrium is disturbed, and, secondly, an instant impulse to exert the necessary muscular force to restore it. Now it is by the first and second truths

demonstrated by Mr Bell, namely, that there are nerves to intimate to the brain the state of the muscles, and that these nerves are distinct from the nerves of motion and touch, that the anticipations of Drs Gall, Spurzheim, and Brown, have been realised. But it required the third truth which he has brought to light, in addition to the other two, to confirm the theory of an instinct or faculty of Equilibrium. Mr Bell's third truth is, that the new nerves and the nerves of motion, although distinct, are both indispensably requisite to connect the muscles with the brain. Now this is precisely the apparatus necessary for an instinct; which implies an impulse to act as well as a capacity to feel. The instinct for food, Dr Hoppe of Copenhagen has acutely observed, includes not only the pain of hunger but its cure; and the new-born infant, while it merely cries from any other pain, for the removal of which it has no instinct, has at its command a complicated hydrodynamic operation, in the act of sucking, to relieve that specific pain called hunger. In like manner, a sense of resistance would begin and end in a fruitless passive sensation, were the nerves subserving it unaccompanied by the nerves of motion, as the means of acting upon that sensation. Mr Bell has discovered that the nerves convey, to use his own words, "a sense "of the state of the muscles *necessary for the regulation of their* "*activity*." This activity is dependent on the operation of the nerves of motion, and its regulation is essentially an animal instinct. The state of the muscle is the degree of contraction which suits it to the mechanical force applied to it.* This relation perfected is another word for equilibrium. Now, as there is often bodily danger in disturbed equilibrium, nature *compels* the animal to preserve that muscular balance which is essential to its safety, by rendering the disturbance of it so intolerable to its feelings, as to produce an instant muscular effort for its restoration. Nature has, as it were, established an

* Military Surgeons observe a different action of the muscles from different kinds of wounds.

appetite for equilibrium, to which the nerves of motion are the ready ministers.

Some very familiar illustrations will make this impulse or appetite apparent. Gravitation, of all the modes of force or resistance, is that with which the muscles of animals are, or try to be, most unceasingly in a state of counter-resistance or balance. A sudden change in this balance, by an increased operation of gravitation, produces a feeling which the animal cannot for one instant endure, but struggles, that is, makes a muscular exertion to counteract it. If a horizontal platform, on which we stand, the deck of a ship for instance, is suddenly sloped, our whole muscular frame feels the change of our relation to gravitation, and we will instinctively lie down, and *hold on*, as the sailors call it, by every possible application of our muscular power. If the indiscriminating answer is resorted to, that we scramble, because we *know* that if we do not, we shall slide over into the sea, or come violently against the opposite rail, we would reply, that a kitten, a few days old, utterly without experience of consequences, would scramble just as we should. Now why does not a kitten fall without an effort, as a stone would? A blind man, or a man blindfolded, and ignorant where he was, would also scramble as the platform sloped; nay, an infant shrinks, and extends its arms at the least feeling of failure in its nurse to support it; a puppy dog is tranquil when *raised* in the hands, but struggles when *lowered*. In such instances fear of consequences is out of the question. Nature did not wait for that tardy safeguard, but established a swifter means of safety, by giving the animal an uneasy feeling in its muscles, from a failure of its balance, and, at the same time, a capacity and impulse instantly to make an exertion to remove that uneasy feeling. But the descent, moreover, may be perfectly safe as to consequences, and known and confided in as such; for example, the descent in a swing, or in the car used in the famous diversion, called the Montagne, in Paris. To multitudes, these even safe descents are intolerable; the state of the whole muscular frame is disagreeably altered by them,

and no means of counteraction is practicable. Dr Brown is right, that the minutest change in the state of our muscles is perceived by us.

The state of the muscular frame is very different in each of the three positions of lying, standing, and walking. In lying there is great comparative relaxation; and in sleep it is complete. It is the chief praise of Chantry's sleeping infants that the very feet and hands are asleep. Intoxication also relaxes the muscular frame. Garrick's whimsical attempt to ride counterfeit-drunk through a village market in France failed, in the opinion of his companion, because, as the latter said, "his left leg was sober;" it kept its position in the stirrup.

The sleeping man awakes, and instantly his muscles become more tense than before; which *state* is increased when he stands erect, for he comes then into a relation to gravitation most materially changed. The change, however, is *felt*, and the muscular frame is instinctively *prepared* to counteract the gravitation and preserve the equilibrium of that position, for which so much muscular power is required, the upright position of the human body. After he has stood upright, he walks. The first forward inclination of the body would throw him prostrate, but the alternately advanced foot preserves the balance. The same account may be given, *mutatis mutandis*, of the movements of any other animal, whether beast, bird, fish, or reptile.

The want of balance between the muscles, and the force affecting them, will at once explain why what may be called our erroneous movements, are always more or less annoying to us. Although the instinctive contraction must at first *follow* the impression made on the muscle by the force applied, we acquire, by experience and reliance on the uniformity of nature, a power of anticipating what the degree of impression will be, and, by the nerves of motion, *preparing* the muscles exactly to counterpoise it; and for this preparation, as in all cases of blows given, we possess the power.

Most of our erroneous movements arise from miscalculations in this before-hand preparation, and it is the same to the equilibrium whether the muscle is over-prepared or under-prepared. For example, a jar of a certain size is full of water, and we are to lift it; we prepare the muscles of the arms, &c. and generally apply at once the force required. Without our knowledge the jar is emptied, and we are to lift it again. We will certainly over-prepare the muscle, equilibrium will be overset, and the light vessel will rise high in our hands, occasioning a certain unpleasant feeling to us. A step more at the foot of a stair, or a step fewer at the top, than we expected gives us a shock; in the first case, the muscles are under-prepared; in the last, over-prepared. A boy on a pony undertook to go over several piled sheaves of corn, called a stook in Scotland. He rode full speed up to the stook; but the pony suddenly refused the leap, and sent its rider clear over in his own person,—an exhibition he could and would have saved by arranging a very different state of his muscles, had he anticipated the sudden stop. If it be said, that a figure of wood would have gone over the stook as well as the boy; the answer is,—certainly; but the difference is, that the boy, by an act of the will, could have kept his seat on the pony, which the wooden figure could not, any more than the stone, or ball, or arrow, can keep in the discharged sling, or cannon, or bow. We can conceive the boy applying his force differently, and suppose him to pull one end of a rope while an antagonist pulls the other. If at the height of the tug and strain one suddenly slacks, the other falls on his back; but, warned a moment before, he would have altered the state of his muscular frame, and preserved his balance.

A whole magazine of practical jokes consists in thus taking the muscles under-prepared or over-prepared; for example, removing a seat when you are sitting down—causing you into a concealed water-tub mistaken for a seat—knocking what you hold out of your relaxed hand, &c., are tricks which all take advantage of the *under*-prepared state of the muscles,—

while slacking the rope, eluding the push, intercepting the blow, and all other modes of balking a powerful effort, take advantage of the *over*-prepared state of the muscles. These illustrations could be multiplied by the infinity of animal movements.

Some animals seem to possess more power than others over the state of their muscles. A cat falls on her feet; in other words, she not only can prepare her muscles for the necessary resistance, but keep them prepared during her fall. Nay, more, she can do so without warning. A friend assures us that he saw a cat make a spring, from the room, on a pigeon that lighted on the window-sill, and miss the pigeon; but, the sill being narrow, she went over three or four stories into the street. Our friend immediately looked over, expecting to see the fragments of poor puss, when he saw her sitting quite entire, sneezing;—the only evil consequence to her of a descent which would have dashed a lord of the creation in pieces.

Dr A. Combe has demonstrated, that, in the previously known Sensis, size of nerve is a measure of power of manifestation. It would be interesting to find the two nerves of which we are now speaking large in the cat, and in the rest of the feline species, the lion, tiger, leopard, and panther.

We have not time to go into the inquiry minutely, but we think it possible that some light may be thrown on Spallanzani's experiment on the bat, by supposing that animal possessed of a very strong sensation of an alteration in the state of its muscles when it approaches solid bodies in the dark. He destroyed a bat's senses of sight, hearing, and smell, and set it at liberty in a large room, through which it flew as boldly as before, but never touched a wall, a roof, or a projection of any kind. We have heard, however, that the bat has a great sensibility of skin, which may give it the warning necessary for its safety as it flies in the dark. Still there may be aid from this new sense, which is so much blended with touch. There may be aid too to the blind, as they walk unguided through our streets; and it is not impossible that

some of the tactual feats of the *magnetised*, which, however vouched, appear to us so incredible, may receive explanation from a high excitement of the muscular sense in question.

Contrasted with great power in this sense, is its utter failure in certain states, as in intoxication. In his staggering state, the painful feeling of constantly-disturbed equilibrium much annoys the drunkard, and he makes great, if abortive, exertions against immutable gravitation. Much of his muscular power is gone—his tongue refuses its office—his eyes either will not open, or will not shut, when they stare without winking,—he misses his lips with his half-spilt glass, and cannot keep a straight course, or reach a desired object. Falls and blows, in this relaxed state, seem not to injure a man so much as when his muscles are more rigid,—a fact which has been referred, with very little moral claim, to the especial protection of Providence.

Some of the phenomena of palsy, especially the great weight of the affected limb, which is also a distressing symptom in other diseases of the muscles, may perhaps be explained on the supposition of the affection of the nerves now under consideration.

Such is the additional proof, of which we humbly avail ourselves, that we were not far from the truth, three years ago, when we ventured to propound the hypothesis, that there is a sense or instinct necessary to the exertion of animal power in relation to the mechanical laws of nature. Our views, it seems, have been treated as "puerile," without being understood, by the Edinburgh Review. We beg our readers to turn to the passage,* which we have not room to quote; keeping in mind that our views are essentially supported by Dr Thomas Brown, the first of metaphysicians, on the one hand, and by Mr Charles Bell, the foremost of physiologists, on the other.

We early premised that we were in this paper to apply Mr Bell's discovery to the *faculty* of Equilibrium only. We

* Edinburgh Review, No 88, pages 291-2.

hope yet to take the subject up again in relation to the *organ* in the forehead, which on proofs, *aliunde*, as patent to the senses as those of the functions of a nerve, we concluded to belong in extreme size to engineers and mechanicians, who have an obvious superiority in the application of their muscles, and of instruments used in aid of their muscles, to disturb and restore equilibrium in mechanical operations. We at once acknowledge, that Mr Bell's nerve is not traced into this convolution of brain in the superciliary ridge; but this, as an objection, is logically removed by a plain analogy; for the optic nerve is not traced into the organ of Colouring, nor the auditory into that of Tune; yet how essentially do these faculties depend upon these two senses respectively. Tune and Colouring, as organs, are demonstrated by evidence as good as that which proves the optic and auditory nerves to be the organs of seeing and hearing, as senses. But, on the new view, that the power in question, in so far as Mr Bell has thrown light upon it, is a sense, we are farther aided by the analogy of Colouring and Tune. The senses of seeing and hearing minister to these faculties; but the faculties work up higher the raw material of light and sound, into all the combinations of tints, melodies, and harmonies. So may, and probably so does, this new sense of resistance* minister to a higher faculty which can combine forces, and estimate *their* harmonies, as Sir George Mackenzie has happily expressed it, in complicated equilibrium. But we must crave time, both to observe and think, on this difficult subject. In the mean time, we see, in the hypothesis,—for it is yet no more —of a sense and a higher faculty *both* existing, an answer to the objection, that some animals, as the common fowl, when

* Sir George Mackenzie, in a paper in this Journal, No X. vol. III. page 211, and in another paper lately read to the Phrenological Society (*vide* next article), suggests *Force* as the generic term. This new sense may yet throw light on the origin of our notions of Force, as the external cause which excites the particular sensations of the sense, but which sensations are, therefore, not force. It is extremely probable, that, without the sensations of the muscular frame, we never could have perceived force at all.

the whole cerebral hemispheres are removed, still make an effort to walk and balance themselves. Although we have no reliance on observations made on these violent cerebral mutilations, we must admit,—supposing these efforts of the fowl to balance the body quite unequivocal,—that there could be no aid in such a case to the perception of equilibrium from an organ in any part of the hemispheres which were removed. But the *sense* may exist in what remained of the brain,—more than a third,—after the hemispheres were removed; and any higher function it is certainly not pretended is manifested by the mutilated animals.

In giving a name to the new sense, as a sense, we must distinguish, as in the other senses, the passive *sensation* from the positive *perception* of its external cause. The latter, we are, so far as we yet see, inclined to think with Sir George Mackenzie, is Force; but the former is the sensation of the muscular frame, as in equilibrio with impressing forces. The other senses are named from the sensation, not from the perception; we have the senses of seeing, hearing, smelling, and tasting; not of light, sound, odour, and flavour; on which analogy we are at present inclined to denominate this new sense, not the Sense of Force, but the SENSE OF EQUILIBRIUM.

ARTICLE VIII.

LETTER FROM SIR GEORGE S. MACKENZIE, BART. ON THE PERCEPTION OF FORCE.

To the Editor.

SIR,—The reviewer of my "Illustrations of Phrenology," in your Journal,* has taken notice of my suggestion of Resistance as the perception of that faculty hitherto marked Weight, and which Mr Simpson has called the Instinct, or Sense of Equilibrium; and I hope I have to thank my re-

* Vol. iii. page 451.

viewer for having led me to some more precise notions on the very interesting subject. On farther reflection, I am satisfied that Resistance is too narrow an expression, yet, for the perception in question; although Resistance must be included in any more extensive term, just as Weight is included in Resistance. In a former communication,* I stated some reasons for thinking that the more general perception in question is Force. I now offer you some farther considerations in support of that conclusion.

It is probable that the primary function of every knowing faculty is to cognise something that is constant or invariable in nature, and that the subordinate functions apply to variations and combinations. Space is constant; so is Time, Number, Order, Light, Sound. We have distinct notions of Force, Resistance, Weight, Equilibrium, &c.; and if we inquire into what is constant in nature in reference to them, we may arrive at the faculty by discovering its primary functions.

Force, as a general term, is constant in nature. My reviewer may be right in saying, that the only idea of Force is derived from resistance and counter-resistance; but this refers only to the first excitement of the perception of Force, through the medium of Touch.† Experience carries us a great deal farther; and we see the effects of Force when there is neither resistance nor counter-resistance. A body in the act of falling does not appear to resist, nor to meet with resistance, at least (if we are to go minutely into the matter) *in vacuo*. Motion is the result of force overcoming resistance; or, as stated in my former communication, already referred to, Motion may be called Force in action, after having overcome resistance. It is the visible or sensible exhibition of the effect of Force. Resistance is not felt, nor its effects seen, until Force be applied; nor is it constant, because it is not always applied. If it be called a force, it is subordinate.

* Vol. iii. page 211.

† Mr C. Bell has demonstrated, that Touch is not the medium of this perception. This was evidently unknown to Sir George Mackenzie.—EDITOR.

Experience tells us that Force is constant, because we find all nature in motion. No body is at rest, except relatively to other bodies. The earth is constantly revolving round the sun, and turning on its axis, and kept in its orbit by the exertion of Force applied in different directions. Force, as my reviewer says, doubtless addresses itself to Causality, as a cause of motion. But he does not mean by this, that the cognisance of Force is a function of Causality, or any cause that this faculty may discover. Two sounds may make a discord; Causality discovers the cause, but the perception of the discord belongs to another faculty. Before it could address itself to Causality, Force must have had a previous existence recognised by another faculty.

Equilibrium is a word denoting, in the allusion of my reviewer, a reference to a particular force, that of gravitation; a certain effect of which is resisted by particular management. It is the effect of resistance applied to a constant force in such a way as to prevent motion in some particular direction; in other words, to preserve a body in a desired position, whether when at rest or in motion. It seems evident, that the knowledge of equilibrium is first acquired by its loss. I should be inclined to say, that intoxication rather promotes than destroys the perception of the body being in equilibrio; for it is observable of persons in that state, that they are exceedingly anxious about keeping their feet, as we say. They make many efforts, however unsuccessful; and sometimes are greatly offended by proffers of help. The effect of intoxication is to deprive a person of the power to exert the force necessary to enable him to stand steady; and when liquor is swallowed in sufficient quantity, all efforts to preserve equilibrium cease, and all the organs are as if dead. I consider equilibrium in connexion with force, as I do concord in connexion with tune. Concord is the harmony of sounds; equilibrium the harmony of forces. The forces are combined with resistance in such a manner as to be equally divided around it. Being then an effect arising out of combined

causes, and discovered to us after we acquire a knowledge of force and resistance, the perception of it appears to me a subordinate function.* I give up my notion, that resistance is cognisable by a distinct faculty. It is not peculiar to the sense of touch, for we know resistance by seeing its effects as well as feeling them. We also hear its effects; and indeed cognise it in the interruption of the functions of each of the senses. I now consider it as subordinate, and including various qualities of matter, as will be seen in the following arrangement:

FACULTY OF FORCE.

Primary Function.	*Subordinate Functions.*	
Force in general.	Gravitation.	
	Resistance, including	Adhesion, Friction. Elasticity. Density. Hardness, Softness. Roughness, Smoothness. These are degrees of resistance; and each is subdivisible into degrees; and indeed may be considered as degrees of each other.
	Weight.	
	Equilibrium.	
	Expansion.	
	Contraction.	
	Buoyancy.	
	Projection.	
	Attraction.	
	Repulsion.	

In all these Force is the index.

If the views thus taken shall contribute to the farther elucidation of the subject, or have led me to stumble on error so as to warn others of the obstruction, the service rendered we owe to the reviewer. He has paid me a high compliment in supposing I might think to purpose on the point; higher than is merited. It is earnestly requested he will keep in mind, that I offer these views to his consideration, not, presumptuously, for his adoption.

I have only now to remark, that my work on Phrenology was intended for those who had a slight acquaintance with its

* In the preceding article we have offered our own view of the relation between Force and Equilibrium in relation to the animal body. We have supposed Equilibrium the *Sensation*, and Force the *Perception*.—EDITOR.

principles, and to tempt them to think for themselves. And it was with the view to exercise the memory in order to give facility in recognising the faculties by their numbers, that I used the numbers as objected to. The disappointment experienced by uninitiated readers, probably arose from some want of power to associate the numbers with the names and places of the organs; and in forgetting that this might occur, I was certainly to blame. There is a very extraordinary mistake in my book, for which its not having been noticed by the reviewer may be some excuse. I cannot account for it, and it excited great surprise and vexation when it was discovered. Self-esteem, instead of being the first in the list of sentiments, has been placed the last of the propensities.

I am, Sir, your obedient servant,

G. S. MACKENZIE.

ARTICLE IX.

PROCEEDINGS OF THE LONDON PHRENOLOGICAL SOCIETY.*

CHARLES AUGUSTUS TULK, Esq. President.

THIS Society commenced its third session on Thursday evening, 2d November, 1826. Mr Wheatstone, the Secretary, read a paper in defence of Phrenology, in which he combated the arguments employed by Mr Jeffrey in his article on Phrenology, in the 88th Number of the Edinburgh Review. Visitors are admitted, by members writing their names in a book, which is kept in the council-room for that purpose.

The meetings are held every other Thursday, at half-past seven, at the Society's rooms, 13, Buckingham Street, Strand.

* The following reports are copied from the Lancet.

Second Meeting of the Third Session, Nov. 16, 1826.

CHARLES AUGUSTUS TULK, Esq. President, in the Chair.

J. HAYES, Esq. Surgeon was elected Treasurer of the Society, in the room of Emerson Dowson, Esq. deceased.

The following gentlemen were elected Corresponding Members:—John Barlow, M. D. of Bath; James Kendrick, M. D. and F. L. S. of Warrington; John P. Porter, M. D. of Portsea; and Henry Lyford, Esq. Surgeon, of Winchester.

Dr Elliotson presented a skull of a Burmese warrior, found in a camp near the Cacher forest, sent by Dr Patterson of Calcutta; also a cast from the head of an idiot, obtained by Dr Formby, Professor of Anatomy, Royal Institution, Liverpool. The particulars relating to the idiot, from whom the cast was taken, were as follows:—He was native of Ireland, and aged 18 years at the time of his death; it would be almost impossible to conceive a greater degree of corporeal or mental imbecility than this wretched being presented; he was humpbacked, had two large curves in the spine, and the muscles both of the upper and lower extremities were reduced to the size of strings; he was deprived of locomotion, unable to stand, to feed himself, or to turn himself when lying on his back, the only position in which he could be placed; he could not even grasp objects but with his arms, which were always bent. He had a little downy beard, and no fat. His indications of perception and feeling were confined to knowing his mother, turning his eyes towards persons who were speaking, smiling when his face was tickled, or when children were near him, and crying when he was hungry; he had no idea of feeding himself, and, except crying, uttered no other sound than a grunt. His mother carried him about on her back for the purpose of exhibition, and was taken up by the parish-officers, who committed her as a vagrant, and obtained his admission into the fever-hospital at Liverpool, where he died in about a month,

of diarrhœa. Upon dissection, the mesenteric glands were found enlarged, and the large intestines crammed with hardened fæces; the hemispheres of the brain were united as far back as the vertex, and there the falx, which was about two inches in length, began; about 5 oz. of water were found in the ventricles, and the surface of the corpora striata was rough. The cerebrum weighed 1 lb. 7½ oz. the cerebellum 4 oz.; for comparison, the brain of a perfect adult lying in the dead-house was weighed; the cerebrum was 3 lb. 2 oz. the cerebellum 6 oz. The circumference of the cast, round the most prominent part of the occiput and forehead, was 16 inches, and the distance from the root of the nose to the occiput was 8¾ inches. The head was not larger than that of a child a year old. According to Dr Gall, a brain is unfit for its functions, when its circumference is only from 13 to 17 inches.

The Secretary presented six copies of An Apology for Phrenology, from Dr Barlow, of Bath.

Dr Wright presented eight casts from national skulls, consisting of five flat-headed Indians, inhabitants of the banks of the Columbia river, North America, two Mozambique negroes, and one Sandwich islander. A discussion arose, whether the flattened forehead of the Indians resulted from natural organization or artificial compression; Dr Moore advocated the former opinion, but stated that the accounts of travellers are too inconclusive to determine the question.

The Secretary read an account of the recent pathological researches of Dr Bouillaud on the cerebral seat of the organ of Language, extracted from his "Traité clinique et physiologique de l'Encephalite." Numerous observations made by Dr B. himself, and others collected by him from the works of Lallemand and Rostan, were related, which tend to prove that the loss or imperfections of speech or verbal memory invariably coincides with the injury or disorganisation of the anterior part of the hemispheres of the brain, and that, when other parts of the brain are affected, leaving that in question

untouched, in no case is the faculty of Language disordered. In the first case cited of loss of verbal memory, the cerebral part corresponding to the organ of Language was completely disorganized; in the subsequent cases referred to, the parts affected were not specified with sufficient accuracy; for as, according to the phrenological doctrines, a number of distinct faculties contribute to the perfection of language, besides that of the memory of articulate sounds, it follows, that injuries in different parts of the anterior lobes of the cerebrum would injure speech in different ways, and that some parts may be affected without occasioning any diseased manifestation with regard to language; when, however, an extended disorganisation or alteration of the anterior lobes of the brain takes place, it is certain that some or all of the special faculties which contribute to language must be injured; and they are general cases of this description which Dr B. brings forward

The Secretary concluded the report by a statement of the views of Desmoulins and Magendie, who admit, with Drs Gall and Spurzheim, and Dr Bouillaud, not only the existence of a special faculty of Language, but also that its seat is in the anterior part of the cerebral hemisphere.

Dr Elliotson noticed the case of a lady who had been under his medical care: she had entirely forgotten the names of persons and things, and indicated a pain in her head at the precise seat of the organ of Language.

The meeting then adjourned to December 7.

Third Meeting of the Third Session, Dec. 7, 1826.

Dr Elliotson, Vice-President, in the Chair.

Mr J. Reeve, Surgeon, was elected an ordinary member.

The Secretary read a paper on the organ of Weight, of which the following is a brief abstract:—

The principal functions attributed to this organ were suggested by Dr Spurzheim, who, from the considerations that *feeling* does not produce ideas of consistency, hardness,

softness, solidity, or fluidity, of Weight or Resistance;—that the mind, to examine these qualities, employs the muscular system rather than the sense of feeling properly so called;—and that if the latter be lost whilst the muscular power is retained, we may still perceive Weight and Consistency;—concluded that these perceptions depend on an internal operation of the mind, and require a peculiar organ. Mr Simpson, in the 7th Number of the Phrenological Journal, establishes by reasoning and observation, "That the cerebral convolution hitherto called the organ of Weight, is the organ of that instructive perception of Equilibrium, and the mechanical relations of matter, which is essential to the exertion of animal power." In illustration of these principles, he shows that the organ in question is largely developed in eminent *practical* mechanicians, expert marksmen, good billiard-players, graceful dancers, and infants precociously steady in their walk; he also adduces authenticated cases of disease of this organ. The views, both of Dr Spurzheim and Mr Simpson, on this subject, have been recently corroborated by some important discoveries of Mr C. Bell, in a memoir "On the Nervous Circle which connects the Voluntary Muscles with the Brain," inserted in the last Number of the Philosophical Transactions. He proves that every muscle has two nerves of different properties supplied to it, so that between the brain and the muscles there is a circle of nerves, one nerve conveying the influence of the brain to the muscle, the other giving the sense of the condition of the muscle to the brain; and that if the circle be broken by the division of the motor-nerve, motion ceases, but if it be broken by the division of the other nerve, there is no longer a sense of the condition of the muscle, and therefore no regulation of its activity. "We possess a power of weighing in the hand: what is this," Mr Bell asks, "but estimating the muscular force? We are sensible," Mr Bell continues, "of the most minute changes of muscular exertion, by which we know the position of the body and limbs, when there is no other means of knowledge open to us. If a

rope-dancer measures his steps by the eye, yet, on the other hand, a blind man can balance his body in standing, walking, and running, every effort of voluntary power which gives motion to the body is directed by a sense of the condition of the muscles, and without this sense we could not regulate their actions, and a very principal inlet to knowledge would be cut off."

This evidence clearly establishes that there is in the mind a perception of the condition of the muscles, and that there is a distinct order of nerves destined for the transmissions of the appropriate sensations. The paper concluded with a rectification of the mis-statement made by the Edinburgh Reviewer respecting the functions of this organ. Instead of stating the function to be the perception of weight, pressure, or resistance, as understood by every Phrenologist, the Reviewer states, that it is a faculty by which we acquire an idea of gravitation, or of the tendency of all bodies to move with more or less force towards the surface of the earth, which the paper showed to be at utter variance with the principles of Phrenology.

Dr Elliotson, in reference to the subject of artificial compression of the cranium, discussed at a preceding meeting, called the attention of the Society to the observations and facts calculated to elucidate this contested point contained in Dr Gall's "Fonctions du Cerveau."

Fourth Meeting of the Third Session, Dec. 21, 1826.

Dr Elliotson, Vice-President, in the Chair.

Dr Disney Alexander, Physician to the Lunatic Asylum, Wakefield, was elected a Corresponding Member.

Mr David Dunn, Surgeon, was elected Ordinary Member.

Mr Bennett read a paper on "Instinct, considered as in Connexion with Phrenology." Instinct, he considered, in the common acceptation of the word, to be a term applied to those feelings of animals which direct their actions and habits of

life. Various opinions have been maintained on this subject, but the general error on the part of disputants is, that they do not sufficiently distinguish between the various instincts of animals; some contending that the habits and actions of animals are the result of mere instinct, while others argue that they evince a partial reason. He described several of the primitive instincts in animals, and their modifications; and, as illustrations of the corresponding cerebral developments, he exhibited the skulls of various species of animals, and he showed that the degree of sagacity in an animal corresponded with the development of the anterior portion of the brain, where all the intellectual faculties have been found to reside.

A conversation ensued on this subject, and Dr Gall's Observations on Instinct were referred to. This author states, that instinct is a feeling, or internal movement, independent of reflection, or of true will—an impulse which impels a living being to certain actions, without its having a distinct idea either of the means or end; that it is erroneous to consider instinct as a general faculty, and to endeavour to explain by it all animal actions, however opposite they may be; and consequently that it is absolutely impossible to find a single organ for instinct. Dr G. farther states, that there are as many instincts as there are primitive faculties, and that the word instinct designates only the activity of either of these same primitive powers.

Dr Poole submitted to the inspection of the Members the skull of a murderer and suicide, and related some particulars of the dispositions and character of the individual when living. The cerebral development was in accordance with the character given.

Mr Smart exhibited a human skull found in a tumulus near a Roman encampment.

The Meeting adjourned to Thursday, January 4, 1827.

ARTICLE X.

M. AUDUBON, M. WEISS, CARL. MAR. V. WEBER.

We have sometimes been found fault with for dealing too much in speculation and too little in facts; and as we would wish to gratify every class of our readers, it is our intention in future to dedicate a corner of our work to the detail of any cases of remarkable development which may come in our way, and which are likely to prove interesting. The most proper subjects for this sort of notice are persons who have become eminent for some particular talent, or mental quality, —whose performances are matters of public notoriety, and respecting whose manifestations there can be no mistake. Three such cases we have chosen for the subject of the present article.

About three months ago we happened to meet with Mr Audubon, the celebrated American ornithologist, and Mr Weiss, whose performance on the flute, and musical attainments in general, are well known to the public,—when a Phrenologist came into the room who had never seen either of them in his life, and being asked to point out which of the two gentlemen was the painter, and which the musician, did so at once, without the smallest hesitation. It was indeed impossible that he should have erred, as there could not be two cases of better-marked development.

Mr Audubon, we are happy to say, is still residing among us, and any of our fellow-citizens may have an opportunity of verifying or disproving our assertion, that in his head the organs of Form, Size, Weight, Colouring, Locality, and Lower Individuality (forming what is called the superciliary ridge, and comprising the principal observing powers most necessary to a painter) are all developed in a more than ordinary degree. The organ of Colouring, in particular, is very large, forming an arch over the eye, that may be remarked

even in the portrait which is now exhibited in Waterloo Place,—but much more observable in the real head, where the whole of the organs we have mentioned, and this of Colouring in particular, will be found to stand prominently out, in a degree that is seldom seen. The upper part of the forehead, though fully developed, is not so in proportion to the organs already noticed; and therefore it appears to retreat, not from any deficiency in the superior or reflecting organs, but from the very remarkable development of the lower or observing ones. This description will be better understood by inspecting a mask of the face from nature, now in the Phrenological Society's collection.

We refer to such of our readers as have seen Mr Audubon's paintings, whether the development we have described does not correspond in the most perfect manner with the qualities there manifested. The representation of birds, the subject to which Mr Audubon has dedicated his talents, is one well calculated for the display of his peculiar powers, and it will be owned, that in this he has reached a degree of perfection, which, if it has been ever equalled, has certainly never been surpassed. In the collection which he exhibited lately in the rooms of the Institution, we were at a loss whether to admire most the extreme accuracy and elegance of form, the alternate splendour and delicacy of colouring, the minuteness of finishing, or the freedom and expression of attitude which distinguished his representations of the feathered race. We have seen each of these qualities separately in an equal, or nearly equal degree, but we do not recollect any instance where they appeared to be all combined in the same perfection. Indeed, it is probable that we might have been more struck with the colouring, and the more mechanical details of the figures, had our attention been less drawn away to their admirable expression and character, giving to the whole the appearance of reality and life that we never saw equalled.

This indeed seemed to us to constitute the peculiar merit of Mr Audubon's drawings, that all the birds were represent-

ed in some characteristic attitude, and some of them, indeed, in a state of the most energetic and even violent action. Birds of prey are seen in the act of pouncing upon their victims, the latter cowering in terror, or endeavouring, with convulsive flutterings, to elude their formidable foes. Others of a less destructive kind are seen seeking their appropriate food among plants and insects, each according to its own peculiar nature and habits. Sea-birds are seen skimming the waves, or "shaving with level wing the deep," while others are darting through the air in chase of their mates, or in mere wantonness of spirit. All appears life, and motion, and activity.

It has been suggested by some Phrenologists that there must be somewhere an organ of Motion, a faculty whose peculiar province it is to observe motion, or objects in motion, and that by means of this faculty, painters and others, whose object it is to represent animals, are enabled to catch as it were the expression of activity, and to infuse the appearance of life and motion into their performances. Some have supposed that this may possibly be the proper function of the organ of lower 19, or Individuality. These are, however, mere suggestions, and no sufficient proof has yet been adduced in support of them. Dr Spurzheim states in his System, that it is the function of Individuality to take notice not merely of individual objects, but "of every phenomenon and every fact, and "hence also of motions." And there appear to be strong grounds for supposing this correct. Motion is merely a change of place, and there seems no reason why there should be an organ for observing this change in particular, if there be not one for every other change in nature. All the observing powers, if in high activity, not only observe certain qualities of objects, but also any change that takes place in these qualities. Form observes the minutest changes of form,—Size the changes of real or apparent size,—Colour of colours, and so on,—while Locality observes change of place. These different powers, thus, in addition to Individuality, which takes notice of facts, seem abundantly sufficient to con-

vey to us every possible circumstance attendant upon the motion of bodies. *First*, Bodies, when in motion, appear to change their form. A bird, for instance, when it moves its wings, or a quadruped when it moves its feet, is every moment changing its form,—and this, we conceive, is sufficiently observed by the faculty of "Form." *Secondly*, An object, when moving from us, or toward us, appears to vary in size; in the former case it appears to diminish, and in the latter to increase,—and it requires experience to satisfy us that this variation of size is apparent only, and not real. This apparent change, however, is one of the most important circumstances by which we judge of motion and of bodies in motion,—of the velocity with which they move, and the distance or quantity of space through which they pass. For all these observations the faculty of "Size" appears perfectly adequate. *Thirdly*, Objects in motion appear to change their colour, according to the situation and point of view in which they are seen,—and their nearness to, or remoteness from, the eye of the observer. For this, of course, the organ of Colouring requires no assistance. *Fourthly*, Objects in motion exert different degrees of mechanical force, and meet with different degrees of resistance. So far as this circumstance is an element in motion, the organ of *Weight* affords us all the information that we require. *Lastly*, Objects in motion change their position and place in relation to other objects. An object which was a little ago on our right hand, is by and by upon our left;—a bird has flown over the trees which we see at a distance,—it gradually approaches,—is now right over our heads,—now rests upon the steeple,—or crosses the river, and disappears over the summit of the mountain. There is nothing here that we may not learn from *Locality*. In short, it seems impossible to point out a single circumstance connected with motion that these different faculties do not take cognizance of separately. The only use of any faculty is to convey information to the mind, and if the faculties we have mentioned afford us all the information we require or can ob-

tain respecting motion and objects in motion, the probability is, that there is no special faculty for motion. If there had been such a faculty, we should certainly expect to find the organ of it large in Mr Audubon, when representation of objects in motion is the most vivid we can conceive; but it appears to us, that his talent in this respect may be perfectly accounted for, without resorting to any separate faculty, by his great development of Form, Size, Weight, Colouring, Locality, and Individuality; these appearing to us sufficient to convey the most accurate information of every circumstance attendant upon the motion of external objects.

Leaving this discussion for the present, it is time that we attend to M. Weiss, in whom the development of the organ of *Tune* was extremely conspicuous. A mask, in plaster, was taken from his head, during his stay here, by Mr O'Neil of this city, and is to be had for sale, along with the other phrenological casts; so that every one may have an opportunity of satisfying himself of the fact with regard to the prominence of the organ of Tune. It appears in the mask of that triangular or pyramidal form remarked by Gall in the heads of Gluck, Mozart, and some other celebrated musicians. Of the manifestations in this case, we cannot do better than quote the account given in a contemporary paper.

"Mr Weiss.—We have had the pleasure of hearing this delight-
"ful performer, who, we observe, has advertised a concert for Fri-
"day next; and though by no means qualified to speak scientifi-
"cally on the subject, we can safely say that we never received more
"gratification from a single instrument than we did from this gen-
"tleman's performance on the flute. His tone is of the most rich
"and mellifluous character, and his execution appeared to us to
"come as near perfection as the nature of the instrument will ad-
"mit. He favoured us with some very beautiful variations on some
"of our own favourite national airs; and although, in common with
"many of our countrymen, we would perhaps have preferred hear-
"ing them in their own simple and unadorned melody—it is too
"much to expect of a foreigner, that, in a matter where so much
"depends on association, he should feel the same enthusiasm as our-
"selves—in what, as an artist, most probably appears to him bald
"and destitute of ornament. This we must allow, that the orna-
"ments and enrichments which he did introduce, appeared to us to
"be uniformly characterized by a most refined taste, and to be well

" adapted to the subjects on which they were respectively engrafted. " We do not feel competent to speak on the technical difficulties and " merits of flute-playing, nor on the recondite mysteries of double- " tonguing; but as far as we were able to judge, it seemed to us " that, in the parts most difficult of execution, Mr Weiss was equal- " ly at home as in the most easy. In some of his variations, his " performance of double parts to the same air was so perfect, that it " required the evidence of our senses to satisfy us that it was one " performer and one instrument which produced this effect. We " cannot leave the subject without noticing his exquisite performance " of the celebrated *Ranz des Vaches*, which in his hands assumed a " degree of beauty and pathos we never observed in it before. We " could have imagined, in hearing it, that we were listening to the " tones of a flageolet prolonged and reverberated from the lofty rocks " of the Swiss mountains, and repeated, until the sounds were alto- " gether lost in the tenuity of their distant echoes. Altogether, we " repeat, that we never received more gratification from any single " performance; and we sincerely hope that Mr Weiss will experi- " ence a portion of that public favour, to which his genius so justly " entitles him."—*Scotsman, November* 29, 1826.

We may here observe, in regard to M. Weiss, that though the organ of Tune was certainly possessed by him in a high state of development, and the other organs well balanced and proportioned, yet the head was upon the whole not large,—a circumstance which corresponds both with the direction and the limits of his musical powers. All the phrenological works state, that for the manifestations of the highest degree of power in any way whatever, great size of head is an indispensable requisite; and it is a fact, that all very great musicians, and eminent composers of music, have possessed large heads, of which Handel and Mozart may be cited as examples. The flute, which is the favourite instrument of M. Weiss, is an instrument of great sweetness, but not of the highest power; and beautiful as were the tones and the melodies produced from it by the art of M. Weiss, this, though it were admitted to be the perfection of art as far as it went, is still not the highest art. This consideration reminds us of another professor of musical science, now no more, of whose development we are also possessed of what we may suppose a tolerably correct representation—the late celebrated composer Weber. The bust of this composer, now exhibited in the

rooms of the Institution, was made, we believe, from a cast taken after death, and the features retain in them somewhat of the gastliness of death, even in the inanimate plaster. The development is, however, striking, and, as belonging to a composer of so peculiar a character, highly valuable. The development of Tune is unquestionably large, being equally conspicuous as that in the mask of M. Weiss. But it is not in this organ alone that the marks of Weber's genius are to be sought for. The forehead, though somewhat retreating, is high and broad—Ideality and Wonder are evidently both large—Cautiousness seems also large, and the expression of that feeling is strongly marked in the features. The head altogether is large; the height is also considerable in proportion to the breadth. This development corresponds remarkably with the character of Weber's music, and forms a complete contrast to that of M. Weiss. No education, and no circumstances, could have produced in these two men an interchange of manifestation. Weber could have as little been satisfied with flute-playing, or contentedly limited his ambition to performances on an instrument of such moderate compass, as the other could have risen to the vastness and sublimity of conception shewn in "Der Freischutz," or "The Ruler of the Spirits." We may apply to them what Akenside says of two celebrated poets:—

> Different minds
> Incline to different objects. One pursues
> The vast alone, the wonderful, the wild;
> Another sighs for harmony and grace,
> And gentlest beauty. Thus, when lightning fires
> The arch of heaven, and thunders rock the ground;
> When furious whirlwinds, and the howling air,
> And Ocean groaning to its lowest bed,
> Heaved his tempestuous billows to the sky
> Amid the mighty uproar, while below
> The nations tremble, Shakspeare looks abroad
> From some tall cliff superior, and enjoys
> The elemental war. But Waller longs,
> All on the margin of some flowery stream,
> To spread his careless limbs amid the cool
> Of plantain shades, and to the listening deer

The tale of slighted vows, and love's disdain
Resound, soft warbling, all the live-long day.
Consenting Zephyr sighs; the weeping rill
Joins in his plaint melodious; mute the groves,
And hill and dale, with all their echoes, mourn.
Such and so various are the tastes of men.

The poets, after all, have hitherto been the true interpreters of nature. Nothing can be more correct than what is here stated of the diversity of tastes; nor, may we add, more strictly phrenological. The description in the former part of the passage accords with the taste and the genius of Weber. His Destructiveness, Cautiousness, Ideality, and Wonder, which the bust shows him to have possessed, fitted him to pursue "The vast alone, the wonderful, the wild"—and music is only used by him as affording the means of embodying and expressing the mighty conceptions with which his mind was labouring—"Harmony, grace, and gentlest "beauty," are the appropriate subjects of aspiration for such a development as that of M. Weiss.—Both are in their way fitted to impress the mind with a different species of delight.

ARTICLE XI.

THE INFANTICIDE, ANE NIELSDATTER.

(*Communicated by C. Otto, M. D., Corresponding Member of the Phrenological Society.**)

This criminal was beheaded in Copenhagen, in the spring of 1819; her crimes constitute one of the most remarkable mental phenomena, which cannot be explained but by the princi-

* It will be recollected, that Dr Otto writes in, what is to him, a foreign language. His idiom is not always English, but his meaning is quite distinguishable, and we, therefore, present his communication almost exactly as received.

ples of Phrenology, and her organization confirms, on the other hand, the truth of these to a degree which cannot be stronger or more evident. She was an infanticide; she confessed to have murdered five of her children; but probably she had killed a sixth too.

She was born at Roeskilde, a small town, 18 miles from Copenhagen, and was in her 17th year married to *Hans Tenfew, a peasant.* In the early part of her marriage she lived with her parents; but, as her husband bought a small farm-house at Fredrikborg, a village 22 miles distant from Copenhagen, she became a servant, and was, in the year 1817, separated from her husband. During her marriage she had six children, of which only one was alive at her execution; one of them died three weeks after its birth in 1799, and another died in 1808. What became of the others we shall immediately see.

In the month of May, 1818, she left the farm-house Dalsborg, where she lived, and took a natural child, that had been born in the spring of the same year, along with her. As she returned after some days without the child, and could not explain where she had left it, she was arrested; and now begins the communication of her crimes. She gave, with respect to the child that was missing, with great candour, the following explanation:—"Seeing the impossibility to maintain her-"self and the child, she resolved to kill it; she went, there-"fore, one day into the neighbourhood of Copenhagen, tied "a handkerchief tight round the neck of the child, and threw "it into a lake near the town."

From a question of the Judge, whether she had more to confess, she, without farther hesitation, said, that, from the year 1813 to 1817, she had murdered *four* others of her children; *two* of which were born in marriage, the other *two* were illegitimate. She had murdered them all in a very violent manner, by suffocating them, or killing them with a hatchet. The one was three years old; the others only half a year, or several months old. Besides these infanticides, she

is greatly suspected to have killed a daughter, Mana, seven years old, who lived with her, and died very suddenly; but this positively she denied. She was found guilty, and beheaded in her 37th year.

Here we have her skull before us, and let us now examine whether the remainders of her organisation, as tokens of her faculties, correspond with what we have heard of her.

Her head is of moderate size; the hind part of it is very large; the forehead immediately retreating; the lower propensities, which we have in common with animals, did then predominate; and the intellectual faculties were extremely deficient.

The diameters of her cranium are,

	Inches
From spina occipitalis to Lower Individuality	6½
..... meatus auditorius externus to Philoprogenitiveness	2½
..... do. do. to Lower Individuality	4½
..... do. do. to Firmness	4½
..... Destructiveness to Destructiveness	5¾
..... Secretiveness to Secretiveness	5½
..... Cautiousness to Cautiousness	5
..... Ideality to Ideality	3¾
..... Constructiveness to Constructiveness	4½

Very inconsiderable is then, *everywhere*, the breadth of the forehead, *in every instance*, from Ideality to Ideality, from Constructiveness to Constructiveness; and, on the contrary, the breadth of the hind part of the head, from Cautiousness to Cautiousness, is very large; but largest of all are the diameters between the hind lateral parts, from Secretiveness to Secretiveness, and particularly so from Destructiveness to Destructiveness.

1. Amativeness, large.
2. Philoprogenitiveness, full.
3. Concentrativeness, moderate.
4. Adhesiveness, small.
5. Combativeness, large.
6. Destructiveness, very large.
7. Constructiveness, moderate.
8. Acquisitiveness, moderate.
9. Secretiveness, very large.
10. Self-esteem, moderate.
11. Love of Approbation, moderate.
12. Cautiousness, moderate.
13. Benevolence, small.
14. Veneration, moderate.
15. Hope, moderate.
16. Ideality, small.
17. Conscientiousness, extremely small.
18. Firmness, small.
19. Lower Individuality, large.
19. Upper ditto, ditto.
20. Form, large.
21. Size, moderate.

22. Weight, small.
23. Colouring, large.
24. Locality, small.
25. Order, small.
26. Time, small.
27. Number, small.
28. Tune, small.
29. Language, moderate.
30. Comparison, small.
31. Causality, small.
32. Wit, small.
Wonder, small.

If we now compare this organization with her misdeeds, the correspondence cannot but strike every one. The *first* condition to crime and vice exists, as we instantly see; the understanding was too weak to be able to control the lower propensities, and from the same reason the records tell, "that she was extremely stupid." The *second* condition to vice and moral depravation, want of the higher sentiments, (Benevolence, Veneration, Conscientiousness), expresses itself evidently in the form of the skull, and "the greatest weakness of all moral feelings" (the records) was indeed necessary to the achievement of such crimes as she committed. But which feature was now the most predominating in the character of this criminal? Which lower propensity did show itself in such a blind activity, that every body endowed with better feelings cannot but shrink back at it? A wild unconquerable *Destructiveness!* And if we look upon her cranium we find exactly this propensity developed to a degree which is almost matchless, and such as we have never before seen, Its organ is suddenly and strongly prominent, and the lateral parts of the cranium thence extremely large. If we compare this diameter from Destructiveness to Destructiveness on the skulls of the criminals mentioned in the Phrenological Transactions, and in the Phrenological Journal, with that of Ane Nielsdatter, we find it in those $5\frac{1}{8}$, $5\frac{5}{8}$, $5\frac{1}{2}$, &c.; but in hers $5\frac{3}{4}$, (except Mary M'Innes, whose diameter in that respect is 6; but her head is in general larger.)

How then did this strong Destructiveness seek its gratification? The natural timidity of women (the result of a smaller Combativeness and a larger Cautiousness than in men) did not allow her to gratify this strong propensity in that manner in which man endeavours to satisfy it; it must

manifest itself where no resistance was to be expected, where gratification was an easy path. But was it possible that it could show itself against those to whom nature most of all connects woman, against her own defenceless children? Yes! this shocking crime was possible to her, and the most striking confirmation of hitherto collected observations, the most evident conviction of the principles of Phrenology, is found, when we, with respect to this, examine her cranium, whose form is an indication of that of the brain. By casual circumstances, she became such a criminal, that she, after cool deliberation, and after a considerate design, could murder five of her children. We cannot explain this her crime by supposing desperation, or a deep feeling of shame and infamy; for two of the children she killed were born in lawful marriage, and the murder was not committed immediately after their birth, but later; nor was it any emotion of shame that tempted her to kill those children which were illegitimate; for she had already long endured this shame, and it was not until the expiration of some months that she murdered them. That she would not, however, have become an infanticide, if she had not been endowed with a very large Destructiveness, is a conclusion to which we are well entitled. This lamentable combination acted blindly; for if we examine the motives she alleged, we will find them very poor and weak. She said she killed the first child (in 1813) "because she was not able to maintain it;" the other, "because she could not provide for it;" the third, "because she did not know where to get it educated;" the fourth and fifth from the same reasons; but certainly these were neither sufficiently strong motives, nor excuses for her crimes. As to the *first* reason, the three children were already provided for in the house of others; we do not find it mentioned that those people with whom they were would not keep them longer; it was properly the husband, who, at any rate, should provide for them, and it was herself who took the children along with her, after having resolved to kill them. As to the *second*, we ask, what

other mother would, from poverty, take the resolution to kill her progeny, the dearest treasure which a mother possesses? Kill them in such a cruel manner as Ane Nielsdatter? No: it was the lamentable combination of deficient moral organs, with large uncontrolled Destructiveness, that prompted her to murder.

We need not advert more to the truth, how every fact in human life contributes to confirm the now settled principles of Phrenology.

ARTICLE XII.

ON THE ARRANGEMENT OF THE PHRENOLOGICAL FACULTIES, BY DR HOPPE OF COPENHAGEN.

The common phrenological division of the faculties of mind and their respective organs into intellectual and affective, I hold not to be absolutely and thoroughly admissible. It is like the division of natural history into the animal, vegetable, and mineral kingdoms. This is unquestionably just; but, however, we are not able to determine exactly where ends the one and begins the other. They pass by degrees into each other. Just in the same way, when the intellectual faculties are considered jointly, they are quite naturally separated from the affective; but I doubt, indeed, if ever it will be possible to fix the line of demarcation with accuracy, even when the fundamental powers shall be better analyzed and determined. The manifestations of several organs of the affective class, foremost situated towards the front, approach so much to Intellectuality, that, after repeated changes in the classification, it is still quite uncertain under what head they are to be recorded with most correctness.

The object to which I now wish to turn your attention is the external senses. They are reckoned unanimously under the head of the intellectual faculties; but considering, at least

some of them, more closely, I think by no means that all their operations can be regarded as intellectual. For instance, let us view the Taste. When this faculty distinguishes acids and alcali, sweet and bitter, the operation certainly is an intellectual one, but when we sit down, delighting in the dainties of a well-stored table, is not then the working of the sense wholly affective? I presuppose, that it must be the same faculty that *distinguishes* and *enjoys* the dishes, even as it is the same faculty that distinguishes the colours and enjoys their brightness.

As I mentioned in No V. of the Journal, we remember the perceptions of Taste, and they may revive by imagination. This is most commonly looked upon as a proof that the taste belongs to the intellectual faculties; but regarding an animal, for instance a dog, when it sits at the table, following with his eyes every bit we swallow, I think you will not deny that the expression of the activity of his soul is highly affective. But you may say, this is not an effect of Memory and Imagination in the tasting organs, but an immediate mimic manifestation of an active instinct for taking nourishment (appetite). This I shall not contradict, but turn by that motive to another indeterminate point.

That the sensation of Taste only passes through the nerves, and is perceived in a part of the brain, is a supposition, I think, sufficiently proved. Now, it appears to me as highly probable, and by analogy agreeing with other experiences, that it is one and the same organ which *tastes* (viz. distinguishes and enjoys) and *incites* us to taste; or, in other terms, to take food and drink. This, according to my opinion, is the organ of appetite for food, and, consequently, it may also be named the organ of Taste (gustus), and stands in the same relation to this of the external senses as the organ of Tune to the sense of Hearing. The senses of Smell and Feeling I suppose to stand in similar relations to different parts of the brain.

Dr Spurzheim (Phrenology, page 257), thinks it probable,

that *one* fundamental power, inherent in a particular part of the brain, knows and conceives as sensations, *all* the varied impressions made on the external senses. I cannot, I confess, but think this arrangement not at all accordant with the common regulations of nature. Besides, as to the senses of Sight and Hearing, it appears to me not necessary to assume some farther intermediate organ, every perception passing through these two senses being sufficiently ascribed to organs already ascertained.

To resume, it is my opinion, which I have produced here, in the purpose possibly to bring this subject under consideration of more experienced Phrenologists, that the lower organs of senses, which are situated in the middle of the basis cranii, manifest themselves partly with intellectual and partly with affective functions, forming a gradation from Intellectuality to Propensity. If so, it will be no more possible to draw a distinct line between the different classes of faculties and their organs in that region, than it has succeeded, at least hitherto, in the regio frontalis.

ARTICLE XIII.

DESCRIPTION OF AN ASHANTEE SKULL.

The subject of this notice was sent to Sir G. S. Mackenzie, through the medium of the Admiralty, but without any communication from the person who was so good as to forward it, so that he is yet ignorant of its history. It bears, however, in its anatomical peculiarities, the stamp of African origin, and there is no doubt to be reasonably entertained of its authenticity. It appears to be the skull of a female. The accounts of the Ashantee character have been so recently before the public, that it seems unnecessary at present to repeat what everybody knows. The mass of brain behind the

ear is very large in proportion to that in front. The head is of nearly an average size; and the forehead very narrow, small, and low, sloping rapidly backwards. The dimensions are as follows:—

	Inches.
From occipital spine to Lower Individuality	6⅜
..... do. to Ear	2⅞
..... Philoprogenitiveness to Individuality	7⅜
..... Concentrativeness to Comparison	6½
..... Ear to Philoprogenitiveness	4⅜
..... do. to Lower Individuality	4⅜
..... do. to Firmness	5⅜
..... do. to Benevolence	4⅜
..... Cautiousness to Cautiousness	5
..... Destructiveness to Destructiveness	5⅜
..... Secretiveness to Secretiveness	5⅜
..... Constructiveness to Constructiveness	4⅜
..... Ideality to Ideality	4
..... Lower Individuality to Comparison	1⅜
..... Causality to Causality	1⅜

DEVELOPMENT.

1. Amativeness, small.
2. Philoprogenitiveness, large.
3. Concentrativeness, rather large.
4. Attachment, rather large.
5. Combativeness, large.
6. Destructiveness, large on one side, rather large on the other.
7. Constructiveness, large.
8. Acquisitiveness, moderate.
9. Secretiveness, rather large.
10. Self-esteem, large.
11. Love of Approbation, very large.
12. Cautiousness, moderate.
13. Benevolence, small.
14. Veneration, moderate.
15. Hope, small.
16. Ideality, small.
17. Conscientiousness, rather full.
18. Firmness, very large.
19. Upper Individuality, moderate.
19. Lower do. large.
20. Form, large.
21. Size, rather large.
22. Weight, or Resistance, small.
23. Colouring, small.
24. Locality, moderate.
25. Order, or Symmetry, small.
26. Time, small.
27. Number, small.
28. Tune, small.
29. Language, small.
30. Comparison, full.
31. Causality, moderate.
32. Wit, moderate.
33. Imitation, moderate.
34. Wonder, moderate.

There are some anatomical peculiarities in this skull, which, though not connected with Phrenology, may be interesting to some of our readers. The condyloid processes seem large. The mastoid processes are not rounded on the inner side, but are impressed with a deep and sharp furrow, and are very large. The styloid processes are very short. The distance from the foramen magnum to the occipital

spine is only 3-4ths of an inch. The pterygoid processes of the sphenoidal bone are very deep. The alveolar processes of the front of the upper-jaw project forwards remarkably, and give a decided character to the face. M.

NOTE.—We may add, that another and *a known friend* had, with considerable trouble and difficulty, procured, in the neighbourhood of Sierra Leone, several specimens of native African skulls, with which he was daily expecting to embark for England, when, unhappily for himself and for us, he was visited with an attack of fever of the worst description, and remained in a state of insensibility during many days, and at last slowly recovered; when, to his great mortification, he found, that not only his skulls, but the whole of his baggage had disappeared. We are in hopes, however, that the former loss may yet be repaired, as we have written to a very zealous and scientific friend, who goes out as surgeon of H. M. S. Sybille, about to sail for the African station, to request his assistance, and, as he is thoroughly acquainted with Phrenology, and aware of the importance of the inquiry, we feel assured that he will do his utmost to satisfy our wishes. In the mean time, it is gratifying to know, from the above donation, that we have active friends, who, personally unknown to us, are exerting themselves in all quarters of the globe.—EDITOR.

ARTICLE XIV.

PROCEEDINGS OF THE PHRENOLOGICAL SOCIETY.

November 16, 1826.—Mr William Scott read an Essay on Individuality. Four Ceylonese skulls, two skulls of Ceylonese Tom-tom boys, and one Burmese skull, were presented by Mr Lyon; and also two skulls from the neighbourhood of Loch Tarbet, in Kintyre, by Miss Baillie of Polkemmet.

November 30.—Letters from Dr Caldwell of Lexington, United States; from Dr Otto, Copenhagen, and Mr Whitson, were read. Dr Andrew Combe read Observations on the Influence of Organic Size on the Functions of the External Senses. The following donations were presented:—"Gall, sur les Fonctions du Cerveau," by Dr Gall; Ashantee skull, by Sir G. S. Mackenzie, Bart.; Chinese skull, by Mr William Mackenzie; double cranium and brain preserved; cast of brain of a whale, and skull of an owl, by Mr T. Buchanan, Hull; four skulls from Madagascar, by Dr Sibbald; four casts of skulls of Indians of Columbia river, America, by Dr Wright of London; four skulls of Sandwich Islanders, and three skulls of South Americans, by Lieut. Charles Malden, late of the Blonde frigate. At a general meeting of the Society, held this evening, Mr William Scott was unanimously re-elected President; Mr Simpson and Mr Waddell were chosen Vice-Presidents, in room of Dr Andrew Combe and Mr James Bridges; Mr William Bonar and Mr James Tod were elected Counsellors, in place of Mr Joseph and Mr Simpson; Mr Lyon was re-elected Secretary, and Mr Ellis Keeper of the Museum; Mr Donald Campbell was appointed Clerk, in the place of Mr Thomas Lees.

December 14.—Observations on an Organ on the State of which the Phenomena of Dreaming seem, to a certain Extent, to depend, by Sir G. S. Mackenzie, Bart., were read. Mr Simpson read an Essay on Ill-nature, Ill-temper, and Ill-humour.

January 4, 1827.—A letter from Dr Spurzheim was read. The President was instructed to write to Dr Spurzheim, accepting of his offer to lecture in Edinburgh in December next, which was agreed to. A letter from Charles Collier, Esq. M. D. Ceylon, and a letter from Dr Strange, were read; also a letter from Dr Chalmers, proposing that a monument should be erected to the memory of the late Dr Thomas Brown. Mr Combe read the first part of an Essay on the Relations between the Physical and Mental Constitution

of Man and External Objects. Henry Wight, Esq. advocate, was admitted an ordinary member.

January 11.—Mr Combe read the remainder of his Essay on the Relations between the Physical and Intellectual Constitution of Man and External Objects.

January 18.—Mr William Scott read an Essay on Comparison. The following donations were presented:—Skull of James Stark, executed at Sydney in September, 1824, for murder. Skull of John Hand, executed at Sydney for murder, September, 1824. Skull of a native female of New South Wales, presented by Sir Thomas Brisbane. Skull of a native of the interior of Java. Two Chinese skulls, presented by Dr Strange. Mr Combe read an Answer by him to Mr Jeffrey's new Statement in the 89th Number of the Edinburgh Review. Dr Charles Collier was admitted a corresponding member of the Society.

February 1.—An Essay on Combativeness, and on the Functions of the Faculty manifested by the Organ No 22 (Weight), by Sir G. S. Mackenzie, Bart., was read. An Inquiry concerning an Organ for the Feeling of the Ludicrous, distinct from that of Wit, by X. T. P. H. sent anonymously to the Editor of the Phrenological Journal, was read. Mr Lawrence Macdonald, sculptor, Pitt Street, was admitted an ordinary member.

February 15.—A letter was read from the Hon. Douglas G. Hallyburton, accompanying donation of busts of Julius Cæsar, Cicero, Ariosto, Michael Angelo, and Galileo. Mr Lyon read an Essay, being a Comparison between Monarchical and Republican Forms of Government, illustrated from the History and Institutions of the States of New England, North America.

March 1.—Mr Simpson read an Essay, being additional Evidence of the Existence of a Sense of Equilibrium as a primitive Mental Power, derived from the Consistency which obtains between its supposed Functions and the recent Physiological Discoveries of Mr Charles Bell.

March 15.—Mr Scott read an Essay on Wit and the Ludicrous. Mr Charles Lees, painter, No 17, North Union Street, was admitted an ordinary member.

March 29.—A Letter from Mr Leadbetter was read, also Remarks on M. Audubon, M. Weiss, Carl. Maria Von Weber, by Mr William Scott. An Account of Ane Nielsdatter, an Infanticide, by Dr Otto of Copenhagen, was read, and a Correspondence between Dr Elliotson and Rochester Literary Society, about the Skull and Character of J. L. Six Peruvian skulls, from Thomas Watson, Esq., Glasgow, were presented.

NOTE ON ARTICLE VII., ON EQUILIBRIUM.

From some obscurity in Mr Bell's account of his discovery, we were led to give him credit for a little more than he himself claims as the extent of that discovery. We have stated (page 272, middle paragraph,) that he has *demonstrated* that the nerve of the new sense which goes to the muscle is distinct from the nerve of feeling which goes to the skin, but with which it is associated. Now, on carefully reperusing his paper, we find that, while in his principal statement he claims to have *demonstrated* the new muscular function, (see our quotations from him, top of page 269, and last paragraph of page 271), he adds a sort of postscript, in which he claims no more than to have rendered it *probable* that the new and demonstrated function is performed by a nerve distinct from the nerve of feeling. Mr Bell's words are, "The returning "muscular nerves are associated with the nerves of sensibility to the "skin, but they are *probably* very distinct in their endowments, "since there is a great difference between conveying the sense "of external impressions and that of muscular action."—(*Phil. Trans.* p. 171.) The respective *functions* are demonstrated to be different; but that they are performed by distinct nerves, and not by the same nerve modified, as it respectively supplies the muscle or the skin, is only inferred. But the inference is supported both on fact and analogy, and, if not al-

together, is almost demonstration. Our readers, however, are requested to observe, that the new function of a nerve which is demonstrated is enough for the existence of a sense of Equilibrium. That the same nerve when sent to the skin shall have a different function, than that which belongs to it when sent to the muscle, even if true, (which there is almost demonstration that it is not,) is of no consequence to us, the different function being all that concerns our theory.

We beg our readers to hold deleted—as an oversight of our own—the last sentence of the first foot-note on page 269. *Two* nerves, not three, are supplied to each muscle. The third nerve, if distinct, as inferred by Mr Bell, goes to the skin.

We have received the following communication from a medical gentleman of this city, illustrative of this subject:—

"I was consulted by the son of a gentleman in the country who "has had a singular paralytic affection. He lost the power of mo- "tion in his arms, but retained sensation acutely, and felt another "person's hand cold or warm, as the case might be. Now, at the "distance of three weeks, he has regained the power of motion, but "has lost the sense of the state of the muscles so completely that he "cannot adapt his muscular contractions to the purpose he has in "view. In seizing a small object, he bears down upon it with his "extended hand, gathers it in, and grasps it like a vice, not aware "of the disproportion of his effort. He has, at the same time, the "complete command of his muscles as to contraction and relaxation; "but wants only the sense of their state. I have not seen him, as "he is in a fair way of recovery, and lives a good way out of town."

NOTICES.

Dr Spurzheim has lectured in Bath and Bristol since our last publication, and with complete success. The managers of the Literary Institution at each place, acknowledged that no lecturer had filled them to such a degree. In Bath, additional benches were required to accommodate the audience. The interest increased with each lecture, and the last was the most numerously attended at both places. In spring and summer, Dr Spurzheim intends to remain in London. On the 4th of April he will commence a course of lectures in the London Institution. He will lecture also in his own house, 8, Gower Street; and, in particular, on Mondays and Thursdays, in the evening, he will have practical conversations on Phrenology,

with examination of his auditors. We anticipate the greatest benefits to the science from Dr Spurzheim's exertions.

A portrait of Dr Spurzheim, engraved by Hodgets, from a picture by Mr Stewart Watson, has been published in Edinburgh, dedicated to the Phrenological Society. The head and face are good likenesses, and the portrait must be acceptable to those who have admired Dr Spurzheim's talents and virtues in his works. It would be highly desirable to have a good portrait of Dr Gall.

EDINBURGH.—The report of the proceedings of the Phrenological Society will show that the science advances with spirit and success in this city. Several very valuable donations of national skulls have been obtained during the present season. The most beneficial consequences have attended the attack of the Edinburgh Review; many persons have read the answer, and been thereby induced to attend to the science, whose prejudices were previously insuperable. Frequent reports have been circulated of another intended attack, by Sir William Hamilton, within the arena of the Royal Society. We have already mentioned, that by the rules of this body, which prohibit visitors from speaking, and its own members from debating, Sir William Hamilton is as secure from refutation, whatever he advances, as a toad is from its enemies in the heart of a block of marble. Until, therefore, the learned Baronet shall be pleased to publish his objections, which we solicit him to do, we shall hold ourselves absolved from the duty of noticing them. Professor Leslie lately commenced a course of popular lectures on Natural Philosophy, to which ladies were admitted. We offer him the tribute of our highest approbation for so useful and becoming a step; and are happy to announce, that, from every thing we hear, his lectures have excited much interest, and been duly prized by his auditors. We cannot avoid regretting, however, that his prejudices should have led him to introduce a very ill-founded and uncalled-for attack upon Phrenology into his introductory lecture. In pointing out the evils of ignorance of natural phenomena, he stated, that this was the real cause of the long prevalence, in former ages, of judicial astrology, and of the existence, in the present day, of the dreamy reveries of craniology. In opposition to Mr Leslie's assertion, that ignorance is the cause of the prevalence of Phrenology, we observe that in

DUBLIN, Richard Carmichael, Esq. in an introductory lecture to a course of surgery, delivered at the Richmond School of Medicine, Dublin, on the 8th day of January, 1827, makes the following observations:—

"The nerves of the other senses, as well as of that of touch,—those "of sight, hearing, taste, and smell,—all have separate origins from "different portions of the brain. Since then we find each portion "of the nervous system has a distinct and appropriate function to "perform, we are in some degree prepared for the proposition of "Gall and Spurzheim, that the entire mass of the brain is not en-"gaged in every mental operation, but that different portions of this "viscus have their allotted functions.

"To such of you as have a wish to be acquainted with the phrenological doctrines, I would strongly recommend you to read, at your leisure hours, the admirable work of Mr George Combe, which has already gone through several editions. You will, after perusing this work, feel the littleness of those who scoff at a subject of which they are ignorant. An article, supposed to come from the pen of Mr Jeffrey, appeared in the Edinburgh Review of October last, in which he attacks the system with all the weapons of an experienced controvertist. This drew forth from Mr Combe an immediate, spirited, and most triumphant reply, in which he not only answered all his adversary's objections, but convicted him of unfair dealing as a critic,—ignorance of the subject he undertook to criticise,—little depth as a metaphysician,—and but slight acquaintance with the opinions even of the school he supports."

This testimony we would recommend to the notice of Professor Leslie, and other individuals who ascribe the prevalence of Phrenology to ignorance. Mr Carmichael is a medical practitioner of great eminence, a public teacher of surgery, and in the lecture in question, which is printed at the request of his pupils, he displays a mind profound and comprehensive in its views, intrepid and independent, and deeply imbued with the spirit of the age.

Belfast.—A Phrenological Society has been instituted here. On 17th February, it contained forty members, and the numbers were likely to increase. They possessed, at that time, all the works of Dr Spursheim, those of Mr Combe, Sir George Mackenzie's Illustrations, a small work of Dr Gall's, the Transactions of the Phrenological Society, and the Phrenological Journal; and they have since obtained an extensive collection of casts from Messrs O'Neil and Son of Edinburgh. Mr G. Combe has been elected an honorary member.

Kilmarnock.—The Phrenological Society here has held regular meetings this winter; several interesting communications have been read, and an accession of members is expected.

Dundee.—The Mechanics' Phrenological Society continues to be conducted with great judgment. From the commencement, the attention of the members has been all along drawn to the utility of the science, and with some success. They seem imbued with its spirit, and are eager to obtain a perfect knowledge of its principles. They have elected the Rev. Thomas Irvine, assistant minister of Lundie, Mr G. Combe, and Dr A. Combe, as honorary members.

Copenhagen.—Mr Jeffrey's article in the Edinburgh Review has excited a considerable sensation in Copenhagen. It was known by the London journals that Mr Combe had published an answer to it, and the answer was anxiously looked for. Dr Otto has published an essay, "Phrenology applied to Crimes and Criminals." This gentleman lectured this winter, and had again a crowd of the most respectable auditors, who continued to show the greatest attention to the subject. Next winter he will deliver a course, at which ladies will be invited to attend. In a few weeks, the first n[illegible]

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[illegible] able and [illegible] Mr [illegible] read at the [illegible] are [illegible] instructive [illegible] who re- [illegible]

[illegible] from Mr Lead- [illegible] Glasgow, accom- [illegible] to the Phrenologi- [illegible] Number, along with [illegible] are [illegible], and [illegible]

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ARTICLE I.

ON THE FACULTY OF COMPARISON.

FEELING OF RESEMBLANCE.—*Dr Brown.*
SENSE OF ANALOGY.—*Gall.*

"Dr Gall observed various persons who, in order to convince "others, had, in every conversation, recourse to examples, simili- "tudes, and analogies, and seldom to (strict) reasoning and philo- "sophical argument. In these he found, in the midst of the supe- "rior part of the forehead, an elevation which presented the form "of a reversed pyramid, and he named this organ, according to its "functions, the 'organ of Analogy.' This organ is developed in "all popular preachers beloved by the crowd, who speak by exam- "ples and parables, and who choose their similitudes from facts "which are generally known. Gall accordingly possesses the skulls "of two Jesuits who had this organ and its faculty in a high de- "gree. Indeed, in order to persuade and to affect, the speaker or "orator must speak by analogy,—he must bring spiritual things "near to terrestrial,—he must imitate the manner of the preaching "of Christ."

Such is the account given by Dr Spurzheim in the first edition of his Physiognomical System, of the observations made by Dr Gall on the functions of this part of the brain. These observations lead to the conclusion, that this is the faculty which perceives and delights in resemblances. *Examples, similitudes, analogies,* and *parables,* and all those me-

taphors and figures used by others to adorn and illustrate their discourses, are all founded on some sort of resemblance, real or supposed, between the examples, analogies, and figures adduced, and the subjects which they are intended to illustrate. But Dr Spurzheim does not seem inclined to limit the faculty to the perception of resemblance;—he goes on to say, "It *compares* the sensations and ideas of all the "other faculties, and points out their *difference*, analogy, "similitude, or identity." And as he conceives it to take cognizance of difference as well as resemblance, he has changed the name of "organ of Analogy," adopted by Dr Gall, to "organ of Comparison;" but he has given no proof, nor even one solitary instance, of this faculty being concerned with differences.

In his more recent work, entitled "Phrenology," Dr Spurzheim alludes to certain views of this faculty, and of the neighbouring organs of Causality and Wit, taken by the Edinburgh Phrenologists, and, in particular, to a suggestion of mine which is mentioned by Mr Combe, that difference or contrast is taken notice of by the last-mentioned faculty. He then says, "as to the view taken by Mr William Scott, I reply, that, in my opinion, the same power which "perceives resemblances perceives differences also. I see no reason "for adopting two faculties for the act of discrimination."

With all due respect to the authority of Dr Spurzheim, I cannot subscribe to his opinion on this point, or rather I conceive it to be demonstrable that there *are* separate powers for perceiving resemblances and distinguishing differences. This seems sufficiently proved by the very familiar fact, that there are some minds more disposed to recognize resemblances and analogies, even the most remote, while others are remarkable for detecting the minutest points of difference. On their different dispositions, in this respect, depends, in a great measure, the intellectual character of different minds. This observation, Mr Combe remarks,* has

* Combe's System, p. 354.

long been made by metaphysicians. Father Malebranche says, "There are geniuses of two sorts. The one remarks easily the "differences existing between objects, and these are the excellent "geniuses; the others imagine and suppose resemblances between "things, and these are the superficial minds."* Locke makes the same distinction. After speaking of Wit "as lying most "in the assemblage of ideas wherein any resemblance is to be "found,"† he proceeds thus:—"Judgment, on the contrary, lies "quite on the other side, in separating carefully, one from another, "ideas wherein can be found the least difference, thereby to avoid "being misled by similitude and by affinity to take one thing "for another."‡ Lord Bacon says, that "the chief, and as it were "radical distinction betwixt minds, in regard to philosophy and "science, is this,—that some minds may have greater power, and "are more fitted for the observation of the differences, others for "the observation of the resemblances of things."

Having stated three such authorities, (in addition to what I conceive to be matter of common observation to all who have given their attention to the varieties of intellectual genius,) we may be entitled to hold these to outweigh the unsupported opinion of Dr Spurzheim; and, following the observations of Dr Gall, we may assume that there is a separate and distinct organ, the function of which is to perceive resemblances and analogies; and, therefore, without entering into any farther argument, we shall proceed to consider more minutely the true nature and limits of the faculty, and the various important uses which it is calculated to serve in the intellectual economy.

In the first place, it is to be observed, that the faculty now under consideration does not seem to be required for the perceiving of every kind of resemblance, still less for the perception of *identity*, the latter of which obviously falls within the province of Individuality and the lower observing powers. That sort of resemblance which approaches nearest to identi-

* Rech. de la Verité, liv. ii. part 2, chap. 9.

† Mr Locke is not here speaking of the phrenological faculty to which the name of Wit has been given, but of what is generally termed *wit* in common discourse, which depends more upon the discovery of resemblances than the nice distinguishing of differences.

‡ Essay, book II. chap. xi. § 2.

ty, such, for instance, as we find between one egg and another, or between the different individuals of our species, where the resemblances are the greatest possible, and the differences hardly perceptible, seems to require no higher power of mind for its discovery than those which are necessary for the perception of the objects themselves. Nay, to go lower in the scale, the resemblance between one form and another may be sufficiently perceived by the organ of *Form* alone; that between one colour and another by the organ of *Colour*, and so on; while Individuality, which combines the activity of these lower observing powers in the perception of one concrete individual object, may perceive the likeness which exists between that and another individual object of the same kind.

In all these cases, the resemblances discovered will be limited by the nature of the faculty to which we attribute them. *Form* may compare forms, and *Colour* may compare colours. *Tune* may compare sounds, and *Individuality* may compare individuals. But none of these faculties, nor all of them together, can compare a colour to a sound, nor an object of the external senses to a feeling of the mind. This can only be accomplished by a faculty which takes within its grasp the whole range of nature. Such is the faculty we are now considering. It compares things of the most opposite kind, draws analogies, and discovers resemblances between them often the most unexpected and surprising. It compares a light, seen afar off in a dark night, to "a good "deed shining in a naughty world:"—it compares the kingdom of heaven to a grain of mustard-seed.

If we would describe more minutely and accurately what are the kinds of resemblances which this faculty discovers, it will perhaps be found that they are in no case *direct* resemblances, such as are perceived by the observing powers, but *relative* resemblances, or, to speak more accurately, resemblances not between the objects themselves, but *between* *relations* to other objects. What resemblance is there, tance, between a good action and the light of a candle?

None whatever directly; but relatively there is felt to be a resemblance, when the light appears brighter because of the surrounding darkness, and when the good action is set off by the contrast afforded by the wickedness of the world.

In short, this faculty seems to be the same as that which is described by Dr Thomas Brown under the name of "*Feel:* "*ing of Resemblance*," although he does not attribute this to a separate and distinct faculty, but classes it with those other feelings which he supposes to belong to *relative suggestion*. Dr Brown seems to have been led here, by an extreme love of simplification, to attribute to one faculty what actually belongs to several, and to have been prevented by this alone from arriving at the discovery of the simple phrenological faculty now under consideration. As it is, he has come wonderfully near to the phrenological doctrines; and the account he has given of those "*relative suggestions*," which are included in the "*Feelings of Resemblance*," may be adopted, almost without alteration, as a complete metaphysical analysis of that faculty to which Spurzheim has given the name of Comparison, but which seems to have been more accurately designated by Dr Gall as the "Sense of Ana- "logy."

We may first examine the similes, metaphors, and figures, which are used to embellish poetry and other ornamented compositions, and see if the description we have now given applies to them. The most direct of these is the simile, which consists in an open and undisguised comparison of one object to another, in order to point out a resemblance. Take as an instance the following from Homer:—

"As when from Ida's craggy forehead torn
"A rock's vast fragment flies; with fury borne,
"From steep to steep the rolling ruin bounds,
"At every shock the crackling wood resounds;
"Still gath'ring force, it smokes, and, urged amain,
"Whirls, leaps, and thunders down, impetuous to the plain:
"There stops.—So Hector, their whole force he proved,
"*Resistless when he raged*, and *when he stopp'd, unmoved*."

Here we find,—amplified, no doubt, and adorned with the ideality of the poet, and set before us with a degree of force and clearness of which only a powerful mind is capable,—*a resemblance* pointed out between the hero and a fragment of rock; not a direct resemblance,—not a resemblance between the objects themselves, for directly they have no resemblance whatever,—but a resemblance *in their relations to other objects*. The point of resemblance is this, that they are both resistless when in motion, and immoveable when at rest. This is the point which is seized upon by the sense of analogy, and used by it to bring together two images differing in every other respect in the greatest possible degree. The resemblance is what is attended to by the poet and his readers, and the differences, which are infinite, are either not observed at all, or so slightly as not in the least to disturb the stronger impression.

While we are on the subject of similes, I may refer to the case of a living writer, whose development, as well as his works, afford the best illustration that can be given of the faculty we are now considering. I allude to the poet Moore, in whose organization Comparison is by far the most conspicuously developed organ; and, conformably to this, his writings exhibit little else than a succession of similes, strung together very neatly and ingeniously no doubt, but in such profusion as to overload and almost to hide his subject amidst the exuberance of ornament, and utterly to banish that simplicity which, in the eye of the best judges, constitutes the greatest charm of poetry. Take, for an instance, first, one of the most popular and best-known of this author's productions:—

"The harp that once through Tara's halls
"The soul of music shed,
"Now hangs as mute on Tara's walls
"As if that soul were fled.
"*So* sleeps the pride of former days,
"*So* glory's thrill is o'er,
"And hearts that once beat high for praise,
"Now feel that pulse no more.

"No more to chiefs and ladies bright
"The harp of Tara swells,
"The chord alone that breaks at night,
"Its tale of ruin tells.
"*Thus* freedom now so seldom wakes,
"The only throb she gives,
"Is when some heart indignant breaks,
"To show that still she lives."

Here we have a succession of resemblances pointed out between the harp which had once sounded through the splendid halls of Tara, now hanging neglected by the wall, and the lofty feelings of the once ambitious hearts of its inmates, now mouldering in the tomb. The allusion of the breaking of a string of an instrument, and the breaking of a gallant heart for despair of its country's freedom, is one respecting which different minds will be very differently affected; and while some may consider it a far-fetched conceit, others may have the impression of its being beautiful and appropriate, and almost sublime. None of the resemblances here traced,—and the poem is entirely made up of resemblances,—are, it is to be observed, direct. The resemblances are not between the objects themselves, but between their *relations;* not between certain dead men and women and an instrument composed of wood and strings, but between the thrilling glow of feelings once displayed by them, and the thrilling sounds emitted by the other, now alike silent and laid waste.

Another instance from the same author will afford a similar result:—

"Has love to that soul so tender
"Been *like* our Lagenian mine,
"Where sparkles of golden splendour
"All over the surface shine?
"But if in pursuit we go deeper,
"Allured by that gleam that shone,
"Ah! false as the dream of the sleeper,
"*Like* love, the bright ore is gone.

"Has hope, *like* the bird in the story,
"That flitted from tree to tree,

"With the talisman's glittering glory,
"Has hope been that bird to thee;
"On branch after branch alighting,
"The gem did she still display,
"And when nearest and most inviting,
"Then waft the fair gem away?"

It is needless to analyze these similes farther than to say, what is obvious on the slightest perusal, that they present resemblances not in the objects compared, but in their *relations*. Love has evidently no resemblance to a piece of glittering ore; but it may, *like it*, hold forth a promise of substantial good, and the promise may in both cases be delusive; and it is *this relation* which they bear to ourselves which forms the sole ground of resemblance. Hope, in like manner, has no direct resemblance to a bird; but yet, in the relation here presented to us, a certain resemblance is easily acknowledged between that feeling and the bird in the Arabian tale.

I might here finish my account of similes; but, although not quite to my present purpose, I may perhaps be indulged with a quotation or two from another poet, whose writings afford a remarkable contrast in this respect to those of Moore. Burns, like Moore, was a genuine poet, but possessing a totally different character of mind, and, in general, a far higher tone of feeling. Burns never overlays his subject with figures and similitudes,* though, when they are needed for the sake of illustrating his subject, no one knows how to apply them more judiciously. The following is a love-song, as most of Moore's are; but what would have furnished to the latter a peg whereon to hang half a dozen of similes at least, is disposed of by Burns without a single one—all is pure picture and passion:—

* In a visit we lately paid to Burns's widow in Dumfries, we saw the only original picture of the poet extant, and observed that the organ of Comparison is less developed than that of Causality. In the statue of him in the churchyard of that town the configuration of head is accurately represented. In other respects the statue appears to us to be wretched, both as a work of art and as a likeness of the poet.

"Lassie wi' the lint-white locks,
"Bonny lassie, artless lassie,
"Wilt thou wi' me tend the flocks,
"Wilt thou be my dearie O?

"Now nature cleads the flow'ry lee,
"And a' is young and sweet like thee;
"O wilt thou share its joys wi' me,
"And say thou'lt be my dearie O?

"And when the welcome simmer shower
"Revives ilk drooping little flower,
"We'll to the breathing woodbine bower,
"At sultry noon, my dearie O.

"When Cynthia lights, with silver ray,
"The weary shearer's hameward way,
"Through yellow waving fields we'll stray,
"And talk of love, my dearie O.

"And when the howling wintry blast
"Disturbs my lassie's midnight rest,
"Enclasped to my faithfu' breast,
"I'll comfort thee, my dearie O."

We have here a picture of rural happiness, sketched out by a few rapid touches, and adapted to the varying scenery and circumstances of the four seasons of the year. There is an expression in the third verse, of the simplest kind, "the weary "shearer's hameward way," which suggests to the mind such a train of human sympathies and feelings as, taken in conjunction with the surrounding images, the yellow waving fields of harvest, lighted by the calm radiance of the moon, appears to me worth all the similes of Moore together, and the whole seems to my mind to exhibit the very perfection of this kind of writing. In Burns's other songs, and indeed through his works generally, is the same sparing use of similes; and where he does make use of them, the resemblances he traces are generally of the most obvious kind, recommending themselves at once, and without an effort, to the most simple and uninstructed mind,—very different in this respect from those of Moore, which are often ambitiously

learned and *recherchés*. I could hardly wish a better instance of this than the following passage from Tam o' Shanter:—

> "But pleasures are like poppies spread,
> "You seize the flower, its bloom is shed;
> "Or, like the snow falls in the river,
> "A moment white—then melts for ever;
> "Or, like the Borealis race,
> "That flit ere you can point their place;
> "Or, like the rainbow's lovely form,
> "Evanishing amid the storm."

These similes are among the most plain and simple that can be imagined, and they please the more on account of this very simplicity. It is evident that the author considers them of no farther value than as they illustrate his subject; whereas Moore regards his similes as the most valuable of his possessions; that with him they are not casual ornaments and illustrations, but the main object of his labours, the staple commodity of his poetry, without which it would be nothing at all. This difference between the two poets is easily accounted for by a Phrenologist, by saying that, in Burns, Comparison, though considerable, was not out of proportion to the rest of his faculties, and was hence always kept subservient to the main object of exciting the feelings by means of pictures presented to the imagination; whereas in Moore this faculty is so much more powerful than the rest, that he views every thing through the medium of some resemblance, and hence is led to that kind of false taste which we have been endeavouring to describe.

To return from this digression—It follows from what we have observed of similes being composed of resemblances, not between things themselves, but their relations, that one thing may be compared to a vast variety of different objects of the most opposite kinds and qualities, provided they resemble it in one or more points of relation with other objects. Thus, in the passage last quoted from Burns, pleasures are compared to poppies, to flakes of snow, to the Aurora

Borealis, and to the rainbow,—objects agreeing with it and with one another in no point but one, their fleeting and transitory nature. Homer compares one of his heroes, as we have seen, to a fragment of rock, another to a bull, a third to a lion, and a fourth to an ass. He compares an army at one time to a flock of cranes, at another to a hive of bees; objects the most opposite are taken to form his comparisons, and for the reasons we have assigned, that the comparison is drawn, not between the objects themselves, but some of their relations, and there the point of resemblance is found. It is in this way that the poet is enabled to extend the range of his imagery to the remotest verge of nature, and to

"Dart from heaven to earth, from earth to heaven."

He may draw his illustrations, his similes, and his allusions, from objects the most vast or the most minute; from the mighty orbs that roll in silent majesty through the immensity of space, to the smallest of the insect tribes that people the sunbeam.

The metaphor, like the simile, consists in the discovery of a resemblance, and a resemblance of exactly the same kind—that is, a resemblance not in the objects themselves, but in their relations. The difference between these two figures lies not in the resemblances suggested, but in the manner of suggesting them. "The simile," says Dr Brown, "presents "not the analogy merely, but the two analogous objects, and traces the "resemblance with the formality of regular comparison. The me-"taphor, on the other hand, expresses with rapidity the analogy, as "it rises in immediate suggestion, and *identifies it*, as it were, with "the object or emotion which it describes." The metaphor, therefore, he observes, is the figure of passion; the simile, the figure of calm description.

I am not sure if this is quite accurate. So far it may be true, that the simile, as implying contrivance and artifice, is inadmissable in the language of passion, while the metaphor is perfectly natural to that state of mind. On the other hand, th[illegible] may be used without impropriety, and

even with advantage, in cases where the mind is under no extraordinary excitement. In all discourses of a refined and elevated kind, wherever the sentiments are concerned, and wherever we are treating of subjects of unusual dignity or interest, metaphors are not only allowable, but it is hardly possible without them to express our meaning. The language of Scripture teems with metaphor, and wherever the subject rises into any degree of dignity and elevation, it becomes almost entirely metaphorical. Thus in the 18th Psalm:—

"The Lord is my rock, and my fortress, and my deliverer; my "buckler, and the horn of my salvation, and my high tower."

It is evident that all that is here meant is to state a series of resemblances—resemblances which might easily be expanded into so many similes; and that as in the simile, so here, the resemblance is not in the objects themselves, but in their relations. It is not that God is actually like a rock, a fortress, or a buckler, but that, like these different means of defence, he keeps his worshipper in safety, and delivers him from his enemies. To save an awkward circumlocution, however, the likeness, which exists only in the relations, is transferred to the objects; and to condense the language still farther, what is only meant as a resemblance, is in expression converted into identity, and by this figure God is said not to *be like*, but *to be* a buckler, a rock, and a fortress. There is no mind so stupidly literal as to be misled by this form of expression.

Instances may be given out of number from the Psalms, and indeed from every part of the sacred writings. There is not a more beautiful one than the 23d Psalm:—

"The Lord *is* my shepherd, I shall not want.

"He maketh me to lie down in green pastures; he leadeth me "beside the still waters.

"Yea, though I walk in the valley of the shadow of death, I will "fear no evil. Thy rod and thy staff they comfort me.

"Thou preparest a table before me in the presence of mine ene-"mies: thou anointest my head with oil, my cup runneth over."

It is clear that, in the first of these metaphors, there is

nothing more intended than to point out a resemblance between God and a shepherd; not a direct resemblance, but only in the relation in which he stands to his people; and that as the shepherd cares for and provides all good things for his flock, so God will care for and provide all good things for his sincere worshippers. The other figures used point out the different ways in which he does this, by feeding, restoring, preserving, aiding, comforting in affliction, loading them with benefits, and finally leading them to happiness and to glory.

Dr Brown thinks that metaphors are only suggested to the mind in a state of emotion, "according to some principle "of shadowy and remote resemblance," which a state of emotion alone enables us to seize. But, if we are right in the explanation we have given of the kind of resemblances which this figure implies, it is not necessary to have recourse to a state of emotion before we can perceive it. If the resemblance consists not in a likeness between the things themselves, but between their relations, it ceases to be so shadowy and remote as Dr Brown supposes; and all that is required in order to perceive it, is a faculty capable of comparing relations and perceiving the resemblances between them. *A resemblance between relations*, when thus analyzed, appears to be just as real as any other resemblance; and if the faculty for perceiving such resemblances is strong, and in a state of activity, I would apply to it Dr Brown's own words, "the mind seizes the analogy with *almost un-* "*conscious comparison*, and pours it forth in its vigorous "expression with the rapidity of inspiration." Dr Brown was not conscious that he is here describing, with the utmost accuracy, the operation of a distinct special faculty of the mind; and he has equally unconsciously given to it the very name by which Phrenologists now use to designate it.

Dr Brown goes on to state another fact, which equally characterizes this faculty. "It does not dwell," he says, "on the analogy beyond the moment, but is hurried on to new "analogies, which it seizes and deserts in like manner. This ra-

"pidity with which analogies are seized and deserted seems to me "to justify, in some degree, in the drama and highly-impassioned "poetry of every kind, what in poetry or general composition of "a calmer kind would be unpardonable. In the case of mixed "metaphor, for instance, as when Hamlet talks of 'taking arms "against a sea of troubles,' nothing can be clearer than that there "is an incongruity of phrase in the different parts of the sentence, "since it is not with a sword or a spear that we stem the waves; "and as the inconsistent images occur in the short compass of a "single line, and are a part of a meditative soliloquy, a greater "congruity might unquestionably have been preserved with ad-"vantage. But when the objection is made universal, and applied "to every case of expression, even of the strongest passion, in "which any mixture of metaphors occurs in the imagery of the "largest sentence, I cannot but think that this universal censure "has arisen from that technical criticism which thinks only of tropes "and figures, and the formal laws of rhetoric, and not from that "sounder criticism which founds its judgments on the everlasting "principles of our intellectual and moral nature. In conformity "with those principles, a long and exact adherence to all the con-"gruities of an image that has been accidentally used in the former "part of a sentence or paragraph, though indispensably necessary "in every species of calm composition, is yet rather censurable "than commendable in scenes of dramatic passion." I have only to remark here, that Dr Brown is, perhaps, rather too strict in his notions of limiting the use of mixed metaphors to cases of strong passion. The only use of metaphors, as of all other modes of speech, is to express our meaning, and, provided this be done clearly and forcibly, it appears to be of no earthly consequence whether the figures used for accomplishing this are all perfectly consistent or not. The truth is, that, in using metaphorical expressions in a great majority of cases, the original meaning of the words hardly is presented to the mind at all. They suggest the metaphorical meaning, and often that alone; and when they do so, the consistency of the expressions in their original signification is evidently of no importance. So much is this the case, that Mr Stewart, whose taste in composition will not be disputed, not only defends the use of mixed metaphors in the most unimpassioned of all kinds of composition, that of a philosophical discourse, but even insists upon its advantage, as it prevents the mind from being led

away by an analogical form of expression to suppose that there is any real resemblance between *the things compared themselves,* when all that is meant is to render more palpable to the understanding some statement or notion respecting some of their relations. The following instance may be given where no strong passion is expressed, when metaphors are not only mixed, but huddled upon one another with an almost exaggerated accumulation; and yet there is not only no obscurity in the meaning, but this is expressed with infinitely more force and spirit than it could have been by the most elaborate contrivance of a metaphor consistent in all its parts. It is where Fabian, in the Twelfth Night, is persuading Sir Andrew Aguecheek to fight with Viola.

"She showed favour to the count's gentleman in your presence, "only to exasperate you, to awaken your *dormouse* valour. You "should then have accosted her, and with some excellent jest, *fire-* "*new* from the mint, *banged* the youth into dumbness. This was "looked for at your hand, and this was baulked; and the *double* "*gilt* of this opportunity being *washed off,* you are sailed *into the* "*north of the lady's opinion,* where you may *hang like an icicle* "*upon a Dutchman's beard,* unless you do *redeem it* by some nota- "ble attempt either of valour or policy." We have here no passion, but an exuberant comparison, and wit in a state of high and unconstrained activity;—a fertile soil throwing out its flowers, not with the cold accuracy of an artificial pasture, but with the lavish magnificence of nature;—a gigantic genius, "brandishing in his sport" weapons which an ordinary hand is utterly unable to wield. Amidst all the confusion of inconsistent metaphor in the passage now quoted, is there the smallest degree of obscurity in the scene? Who, in fact, on hearing it, thinks of the inconsistency at all, except the hypercritic, who, neglecting the soul of the performance, attends only to those mechanical details, which are as insignificant to the general effect as the shoe-latchet was to the statue of Phidias?

In treating of the simile, we mentioned its use in poetry, in enabling the poet to introduce the greatest possible variety into his works, and to connect together images of the most

diverse and even opposite kinds. The metaphor is even more essentially subservient to the purposes of poetry, as it not only brings before us the whole range of nature, but presents to us inanimate objects, as if they were endued with life. "In poetry," says Dr Brown, "we perceive every "where what Akenside calls

"The charm
"That searchless nature o'er the sense of man
"Diffuses, to behold, in lifeless things,
"The inexpressive *semblance* of himself,
"Of thought and passion."

"The zephyrs *laugh*,—the sky or the ocean *smiles*,—the forest, "the rocks, or the mountains *frown*. The storm and the surge "*contend* together. The solitary place not merely blossoms like the "rose, but *it is glad*. All nature becomes animated. The poetic "genius (sense of Analogy with Ideality), like that soul of the "world by which the early philosophers accounted for all earthly "changes, breathes its own sprit into every thing surrounding it. "It is '*quodcunque vides, quocunque moveres*,' that vivifying es-"sence, which, in the beautiful language of Virgil,

"Cœlum, ac terras, camposque liquentes,
"Lucentemque globum Lunæ, Titaniaque astra
"Spiritus intus alit, totamque infusa per artus,
"Mens agitat molem et magno se corpore miscet."

Leaving for the present the subject of metaphors, to which we shall have occasion to recur afterwards, we may take a rapid view of certain kinds of composition to which the faculty we are now considering, when extremely active, has a tendency to lead. I allude to the mode of conveying moral lessons by means of fables and apologues, and every species of parabolic and allegorical composition. Of these the most ancient perhaps is the eastern apologue, where truths, which could not conveniently, or perhaps safely, have been conveyed to those for whom they were intended in a direct and didactic manner, are shadowed forth and suggested by distant resemblances. Instead of human agents and speakers, we have presented to us birds, beasts, and even plants and other inanimate objects, acting and speaking in a manner that may be supposed conformable to their situations. The scene and

the action is thus removed as far as possible from ourselves, yet the relations presented are such as may apply to our own case, and the truth or the advice intended is thus conveyed to us without giving offence. One of the most famous of these analogical lessons, and perhaps one of the most ancient, is the well-known apologue of Jotham, recorded in the book of Judges, of the trees going forth to choose a king. It is obviously in the relation in which they stand to one another, and in nothing else, that the different trees, who are mentioned as having refused the kingdom, and the bramble who accepted it, bear any resemblance to the sons of Gideon alluded to by Jotham, and that in this resemblance, real or supposed, consists the whole essence of the apologue. The parable of the ewe-lamb, employed by the prophet Nathan to bring King David to a just sense of his iniquities and cruel conduct in regard to Uriah, may be stated as another instance. I shall afterwards have occasion to refer to this mode of conveying instruction when speaking of analogical reasoning. It is here sufficient merely to point out, that this mode of composition is founded, in the first instance, upon the same kind of resemblances as we had remarked in the simile and metaphor,—a *resemblance of relations*.

The fable is just the apologue under another name. The great master in this kind of composition is Æsop, whose works are to this day used among the first means of conveying to youth the elements of moral instruction. It is obvious, that, in every one of them, the birds and beasts, who are the actors and speakers, are represented as standing to one another in relations similar to those which subsist between us and our fellow-men, and that on this the whole structure of the fable is founded.

Akin to the fables of Æsop, but more dignified in their plan and conception, are the parables of our Saviour. It would have been beneath the gravity of his character, and the importance of the lessons he had to convey, to put them into the mouths of animals. His actors are always men

and women; and these are represented under relations which are common to all mankind, and of which every one may, in a vast variety of circumstances, see the application to himself; but with this difference, the form of the parable and the fable, the principle of their construction, and the nature of the instructions they convey, are precisely the same.

Another sort of composition obviously dependent upon the same principles is the allegory. When a metaphor or apologue, instead of being confined to a single point of resemblance, is extended to several, and when one circumstance of resemblance is traced after another, so as to compose a continued narrative, it is called an allegory. Thus, for instance, the struggles of a good man against the evils and temptations of the world and of his own passions, are, by a common metaphor, regarded as a species of combats, from the resemblances which are felt to exist between such struggles and the exertions required of earthly combatants. When the original idea is extended so as to represent one in this situation as a real combatant, and the virtues and vices, passions, feelings, and propensities, against which he has to strive, or by which he is assisted, are shadowed forth as real personages,—when the hair-breadth scapes, and all the circumstances of action and suffering incident to a state of warfare, are fully described, as showing the danger and uncertainty of his situation, and when his prowess and perseverance are at last set forth as crowned with success against his deadly foes, who does not see that the allegorical meaning, hidden under this veil, and intended to be conveyed by means of these figures, is so conveyed to us by a series of resemblances, and that these resemblances are not direct resemblances, but resemblances of relations? The vice or passion intended to be set forth to us has no direct resemblance to the giant or enchanter under which he is represented; but in the attributes which are ascribed to the latter, and in the manner in which they carry on their assaults, in other words, in the *relations* under which they are made to appear to us with re-

gard to the object of their attacks, there is suggested to our minds a resemblance to certain *other relations* existing between ourselves and our own unruly appetites; and hence arises the allegory. The author who is most famous for this species of composition in our own, or perhaps in any other country, is the poet Spenser. Other poets have interwoven particular allegories with certain parts of their works, but he is the only one, so far as I am aware, who has constructed the whole of a long and elaborate poem exclusively upon this principle. In less able hands such a continued series of shadowy actions and allegorical personages must have become unavoidably dull and uninteresting; but such is the vigour of Spenser's genius, and the unrivalled force and clearness with which he has contrived to represent the feelings and passions of the mind under the veil of sensible images, and such the variety he has infused into his work, that we read it with all the interest attached to a fairy-tale, or a romance, in which the writer is under no other trammels than those which are prescribed by the extent of his own powers. To produce such a work must have required a powerful Individuality no less than a powerful Comparison. The latter faculty suggests the resemblances, but the former is indispensable for furnishing the details and giving the requisite distinctness to the description of sensible images,—and hence it is, by Dr Spurzheim, stated as a material element in the talent for personifying abstract qualities. But to this it is an auxiliary only, the power which is principally concerned being undoubtedly the sense of analogy. No one who has not read Spenser can have any idea of the extent to which this kind of writing may be carried, or of the entertainment and moral instruction which it is capable of affording. There is perhaps only one writer who can be mentioned as rivalling him in this respect, I mean John Bunyan, author of the Pilgrim's Progress, the Holy War, and several other writings of a similar character. Of the first of these works it is only necessary to state, that though the

images used are generally of the lowest and homeliest kind,—the language plain even to vulgarity,—the incidents and sentiments of the speakers frequently bordering on the ridiculous,—such are the attractions of this kind of composition, and the hold which it is calculated to take on the unpolished mind, that this work has run through a greater number of editions than any other ever printed, and continues to this day to be the delight of young and old, not only among that class of society for whose use it was evidently intended, but among many of far higher attainments and pretensions. The portraits of this author, it may be proper to remark, exhibit a large development of the organ of Comparison; and he seems to have been perfectly aware of the tendency of his own mind in this respect, from the text which he has prefixed to the Progress,—"*I have used similitudes.*"

The foregoing, however, and various other uses which we derive from this faculty, "delightful as they may be," says Dr Brown, "are in their permanent effects unimportant when compared with the results of resemblances of a more abstract kind, "the resemblances to which we owe all classification, and consequently every thing that is valuable in language."

There is no part of Dr Brown's writings more valuable, and none in which he appears more clearly entitled to the merit of originality, than his speculations upon general terms. His explanation of the manner in which these are formed, by means of our *feelings of resemblance*, is so complete and satisfactory, that, unless we had been aware of the darkness which previously hung over the subject, and the almost inconceivable absurdities into which the greatest philosophers had fallen when treating of it, we could hardly have believed that there ever could have been two opinions upon the subject, and would be apt to look upon the principle as one so simple as hardly to deserve the credit of a discovery. But this is just the criterion of real discovery in all science,—the thing, when found out, appears so simple and easy, that the only wonder is, how it never was hit upon before. Whether we consider, however, the beautiful simplicity of the doctrine

itself, or the unanswerable refutation it has afforded of the opposite errors of the realists and nominalists, we cannot help considering it as one of the greatest achievements in the science of mind which has been accomplished previous to the discoveries of Gall and Spurzheim.

It is another criterion of discovery in science, that whatever it contains of what is real and valuable, instantly harmonizes and coalesces with every other real discovery which may happen to be made in the same department of knowledge; and it is one of the strongest proofs of Dr Brown's merit in establishing the principle we have just alluded to, that, whereas he has traced to certain "feelings of resemblance" the invention and formation of "all that is valuable in language,"—the observations of Gall and Spurzheim have laid open to us the existence of *a special faculty*, the function of which is precisely the perception of these very "feelings of resemblance," of which he has enabled us to see all the important uses. Without farther preamble, therefore, I shall proceed to state, in Dr Brown's own words, the manner in which this faculty proceeds in the classification of the objects of our knowledge, and the formation of general terms:—

"That classification is founded on the *relation of similarity* of "some sort in the objects classed together, and could not have "been formed, if the mind, in addition to its primary powers of "external sense, had not possessed that *secondary power*, by which "it invests with certain relations the objects which it perceives, is "most evident; all which is strictly sensitive in the mind might "have been the same as it is now, and the perception of a sheep "might have succeeded one thousand times the perception of a "horse, without suggesting the notion which leads us to form the "general term *quadruped* or *animal*, inclusive of both; for the *re-* "*lation* is truly no part of the object perceived by us, and classed "as relative and correlative, each of which would be precisely the "same in every quality which it possesses, and in every feeling "which it directly suggests, though the others with which it may "be classed had no existence. It is from the laws of the mind "which considers them that the relation is derived, not from the "laws or direct qualities of the objects considered. But for our "susceptibilities of those affections or states of the mind, which "constitute the *feeling of similarity*, all objects would have been

"to us, in the scholastic sense of the phrase, *things singular*, and "all language, consequently, nothing more than the expression of "*individual existence*. Such a language, it is very evident, would "be of little service in any respect, and no aid to the memory, "which it would oppress rather than relieve. It is the use of "general terms, that is to say, of terms founded on the *feeling of* "*resemblance*, which alone gives to language its power of enabling "us to condense, in a single word, the innumerable objects, which, "if we attempted to grasp them all individually in our conception, "we should be as little able to comprehend, as to gather all the "masses of all the planets in the narrow concavity of that hand "which a few particles are sufficient to fill, and which soon sinks "oppressed with the weight of the few particles which fill it."

It is obvious, that all that Dr Brown here attributes to those *states of mind which give rise to a feeling of resemblance* may as clearly, and much more simply, be ascribed to a *special* faculty, whose office it is to take cognizance of the analogies of things, that is, of the resemblances existing among their relations. Whatever, therefore, he attributes to this feeling, will be true of the faculty we are now considering, supposing such a faculty to exist, which, after what has been stated, may be held as sufficiently proved.

"We perceive two or more objects,—this is one state of the "mind. We are struck with their resemblance in certain respects, "—this is another state of the mind. We then, in the third stage, "give a name to these circumstances of felt resemblance, a name "which is of course applied afterwards only when this relation of "similarity is felt. *The perception of objects*,—the *feeling of their* "*resemblance* in certain respects,—the *invention of a name* for "those circumstances of felt resemblance,—what can be more truly "and readily conceivable than this process? And yet on this pro-"cess, apparently so very simple, has been founded all that con-"troversy as to universals, which so long distracted the schools; "and which, far more wonderfully,—for the distraction of the "schools, by a few unintelligible words, scarcely can be counted "wonderful,—continues still to perplex philosophers with difficul-"ties which themselves have made."

The error of the realists, in supposing general terms to represent actual and separate existences, distinct from the particular existences which they respectively comprehend, is no doubt prodigiously absurd; but not more so than that of the nominalists, who conceived general terms to represent nothing, which would truly be the same thing as saying, that

they have no meaning at all. The conceptualists, again, although they had a distinct enough view of these opposite errors, did not hit upon the true solution, when they supposed a general idea to be made up of different inconsistent and incoherent parts, of which an unhappy instance is given by Mr Locke, of a triangle which should be neither equilateral, isosceles, nor scalene, neither acute-angled, right-angled, nor obtuse-angled, but all of these together. The simple explanation of Dr Brown at once dispels all this darkness, and shows us that general terms do in truth express *a relation of resemblance*, and nothing more; not a real existence, but a relation of resemblance which is felt to have place between one real existence and another,—a relation which is felt before the name can be invented; for unquestionably "it is not the "name which gives rise to the feeling of resemblance, but "the feeling of resemblance which leads to the invention or "application of the name;" and what is of the last importance in regard to the use and power of this species of terms, they are so far from having in them any inconsistency or incoherence, that, as Dr Brown mentions, "there can be no "doubt that the exact meaning of our general terms is much more "distinctly conceived by us, than that of our particular terms. "We have a far clearer notion of a line, for example, than of an "inch or three-fourths of an inch; of rectilinear figures in general, "as formed by the meeting of any two straight lines in one direction, than of an angle of sixty-five degrees, for which a particular inclination of the meeting lines is absolutely necessary, "and an inclination which only the nicest measurement can discriminate from that which forms an angle of sixty-four or of "sixty-six. The general term, it is evident, in proportion as it is "more and more general, involves the consideration of fewer particulars, and is therefore less confused; while the particular term "must involve all the particulars included in the general one, with "many more that distinguish the species or the individual, and "that are difficult themselves to be distinguished, in consequence "of the faintness of the limits in which they shadow into each "other. To this it is owing that the sciences which are most "strictly demonstrative, that is to say, the sciences in which our "notions are the clearest, are not those which relate to particular "objects, and which, consequently, involve particular conceptions "and particular terms, but the sciences of number and quantity,

"in which every term is a general one, and every notion, there-
"fore, which it expresses general."

It is easy to see how, in the manner pointed out by Dr Brown, the mind advances from particular to general notions, and from thence to notions still more general, according to the greater or smaller number of accordances required to form them, the most general of all including the fewest circumstances of resemblance, and hence being capable of being most exactly defined and comprehended. In this way, in the classification of natural objects, we advance from individuals to species, and from species to genera, orders, classes, kingdoms, and all those divisions and subdivisions, by which we bring within our grasp the various, and seemingly infinitely various subjects of our knowledge. But general terms are not confined to this sort of classification; for it must be remembered that such terms comprehend almost the whole of language itself. "Grammarians," says Dr Reid, "have reduced all words to eight or nine classes, which "are called parts of speech. Of these there is only one, to wit, "that of *nouns*, wherein proper names are to be found. All pro-"nouns, verbs, participles, adverbs, articles, prepositions, conjunc-"tions, and interjections, are general words. Of nouns, all adjec-"tives are general words, and the greater part of substantives. "Every substantive that has a plural number is a general word; "for no proper name can have a plural number, because it signifies "only one individual. In all the fifteen books of Euclid's Elements "there is not one word that is not general, and the same may be "said of many large volumes."

We may here observe, that it is not in the philosophy of the human mind alone that the errors of realism and nominalism may be traced; for the same errors and the same incapacity for discerning the true state of the case is conspicuous in the works of the philosophical grammarians. These gentlemen have been prodigiously puzzled what to make of the connective parts of speech, articles, prepositions, and the like. Mr Harris, in his Hermes, has fallen into the error of nominalism, when he affirms, that "a preposition is "a part of speech, *devoid itself of signification*, but so framed as "to unite two words that are significant, and that refuse to coa-

"lesce or unite of themselves." He does not, however, consistently adhere to this statement, for he had previously defined a word to be a *sound significant;* and a few pages after he says, "prepositions commonly transfuse something of *their* "*own meaning* into the word with which they are com- "pounded."

Mr Horne Tooke, in his Diversions of Purley, points out the absurdity and inconsistency of these opposite statements.

"If," says he, "I agree with Mr Harris that words are sounds "significant, how can I agree that there are sorts of words devoid "of signification? And if I could suppose that prepositions are "devoid of signification, how could I afterwards allow that they "transfuse something of their own meaning?"

Mr Harris falls into the same inconsistencies in regard to the conjunction, which he first says is "a part of speech "*devoid of signification* itself, but so formed as to *help significa-* "*tion*, by making two or more significant sentences to be one sig- "nificant sentence." This, however, he afterwards qualifies by saying, that some of them have "a kind of *obscure signifi-* "*cation* when taken alone, and appear in grammar, like zoophytes "in nature, a kind of middle beings of amphibious character, "which, by sharing the attributes of the higher and lower, conduce "to link the whole together." Mr Harris here seems to mingle the errors of the conceptualists with those of the nominalists; the *obscure signification* he speaks of being neither signification nor no signification, but a middle something sharing the attributes of both, coming very near to Mr Locke's idea of a general conception of a triangle which is "neither oblique "nor rectangle, neither equilateral, equicrural, nor scalenon, "but all and none of them at once." Upon all this absurdity and inconsistency, Mr Tooke is abundantly severe; but his own opinions on the subject seem not less absurd, when, seeking to avoid the errors of nominalism and conceptualism, he falls into the equally extravagant absurdity of realism. He says,—"I maintain that the adjective is equally and alto- "gether as much *the name of a thing* as the noun substantive. "*And so I say of all words whatever;* for that is not a *word* "which is not the name of a thing. Every word being a sound "significant, must be a sign; and if a sign, the name of a thing."

It is needless to go into Mr Tooke's reasoning upon this point, nor to quote any of the numerous instances he has adduced to prove that all our words of the most abstract kind, not merely verbs and adjectives, but prepositions, conjunctions, and even articles, are originally derived from nouns, or rather that they still remain such, amidst all the transformations to which they have been subjected. The question is not, what was the meaning of a particular word or sound at the time of its original invention, but what is its meaning *now*, according to the usage of the best authors. And, taking this for our rule, we can have no difficulty in discovering that every general word, whether adjective, verb, preposition, conjunction, or article, is expressive of *a relation*, and of nothing more; and that the relations so expressed are relations of resemblance, or some circumstance or circumstances of agreement, in which a great number of particulars coincide. Thus, when we have observed the motion of *walking* in an individual case, and given a name to it, we apply this name to every other case where we observe a similar motion. When we have observed this motion in different directions, *from* or *to* a particular point, and have invented the words *from* and *to* to express this relation, we apply these words readily in all *similar* cases to express those *similar relations* which we therein observe. When we have made any statement, and wish to add something to it, we couple it with the conjunction *and*, which gives notice that something is so added or joined to what we said before; and when we have made a statement that is too general, and from which something is to be reserved or subtracted, we introduce this reservation or exception with the words *but* or *except*, and having once used these qualifying phrases in one case, we apply the same to all *similar* cases, where the same sort of addition or exception is to be made. In this way we come to the use of all sorts of words of this general kind, verbs, adverbs, prepositions, conjunctions, each of them expressing one sort of relation, and being applied by us in all

cases where we find a *similar* relation; and to this its application to a vast variety of similar or analogous cases its whole power as a general or abstract word is to be ascribed. When we consider this, we will at once acknowledge the prodigiously extensive use, in the intellectual economy, of this single and most simple principle, the *feeling of resemblance;* and we shall be the less disposed to question its having a separate and special faculty of the intellect, and a separate organ of the brain, appropriated to its use. But we are not yet done with the influence of the *feeling of resemblance,* or *sense of analogy,* in the wonderful structure of language, and we proceed to consider a part of this structure still more curious and complicated than what we have hitherto noticed.

What I now allude to is the well-known fact, that in every language, whether rude or refined, and in every state of human society, a very large portion of the words employed, perhaps the largest and most important portion, are used not in a literal but a metaphorical sense. This is the case with the greater number of abstract terms, but in a particular manner with those which are taken to designate the mind and its qualities. It is easy to imagine how this came to take place, as it is the natural progress of the mind first to acquire a knowledge of the objects of the external senses, and to proceed from these to notions more and more removed from sense, so that the mind and its qualities will naturally be the last to which our attention will be directed. It follows from this, that the words first invented will be the names of sensible objects and qualities, as these, being the first objects of our attention, will naturally be first distinguished by appropriate signs. And in this way it happens that the primitive roots of all languages are the names of sensible objects, and that from these all the rest is gradually derived. The manner in which this operation is performed is one of the most curious circumstances in the history of languages, and throws no small light on the operations of

the mind itself, of which language is, to a certain extent, a very exact transcript and picture.

It is now ascertained by the labours of etymologists, that, in every well-cultivated tongue, the number of primitive or radical words bears a very small proportion to the whole amount of its vocabulary. In the Greek, according to Mr Adam Smith, the number of primitives does not exceed three hundred. To enlarge this scanty supply of conventional terms, man is prompted by the structure of his faculties, whenever the enlargement of his knowledge requires a new word to express his meaning, instead of coining one for the purpose, to graft a new derivative upon an old stock, marking, by an addition to its termination, or some other contrivance, the shade or variation of meaning which is intended to be expressed; or, by a bolder species of license, adopting at once an old word just as it stands, and using it *metaphorically* to express something else, to which its original meaning seems to bear some *analogy or resemblance.* Of this description are the different words applied in most, if not all languages, to the mind itself. In Greek we have Πνευμα from πνεω, spiro; Ψυχη from ψυχω, flo—spiro. In Latin we have *Anima* and *Animus* from the Greek Ανεμος, *ventus*, *spiritus*; and we have *Spiritus* itself, from *spiro*; all derived, in short, by the same metaphor, from some word signifying to breathe, as if life and the soul were no other than breath. All or most of words signifying particular faculties, operations, or states of the mind, are in like manner metaphorical, having originally a signification applicable to the qualities of matter. Thus, in English, we have *attention*, *imagination*, *abstraction*, *comprehension*, *sagacity*, *foresight*, *penetration*, *acuteness*, *inclination*, *aversion*, *deliberation*, *circumspection*, all metaphorical expressions, designating originally certain states and operations of our bodily organs, or some of the relations of material objects, but now used to indicate certain qualities, faculties, or operations of mind. "Nor must it be forgotten," says Mr Stewart,

"that even in pure mathematics our technical language is borrowed "from the physical properties and affections of matter, a proposi- "tion of which it is unnecessary for me to mention any other "proofs, than the terms employed to express the most elementary "notices of geometry; such terms, for example, as *point, line,* "*surface, solid, angle, tangent, intersection, circumference;* not "to insist on such phrases as *involutes* and *evolutes, osculating cir-* "*cle,* and various others of a similar description. The use made "of figurative language in arithmetic is an instance, perhaps, still "more directly to our present purpose, as when we speak of the "*squares, cubes,* and *fractions* of numbers; to which may be added, "as a remarkable instance of the same thing, the application of the "word *fluxion* to quantity considered in general."

The tendency to the use of figurative or metaphorical language has long been remarked to be particularly strong among savages, whose speeches are full of figures of the boldest and most glowing kind. This has been attributed, most falsely, to their possessing a warmer and more active imagination than the people of civilized states; whereas nothing can be more certain than that in savage tribes the imagination, which results from a full endowment of both knowing and reflecting power combined with Ideality, is very far inferior to the average of these faculties in civilized man. It appears, however, from the skulls of savages in our possession, that Comparison is in general the most developed of the reflective faculties in them, Causality, Wit, and Ideality, being in general very little developed; and hence the relation of resemblance will be that which occurs to them most readily, and by which their ideas will be most commonly connected. In addition to this must be considered the comparative poverty of their languages, which contain a far scantier supply of words than the more polished tongues, and these almost entirely confined to merely sensible objects. It follows from this, as a matter of necessity, that when a savage wishes to express any abstract idea, he is compelled to make use of a metaphorical or figurative expression; and this not for the sake of ornament, or with the view of attaining the praise of elegance, but simply for the purpose of expressing his meaning. It is mentioned by

the Abbé Sicard, that the deaf and dumb acquire a knowledge of adjectives by the sense of analogy, and by it alone. Thus one wrote, "Jean est agneau," meaning that he was gentle; another wrote, "Guillaume est Lion," meaning "brave;" and another, "Col est mon chien," by which he meant that Col was his friend. In the same way it has often been observed of sailors, whose ideas and ordinary discourse is confined in a great measure to nautical objects, when they happen to come ashore, and mix in the affairs of a land-life, make up for their deficiency in the set phrase of a landsman's vocabulary, by a metaphorical application of sea-terms, which are perfectly understood by their brethren of the deep, and are often not a little ingenious and amusing. Much of the wit and amusement to be found in the writings of our unrivalled Smollett consists in the use he makes of this species of sea-slang, of which innumerable instances might be given from his novels.

There is probably no language in which the conversion of thought by metaphor is carried to a greater extent than in the Chinese. In the dictionaries of that language, the words that are used in a metaphorical sense are arranged in a class by themselves, called the *Kia-tsie;* and as metaphor is so abundant with them, this is a most extensive class, and, as is mentioned by a writer in the Quarterly Review,* "may, in fact, be said to comprehend all the characters in the language, as all of them are occasionally used in a figurative sense. "This indeed is implied in their very origin and construction; and "it is this frequent use of metaphor which causes so much difficulty "to strangers. These figurative allusions, to which the Chinese attribute a peculiar degree of beauty and energy, will best be explained by a few examples. The character *sun*, combined with "that of *moon*, composes a third which is called *ming*, and signifies, in a physical sense, *brightness, brilliancy, splendour*, and "*morally noble, illustrious, famous*, &c. To *forget* is composed "of *dead* and *heart;* to be *gallant* is composed of the characters "*joy* and *girl;* a bad affair is composed of a *girl* and an *evil spirit;* fickleness of a *girl* and *thought*. The character *whole*, add-

* Vol. iii. p. 283.

" ed to that of *heart*, signifies *application* or *attention*; that of *ten* " to that of *mouth*, antiquity. To *flatter* is composed of *wind* and *to* " *lick*; friendship of *two equal pearls*, because, perhaps, they are " supposed to be rarely met with. To *boast* is *to speak* and *main-* " *tain*; to *remember* is *to speak*, and *one's self*; to mutter is *to* " *speak*, and *the negative*. The *wife of a magistrate* is used meta- " phorically for *an accomplished lady*; a *wild boar* for *courage*; " and a *tiger* for *ferocity* or *terror*. Thus also *a house* is sometimes " used figuratively for the master of it; the door of the women's " apartment for a virgin."

In most of these instances the analogy is sufficiently clear; in others some allusion is made to local customs and traditions, an intimate knowledge of which can alone afford a key to understanding the characters employed. The proper name, or appellative of a man, is a compound of the two primitives, *mouth* and *moon*. This, it seems, is derived from a Chinese custom, that, on the last day of every moon, when the guards are mounted, the *names* of those who are to be on duty the ensuing month are *called* over. " The cha- " racter signifying marriage is compounded of those of *wine* and a " *seal*, because the wine presented on that occasion by the bride- " groom to the bride is considered as the seal of their union. A " concubine, or second wife, is composed of the characters *girl* and " *upright*, because she is not allowed to sit down in the presence of " her husband. The characters *tiger* and *fire* signify hunting the " tiger, this being generally done by torch-light. *Painting the* " *tiger*, however, has a meaning much more obscure; a painter, " famous for his spirited representations of an enraged tiger, was " observed to succeed best when he drank most; hence *hoa hoo*, li- " terally to paint the tiger, became a common expression for hard " drinking."

So far with regard to the uses of this faculty in the formation of language; I shall now venture a few remarks on its ulterior uses, and the first I shall mention is the formation of general propositions. Admitting that general terms are formed by means of a faculty which perceives resemblances among relations, it will not require much consideration to satisfy us, that it is by the same faculty we arrive at general propositions. Indeed there is no difference between the cases, except that, in the one, the resemblance is expressed in a single word, in the other by a circumlocution. A particular relation being observed in one individual case

is expressed by a particular proposition; and the same relation being afterwards observed in a great number of other cases, a resemblance is felt by us to exist between them, and this circumstance of felt resemblance being expressed in words, becomes a proposition embracing all the individual cases. "A horse has four feet," is a general proposition of this kind, and, though one of the simplest that can be imagined, it could not have been formed without the existence of a faculty perceiving resemblances, by means of which we feel that all horses resemble one another in this particular point. It is the same feeling of resemblance which led to the formation of the general term *quadruped*, that leads to the formation of a general proposition predicating that all the animals of a particular class have four feet. The resemblance being felt and stated, it makes no difference in point of principle whether it is expressed in a word or in a sentence.

But there is more than this in general propositions; for we are not only led, by our power of perceiving resemblances, to include in one statement all the particular facts of the same kind which have fallen under our observation, but we are led prospectively to an expectation of similar resemblances among facts not observed. In treating of Individuality, or the power which enables us to observe individual existences, I mentioned* that its observations are accompanied with a prospective expectation of the *permanence* of the objects observed. In like manner, the power which enables us to perceive resemblances, and to observe the uniformity of the productions and operations of nature, is accompanied with a prospective expectation of *uniformity* in cases of which we had no individual experience. We not only perceive resemblances and look for resemblances, but we *expect* resemblances everywhere; and such is the regularity, constancy, and uniformity of nature's operations, that, whenever we use our faculties aright, we never expect them in vain.

* In a paper read to the Society.

This is indeed only an instance of what holds with regard to all our faculties of every kind,—propensities, sentiments, and intellect. Philoprogenitiveness would have been given us in vain had there been no children. Acquisitiveness would have been equally nugatory, if there had been no objects of utility, convenience, or luxury, to be stored up for future use. The organs of Colour and of Tune suppose and require that there should be varieties of hue and of tone to be observed. So the faculty or sense of Resemblance would have been utterly useless in a world where no resemblance or uniformity existed among objects or events. In such a world, man must have been an extremely ignorant, helpless, and miserable being;—looking for resemblances which he was destined never to find, and expecting an uniformity in which he was for ever to be disappointed, he could neither have made any classification of the objects of his knowledge, nor could he have availed himself of the experience of the past to predicate any thing regarding the future. Equally ignorant and helpless he must have been in the world constituted as it is, had he possessed no power of observing, and no tendency to expect resemblances such as actually exist among the objects and phenomena around him. Every object and every event must in such case have been an individual, leading to no general knowledge beyond the limits of his own actual experience. As it is, however, the faculties of man and his situation in this world are exactly suited to each other; and in no particular is this adaptation more evident than in regard to this very faculty; for, corresponding to the power of perceiving, looking for, and expecting resemblances and analogies, we find the arrangements and operations of nature to be so constant and uniform, and to present us everywhere with such and so many similarities and resemblances, as to furnish an inexhaustible food for this faculty. Trusting to this uniformity in the operations of nature, we are not only enabled to extend our knowledge of present existences beyond the reach of observation and testi-

mony, but from the past we take upon us to predicate the future; and we do so with as great a certainty of correctness as we feel in our observations upon particular individuals. Thus we are not more certain that a particular individual, James, is liable to die, than that this is the case with all the men now existing in the world; and we are not more certain that all the men who have existed in former ages have died, than we are that the same will be the case with all future generations of men that ever will exist to the end of time. When we say, that "all men are mortal," we merely express, in one general proposition, this single relation of mortality, which is common to all mankind from the beginning to the end of the world, and in regard to which all men resemble each other. The same may be said of all other general propositions. They must all refer to some kind of relation, in which a great many particulars agree or resemble one another; and the proposition merely expresses this agreement or resemblance. We are not satisfied with stating this agreement or resemblance in regard only to the particulars that have fallen under our notice, but, where our experience has been uniform, we are led to extend it to all cases of a similar kind; and, relying upon the uniformity of the operations of nature, we are enabled to rise from particular to general facts, and from these to laws which are as universal as nature itself.

General propositions form the foundation upon which Aristotle erected his logic, and the whole art of reasoning by syllogism. The utter worthlessness and inefficiency of this mode of reasoning is now so universally acknowledged, that it would be a waste of time to enter upon any detailed examination of its different forms. Its usefulness may be evident from the single example which is commonly given, "all men are mortal: but James is a man; therefore James "is mortal." This is mere drivelling, and tells us nothing we did not know before. We could not arrive at the general fact, that *all men are mortal*, without being previously sa-

tisfied that James, as well as all the other men in the world, was so. It is astonishing that for nearly two thousand years the world was so blind as to be satisfied with a system and an art of reasoning by which, it is demonstrable, we can never arrive at the knowledge of any new truth whatever. Before we begin our process of reasoning by syllogism, we must first arrive at the knowledge of the general fact included in the major proposition; but this same major proposition is really the whole affair, and includes in it, necessarily and immediately, the very thing which we are desirous of proving. Either the major proposition is founded on an extensive and uniform induction of particulars, or it is taken for granted upon slender and insufficient grounds. In the first case, before we begin to construct our syllogism, we must already know the particular proposition to be true, otherwise the general one could not be so. In the other case, we never can prove a particular proposition respecting which we have had none, or only an imperfect experience, by means of a more general one, respecting which our experience has been equally defective.

Lord Bacon was the first to point out, that the boundaries of human knowledge could never be extended by reasoning down from generals to particulars, but that the true mode of proceeding was to reason upwards from particulars to generals. His system of inductive reasoning, and of studying nature by observation and experiment, is founded upon just views of the human understanding and of the constitution of nature. An important part in this process is borne by the faculty for perceiving resemblances. Without this, *all* our observations must have been particular; and we could never have advanced beyond the knowledge of individual facts. It is by Individuality that we make observations on individuals, and discover the relations in which they stand to each other. It is by Comparison that we perceive the resemblances between these separate individual relations, and out of many particular observations form one general obser-

vation. But this system of induction would be quite imperfect, and we could never advance by it beyond the limits of our own experience, were it not for that prospective expectation of uniformity formerly noticed. We feel that this expectation is never disappointed, and from our experience of this we form the maxims, that Nature is "uniform in all her "operations," and that "similar causes will always be at-"tended by similar effects," and the still more comprehensive one, "that what has been will continue to be, and un-"der the same circumstances will always be." These maxims, upon which the whole of inductive reasoning rests, are nothing more than general propositions, formed in the manner already pointed out.

The use of general propositions, the formation of which we have been now considering, is as extensive as reasoning itself, and embraces the whole circle of human knowledge. In all processes of reasoning, whether relating to law, to politics, to morals, to religion, or to physical science, our first object is to discover some *general principle*, applicable to all the particular cases; and when we succeed in establishing such a principle, to which no objection can be made, to which there is no well-authenticated exception, and are able to show that it applies directly to the case towards which our inquiries are directed, our business is done, our argument is complete, and the point which we have endeavoured to illustrate may be regarded as proved. Such principles form the foundation of all our reasonings, and when analyzed, they will be found to be nothing more than general propositions, expressing some point of resemblance, some relation in which a vast variety of particulars coincide or *resemble* one another, and which of course could not possibly be formed without the aid of a faculty which perceived the resemblance of relations.

It is the business of reasoning to form principles of this kind, and to apply them. But when once they are formed, they are sometimes stated didactically in the form of maxims, which are

delivered to the young and the uninstructed as the dictates of the wisdom and experience of age. These are not without their use, as they are easily retained in the memory, and contain, in a condensed form, the results of long observation and reflection. But there is another form in which such results are in use to be presented. I mean those proverbs which in all nations have been used to hand down from generation to generation the wisdom of past ages. A proverb differs from a maxim in this, that a maxim is merely a general proposition, simply and literally stated, while a proverb expresses the same thing by a metaphor, and thus conveys the meaning in a still more condensed, terse, and pointed manner. Maxims only go through one operation in the intellect, while proverbs undergo two, and both are performed by the faculty we are now considering. Some of the latter may well be denominated the double-distilled essence of comparison, and contain the greatest possible quantity of meaning compressed into the fewest words. Of these a few examples may be given. It is a general remark, that "perseverance is of more effect in accomplishing great undertakings than any violent or sudden exertions." This is expressed in the proverb by the metaphor, "Little strokes fell great oaks," or the Latin one, that stones are worn, "*Non vi sed sæpe cadendo.*" The Scottish proverb, "A rolling stone gathers no moss," indicates that he who frequently changes his place or his trade will never make money. There is a Cornish proverb, "He who will not be ruled by the rudder must be ruled by the rock," intimating that those who are headstrong, and will not take advice, must suffer the consequences. The Italian proverb, "Beware of vinegar made of sweet wine," means that it is dangerous to provoke the rage of a patient man.

In the infancy of nations, before the introduction of letters, and before great books were written on every subject, much of the genius and wisdom of nations was contained in these proverbs. Solomon seemed to consider it a necessary part

of a learned education to study the "words of the wise and "their dark sayings," and to understand "a proverb, and "the interpretation thereof." Not to mention the collection of proverbs left us under his name, which seems to be but a small part of what he actually wrote, many of the greatest men of later times did not think it beneath them to invent proverbs. Julius Cæsar was the author of a well-known one, which still remains in use. When about to repudiate his wife, he replied to those who remonstrated against his putting away so excellent and apparently unexceptionable a lady, "None of you know where the shoe pinches." The Chevalier Bayard is said to have given us one, alluding to the uncertain and expensive habits of a military life, and the little chance a soldier has of realizing a fortune, "What is "gained by the sword is consumed by the gorget." The Jews have some expressive proverbs, containing allusions to their own history. "When the tale of bricks is doubled, "Moses comes;" intimating that there is a point beyond which oppression can no longer be borne. It is needless to state more instances here. I merely quote them as illustrating, in a double point of view, the operations of this faculty. Maxims are general propositions, formed, as all general propositions are, by the faculty which perceives the resemblance of relations; and proverbs are produced by the same faculty, inventing a metaphor to express the same relation in which all the cases comprehended in the general proposition resemble each other. This double operation of the same faculty deserves to be noticed in considering the philosophy of proverbs.

But it is not merely in inductive reasoning that Comparison is concerned: I conceive it to be a material assistant in all processes of general reasoning. Even in mathematical reasoning, the most general and abstract of all reasoning, this faculty must act an important part, if we are right in considering its function to be a power of perceiving the resemblance of relations. In every kind of mathematical

reasoning, whether in geometry, algebra, fluxions, or the differential calculus, there are two relations by means of which all our reasonings are conducted, equality and proportion; and there are no other. Now equality is just a species of resemblance; and it is the most perfect species of resemblance which we are capable of conceiving. In all cases, therefore, where our reasonings regard equality, it is obvious that this faculty must be concerned; for the things compared, and concerning which equality is predicated, are in no case individual existences, nor specific qualities of individual existences, but relations merely. We cannot, therefore, institute the simplest equation, or say that $A = B + C$, or that the line AB is equal to the two lines CD and EF, without perceiving the resemblance between relations. An angle is even more obviously than a line a mere relation, and, therefore, when we say the angle ABC is equal to the angle DEF, we are more obviously making use of a faculty which perceives the resemblance between two given relations. And this is the case, however far we carry our calculations in order to arrive at a relation of equality. When we say $A + B - \frac{C}{axz} = Xz$, we have a perception of resemblance between two very complicated relations; and this may be resolved by calculation into other equations more or less complicated, which are merely the perception of other resemblances, existing among the same relations under a different mode of arrangement. Even when our reasonings involve the element of proportion, we cannot proceed a step without the aid of this faculty. For in stating the simplest proportion that occurs, $A : B :: C : D$, the process is no more than this: We first apprehend the proportion existing between A and B; we next apprehend the proportion existing between C and D; and, lastly, we apprehend a resemblance between these two proportions, in other words, that the proportion between A and B is exactly similar to that between C and D. It is clear we could not form such a proposition as this

without a power capable of comparing and of perceiving the resemblance between these two relations of proportion.

It is my intention, on some future occasion, to enter more at large into the nature of reasoning, both general and inductive, after we have considered, with some minuteness, the nature and function of another important power, viz., Causality. What has been said may be sufficient to show the vast extent and uses of Comparison, or the *sense of Resemblance*, as an element, even in our most abstract reasonings. But there is one species of reasoning which belongs to this faculty as its peculiar province, and in which it has no rival to compete with,—I mean analogical reasoning. It has been well observed, that, when any thing new is presented to the mind, any thing which we have had no experience of, or no opportunity of observing, we are extremely apt to reject it as incredible and absurd, if it appears totally unlike any thing that we have ever observed or heard of before. On the other hand, it tends greatly to facilitate the reception of any new fact or doctrine,—if it resembles what we have formerly observed, and the stronger and the more numerous the resemblances we are able to trace between it and those other doctrines and facts upon which we have been accustomed to repose with undoubting security, the more it is likely to attract our attention and engage our belief. Hence, in proposing any fact or doctrine to our consideration, it is a great point to be able to show, in the first instance, that this is not an anomalous case, totally unlike any thing that ever occurred before, but, on the contrary, that it bears a strong resemblance or analogy to various other cases, which are either perfectly familiar to us, or proved upon undoubted and irresistible evidence. The teacher, or announcer of the new doctrine, by proceeding in this manner, removes in his audience that indisposition to the reception of new truths, which all minds feel in a greater or less degree, and begets, on the other hand, a disposition towards the reception of what appears to harmonize so well with

those facts or doctrines which are considered to be previously proved. He removes the prejudices against him, and begets a prejudice in his favour, when he shows, that what he endeavours to prove harmonizes entirely with the procedure and arrangements of the works of nature in other cases; and if the resemblances and analogies so traced be of a strong and intimate kind, and if they be numerous, and drawn from various and opposite sources without any case occurring in which the contrary takes place, a case of probability may be made out so strong as almost to supersede the necessity of any farther proof. And let it not be said that this mode of reasoning is not philosophical. It is perfectly philosophical when used with discretion, and within just limits. Doubtless it may be abused; but, when properly used, it may lead to conviction almost, if not altogether, equal to any other mode of proof;—and why? For the reason before stated, that Nature *is* uniform throughout all her departments, and *is* everywhere full of resemblances and analogies. The Creator has, in all his works, proceeded upon a plan which is full of wisdom; and every part of his works bears some resemblance, in some of its relations, to every other part, by which means the combined parts are not more distinguished by their separate beauty and simplicity, than by their harmony and consistency as an entire system. Resemblances are found between things above us and below us,—things in heaven and things in the earth, and things under the earth,—between the concerns of time and those of eternity,—between the worlds of matter and of mind,—and to those who trace these analogies with due discrimination, every part of the book of nature is full of instruction. The character of God himself is reflected in the things which he has made, and to him who studies these attentively, day unto day uttereth speech, and night unto night teacheth knowledge. Their lines are gone unto the ends of the earth, and there is no speech nor language where their voice is not heard.

Not to insist more largely here upon the philosophical

uses of analogical reasoning, there is one particular case in which this mode of reasoning may be used, in which it is as completely and as instantly conclusive as the most rigid philosophical demonstration, and that is where the purpose is not so much to adduce a proof as to answer an objection. When objections are drawn, as they very frequently are, from analogy, they may often be completely, and conclusively, and triumphantly refuted by an analogical argument. Of this I cannot give a more apposite instance than the argument which is used by St Paul, in answer to those who objected to his doctrine of the resurrection of the dead.

"But some will say, How are the dead raised up? and with what "body do they come?

"Thou fool, that which thou sowest is not quickened, except it "die.

"And that which thou sowest, thou sowest not that body that "shall be, but bare grain, it may chance of wheat, or of some other "grain.

"But God giveth it a body as it hath pleased him," &c.

Here the object is not to prove the resurrection of the dead, but to refute the objections of *à priori* reasoners, who endeavoured to show that it was impossible. St Paul instantly adduces the analogous case of the seed, and the analogy is so strong, the resemblance between the two cases so just and striking, that it is at once admitted by every mind as a conclusive refutation of the reasoner's objection; and it is immediately perceived, that whatever other doubts may remain with regard to the resurrection of the dead, there can be no objection on the score of impossibility.

Another instance of a conclusive answer being drawn from analogy to an objection of a not very dissimilar kind, occurred on a paper which was lately read in this room by a very distinguished and enlightened member of this society, (Dr Andrew Combe), in which, by a series of the most close, intimate, and striking analogies existing in other parts of our system, he produced a most ample and decisive refutation of these objections, drawn from analogies of a looser and less accurate kind, against the phrenological doctrine, that,

when all other circumstances are equal, size of brain affords an accurate index of the power of manifestation.

So much may be stated with regard to the use of analogies in philosophical reasoning. But, in many kinds of reasoning, and those too of no little importance, there is hardly room for employing any other than analogical reasoning. In almost every department of eloquence, either of the pulpit, the bar, or the senate, analogical reasoning is of the most important use. In reasoning with regard to the concerns of another and of a future state,—when nothing can be stated from actual experience,—the preacher has hardly any other means of bringing the truth home to his hearers, than by apposite and well-selected analogies. He must, as Dr Spurzheim observes, compare and liken things in heaven, of which we know nothing with certainty, but from the authority of revelation, to the present system of things surrounding us in this world; and by this means to refute objections, to allay prejudices, to remove that indisposition which many minds feel to the reception of the doctrines of scripture, and to beget a disposition to the reception of that doctrine. This is the true business *of preaching*, and it is by analogical reasoning alone that its objects can be attained. With regard, again, to the proofs of revelation, and of the authenticity and genuineness of the sacred books,—the evidences of the reality of the miracles there recorded,—the evidences from these miracles,—from prophecy,—from the lives and from the deaths of the first preachers and promulgators of the doctrine, as evincing the truth of the doctrines themselves,—these must be sought for in the same way as proofs or evidences of any other kind; and the subject requires and affords full employment to all the intellectual faculties. So far as regards its evidences, the religion of the Sacred Scriptures is as much an inductive science as any other that can be named, and demands, as much as any other, the aids of industry and learning, the most critical accuracy, and the most refined ingenuity. The proper mode of teaching these

evidences, as in any other science, is by *lectures;* and this mode of distribution of these respective subjects is followed by the ablest divines. I only regret that this division of the subjects which engage the labours of our divines were not more systematically followed than it is. But this is a matter foreign to my purpose. I mention it at present merely to point out, by an apposite instance, the proper boundaries of analogical reasoning, and when it is in its proper place. In the lecture, when any of the evidences of religion are to be discussed, any point of scriptural interpretation to be sifted, or any subject of ancient prophecy to be explained, analogical reasoning is not so exclusively employed,—what we want here are facts and inferences,—and comparison is only admitted to act in conjunction with and in subordination to the other intellectual powers. But in the sermon, the object of which is to rouse the inattentive, to awaken the careless, and to carry divine truth home, by means of the most striking and sensible images, to the hearts and consciences of all, analogical reasoning is entirely, and almost exclusively, the weapon to be employed. It is by means of this alone, that, after the understanding is convinced, a due impression can be made on the heart and the affections.

It is the same in oratory of any other kind, only, where the matters treated of are confined to the affairs of this world, there is not such a complete separation between the different modes of reasoning. In general, the speaker endeavours to lead the understandings of his hearers, and bespeak their attention, by making some general remarks, which they will at once admit, and to which no objection can be stated. He then adduces some well-known cases, bearing some kind of resemblance to the one in hand, the results of which are favourable to the conclusion he wishes to draw. He arranges these in such a way as to bring forward the remoter analogies first,—then cases which bear a closer resemblance to his own,—and, last of all, the very case which he is called upon to argue. Then he is obliged to exert all his ingenuity

in properly stating his facts,—adducing his proofs,—drawing his inferences,—making distinctions,—stripping the matter of all its extraneous circumstances,—presenting the point to be determined in its most simple and intelligible form; and bringing it round so as to identify it as clearly as possible with the analogous cases previously cited. This, with a peroration, rapidly glancing at the principal topics of his discourse, and giving a condensed and concentrated view of his whole argument, so as to leave the strongest impression possible upon his hearers, seems to be the most effective mode of winding up the discourse. The art of the orator should be shown, in not anticipating the judgment of his hearers, but rather in leading them to draw the conclusion for themselves, than in drawing it for them. If, however, he is provided with a great store of analogous cases, and is happy in his mode of bringing them out and applying them, he may venture a great deal more, after stating these, than he can be permitted to do before it. If, by means of these, he has succeeded in leading the thoughts of his hearers to run in a particular channel, and to feel that expectation of similarity which we formerly spoke of as attending all the manifestations of this faculty, his business is more than half done. They become willing to be persuaded, and the proofs and arguments he may thereafter adduce find a ready and unresisting acquiescence.

From the above will be seen the vast importance of the faculty of Comparison,—understanding, by this term, a power of perceiving Resemblance in the relations of the different objects of our knowledge. The subject is not exhausted; but I find it time to conclude a paper which, I am very sensible, has been already too long.

ARTICLE II.

INQUIRY CONCERNING AN ORGAN FOR THE FEELING OF THE LUDICROUS, DISTINCT FROM THAT OF WIT.

(*From a Correspondent.*)

THE feeling of the ludicrous has hitherto, we know, together with the perception of difference, been considered a function of the faculty of Wit.

To this, however, there have always been, we think, several very important objections. The feeling of the ludicrous appears to possess all the characteristics of an original specific feeling, not resolvable into any other feeling, or into any combination of feelings. If then nature, so far as we can discern, has established, in every other instance, a connexion between a primitive feeling and a cerebral organ; if to each of the primitive feelings of Self-esteem, Love of Approbation, Cautiousness, Benevolence, Veneration, Hope, &c. she has assigned a material instrument on which its operations are made to depend, does it not appear a very reasonable conclusion, that for the feeling of the ludicrous, which to all appearance is as much an original feeling as any of the other sentiments, there should be found a similar material accompaniment?—that, in short, a separate organ for the feeling of the ludicrous is yet a desideratum in the system of Phrenology?

To ascribe to the faculty of *Wit* the generically different functions of perceiving differences, and of giving the feeling of the ludicrous, has ever appeared to us to be quite inadmissible, as confounding the function of an intellectual with that of a sentimental faculty. We presume, therefore, to intrude upon your notice our thoughts upon this subject, not as by any means professing to settle, but as only making an attempt to stir the question respecting an organ for the ludicrous distinct from that assigned to Wit, being encouraged to think, by what we have seen, that the result of observation

will be, not only the discovery of such an organ, but likewise the ascertainment of this point as to the faculty of Wit,—whether it be a sentimental or an intellectual faculty, as it has ever appeared to us absolutely necessary that it be considered as belonging wholly, and exclusively either to the one class or to the other. We are very much averse to the idea of Wit being a mongrel faculty, partaking both of intellect and of sentiment, as in so viewing it we make it quite an anomaly in our mental constitution. If its function be to give the feeling of the ludicrous, then unquestionably it is a sentiment, and ought to be classed with that genus of feelings. If, however, discrimination be its function, then it ought to be classed with the intellectual faculties.

We were at one time disposed to class this organ and faculty of Wit with the sentiments, and to consider its function as confined to that of giving the feeling of the ludicrous,—of infusing, as it were, the essence of drollery into the expression of the countenance and gesture, and likewise into conversation, and to imagine, that with other faculties it combined in producing what is called *Humour*, and to seek for the function of discrimination from some other faculty.

When reflecting on the functions of the organ and faculty of Comparison, there appeared to be some reason for concluding, that in the perception of *resemblance*, the perception of differences was necessarily, or at least very probably implied. Difference appearing to be but, as it were, a negation of resemblance, we were disposed to conclude, that when you perceived the points of resemblance between two or more objects, you, at the same time, necessarily perceived the points of *dissimilarity*, just as when with your organ of vision you at the same moment perceive both light and shade. This, however, is but one more of the many proofs that we have of the inadequacy of metaphysics of itself to lead to an accurate system of mental philosophy. The reflections of the metaphysician on the objects of his own consciousness, however, are not to be despised, as, when corrected and modified by observation

and patient induction, they may lead to very important results. It was by subsequent observation that we were convinced, that to the faculty of Comparison we cannot look for the perception of differences,—an innumerable multitude of facts presenting themselves in decisive proof of this proposition, that a man may be quite expert in perceiving resemblances, and in tracing analogies, while he is, at the same time, almost completely destitute of discrimination. If it were, as we once imagined, the business of Comparison to perceive both resemblances and differences, it is evident, that the one function should at all times be equal in endowment with the other, and that both functions should exist, and be manifested in equal *proportion* to the size and activity of the organ of Comparison. By stubborn facts, however, this notion of comparison perceiving differences as well as resemblances is most decisively contradicted. One instance may be adduced as very remarkable, in the case of a person with whom we happen to be well acquainted, and who possesses a very large and prominent organ of Comparison. His forehead retreats abruptly on each side of the organ of Comparison, and thereby indicates not more evidently the place and size of Comparison, than a strongly-marked deficiency of Causality, and especially of Wit. In correspondence with the external appearance of the organ, there is not in his illustrations a more marked predominance of resemblances, and analogies, than there is a deficiency of discrimination. From which, as well as from many similar facts, it seemed reasonable to conclude, that the faculty which perceives difference, is not the same as that which perceives resemblances.

Being forced to relinquish Comparison, we sought the solution of our difficulty from Causality. In the perception of the relation of cause and effect, however, we could not find any thing which necessarily implied a perception of differences. There are many instances to be met with of very good reasoning from very bad premises, thereby indicating a very good reasoning faculty, without the power of discrimi-

nation necessary to discern the difference between good and bad premises. In endeavouring to convince ourselves, that the operations of Causality were sufficient to account for the perception of differences, we argued, that, perhaps, the perception of dissimilarity between two things, *prima facie* similar, is the result of a train of reasoning; but if two things are *prima facie* similar, in the supposition that a train of reasoning is requisite to perceive the dissimilarity between them, a very important query arrests our attention. Seeing the mind is not always on the alert to hunt after differences between things that appear to resemble each other, what is it that gives the mind the hint necessary to excite it at one time more than another, to engage in the pursuit after arguments to evince the dissimilarity between two or more things *prima facie* similar? If the things appear to be similar, what could suggest the idea of seeking arguments to prove their dissimilarity, if it be not some lurking suspicion that the similarity is only apparent? And if there is any such lurking suspicion of dissimilarity, whence comes it? Does it not seem to take its rise in the operation of a faculty evidently separate and distinct from the reasoning faculty? If so, then the necessity of ratiocination is superseded by the operation of a faculty formed by nature intuitively to perceive dissimilarity,—a faculty the function of which could not be performed by any process of reasoning whatever. If there is any reasoning in the matter, therefore, it is subsequent to a previous perception of dissimilarity; the object of which is to convince, not ourselves, but others, of the difference between two things, apt, by common minds, to be confounded. By such reasonings as these did Mr William Scott's very ingenious views concerning the faculty of Wit approve themselves to our mind, the primitive function of which, he says, is to distinguish differences.

That the organ of this faculty should be found in the immediate neighbourhood of Causality, is not only very reasonable *à priori*, but it likewise appears to be confirmed by ob-

servation; but that the faculty itself, which, from the function now ascribed to it, is evidently intellectual, should have over and above added to it a function not less evidently belonging to a sentimental faculty, that of giving the feeling of the ludicrous, appears to be quite inadmissible.

From this view of the faculty of Wit, as giving the feeling of the ludicrous, we dissent for three reasons:—

I. Because such an account of the faculty appears to be quite unphilosophical, inasmuch as it confounds the function of an intellectual with that of a sentimental faculty.

In the sentiments of some Phrenologists concerning the function of this faculty there seems to be no small confusion. "This faculty," says Mr Combe, "is treated as an intellectual "power in Dr Spurzheim's English work; but in his French "works, subsequently printed, it is considered as a sentiment. "He regards it as giving the feeling of the ludicrous, and pro-"ducing the tendency to represent objects under this aspect, in "the same way as Ideality gives the feeling of the beautiful "and also the tendency to elevate and adorn all the conception "of the mind."

In ascribing a place to an organ, or a function to a faculty, it has always appeared necessary (in this doubtless we may be mistaken) to give it either wholly and exclusively the place and function of a sentiment, or wholly and exclusively the place and function of an intellectual faculty. Now we know, that it is the office of an intellectual faculty either to perceive objects external to the mind, to form conceptions of things, or to discover relations, not *necessarily* connected with any feeling whatever; and that it is the work of a sentimental faculty to give some species of feeling, without forming any idea either of perception, conception, or relation. Dr Spurzheim, aware as he undoubtedly is of this difference between intellect and sentiment, seems to vacillate between the opinion of Wit being a sentimental and of its being an intellectual faculty, or to settle down into the opinion of its being a sort of mongrel faculty, possessing the double and heterogeneous functions both of intellect and sentiment. For "Wit, ac-

"cording to this view, (continues Mr Combe), would consist "in conceptions formed by the higher power imbued with "the *sentiment* in question;" that is, the conception of difference imbued with the feeling of the ludicrous. Now if to unite together, as the operation of one faculty, two functions, between which nature seems to have drawn a line of separation so broad and distinct, be unphilosophical, it seems wonderful that this incongruity should not have so arrested the attention of a mind, acute as that of Dr Spurzheim undoubtly was to have led him to discover whether or no there be a separate organ for the feeling of the ludicrous.

Mr Scott, endowed, as he undoubtedly is, with a philosophical mind of a high order, seems, nevertheless, to have stumbled upon the same unphilosophical account of the faculty of Wit. From his opinion, however, as to the function of Wit being both to distinguish differences and to give the feeling of the ludicrous, we must be permitted to withhold our assent until we see a satisfactory reason for modifying so considerably, as in this case we must do, all our previously-acquired notions respecting the functions of sentiment and intellect, which, as we both love and seek the truth, we, upon good cause being shown, are very willing to do.*

Mr Scott, in support, we suppose, of his views respecting the combination of the *ludicrous* with *discrimination* as the functions of this faculty, affirms, that all instances of Wit, in the common acceptation of the word, are resolvable into the perception of difference, or of "congruity amid incongruity." If this be correct, Wit has, in the common acceptation of the term, as much to do with the faculty of Comparison as with the phrenological faculty of Wit; because, according to Mr Scott's definition, all instances of Wit are resolvable into the

* The present essay was printed before the author had an opportunity of seeing Mr Scott's article in our last Number; but in our next we shall insert the observations with which he has since favoured us on the same subject. —Editor.

perception of congruity amid incongruity, or, which is the same thing, of unexpected and ludicrous resemblances or analogies, which includes not only the perception of difference, the function of Wit phrenologically so called, but likewise the operation of the faculty of Comparison. But, if we are not very much mistaken as to what is meant by Wit, in the common acceptation of the term, Mr Scott, in including the perception of *difference* in his definition, is rather incorrect. For Wit, in the common acceptation of the term, seems not only not to include this function, but, in fact, in many instances, perhaps in all, to run counter to this function of the phrenological faculty of Wit. It is more than probable that Mr Scott is better acquainted both with the theory and practice of Wit, commonly so called, than we pretend to be; it becomes us therefore to speak modestly; but we suspect he cannot adduce any instance of Wit being a perception of unexpected differences; whereas we can adduce many bearing the character of unexpected or ludicrous resemblance or analogy. In this opinion we are supported by no less authority than that of Mr Locke, who evidently considered Wit, in the popular acceptation of the word, as opposed to judgment; by which he evidently meant the discriminating faculty, ascribing to it the very same function as that which the Phrenologist ascribes to his faculty of Wit. He represents Wit "as lying in the assemblage of ideas, and putting those together with quickness and variety, wherein can be found *any resemblance or congruity*, thereby to make up pleasant pictures in the fancy. Judgment, on the contrary, lies in separating carefully one from another, ideas wherein can be found the least *difference*, thereby to avoid being misled by similitude."

If then it be true, that, after all, the phrenological faculty of Wit has just nothing at all to do with Wit, commonly so called, and if it be admitted, that Comparison is chiefly, if not exclusively, employed about all that is intellectual in Wit, commonly so called; if we are to combine the feeling of ludicrous with any of the intellectual faculties, it ought to be with the faculty of Comparison, rather than with the phreno-

logical faculty of Wit; but it should likewise be combined with Causality, because we may sometimes meet with most exquisite specimens of ludicrous reasoning. Nay more, if we are to ascribe the function of giving ludicrous feeling or drollery to *any* one of the intellectual powers, we have, we think, about as good a reason to associate it with the function of *every* one of the intellectual faculties, knowing as well as reflective.

II. This brings us to the consideration of our second objection to the combination of the function of giving ludicrous feeling with that of discrimination in the phrenological faculty of Wit; that it is only, we think, *apparently* but not *really* supported by correct observation. What we think we have noticed in our observation of character seems to militate against this unphilosophical combination of functions; and it is this, that many seem to possess a faculty of infusing the essence of drollery, and of thereby giving a ludicrous effect to what they say and do, who do not possess the discriminating faculty in any proportionable degree, or indeed, perhaps, in any degree at all; and, *vice versa*, we have seen many with a sound acute discriminating faculty, who seemed incapable of giving a ludicrous effect to what they said, or at least to do so in any degree proportioned to the measure in which they were endowed with that faculty phrenologically called Wit.

We said, that the feeling of the ludicrous might be with as good a reason combined with the function of any other of the intellectual faculties, knowing and reflective, as with that of the discriminating faculty. Why should we not combine it with Individuality, and perhaps with Form, Size, Locality, Order, Tune, and Language? We have witnessed some interesting instances of the combination of the feeling of the ludicrous with the operation of individuality, and that in persons no way remarkable for, nay, in many cases, very deficient in the faculty of discrimination. Very frequently have

we heard a person tell a story, in itself so simple, and, when read, so unentertaining as not to excite any emotion, with such ludicrous effect, that the inclination to laughter was irresistible. We have heard another tell the same story without any sensible change in the narration, and nobody could see why he took the trouble to tell a story so unentertaining and so pointless; nor could the unlucky wight himself tell what it had lost in his hands, nor give any other reason for telling it than this very natural one, that he had had a good hearty laugh at it himself when he heard it; and that all his fellow-hearers had likewise laughed; and that they were all very happy; and that, therefore, it must surely be an entertaining story, though he could not well tell why. There are persons equally deficient in, or, at least, no way remarkable for discrimination, who have something so very comical in their gesture and in their expression of countenance, that, at first sight at least, you cannot look at them without feeling an irresistible inclination to smile. When such drollery is accompanied with large Secretiveness and powerful reflective qualities, the effect of the whole combination is sometimes tremendous. But there are many instances of persons possessing all the reflective qualities in a high degree, with little or nothing of the faculty of giving a ludicrous effect to the operation of these faculties. If this and what has been advanced above be true, neither the phrenological faculty of Wit, nor any other intellectual faculty, is or can be the source of the ludicrous. We would, therefore, propose an amendment on Mr Scott's analysis of Humour. Instead of saying, the talent for it is produced by Secretiveness in combination with Wit, we would be disposed to say, the talent of Humour is produced by Secretiveness in combination with some faculty, the organ of which has not been discovered, and is, therefore, still a desideratum; a faculty the function of which is to give the feeling of the ludicrous; "the former giving "the slyness, the latter the ludicrous colouring, which together constitute Humour, imitation aiding those powers in "producing the ludicrous effect."

We have an organ for the feeling of the sublime and beautiful, for the wonderful, and for most, if not for all, of our other original feelings; why then should there not be among the sentiments an organ for the feeling of the ludicrous? To ascribe the feeling of the ludicrous to an intellectual faculty as its function is, as we have said, both unphilosophical and contradicted by observation. But we might say farther, that if we are to combine the feeling of the ludicrous with the function of Wit, or of any other of the intellectual faculties, with as good reason may we join the feeling of Sublime and Beautiful, of Wonder, Benevolence, Veneration, Hope, or any other of the sentiments, with Wit, Causality, Comparison, or any other of the faculties of the understanding.

That the mind does not more certainly possess the susceptibility of the various primitive feelings of Fear, Hope, Benevolence, Veneration, Wonder, and Sublimity, than it possesses the susceptibility of the primitive feeling of the ludicrous, appears from the dictates of Consciousness, as well as from observation of character, to be most evident; and that this feeling does not rise out of the operation of any of the intellectual faculties, is, for the same reason, we think, not less evident. If, then, it be true, that the feeling of the ludicrous is a primitive feeling, not resolvable into any other feeling, or combination of feelings, and if it likewise be true, that observation of character militates against the unphilosophical idea of combining it with the function of any intellectual faculty as its source, it seems necessary towards the completion of the system of Phrenology, that it should be put upon the same footing with the other primitive feelings and sentiments of which the mind is susceptible, by the discovery of a cerebral organ on which its manifestation depends.

III. Our *third* and last objection to the combination of the feeling of the ludicrous with the power of discrimination, as the function of the faculty of Wit, arises from the obser-

vation of *crania* connected with the manifestation of mental character.

Dissatisfied with the views of Phrenologists as to the faculty of Wit giving not only the power of discrimination, but likewise the feeling of the ludicrous, and impressed with the belief that in these views they were not borne out by a correct observation of facts, we have been for a considerable time in the habit of from time to time observing the conformation of head in the region of Wit in connexion with the manifestation of both the functions ascribed to this faculty; and the result of these observations, together with the conclusion to which they have led us, we will state as briefly as is consistent with perspicuity.

We have observed, for instance, one person whose forehead is full over the region of Wit, indicating the possession of an organ of Wit which might be called large, and accompanied with an acuteness in the power of discrimination in due proportion to the size of the organ. Immediately above the organ of Wit the forehead retreats rather suddenly towards the region of Wonder. Though this person manifests a considerable share of acuteness in the power of discrimination, answerable, as we have said, to the size of the organ, he possesses little or nothing of the power of infusing the feeling of the ludicrous into his conversation and gesture; certainly nothing in proportion to the measure in which he is endowed with the faculty of discrimination. Now, if the power of discrimination and that of giving the feeling of the ludicrous were both the function of one and the same faculty, they should be found invariably both in an equal degree of endowment, and both in equal proportions to the size of the organ. In this, however, and in many other instances which might be adduced, these two functions are not by any means in equal endowment,—a proof, we think that they are not the functions of the same faculty.

Again, we have observed persons having their foreheads depressed at the region of Wit, indicating a small organ,

and, in correspondence with this appearance of the forehead, manifesting a marked deficiency in the power of discrimination. In these persons we have likewise observed the head rise rather abruptly above the region of Wit, giving the countenance, in extreme cases, the appearance that it would probably assume were a pair of horns about to make their appearance on the upper, anterior, lateral parts of the head: Such persons invariably, so far as we have observed, either manifest a comical expression of countenance, or infuse a feeling of drollery into their conversation.

We have seen, we think, a similar conformation of head, accompanied with a similar manifestation of mind, even in little children, as well as in other young persons in whom the reflective faculties have not yet come to maturity, or to the size to which they are destined. We know two gentlemen, the shape of whose heads seems to differ from each other in every other point but in those to which we are now adverting; in which points, viz. the upper, anterior, lateral parts of the head above the organ of Wit, (which organ in both is small,) there is a considerable resemblance, both being elevated in that region similarly and almost in an equal degree. Now, in correspondence with this conformation of head, there appears to be a difference in the manifestation of almost every point in the character except in these two points, viz. a very moderate endowment of the discriminating faculty, and a considerable supply of the power of infusing the essence of drollery into what they say, in which they both agree. So much does this ludicrous feeling pervade their stories, that though we have little respect for the understanding of either, we are irresistibly disposed to laugh at their drollery, though quite aware that, apart from the ludicrous feeling with which it is combined, what they say would not of itself be capable of exciting a single smile.

Now, if these phrenological observations be correct, if it be true, as in the first case adduced, that the organ of Wit may be large, and the discriminating faculty connected with

it exist in proportional endowment, while there is little or nothing of the power of infusing the feeling of drollery into conversation; and if, *vice versa*, it likewise be true, that the power of manifesting the ludicrous, as in the last cases referred to, may be very considerable, while the power of discrimination is very inconsiderable; does it not appear evident that the one function bearing no proportion to the other, they are not and cannot be the functions of the same faculty, but that they are the functions of two distinct faculties, the one referable to the class of intellect, and the other to that of sentiment?

Phrenologists, in general, have agreed with Dr Gall in thinking, that in persons who manifest a talent for wit similar to that manifested by Rabelais, Cervantes, Boileau, Racine, Swift, Sterne, and Voltaire, the anterior, superior, lateral parts of the head are prominent and rounded, and Mr Combe may be considered as stating their sentiments when he adds,—"When this development is excessively large, it "is attended with a disposition, apparently irresistible, to view "objects in a ludicrous light." Now we would just suggest the question, whether it be not possible that, under this *prominent* and *rounded* development of the upper lateral parts of the forehead, there may not be two organs instead of one, the lower part of this prominent development being assigned to Wit, and the upper to the feeling of the ludicrous? This question is suggested by what appears to be a fact, that in those persons who have evidently a large organ and faculty of Wit, the forehead retreating suddenly, and carrying away the upper part of the prominent and rounded development above-mentioned, there is little or nothing of the power of manifesting the feeling of the ludicrous either in language or in gesture; and that in those in whom the power of manifesting the feeling of the ludicrous is superadded to a large endowment of the discriminating faculty, it will, perhaps, be observed, that the forehead does not retreat abruptly, as in the case first mentioned, immediately above the

region of Wit, but that, perhaps, in part of the space assigned to Wonder, there is an elevation in proportion to the power of manifesting the feeling in question. If, then, we were to assign a place for the organ of the feeling of the ludicrous, it would be between the region of Wonder and that of Wit. Perhaps it might encroach somewhat on the region of Imitation, and also on that of Wit, phrenologically so called. Whether, in these conjectures, we have come even within sight of the truth, cannot at once be ascertained; of this, however, we feel confident, that there must be somewhere a separate organ for the ludicrous, and there appears to be no place so appropriate for it; no place where it is so likely to be discovered as in the place above pointed out, or somewhere in the vicinity of Ideality, Wonder, and Imitation. In this, perhaps, we may be but showing our ignorance; like every other topic connected with the inductive science of Phrenology, however, these views must be refuted or confirmed by patient observation; and if what has now been advanced shall lead some more skilful and experienced Phrenologist to such observations as shall result either in the discovery of the organ of the feeling of the ludicrous, or in the resolution of the feeling itself into some more original feeling, or into some peculiar combination of faculties, we shall have completely attained our object.

X. T. P. H.

ARTICLE III.

CONTROVERSY WITH SIR WILLIAM HAMILTON.

Our readers have already been informed, that, in 1826, Sir William Hamilton read a first Essay against Phrenology before the Royal Society of Edinburgh, and, in 1827, a second, which were loudly applauded by the opponents of the science,

as complete refutations of its doctrines. By the rules of the Royal Society no reply to these Essays was permitted, and, in consequence, we repeatedly called on Sir William to publish his objections, that the Phrenologists might meet him on a fair field. He has not, however, done so; but, in April last, notice appeared in the newspapers, that he would deliver a popular Lecture against Phrenology, in a class-room in the University, for the benefit of the distressed operatives, tickets of admission 2s. 6d. each. This announcement gave rise to the following correspondence between him and Mr George Combe. It is more extended than we could have wished, and than may be agreeable to many of our readers; but, considering the importance which the *opponents* have ascribed to Sir William Hamilton's objections, and his own rank as a professor, we could not with propriety overlook the discussion; and if we gave place to it at all, we were called on, by every principle of justice, to present it entire.

Mr Combe to Sir William Hamilton, Bart.

Edinburgh, 13th April, 1827.

My dear Sir,—I observe in the newspapers a notice, that you intend to repeat your demonstration of the evidence against Phrenology in a class-room of the University, on Wednesday, 18th April, at one o'clock, for the relief of the distressed operatives. I rejoice to see you come forward in this public manner, and highly approve of the benevolent purpose you have in view. At the same time the interests of truth seem so obviously to require a statement of both sides of the question, that I trust no apology is required, on my part, for presuming, as I now do, to solicit your permission to make a reply at the conclusion of the lecture. If this shall not be agreeable to you, might I then request the favour of your endeavouring to obtain for me the use of a class-room in the University, on Friday, 20th April, at one o'clock, when I shall be prepared to deliver a lecture (also for the benefit of the distressed operatives) in answer to such of your statements as may appear to be erroneous. By this proceeding the cause at once of truth and charity will be promoted. Believe me to remain, &c. George Combe.

Sir William Hamilton to Mr Combe.

16, Great King Street, 14th April, 1827.

My dear Sir,—I have just received your letter, and will have great pleasure in complying with either of your requests; but I cannot be certain that the use of a room, for a separate lecture in the University, would be allowed by those whom it might be necessary to consult. Your friend, the Principal, however, will not be indisposed, I am sure, to stretch a point of academical etiquette in your favour; and you may depend upon all my little interest with the other members of the Senatus. If the first alternative be taken, as it would not be pleasant for either of us that all and sundry should be suffered to harangue on the occasion, it will, I think, be expedient to limit the reply to yourself; but if you wish that any other person should be permitted to speak, I have no objection.

In conclusion, may I presume to add an expression of sincere esteem, and trust that, however we may differ in some opinions, nothing on my part should ever be construed into the slightest disrespect of your distinguished ability and candour. I remain, &c.

W. Hamilton.

Mr Combe to the Very Rev. Principal Baird.

Edinburgh, 14th April, 1827.

My dear Sir,—I use the freedom to annex copy of a correspondence betwixt Sir William Hamilton and me, on the subject of my delivering a lecture, for the benefit of the distressed operatives, in answer to his objections against Phrenology, and most respectfully solicit the permission of the Senatus Academicus to give a reply at the conclusion of his demonstration.

With the view of benefiting the operatives, the ticket for both lectures might be raised to 5s.

If this is not approved of, may I be honoured with the use, on Friday, at one o'clock, of the same class-room used by Sir William Hamilton?

In November last, the University of Cambridge gave the use of a hall belonging to them to Dr Spurzheim, for his whole course of lectures on Phrenology; so that the admission of one of its advocates within the precincts of a college is not without precedent.

An early answer, for the sake of advertising, will be obliging.—I remain, &c.

George Combe.

Mr Combe to Sir William Hamilton.

Edinburgh, 16th April, 1827.

My dear Sir,—Immediately on receipt of your letter of 14th April, I wrote to Principal Baird, soliciting the permission of the

Senatus Academicus to make a reply to your demonstration; but sufficient time has not yet elapsed to enable the Principal to consult the Senate and report. Wednesday, however, fast approaches, and the opportunity of giving publicity to my purpose of replying becomes daily less. Might I, therefore, so far trespass on your indulgence, as to make a farther proposition, namely, that you would postpone your demonstration till Friday, Saturday, or Monday next,—permit the reply to be advertised along with the announcement of your lecture,—the ticket of admission to both to be raised to 5s.,—and in case the Senate shall deny me the use of the same class-room you occupy, that you would transfer your lecture to the Assembly Rooms? I need not point out how greatly such an arrangement would increase the funds for the poor, and promote the cause of truth.

I agree most readily that the reply shall be confined to myself, and I prefer commencing when you terminate.

In allusion to the kind expressions in your letter in regard to myself, permit me to say, that in no instance do I view a philosophical opponent otherwise than as a friend; and that in all my intercourse with you, and, in particular, in the discussions which we have occasionally maintained on the subject of Phrenology, I have met with nothing, on your part, but extensive information, great acuteness, and the most mild and courteous spirit in enforcing your objections; and that your prompt and handsome compliance with my request for the benefit of a reply has greatly added to your many previous claims on my esteem.—I am, &c.

GEORGE COMBE.

Dr Andrew Duncan, Jun. to Mr Combe.

Edinburgh College, 16th April, 1827.

SIR,—I am directed by the Senatus Academicus to transmit to you the enclosed extract from the minutes of a meeting held this day.—I have the honour to remain, &c.

ANDREW DUNCAN, JUN. *Sec.*

Extract from the Minutes of a Meeting of the Senatus Academicus of the University of Edinburgh, held 16th April, 1827.

"It was resolved that the request of Mr Combe (he not being a "member of the Senatus) could not be granted."

ANDREW DUNCAN, Jun. *Sec.*

Sir William Hamilton to Mr Combe.

16, Great King Street, 16th April, 1827.

MY DEAR SIR,—I have just returned from a meeting of the Senatus Academicus, and am sorry that the unanimous resolution

in relation to your request, communicated through the Principal, was, that without a violation of *established rule*, and the introduction of an inconvenient precedent, no person, not a member of their body, could be permitted to lecture within the University. I was likewise compelled to submit to the opinion of all my colleagues, that to request you to make any observations on my paper would be wholly unacademical. Should you wish to inspect the crania which I shall exhibit, I will be happy to have you along with me when I arrange them, previous to my demonstration, at 12 o'clock. I shall be much disappointed at not hearing your lecture, if you propose to deliver it during this week, as I go out of town on Thursday morning, and do not return till Saturday at soonest.

I had written so far when I received your letter of to-day. In reply, I shall only say, that I cannot bring myself to acquiesce in your proposal, which I think would serve no purpose for the furtherance of truth, and has withal too much the appearance of a public disputation. If I can do any thing to secure to you the same audience who may attend me, you may depend on my endeavours. Could not the persons who have tickets of mine have a preference to your lecture, which will probably be very crowded?—I remain, &c. W. HAMILTON.

Mr Combe to Sir William Hamilton.

Edinburgh, 16th April, 1827.

MY DEAR SIR,—I am favoured with your letter of this date, announcing the decision of the Senatus Academicus. As my leading object was to offer an answer to your objections, not only before the particular audience to whom they were urged, but to take up the particular positions on which you founded them, and to refer to the identical specimens which you used in your demonstration, and as these ends cannot be adequately accomplished by a lecture delivered on a different day, in a different place, and, to some extent at least, to a different audience, no course remains for me, but to solicit that you will publish your statements with your earliest convenience, and in the meantime grant me your permission to publish the correspondence that has passed between us.

I am much obliged by your offer to show me the skulls to which you refer. Had I been allowed to make my own commentary on them, I should have readily accepted of the invitation, and in return solicited your attention to the collection of casts and crania belonging to the Phrenological Society; but as matters now stand, it appears to me preferable that my inspection of them should be postponed till after publication of your objections.

While I regret that the arenas of the Royal Society and College, which you selected, precluded me from replying to your remarks in the presence of those to whom they were addressed, yet I cannot conclude this correspondence without returning my warmest acknowledgments for the handsome manner in which you indivi-

dually met my proposal of an answer the moment it was submitted to your consideration.—Believe me to remain, &c.

GEORGE COMBE.

Sir William Hamilton to Mr Combe.

16, Great King Street, 16th April, 1827.

MY DEAR SIR,—In reply to your request that I should agree to a publication of our correspondence, I beg leave to offer my reasons for declaring myself averse from such a proceeding.

In your first letter to me, you requested as an alternative, that *I would apply* in your behalf for the use of a room in the University. Confident, therefore, that the matter was wholly between ourselves, and that I should at all events have a communication from you before any other step was taken, I wrote you my acquiescence; and though I did not mark my letter as confidential, the manner in which I alluded to Principal Baird evidently showed that it was not intended to go beyond yourself. I do not imagine for a moment, that you intended any want of courtesy to me in carrying my communication to the Principal, and in making, moreover, through him, a request to the Senatus that they should consent to an arrangement which concerned me, but in which my acquiescence had not been asked. But though I am far from attributing any blame whatever to you on the occasion, (and did not even therefore allude to this in my last letter), still a permission from me to publish the correspondence would sanction what, though not wrong in intention, I must think not quite correct in performance. At the same time I can see no end to be answered by the publication, which could not be quite as well accomplished by a statement on your part, if you indeed think a statement is required.—I remain, &c.

W. HAMILTON.

Mr Combe to Sir William Hamilton.

Edinburgh, 17th April, 1827.

MY DEAR SIR,—In reply to your letter received of this date, I beg to express my regret that in any particular I should have acted contrary to your wishes. I understood your letter of 14th April to contain an indirect suggestion that I should apply to Principal Baird, and while I acknowledge that this interpretation must have been erroneous, because you say that it was in opposition to your intentions, I beg to assure you that nothing was farther from my purpose than to fail in any point of duty or respect either to yourself or the Senatus Academicus. I shall avail myself of the privilege of stating the import of the letters on my own responsibility; and, with unimpaired regard, subscribe myself, &c.

GEORGE COMBE.

Sir William Hamilton to Mr Combe.

16, Great King Street, 18th April, 1827.

My dear Sir,—I have just read in the Scotsman of to-day a statement by you regarding our correspondence, and cannot avoid animadverting on one part of it, which totally (though no doubt unintentionally) misrepresents the tenour of my last letter. I did not, as you state, disapprove of your "*applying to the Senatus "Academicus in your own name, after I had expressed my inten-"tion of doing so.*" I never dreamt that you were bound to make such an application through me, though you had requested it, and I had agreed to the proposal. You had a perfect right to take and to change your own measures in your own way. But what I could not appear as approving, was *your interference, without any authority from me, in my concerns,* to the extent of even proposing a plan to the Senatus of regulating my lecture. After so full an abstract of the other letters, you might also, I think, besides merely saying that "I wrote that my first letter, although not marked, was "confidential," have added my reasons for thinking that its confidential nature could not be ambiguous. May I beg that you will take the means of correcting the erroneous impression that your statement may produce, in regard to my disinclination to authorise the publication of our letters.—I remain, &c. W. Hamilton.

Mr Combe to Sir William Hamilton.

Edinburgh, 19th April, 1827.

My dear Sir,—It gives me much regret that I should have failed in any degree in correctly representing your views. The "Statement" was prepared with every possible care and scrupulosity on my part, and submitted, moreover, to the revisal of several friends, who are not unknown to you, and who compared it with the correspondence to ensure accuracy and fairness. Since receiving your letter of 18th April, I have again read over the letters, and still feel at a loss to understand the nature and extent of the misrepresentation of the tenour of your previous communication; but, as my earnest desire has all along been to do you ample justice, I shall publish any correction with which you may favour me, not inconsistent with my own letters, and remain, &c.

George Combe.

Sir William Hamilton to Mr Combe.

Edinburgh, 25th April, 1827.

My dear Sir,—I found your letter of the 19th on my return from the country last night. Might I beg a sight of my letter to you before last, not having kept a copy.—I am, &c.

W. Hamilton.

Mr Combe to Sir William Hamilton.

Edinburgh, 25th April, 1827.

My dear Sir,—I send you your letter to me of date 16th April. My difficulty was in understanding how I had requested the Senatus to consent to an arrangement concerning you, in which your acquiescence had not been asked. My request to Principal Baird was, that he would procure the consent of the Senate to the proposal contained in my first letter, and assented to in your first letter, of which copies were sent him. I added a *suggestion*, that, if the reply was admitted, the admission-ticket might be raised to 5s.; but this, of course, would have been submitted for your approbation before being proposed to the public, even if the Senatus had agreed.

I beg to mention, that, at the request of the committee for the relief of the distressed operatives, I shall deliver a lecture on the evidence of Phrenology, in the Assembly Rooms, at one o'clock, on Friday, and will be happy to exhibit as many skulls of the collection used by you as will be allowed to be cut open. Farther, if you will honour me with your attendance at the Clyde Street Hall, on Friday morning at ten, I shall saw open as many skulls as you may select, carry them to the Assembly Rooms, and abide by the evidence they afford, both as to parallelism and the frontal sinus.—Meantime I remain, &c. George Combe.

Sir William Hamilton to Mr Combe.

Edinburgh, 25th April, 1827.

My dear Sir,—On perusing my letter of the 16th instant, I still cannot understand how it could be interpreted to support your statement of its contents. I there only mentioned your request that an application to the Senatus should be made by me, to show that I wrote under the impression, that as the negotiation was placed by you in my hands, no use could consequently be made of any careless or confidential expressions in my letter to you, without my previous knowledge and consent. I did not withhold my approval from an application on your part to the Senatus through any other channel than myself; and only declined sanctioning the communication to himself, far more the publication to the world, of an allusion to Principal Baird, which could only be excused in a confidential note; and so far from saying or insinuating that "*you had "erred in applying to the Senatus Academicus in your own "name,*" I expressly limited what I did not approve to your proposing to the Senatus an arrangement which concerned me, but to which my acquiescence had not been asked. What this meant I thought sufficiently intelligible. In your first letter you only requested "*permission to make a reply at the conclusion of the lec-"ture.*" To this proposal, which was simply, that I should ask you

as my guest to make your observations on what was then delivered, and which did not suppose that your reply was to be proclaimed as forming an integral portion of the business, I acceded; but had you proposed to me, what you requested the Senatus to sanction, that we should give a joint lecture, &c.—to this I certainly would never have agreed, and could not but think I was not very well treated, (really, but not intentionally,) when a proposition to this effect was made to the Senatus without consulting me. I am far from supposing that you wished to throw on me the necessity of refusing even your original request, though this was the consequence, and the probable consequence, of bringing the matter before the Senatus in the way you did. In justice, therefore, to me, in order to undo the absurd inconsistency which your "Statement" virtually imputes to my conduct in this affair, I beg that you would publish, in the Journal where it appeared, the passage in question, with the relative letter, and our subsequent correspondence. At the same time, as the only delicacy I felt in authorising the printing of my previous letters has been removed by your giving their *full substance* in your Statement, you may of course make any use of them you please.

In reference to the last paragraph in your note, I am very anxious to procure for you the *unlimited use* of the phrenological collection of skulls in the Natural History Museum, and had this forenoon applied urgently to Professor Jameson on the subject. The result, which could not at once be determined by him, I shall communicate to you as soon as I obtain a definitive answer.—I remain, &c. W. HAMILTON.

Sir William Hamilton to Mr Combe.

Great King Street, 26th April, 1827.

MY DEAR SIR,—As I deemed it proper that you should have an opportunity of employing, in your lecture, the crania on which I had endeavoured to prove the reverse of the phrenological statements in regard to the frontal sinuses, &c. I, yesterday, before receiving your note, requested of Professor Jameson, as a particular favour to myself, that I might be allowed to offer you the whole 50 skulls sent by Mr Royer to the Museum, and which, as Mr Jameson informs me, were labelled, numbered, and phrenologically marked by Dr Spurzheim. This series cannot, at least by the Phrenologists, be said to furnish an induction of mere selected examples; yet, though it does not certainly exhibit an average so unfavourable to them in the size of the sinuses as any random collection I have examined, I am still willing to peril the whole question on the refutation it affords to every assertion on this fundamental point hazarded by Drs Gall and Spurzheim. There does not occur, in the whole collection, a single case of a total absence of the sinus; and the smallest cavities are generally in the oldest subjects. The superficial extent of the sinuses are marked by black lines, and every

dimension, including the depth, can easily be ascertained by the employment of a bit of wire. I shall send you a supply of such probes; and you are at perfect liberty to hand any of the specimens to your auditors for their inspection. I am disappointed in not having been allowed to break up a sinus in every skull of the 50; all that I could obtain of the Professor, who is averse from disfiguring the heads, was permission for you to open, before the audience, *one* of these two cavities in any *three* crania that may be selected. Two are already opened as examples; and the person who brings the skulls will carry with him the instruments proper for the purpose.

I beg leave to present you my best acknowledgments for your polite offer of opening as many skulls as I might select among those preserved in the Clyde Street Hall; but think it would answer no purpose to resort to examples which, right or wrong, might be viewed as partially collected, when an induction, manifestly any thing but unfavourable to Phrenology, can be otherwise so satisfactorily accomplished.

If you read this letter at your lecture, you will do me justice against a statement ventured in the Scotsman newspaper, that in mine I manifested "*a distrust of the cranial specimens*" on which my argument was founded.—I remain, &c. W. HAMILTON.

P. S.—I shall send you, with the other skulls, that of the Bali murderer, which I exhibited in contrast with the cranium of George Buchanan. The latter it is needless to offer, as you must be in possession of a cast of that skull published among the other illustrations of your doctrine by the figure-maker to the Phrenological Society.

Among the fifty crania, there are three (Nos 10, 14, 43,) marked by Spurzheim as exhibiting the frontal sinus, *i. e.* the strong bony ridge or blister by which its presence and extent is held by the Phrenologers to be revealed. As these specimens are only valuable in showing that the cavity and the elevation bear no proportion to each other, either in existence or in dimension, might I suggest, that it would be better to avoid opening these crania, as this would be injuring the value of the collection, and at the same time throwing away the opportunities allowed of verifying to the eye the amount of the impediment presented by the sinus to phrenological observation. W. H.

Mr Combe to Sir William Hamilton.

Edinburgh, 27th April, 1827.

MY DEAR SIR,—Many thanks for your polite attention about the skulls; but I am under the necessity of mentioning, that unless I am permitted to saw open at least a dozen of them, not selected on account of evident peculiarities, but taken at random, so as to afford a fair average, I shall be obliged to decline admitting them as evidence. I beg to assure you, that the skulls in the phrenolo-

gical collection are not selected as favourable specimens for the science, but sent indifferently by persons wholly ignorant of it, mercantile agents, for example, in Lima, Hindostan, and by non-professional men over England and Scotland. I shall be glad to have the skull of the Bali robber, and to be informed of the authority on which it is said to have belonged to that individual, and also of the source whence you derive a knowledge of his character.—I am, &c.

GEORGE COMBE.

Sir William Hamilton to Mr Combe.

16, Great King Street, 27th April, 1827.

MY DEAR SIR,—I regret extremely that you will not consent to try the truth of the phrenological anatomy by an appeal to what must be considered as the authentic evidence of nature. The offer of being allowed to open any three skulls at your own choice, in order to manifest, not to verify, my measurements, is surely as good as a permission to open twenty. You will remark, that all the skulls are, in fact, open for every purpose of observation when examined in the hand; the depth of many of the sinuses, from the great size of the holes, is apparent even to the eye, and all, if that were thought proper, might be made equally notorious; so that the only use of removing the external table would be to exhibit to a distance the enormous irregularities and retirement of the inner plate as contrasted with the symmetry and protrusion of the outer. It would have given me great satisfaction, however, if I could have induced Professor Jameson, on whom I called immediately on receiving your note, to acquiesce in your own terms; but he is wholly inflexible, conceiving that the interests of truth would not be at all promoted by acceding to the disfigurement of so many of the skulls. If you should find reason to alter your determination, a line to me at the College before half-past twelve, or a message to Mr Macgilvray at the Museum after that, will procure for you the collection.

In regard to the Bali murderer (who shall at all events be sent) the evidence regarding the authenticity of his skull, and the nature of his character, is contained in Mr Crawford's letters to Professor Jameson. These mention the name, and detail the atrocities of this wretch, whose cranium was procured, after execution, by Mr Crawford, who holds a high official appointment in the Indian islands, and is well known in this country as the enlightened historian of the Eastern Archipelago. It was sent home about two years and a half ago, as a great curiosity, along with some specimens of birds, for the Museum.—I remain, &c. W. HAMILTON.

Mr Combe to Sir William Hamilton.

Assembly Rooms, George Street, one o'clock,
27th April, 1827.

MY DEAR SIR,—I am really very much obliged by the great trouble you have taken; but as I consider sawing open the only way

to settle at once the questions of parallelism and extent of sinus, I am reluctantly obliged to forego the advantages of your offer, since Professor Jameson will not permit the opening to take place. I shall read your letters, however, and my answers. I shall be glad to have the robber's skull, and also the letter of Mr Crawford.*—I am, &c. GEORGE COMBE.

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* Immediately after writing the above letter, Mr Combe proceeded to deliver his lecture in the Assembly Rooms. It was attended by a highly-respectable audience, amounting to nearly six hundred in number, who listened with profound attention, during two hours and three quarters, to an exposition of the science. Mr C. requests us to publish the following account of the observations then delivered by him on the objections of Sir W. Hamilton. It was written after the publication of part of the correspondence in the Scotsman newspaper, and is addressed to the editor of that paper. Sir William Hamilton's answer to it will be found in a subsequent page.—EDITOR.

SIR,—In the correspondence between Sir William Hamilton and me, published in Saturday's Scotsman, a number of his statements appear to remain unanswered,—a circumstance which has given rise to misapprehension on the part of individuals who were not present at my lecture in the Assembly Rooms on 27th April. May I therefore solicit permission to state what then took place regarding the objections of the learned Baronet.

I mentioned to the audience, that Mr Syme, lately lecturer on Anatomy, and now on Surgery, *who is not a Phrenologist*, had kindly favoured me with the use of *all the open skulls* in his collection; which I then exhibited along with the *whole open skulls* belonging to the Phrenological Society; thereby enabling every individual present, after ocular inspection, to decide for himself, on the parallelism of the inner and outer tables of the cranium, as well as on the frequency and extent of the frontal sinus. By using Mr Syme's specimens the charge of *selection* was obviated; and by producing *all of them*, no room was left for suspecting *intentional omission of any*; while, at the same time, an opportunity was afforded of contrasting *them* with the *Phrenological collection*, and detecting any partiality in the latter if it existed.

The result I maintained was, that while organs were found to differ in size to the extent of an inch and upwards, the departures from parallelism in the tables of the skull did not in general exceed one-tenth or one-eighth of an inch;—that in childhood the sinus did not exist; that after puberty, it was generally present to a limited extent, so as to throw a difficulty in the way of observing the development of the organs of Lower Individuality and Size; and that in old age and disease, (both of them states excluded from the sphere of phrenological observation,) it was occasionally met with very large. I exhibited skulls of all ages, from birth to the decline of life, *sawed completely open*, and showed examples of the sinus in all the above stages:—in one skull it was very large, but accompanied with striking and indisputable marks of disease; in another also it was very extensive, but it had belonged to a soldier who had committed suicide from disease.

I explained, that in *proving* the function of the organs above-named, Phrenologists relied on the *negative evidence exclusively*; that is, if the external surface were depressed in the region of the sinus, and the sinus itself were present, the *brain* would of necessity be more deficient even than the outward appearance indicated; that in all cases of depression the Phrenologists predicated comparative feebleness of function; and that if an opponent could bring forward *one single case of powerful manifestation* of the mental faculties connected

Sir William Hamilton to Mr Combe.

Edinburgh, 28th April, 1827.

MY DEAR SIR,—I have not received your letter in answer to my last, and only know of its existence by hearing you read a copy of it yesterday at your lecture.

I am anxious to allow no time to elapse before noticing to yourself, that, either from misapprehension or erroneous information, you did not correctly state those parts of my paper on which you do me the honour to animadvert; and I regret extremely, that you could for a moment seem to imagine that, directly or indirectly, I had thrown any suspicion on the *perfect good faith* of your scientific statements.

You were not accurate in saying, that, in the case of Mary Mackinnon, I represented you as inconsistent by reference only to the standard of *absolute size*. On the contrary, your description of two organs in her head, as "large" and "enormous," I stated (correctly or not is yet to be determined) to be, on any standard, in so far as that could be discovered and applied, widely erroneous; and I asserted the same thing in regard to the measurement of Voltaire's head, by reference both to the absolute and relative averages afforded in your own table. You stated, in your lecture, that the

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with these organs, *where the external depression existed*, the Phrenologists would give up the organs at once.

In presenting examples of the sinus to the audience, I called their attention to the fact, that in most of them it was *so small* as not to be perceptible to the eye, in the distant parts of the room, even in skulls sawed open, and remarked, that if I had produced the specimens offered by Sir William Hamilton, which *were not allowed to be opened*, and had explored the sinus by probes, through holes not larger than pin-heads, as proposed by him, no ocular demonstration could have been enjoyed, even by the nearest individuals; that as the stronger evidence was always to be preferred to the weaker, I had used Mr Syme's specimens, which, while not liable to any charge of partiality, spoke to the eye; and that by this proceeding the conviction of every individual was allowed to rest on the testimony of his own senses, and not on mere experiments of mine in probing, which might have been controverted as inaccurately performed, or unfairly reported. Finally, I announced that all the specimens exhibited would lie on the table after the lecture, so that those who, from distance, could not see distinctly, might satisfy themselves by the closest inspection; of which invitation many individuals availed themselves.

As Sir William Hamilton honoured me with his presence at the lecture, I did not repeat in my letters to him what had been stated before him and nearly six hundred spectators; but now that the correspondence comes to be published at a distance of time, and to be laid before many of your readers who could not by possibility form part of the audience, the omission of what was said and done by me on that occasion will be sensibly felt, and I now use the freedom of requesting that you will be so obliging as place this statement on the same record with his objections. I am, &c. GEO. COMBE.

organs of *Destructiveness* and *Combativeness* in the skull of the Bali murderer were "large," and that the organ of *Conscientiousness* was "deficient." You adopted, I presume, the standard of *relative size;* but I must request to know where is the scale on this standard extant, in reference to whose average, as to *cranial* development, your language of excess and deficiency was significant, and on which Phrenology may be either confirmed or refuted? You could not surely intend that the organ of *Conscientiousness* in this subject was manifested to be small relatively to the others, because you were able to contrast with it a specimen of singular configuration, exhibiting that part of the head in ludicrous monstrosity.

But of this enough. So long as Phrenology is the comparison of two *hypothetical quantities,*—a science of *proportion* without a determinate *standard* and an acknowledged *scale,*—so long as it can be maintained, that its facts, even if not assumptive, constitute only a *partial* induction, which can never represent the *universality* of nature, I deem it idle to dispute about the applications of a law which defines no phenomena, and the truth of an hypothesis which has no legitimate constitution. But let us take, not the hypothesis in itself, but the foundations on which it rests,—let us take facts, not of occult proportion, but of palpable existence,—facts which prove, not the *probability,* but the *possibility* of the doctrine, *and, on the truth or falsehood of the phrenological statements in regard to these, I am content to join issue in regard to the credibility of the opinion, and to the confidence that ought to be accorded to its founders.* In making this proposal, I accord every thing, and ask nothing in return. I agree to stake the decision of the controversy on your proving, not the *truth,* but the mere *possibility* of the doctrine. In refuting this possibility, I bind myself to prove, not *simply,* that the assertions of Drs Gall and Spurzheim in regard to the fundamental conditions of their hypothesis are *false,* but that they are *diametrically opposite to the truth.* My proof shall rest, not only on the concurrent testimony of anatomists, but on the notorious evidence of an extensive induction of crania, previously purged on any general principle you may propose; and I am contented to leave to yourself the nomination of the umpires by whom the result shall be determined. In particular, I offer to prove,

I. That the phrenological canon, that the walls of the skull increase in thickness as the person advances in life, is the exception, and not the rule.

II. That Spurzheim's assertion, "that young and adult persons have no holes between the two tables of the skull at the forehead, and that the sinuses occur only in old persons, or after chronic insanity," establishes as a general law what is only a singular anomaly.

III. That Gall's assertion, that these cavities are rarely to be found in women, ought to be reversed.

IV. That the assertion of both, that the frontal sinus is mani-

fested in its existence and extent by a bony ridge, or crest, or blister, is totally false; inasmuch as the largest sinuses are found where there is no such elevation,—that this elevation is present, in great size, where the sinus is small, or even absent, and, when both are co-existent, that they hold no commensurate proportion to each other.

V. That so far from these cavities presenting a rare, a trifling, and an appreciable impediment, as all Phrenologers maintain, they vary to infinity in every dimension, and interpose an insuperable obstacle to observation, in very ordinary cases, over a large proportion of the pretended organs.

Hoping that you will consent to bring the matter to so easy a determination, I remain, &c. W. HAMILTON.

Mr Combe to Sir William Hamilton.

Edinburgh, 28th April, 1827.

MY DEAR SIR,—My second letter to you of yesterday's date was delivered to the bearer of your letter to me, and addressed to the College, in your absence to be opened by Mr Macgilvray. I beg to mention, that I am not concerned, directly or indirectly, with any paragraphs or communications in the Scotsman which do not bear my own signature.

I have received your letter of this date, and beg to assure you, that I proceeded on notes of your lecture, furnished by several friends, which agreed with each other. I had given up all intention of answering your objections, otherwise I should have been present at your lecture myself, which I was not. It was reported to me, that you applied to the Phrenologists generally, the maxim *falsus in uno, falsus in omnibus;* which cannot mean, that he who unintentionally errs in one point of a philosophical investigation, must be presumed wrong in all, because no philosophy could stand against such a rule of criticism; its meaning must be, that he who is detected telling one deliberate untruth, knowing it to be so, is not to be believed on other points, although, as to them, the proof of falsehood is not equally irrefragable; and not being conscious of having intentionally departed from truth myself, or perceived other Phrenologists to do so, this maxim did not sound very courteously when applied to us. At the same time I make no complaint of any thing you have said or done; and I most sincerely declare, that I believe you incapable of saying or doing any thing intentionally unhandsome towards myself, or the other supporters of the doctrine in dispute; and beg to assure you, that I am equally anxious to observe towards you every courtesy that ought to subsist betwixt gentlemen, and persons engaged in philosophical pursuits.

I do not regard letters as the best vehicle for discussing the doctrines of Phrenology, and therefore forbear entering into a detailed answer to your observations on the standard of size. In conversation, I could clear up your difficulties much more readily.

Your offer to refer the debated points to the determination of umpires is perfectly fair, and I have no hesitation in accepting of it; the chief difficulty will consist in the nomination. You would consider Phrenologists as partial judges, while I would regard non-Phrenologists as unqualified to decide, through deficiency of elementary information. How is this to be settled? I leave town on Monday morning for a week, and on my return shall be happy to resume this topic.—Meantime remain, &c. GEORGE COMBE.

Sir William Hamilton to Mr Combe.

Edinburgh, 28th April, 1827.

MY DEAR SIR,—As I am most anxious to convince you how totally erroneous has been your information (which I am happy you have mentioned in detail) that I applied the *falsus in uno falsus in omnibus* to the *Phrenologists*, I send you (confidentially) the leaves from which I read, and which I beg you to return. An hypothesis is only proved by the impossibility of its rule being accommodated, except to the realities of nature. If, therefore, this has, without self-detection, been found accommodated to false phenomena, the general truth of the hypothesis is subverted by the proof of a particular falsehood; it is a flexible standard, deceiving those the most by whom it is applied in the greatest reliance on its accuracy. To *Phrenology*, as such a standard, was the brocard solely and manifestly applied.

In accepting my "offer to refer the debated points to the determination of umpires," you, of course, accept it under the conditions proposed by me, that the decision of the fundamental points I specified should be held decisive of the general hypothesis. I do not anticipate much difficulty in the appointment of umpires; and the phenomena are, for the most part, too notorious to allow of any serious difference of opinion.

I never supposed that you had any hand in the anonymous paragraphs of the Scotsman; and nothing in them gave me the slightest concern, except the insinuation that I had paraded measurements of which I had the smallest doubt,—that is, facts so simple that I could not possibly be in error without an intention to deceive. This it was that constrained me to press upon you the crania which I had exhibited, and to rest the question at large on the determination of mere anatomical facts; and this it is that now induces me to request that you will give me your permission to publish that part of our correspondence which has reference to this subject.—I remain, &c. W. HAMILTON.

Dr A. Combe to Sir William Hamilton.

Edinburgh, 30th April, 1827.

DEAR SIR,—Before my brother left town this morning, he requested me to open any letters that might arrive addressed to him;

and as your packet was not delivered till after he was gone, I took the liberty of opening it, and of reading the leaves of the MS. to which you referred, and which I beg now to return, and to assure you that nothing can be more satisfactory than the explanation thus afforded of a very unpleasant misrepresentation.

Acquainted as I am with my brother's general sentiments on the subject, I have no hesitation in saying, that he will most readily accede to the publication of the correspondence about the exhibition of the crania in the College Museum, and that, unless you wish to delay for other reasons, you need not do so on his account.

Perhaps I am intruding too far; but as my brother was very much hurried in arranging matters for his absence at the time he replied to the proposal contained in your letter of the 28th, I think you will excuse me for mentioning that he does not, as you seem to suppose, view the five propositions advanced by you as fundamental principles of Phrenology, and consequently that he cannot, *even granting you to be right in regard to them all*, hold their fate as "decisive of the general hypothesis." What you call the first phrenological *canon*, viz. "that the walls of the skull increase "in thickness as the person advances in life," is not so looked upon by us; and whether it be the rule or the exception, it leaves Phrenology untouched, because Phrenology professes to rest for its *proofs* on evidence derived from a period of life *prior* to that at which great irregularities in the thickness of the skull occur; and its disciples have often stated, and never denied, that the skull sometimes becomes thinner instead of thicker in old age, and that, on that very account, no positive inferences could be deduced from its external configuration in advanced life. In regard to your second position, the Phrenologists admit, that a sinus does commonly exist in adults,—you and they differ only as to the extent and degree. *Third*, even supposing Gall's assertion, "that the sinus is rarely to be found in women," to be erroneous, no legitimate inference subversive of Phrenology can thence be drawn. At the same time, if you can show that that cavity is *in general* larger in women than in men, I, for one, shall with pleasure confess myself indebted to you for more accurate information than I now possess. *Fourth*, The statements made by you in your proposition in regard to the frontal sinuses are infinitely more favourable to the *possibility* of accurate phrenological observation in the region of the forehead, than any which the Phrenologists themselves have ventured to make; and, consequently, if proved to be correct, instead of subverting, they would powerfully support the phrenological induction. For is it not self-evident, that if, *as you affirm*, the external "*elevation* "*is present in great size where the sinus is small, or even absent*," that elevation *must* (according to the established doctrine of the brain giving its form to the skull) be caused by the great size and prominence of the brain beneath; which prominence, we say, is accompanied by corresponding energy of function in that part? If, on the other hand, "the largest sinuses are found," as you affirm,

"where there is no such elevation," and if Drs Gall and Spurzheim's assertion, "that the frontal sinus is manifested in its existence and extent by a bony ridge, or crest, or blister, is, as you say, *totally false*, inasmuch as the largest sinuses are found where "there is no such elevation," do you not perceive, that the flat external appearance you thus describe indicates, phrenologically, a corresponding *deficient* development of brain beneath, and consequently a deficient endowment of function; and that if, as you say, a large sinus still intervenes, the obvious result must be to render the cerebral part underneath even *smaller* than it was estimated to be by the Phrenologists; and thus, in your own view, in perfect harmony with the observed weakness of function? Such being your premises, and such the necessary inferences from them, it would be odd, indeed, for the Phrenologist to give up his theory on account of their consistency. *Fifth*, If you could establish your last proposition, that the sinus presents insuperable obstacles to inquiries of this nature, then you might very properly ask my brother to give up the application of the phrenological principles to the region of the head affected by the sinuses; but there would be no propriety in expecting him to hold the establishing of your position as proving, 1st, That the brain was *not* the organ of mind; 2d, That the brain was *not* an aggregate of several parts, each subserving a distinct mental faculty; and, 3d, That the size of the cerebral organ was *not*, *ceteris paribus*, an accurate index of power or energy of function. These being what *we* call the fundamental principles of Phrenology, it is evident that it is their subversion only that can lead any reasonable mind to give them up as untrue.

Trusting that you will find an excuse for the freedom I have used in thus addressing you in the interest which I naturally take both in my brother and in Phrenology, I remain, &c.

ANDREW COMBE.

Sir William Hamilton to Dr A. Combe.

Edinburgh, 1st May, 1827.

MY DEAR SIR,—I return you my thanks for your obliging letter, and request that you will permit me to print it along with my correspondence with your brother.

In reply, I have only to say, that Gall and Spurzheim are the only authentic representatives of their own doctrine; and that the facts in question, if not "fundamental principles of Phrenology," are asserted by them as fundamental conditions of its proof. Gall and Spurzheim are the only authors I proposed to refute. If their disciples are, therefore, afraid to bring to test the statements of their masters, even in regard to the possibility of one great and well-established part of their organology, and to allow not the accuracy, but the most distant approximation of these statements to truth, to represent the validity of phrenological observation in

general, I view the points at issue as by them virtually surrendered; and it would be idle in me to propose a reference to umpires in regard to truths of which I am demonstrably convinced.

On your observations in regard to my *first* and *third* propositions, I remark, that, independently of their importance in other respects, I stated them because I wished to demonstrate the true value of the authority of Gall and Spurzheim, by proving the reverse of *every* position of their cranial anatomy. I stated nothing about the comparative size of the sinus in the female skull. In regard to my *second* proposition, I only observe, that wishing, as I said, only to refute the assertions of the two founders, I am happy to find that the disciples *now at last* admit what, with their masters, they have hitherto denied in regard to the frontal sinus, that it "commonly "exists in adults," that is, as I understand your words, that its presence constitutes the rule. The answer to your comments on my *fourth* proposition is very simple. Neither *by the Phrenologists* nor by me is the ridge in question, (which is merely a thickening or extrusion of the external table of the frontal bone,) held to be effected by the brain, or to represent the development of a subjacent part. I did not mean that the largest sinuses are *only* or even more frequently found where there is no bony crest. As to your observations on my *fifth*, I am not afraid, if Phrenology is found a *phantom* as to one-third of its organs, that it will prove a *reality* in respect to the other two.—I remain, &c. W. HAMILTON.

Dr A. Combe to Sir William Hamilton.

Edinburgh, 2d May, 1827.

MY DEAR SIR,—In reply to your letter of yesterday evening, I beg to say, that you are most welcome to make any use you please of my letter of 30th ult. If, to correct a misconception into which you seem to have fallen in regard to its object, you will be kind enough to publish the following explanation along with it.

You seem to construe my letter into a declinature on the part of my brother to meet you on your own terms, as previously agreed to by him. My meaning, however, was very different; I intended only to express an opinion, that seemed to be so self-evident as to excite surprise at its having escaped yourself, viz. that all your five propositions *might* be true, and yet the fundamental phrenological principles, 1st, Of the brain being the organ of the mind, 2d, Of the brain being an aggregate of several organs, each subserving a distinct mental faculty, and, 3d, Of size in the organ being, *ceteris paribus*, a measure of energy of faculty, remain as absolutely and indisputably true as ever; and that, consequently, if the proposed trial was confined to these propositions alone, it would be altogether inadequate to settle the truth of the doctrines really in dispute. I certainly considered the proposal of determining the truth of an extensive branch of natural science by a reference to umpires as illogical and unphilosophical, and therefore very inapplicable to the end in

view; but I never intended to convey the idea that, on that account, my brother meant to decline acceding to *your* wishes; and most certainly I had no authority from him, either expressed or implied, to give any such intimation on his part. And so far from feeling inclined to give any such at my own hand, I beg to mention, that I distinctly advised him to close with your proposal, utterly irrelevant as I must still believe it to be. Nay, I will go even farther, and say, that if you will establish your last proposition, that *the frontal sinus presents an insuperable obstacle to the discovery of the functions of one-third in number of the phrenological organs*, you may save yourself all trouble about the other four, and on the fate of that alone hold the rest to be decided. Knowing, as I do, the kind and extent of evidence on which my brother's belief is founded, I feel morally certain that at his return he will most willingly abide by the pledge now given, if you like it better than your own.

I gladly take this opportunity of admitting, that I mistook the meaning of your third proposition; and may add in explanation, that I did so from having heard from various quarters that in your lecture you asserted that the frontal sinus was larger and more frequent in the female than in the male, which must have been wrong.

You take occasion to say that Gall and Spursheim are the only authors you proposed to refute, and that if the Phrenologists are afraid to bring their statements to proof, you must consider the point at issue as virtually surrendered. I have already sufficiently explained that the Phrenologists are not afraid to come to any proof you choose to propose, but I must add that you seem to mistake the point of most importance in the inquiry, which is, not whether Gall and Spurzheim are correct in *all* their statements *as authors*, but *whether the doctrines which they promulgate are founded in nature and in truth, and whether the results at which they have arrived are supported by sufficient evidence?* To say that Drs Gall and Spurzheim had succeeded in observing and recording so many volumes of facts and reasoning on a new subject *without making any erroneous statements*, would be to claim an exemption from human frailty in their favour which they themselves would be the last to ask and the last to receive if offered. But this I venture to say, that they have committed *no* errors which militate against the fundamental principles of their doctrine; and that my only surprise, since ever I have known the extent of their observations, and the difficulties they have had to encounter, has been, not that they have made *some* erroneous statements, but that they have made so *few*; and if you or any other opponent will take the trouble to point out such errors as have escaped their notice, we, "their disciples," are certainly entitled to profit by and be thankful for your labours, and to hold every correction as a nearer approach to a truer and more perfect system.

You are quite welcome to make any use of my statement, that

"the frontal sinus is common in adults," provided you add that I differ from you entirely as to the degree and extent to which it exists, and to the amount of the impediment it throws in the way of the phrenological induction.

Some other points I feel inclined to comment upon; but, as they are more strictly of a controversial nature, they may with great propriety be left to a fitter opportunity, and to an abler advocate.—Meantime I remain, &c. ANDREW COMBE.

Sir William Hamilton to Dr A. Combe.

Edinburgh, 3d May, 1827.

MY DEAR SIR,—I am happy to find that we are to have an appeal to nature, and that the general probability of your hypothesis is to be determined by facts which can be disputed by none.

I fully agree with you, that the truth of my *five propositions* is not incompatible with the abstract possibility of your *three principles*, and only proposed, by establishing the former, to exhibit a specimen of the accuracy of that *particular mode of proving* the latter, which constitutes what is called Phrenology, or the theory of Gall. It would be as idle an attempt to refute, as to confirm, in detail, a *doctrine of proportion*, so long as that doctrine establishes no fixed criterion of comparison,—so long as the terms compared are assumptive,—and its cases only selected examples. By the present method only could the Proteus be fettered, and Phrenology displayed in its true form.

As to what you say of Gall and Spurzheim, the scope of my appeal to nature is precisely to inquire, "Whether the doctrines "which they promulgate are founded in nature and in truth, and "whether the results at which they have arrived are supported by "sufficient evidence?" This I propose to determine by a very simple inference of analogy. If all their assertions within our observation be false, all beyond it are entitled to no credit. If they confidently maintain what can be easily refuted, their testimony is worth nothing in points where it cannot be redargued by a comparison with the reality. If they assert against the voice of all authority, and in the face of the most notorious phenomena, positions not only untrue, but precisely the reverse of truth, they are to be presumed still more fallible in cases where error was even to be anticipated as probable. If they are not to be trusted even in the general foundation of their hypothesis, they are still less to be deemed accurate in their particular details. And if Phrenology could not detect the falsehood of its conclusions in regard to a number of its best established organs, it cannot vindicate any certainty to its proof in relation to the others.—I remain, &c.

W. HAMILTON.

Mr Combe to Sir William Hamilton.

Edinburgh, 7th May, 1827.

My dear Sir,—Since my return to town I have perused the correspondence which passed during my absence between you and Dr A. Combe; and while I express my acquiescence in all that he has written, and repeat my readiness to proceed with the reference, I beg leave to add a few observations.

It has all along appeared to me that the proper and philosophical mode of conducting the controversy was, that you should publish your objections, and that the Phrenologists should either admit their validity, or furnish an answer to them, constituting the public at large, and especially the medical profession, the umpires. Accordingly, during the period which has elapsed since you read your first essay before the Royal Society, now more than a year, many solicitations have been made to you, some by myself personally, and others through the medium of the Phrenological Journal, that you would publish your views; nevertheless, up to the present day, you have neither done this, nor brought them forward in a place where a direct reply was practicable. I acceded to your proposal of a reference, therefore, not from approving of the fitness of such a proceeding, but because you have not afforded me a more eligible mode of meeting your arguments.

The object of both of us ought to be to enlighten and convince the public on the subject in dispute; but how can this be accomplished by a private discussion before individual arbitrators? Their decision, whatever it might be, could not carry conviction to the understandings of those to whom it might be proclaimed; and in a matter of philosophy, no one thinks of believing on mere authority, if fact and argument are within reach of his own mind. The only legitimate consequence, therefore, of the proposed arbitration, would be a decision finding you or me, as individuals, in the right or in the wrong, and as it is really of wonderfully little importance to society at large what opinions any one or two individuals entertain as to the truth of Phrenology or any other science, I submit, that a decision against me individually would not be worth the labour which you must necessarily encounter in the discussion, and that the report of the umpires, that you had been mistaken, would be no compensation to me for the loss of time and trouble in pleading the cause of Phrenology before them. Nevertheless, in deference to your choice, I am willing to undertake this trouble; and my object in making the foregoing observations is not to avoid it, but to state distinctly beforehand how little of public advantage I expect from it.

Farther, I submit that the *subject* of the reference is unphilosophical, in respect that, in your letter of 3d May, you admit that the truth of your five propositions is not incompatible with the abstract possibility of the fundamental principles of Phrenology.

When truth is our object, it appears to me better to go to the root of the matter at once, and come first to a determination on it, and *then* proceed to the discussion of secondary points, than to reverse this order of proceeding, as you propose.

You will oblige me by publishing Dr Combe's letters, and this one, with which I beg to close the correspondence on my side; and remain, &c. GEORGE COMBE.

Sir William Hamilton to Mr Combe.

Edinburgh, 8th May, 1827.

MY DEAR SIR,—I am sorry that any delay of mine in publishing my objections against Phrenology should have induced you to acquiesce in a proceeding of which you did not approve; but really I do not perceive why the Phrenologists should not allow to their opponents the same liberty that has always, without interference or complaint by the advocates of other opinions, been exercised by them. I do not choose to neglect more interesting and important avocations, to devote myself to an inquiry which opens up into new problems at every step; and as the Phrenologists have left to their antagonists the tedious and irksome labour of accumulating all the data, and constructing all the scales on which to estimate their statements of proportion, they have really no reason to complain of any delay which may arise from their unexampled backwardness in bestowing on their own hypothesis a foundation and a form.

At the same time you do not represent the scope of the reference in its true light. I never proposed to submit *questions of inference* to the decision of arbiters, but *questions of sensible existence and non-existence—facts*, not *reasonings from facts*. And that such a reference, independently of the grounds alleged in my former letters, was expedient in the present case, will appear from the following observations. Gall and Spurzheim have for thirty years been advancing certain statements in regard to the relation of the cranium to its contents; these statements, in their truth or falsehood, involve the possibility or impossibility of phrenological proof; and these statements are precisely the reverse of all that has been maintained by every other anatomist. The cranial anatomy of the new doctrine has been frequently denied; but the confidence with which the craniologists have always asserted the superior accuracy of their observations,—the apparent impossibility of being deceived in points not only so manifest in themselves, but so important to Phrenology, as affording the primary condition of its proof,—and, withal, the general ignorance upon the subject,—have jointly contributed to impose upon many intelligent persons the persuasion, that the skull interposed no impediment to an estimation of cerebral proportions, but that which the fathers of Phrenology were willing to allow. But if the contradictions of Hufeland, Akermann, Monro, &c. were either wholly disregarded, or thought suffi-

ciently answered by a bare counter-assertion from the founders of the theory, how was I, a mere interloper in anatomy, to hope that my statements should meet with that credit and attention which had not been attributed to the authority of the most illustrious anatomists? Aware, however, of the real strength of my position, I knew that I had only to force the Phrenologists to interrogate nature, and to proclaim her answers, to prove even to themselves the fallacy of their two oracles; and while any statement of facts as from myself would, I was sure, be either lightly contradicted or wholly overlooked, a concession of these facts extorted from my opponents, would at once excite the attention of the public, and ruin for ever the credibility of the hypothesis and the scientific credit of its promulgators. This I hoped to accomplish by a reference to umpires. How their decision *against Gall and Spurzheim* should only find *you individually* in the wrong, how you should be required *to plead the cause of Phrenology before them*, when the only issue they will have to determine is, *Do certain facts exist?* or how the world should continue to doubt about these facts, when the ablest Phrenologists themselves would be compelled to recognize their truth, are possibilities which I do not easily apprehend. At the same time, if you feel averse, on any account, from the reference, I should be sorry to press it.

As to the last paragraph of your letter, I cannot understand how so plain a matter should be misunderstood. Your brother stated what he called *three fundamental principles* of Phrenology; and because I admit that they might all three be true, even if my five propositions were established, I am forthwith quoted as acknowledging that the establishment of the latter does not affect the truth of your doctrine. The principles in question are *common*, not *peculiar* to Phrenology. I, *as an opponent*, might hold the truth of them all, and they are all actually maintained by physiologists, who laugh to scorn the whole hypothesis of Gall in its details. Without admitting or denying, therefore, their *abstract possibility*, I deny them as realized in the particular form which has received the name of Phrenology, the *concrete possibility* of which I hold to be invalidated by the establishment of my five propositions.

If you are anxious, however, for other propositions contradictory not of the *possibility*, but only of the *truth* of Phrenology, I would further offer to prove, on Spurzheim's own skulls, 1st, *That the organ of Veneration is, contrary to the manifestation, absolutely and relatively less developed in women than in men;* and, 2d, that *the female cerebellum, in phrenological measurement, is not only relatively but even absolutely greater than the male.* This last fact, which is directly the reverse of all phrenological assertion, will form a more proximate refutation of the new doctrine concerning the function of that viscus, than the observations of Flourens, Magendie, Desmoulins, &c.—I remain, &c. W. HAMILTON.

Mr Combe to Sir William Hamilton.

Edinburgh, 9th May, 1827.

My dear Sir,—When I said that I had closed the correspondence, I did not expect to be *obliged* to resume it; but your letter of 8th May contains *new* charges and allegations, in the justice of which I might be presumed to acquiesce, if I allowed them to go before the public unanswered.

As to your neglecting other avocations to devote yourself to a refutation of Phrenology, it appears to me, with all deference, that, as this was altogether a voluntary proceeding on your part, you would have acted more in accordance with the spirit of philosophy, and enlightened the public in a higher degree, had you delayed propounding your objections until you had so matured them, as to be ready to commit them to the press, instead of first reading them before the Royal Society, then before a large popular audience, where no reply was competent; and, thereafter, when called on to publish, assigning want of leisure as a reason for not complying with this request.

You say, that "the Phrenologists have left to their antagonists "the tedious and irksome labour of *accumulating all the data*, and "*constructing all the scales* on which to estimate their statements "of proportions."

The first of these assertions appears more remarkable for boldness than accuracy, especially if made in the knowledge of Deville's collection of phrenological specimens in London, exceeding a thousand in number, and that of the Phrenological Society in Edinburgh, extending to several hundreds. Your statement is not the less adventurous on the supposition that you are a stranger to the nature and extent of these collections; for until you had subjected them to a philosophical scrutiny, you were obviously not qualified to form a rational opinion on their value as data for judging of the truth of the science. You cannot plead ignorance of the existence of the Phrenological Society's collection, because you allude to it in one of your letters, that in which you decline to select from it skulls to be sawn open, on the ground that you considered the collection itself as partially formed. Perhaps, by parity of reasoning, you held yourself authorised to reject the whole evidence exhibited by the Phrenologists, simply *because they have adduced it*. In following out this principle, however, instead of complaining that they have left to their antagonists the labour of accumulating proofs, you ought in candour to have admitted, that they have presented hundreds of specimens; while, to be consistent, you were no doubt entitled to deny that any of them could be received as proofs, and to maintain, that to avoid *error from partiality*, the question ought to be decided on evidence furnished *exclusively by the opponents!* The inconsistency is very striking, in objecting to examine all our proofs as partial, and at the same time charging us

with neglect of duty in leaving the labour of collecting data to be performed altogether by our antagonists. You refuse to scrutinize the phrenological specimens as unfair selections, and then assume that they do not exist. This is like a man shutting his eyes on external objects, and, because he does not see them, affirming that they *are* not.

Your second statement, that the Phrenologists have left to their opponents the labour of constructing all the scales, &c. indicates a great misconception on your part of the fundamental principles of Phrenology. At this I am not surprised, as, from every thing I can gather from your correspondence, you appear never to have used the ordinary means of understanding the subject, nor to have studied it in a manner calculated to enable you to surmount the difficulties that lie at the threshold of this as well as of every other science.

You assign as a reason for preferring a private reference to a public discussion, that the *subject* of it is to be "*questions of sensible existence and non-existence,—facts, not reasonings from facts.*" Allow me to observe, that in so far as the facts to be submitted refer to the anatomy of the cranium, they must be familiar not only to every practitioner who can boast of a physician or surgeon's diploma, but to every youth who has attended for one season in a dissecting-room. There are, therefore, at least an hundred thousand educated men in Britain every way qualified to judge of the points in dispute, merely by reading your statements, and my answers to them; and with such a body of umpires to appeal to, a public discussion appears greatly preferable.

You urge farther, however, that "Gall and Spurzheim have for "thirty years been advancing certain statements in regard to the "relation of the cranium to its contents," which Hufeland, Akermann, and Monro, have contradicted without effect, and that your refutation would meet with still less success, unless supported by a decision of umpires. It is surprising that the very facts here propounded by yourself do not lead you to suspect the sufficiency of your own information, or the soundness of your inductions. During the period you mention, Drs Gall and Spurzheim have taught the anatomy of the brain and of the cranium in Vienna, Paris, and London, where subjects for dissection were easily procured, and also in many provincial towns; during that time medical men have had their attention strongly directed to the controversy, and cannot be supposed to have neglected the opportunities that occurred in their practice of obtaining light from nature on the disputed topics; during the whole period, too, the statements of Hufeland, Akermann, and Monro, have been blazoned before the eyes of all inquirers; nevertheless, Phrenology is now advocated by the first medical journals in Britain and America, and ranks among its supporters many men whose talents and attainments in that profession are above dispute; while in this, the thirtieth year of the war, you are under the necessity of admitting that the task still remains for you to achieve victory for the opponents, by a decision

of umpires on your five anatomical propositions! According to every legitimate presumption, Phrenology could not by possibility have advanced amidst these ample opportunities of detecting the fallacy of its anatomical foundations, and in the face of the fierce zeal of its numerous opponents, if it had been really as far removed from truth as you, and the authorities on whom you rely, are pleased to allege. It appears to me a juster inference, that the statements of Hufeland, &c. have been found by other anatomists not to be supported by correct observations, than that truth, when supported by their authority, and accommodated with more than a fair field, should have been overcome by the mere impudence and pertinacity of error.* In confirmation of this idea, I may remark, that Dr Roget and Dr Barclay, both medical opponents, and the latter a very celebrated anatomist, although they wrote against Phrenology with a zeal at least equal to yours, did not urge your five points as unsurmountable objections,—an omission not likely to have occurred, if they had not been aware that facts would not bear out such assertions as yours.

You say, that, "aware of the real strength of your position, you "know that you have only to force the Phrenologists to interrogate "nature, and to proclaim her answers, to prove, even to themselves, "the fallacy of their two oracles." From this I am led to infer, that you consider cranial anatomy to be a study so recondite, that hitherto Phrenologists have been too deficient in talent to comprehend, or in honesty to avow, the answers of nature on the subject; and that they, the medical profession and the public, stand in absolute need of an extraordinary scrutiny, conducted by you, to enable them to arrive at truth regarding it. If I could view the matter in this light, I would necessarily be led to acquiesce in the superior advantages of your proposal; but, holding a totally different opinion, I am still at a loss to perceive any valid objection to a public discussion.

In regard to your observations on the organ of veneration, and on the cerebellum being more largely developed in females in general than in males, I have only to say, that they furnish, to my mind, additional proofs of the rashness of your assertions, and that the latter proposition will be duly appreciated by anatomists, who even are no friends to Phrenology, if they have paid the least attention to the appearances of nature.

In conclusion, I beg to notice, that in most of your letters, and especially in the last, you indulge in various expressions in reference to the statements of Drs Gall and Spurzheim, which, if this

* The justice of this inference will be strikingly apparent when we add, that, since these letters were written, we have seen an extract from a late publication, stating, that Hufeland, on more careful and extensive observation, had confessed himself obliged to renounce his opposition, and to adopt the very doctrines to which he had formerly objected.—See article on the Progress of Phrenology in Germany in this Number.—EDITOR.

correspondence be published, will appear to the readers of it to be the opposite of courteous. To these I have not hitherto adverted, because I regarded them simply as indications of the state of your own mind, and as altogether without just application in any other point of view.

I repeat, that, out of deference to your choice, I am ready to proceed with the reference, although unconvinced of its necessity and advantages; meantime remain, &c. GEORGE COMBE.

Sir William Hamilton to Mr Combe.

Edinburgh, 10th May, 1827.

MY DEAR SIR,—As I perceive no utility in protracting this irrelevant discussion, I will make no remarks on any part of your letter, except to notice that your statement is incorrect of my having *refused to publish* my objections against Phrenology, and that your assumption is equally so, that a private reference was ever by me intended to supersede a public exposition of the result of the arbitration, and of its grounds. If the determination were awarded against me, I should certainly give up the whole controversy; and be indeed compelled to acquiesce in an absolute scepticism with regard to the possibility of ascertaining even the most unambiguous phenomena. But as not merely between ourselves, it was certainly, I thought, better for the interests of truth, that in any public discussion, both should depart from an admitted basis of reality, instead of each making his own assertions and counter-assertions; and, with this view, I proposed that the real state of the facts should be determined by an impartial verdict *previously* to any public discussion as to their import. How, in regard to phenomena so palpable, any difference of opinion should ever have arisen, is to me a matter of the profoundest admiration; but as the authority of *all* anatomists, I *believe*, except the phrenological, is on my side, and as my propositions are, I *know*, confirmed by the most incontrovertible observations, I cannot entertain a doubt, but that the assertions of Gall and Spurzheim are, in regard even to the plainest facts of *cranial* anatomy, as assuredly the reverse of truth, as is their opinion in *cerebral* anatomy, that the cortical matter precedes and generates the medullary substance. In these circumstances it is idle to disguise the inevitable alternative; *either* Drs Gall and Spurzheim are the most worthless of observers, *or* my counter-statements are a product of the most exquisite delusion that presumption ever engendered upon ignorance. Let it be decided which of us must own—

——— pudet haec opprobria nobis
Et dici potuisse, et non potuisse refelli.

I remain, &c. W. HAMILTON.

Sir William Hamilton to the Editor of the Scotsman.

THE letter by Mr Combe, printed in the note on p. 388, appeared first in the Scotsman newspaper, in which several of the preceding letters had previously been published. On seeing it Sir William Hamilton addressed the following letter to the Editor of that paper:—

TO THE EDITOR OF THE SCOTSMAN.

Edinburgh, 24th May, 1827.

SIR,—May I request that you would publish the following reply to Mr Combe's letter, which appeared in your paper of yesterday.

I cannot comprehend how Mr Combe could hazard, in explanation of his declining to produce Spurzheim's collection of skulls at his lecture, the statement, that I proposed "that he should explore the sinus by probes through holes *not larger than pin-heads*," while in the letter urging him to try the phrenological anatomy by an appeal to this suicidal evidence of its falsehood, I expressly begged him to "remark, that *all* the skulls were, in fact, open for *every purpose of observation*, when examined in the hand—that the depth of many of the sinuses, from the GREAT SIZE *of the holes*, was apparent *even to the eye*—and that, *if that were thought proper, all might be made equally notorious*." Had Mr Combe, in fact, adduced this or any other collection of crania, opened *so as fully to display* the sinuses, and *truly representing the average of nature*, I am confident he neither could nor would maintain the propositions which he now does. The skulls he produced at his lecture might certainly refute the notion which he carefully denied, but which, as far as I know, no one ever entertained, that these cavities extend over *a great part of the head*, (meaning, I presume, beyond the frontal bone); but if they afforded any countenance to the new doctrines in osteology, they are, I confidently assert, as much in opposition to the *ordinary* appearances of nature as the phrenological statements are to *all* anatomical authority. Mr Combe alleges the open crania of his friend Mr Syme; but can he induce Mr Syme, or any other practical anatomist, to stake his scientific reputation in support of the phrenological paradoxes in relation to the sinus, which these crania are said to confirm? When the Phrenologists shall be brought to look nature boldly in the face, they will, I am well convinced, precipitately back out of all the statements of their two great authorities in regard to the most manifest and elementary facts on which the hypothesis is founded: and I rejoice to find that Mr Combe himself has shown the example, by now at length allowing, that in young adults the frontal sinuses are "GENERALLY *present*;"* though this admission be in the teeth of

* Mr Combe indeed admits, in his System, published in 1825, that "in "adult age the sinus *frequently* occurs to a certain extent."

Spurzheim's most positive assurance, that these cavities "*occur* ONLY *in old persons, and after chronic insanity.*"—But in so *plain* and so *important* a matter, what is this, but to admit against the Doctor an excruciating dilemma of presumptuous ignorance or impudent deceit—an alternative completely destructive of all confidence in any fact that rests upon his testimony? The history of Phrenology proves, indeed, that it is only necessary to insist that black is white, with sufficient pertinacity, to gain to an opinion converts, and intelligent converts, *on authority;* but human credulity cannot surely be carried to the extent of crediting an interested authority, in opposition to the plainest personal evidence of sense. In the belief, that no Phrenologist would maintain the *credo quia impossibile,* and his faith in Gall, in contempt of the most palpable realities of nature, when forced upon his observation, I proposed a common reference, in order, definitively and authoritatively, to ascertain the real state of facts in relation to the frontal sinuses; but as I have uniformly found with Blumenbach, that "what is new in Phrenology is not true," I am prepared, admitting even the *preliminary possibility* of the hypothesis, to demonstrate the falsehood of every *integral position* it involves, which I have been able to bring to proof. Among other contradictions, I pledge myself to prove to the umpires the five following additional propositions, all directly the reverse of the phrenological doctrine:

1. That the *whole brain* attains its full complement of size at seven years old; and that the subsequent increase in the bulk of the *head* is exclusively determined by the greater development of the cranial bones, muscles, integuments, and hair.

2. That the proportion which the *brain proper* holds to the *cerebellum* throughout after life is attained at least ten years previous to puberty.

(The *preceding* facts are confirmed by the observations of the most accurate anatomists; the two *following* have not, I believe, been previously noticed.)

3. That the *cerebellum* in women is greater *in proportion* to the size of the whole cerebral mass than in men.

4. (Nay, that phrenological assertion should always be shown to be at the *greatest possible* distance from the truth), that the female *cerebellum* is *absolutely* larger than the male.

5. That the supposed organ of *theosophy* or *veneration* is, *proportionally* even to the lesser size of the female head, much smaller in women than in men. I remain, &c. W. HAMILTON.

P.S.—I observe the following *errata* in No VI. of my correspondence with Mr Combe, which materially affect the sense: *general line* for *general law,* and the confusion of the 3d and 4th propositions.

NOTE.—We have many observations to offer on the preceding correspondence, but refrain for the present, as Sir W. Hamilton's

propositions are now under examination before Dr Christison, professor of Medical Jurisprudence, named by Sir W. Hamilton, and Dr John Scott, named by Mr Combe, and Mr James Syme, lecturer on Anatomy and Surgery, chosen by these two gentlemen, as umpires. In our next Number we shall return to this subject, and take an opportunity of exposing the hollowness and recklessness of assertion which so strongly characterize all Sir W. Hamilton's letters. Some of them are ludicrously extravagant, and we question if there is one that will produce any effect, except upon those whose ignorance of the subject is as great and whose confidence in the unerringness of their own prejudices is as unbounded as his own.—EDITOR.

ARTICLE IV.

OBSERVATIONS ON EDUCATION, SUBMITTED TO A COMMITTEE OF THE TOWN COUNCIL OF ——————, APPOINTED TO COLLECT INFORMATION PREPARATORY TO THE ERECTION OF A NEW ACADEMY.*

THE Committee having visited the Sessional School in Edinburgh, superintended by John Wood, Esq. presented to the Council an able and interesting report on that seminary. Having read their observations, and also repeatedly visited Mr Wood's school, I offer my humble testimony to the accuracy of the report, and excellence of the plan.

But suppose a young man educated to the full limit of Mr Wood's system, and sent into the world, what will be the amount of his attainments? He will possess a very considerable knowledge of the English language, writing, arithmetic, and geography. These appear considerable acquirements, and I am very far from undervaluing them. They are the *instruments*, by the diligent use of which much use-

* These observations are written by a Phrenologist, and our readers will discover phrenological principles to pervade them throughout, although the terms of the science were avoided to suit them for the committee for whose perusal they were prepared.—EDITOR.

ful and practical knowledge may be attained; but in themselves they do not constitute such knowledge. A few observations are necessary to elucidate this position.

First, In regard to language in general, and the "learned languages" in particular.

Words are mere arbitrary signs for expressing feelings and ideas in the mind; and it is better to have ten ideas, although the words by which we designate them belong all to one language, than to have only one idea, and ten words in as many different languages for communicating it; for example,—a monk who has only seen a horse passing by the window of his cell, may know that this animal is named in Greek, ἵππος,—in Latin, equus,—in English, a horse,—in French, cheval,—in Italian, cavallo,—in German, pferde; and by some persons may be supposed to be, in consequence, highly learned on the subject of a horse. But his stock of REAL knowledge would not be the least increased by the acquirement of these six words to express the name of the animal. His original NOTION of a horse, whatever it was, would continue unextended and unimpaired by all these additions to its names. The body of a man is neither stronger, taller, nor more graceful, because he possesses six suits of clothes, than it would be if he had only one, provided it fitted him exactly; and so it is with the mind. A youth trained in a stable-yard, whose attention had been directed to the various qualities that go to make up a good roadster, hunter, or racehorse, and who knew their names only in his mother-tongue, would be far superior, as a practical man, to the monk; he would excel him in selecting, employing, and managing a horse. He would possess ideas about the animal itself,—would know what points were good, and what bad about it,—how it would work in different situations,—how it would thrive on particular kinds of food,—and how it required to be treated in general, so as to obtain the most complete development of its natural powers. This is *practical knowledge*—acquaintance with words is *learning*.

Man, however, is formed to live in society; his happiness is vastly increased by co-operation and interchange of ideas with his fellows; and language, oral and written, is his natural medium of communication. It is of first-rate utility to every individual, therefore, to possess not only words for all his ideas and emotions, but such expertness in using them, in speech and writing, as may enable him, readily and successfully, to convey to other minds the precise impressions existing in his own. Keeping in view, therefore, that, in nature, ideas take the precedence of words, both in time and utility, an improvement in education adopted by Mr Owen at New Lanark, and followed by the Rev. Dr Andrew Thomson in the Sessional School of St George's, Edinburgh, appears highly deserving of attention; it consists of presenting before the scholars actual specimens, or representations in wood, stucco, or painting, of corporeal objects mentioned in their lessons. This exhibition interests a variety of their faculties, fills their minds with ideas, gives precision to the meaning of the words, and familiarizes their intellects with the truth, that words themselves are mere sounds, while only just conceptions constitute knowledge.

If these views be correct, the value of Greek and Latin, as elements of education, will be found to be over-estimated by public opinion. The history of their introduction into schools merits attention.

The Greeks and Romans were the earliest nations in Europe that attained to civilization, or, in other words, they were the first who so far cultivated their mental faculties as to acquire numerous and precise ideas of government, laws, morals, intellectual philosophy, and the arts. In consequence of their minds possessing those ideas, their languages contained terms to express them. In the fourth and fifth centuries the Roman empire was overrun by ignorant barbarians from the north of Europe, whose mental powers, from not having been cultivated, had not reached the conceptions now alluded to, and whose languages, in consequence, were barren as

their thoughts. A long night of darkness prevailed, until at length civilization again dawned where it had last set—in Italy. The cities of that country, situated under a genial climate, and surrounded by a fertile soil, had, as early as the twelfth and thirteenth centuries, made considerable progress in arts and manufactures; wealth flowed in upon them, which produced leisure, and a desire for refined enjoyment, whence a taste for literature gradually arose.

The manuscripts of Greece and Rome had long slumbered in the cells of monastic institutions, and many of them had been erased to give place to monkish legends; but now they were ardently disinterred. When recovered and understood, they were found to contain more sublime and elegant poetry, more refined, yet nervous eloquence, more brilliant, pointed, and ingenious wit, with profounder and juster views on law, criticism, and philosophy, than had been known or heard of since the subversion of civilization; and all these treasures, too, embodied in languages so copious, rich, discriminative, and refined, that Europe, in addition to this accession of knowledge, was furnished at once with exquisite vehicles of thought without the labour of invention.

In these circumstances, Greek and Latin naturally became objects of intense study with all who aspired to superior intelligence. There was great good sense in this direction of their mental energies, because at that time, and in their situation, these languages really unlocked to them the richest intellectual stores then existing in the world; and put them in possession also of an instrument for communicating their thoughts greatly surpassing, in delicacy and power, whatever they could have obtained by their own invention, or found in the literature of their native countries.

In this manner, and for these reasons, colleges, schools, bursaries, and institutions of every imaginable form were instituted for teaching and cultivating the Greek and Latin languages, and they obtained the appellation of "humane literature," "LITERÆ HUMANIORES;"—eminence in them

became the passport to fame, and a person highly conversant with them was dignified with the title of "a learned man."

In the course of time, however, the nations of Europe, aided by the invention of printing, and, latterly, by stupendous discoveries in science and the arts, far outstripped the Greeks and Romans in their most useful attainments. The Italians, French, and English made gigantic strides in developing their mental powers; and their languages, by a law of the human constitution, kept pace with the increase of their emotions and ideas. England could long ago boast of a Bacon, a Shakspeare, a Milton, and a Locke, and she is now able to exhibit an additional list of names so splendid and extensive as almost to defy repetition,—of men who have embodied in her language, thoughts and inventions so profound, admirable, and useful, that the philosophy, the science, and the arts of the ancient world sink into comparative insignificance before them.

This change of circumstances has clearly altered the relative value and importance of Greek and Latin. There is now no *knowledge* of the physical and moral worlds contained in these languages which does not exist explicitly expressed in English; and there is no mode of feeling or of thought subservient to the practical purposes of life that may not be as forcibly and elegantly clothed in our native language as in them. Human institutions and practices, however, often long survive the causes that gave them birth;—and from five to seven years of the lives of our youths are still dedicated to the study of the learned languages, as if all their original importance remained.

The consequences are very baneful: *First*, The human faculties desire *knowledge* as their natural food, and it is only after a considerable stock of ideas has been obtained, and many emotions experienced, that the value of words, as a means of expressing them, comes to be appreciated. By the common practice of teaching, however, little knowledge of things is communicated, and children are compelled to proceed at

once to the study of difficult, copious, and dead languages. This proceeding being an outrage upon nature, tedium, disgust, and suffering in consequence invade the youthful mind; as a means of conquering aversion, severe discipline is resorted to, which, being felt to be unjust, rouses the worst feelings, and debases the sentiments, while the intellect is impaired by dealing habitually with sounds to which no clear conceptions are attached.

Secondly, Under this system children make no substantial progress in any useful acquirement. Nine out of ten drawl away the months and years of their allotted penance, and within a brief space after its close forget every syllable which they had learned with so much labour and pain; and even the tenth, who, from a higher natural talent for languages, perhaps distinguished himself by his classical attainments, does not, on entering the counting-house or workshop, always find himself as superior to his competitors in these departments of business as in scholarship.

Thirdly, The season for obtaining real knowledge being dedicated to the study of languages, the individual enters on life deficient in many acquirements that would be more substantially useful. He knows nothing about the structure of his own body, and very little about the causes which support it in health, or subject it to disease; he is very imperfectly informed concerning the constitution of his own mind, and the relations established between himself and other beings; he is not instructed in any science; knows nothing of the principles of trade; is profoundly ignorant of the laws of his country, which he is called on to obey; and, in short, is sent into society with little other preparation than a stock of prejudices gathered from the nursery, and of vague imaginations about the greatness of Greece and Rome, the beauties of classical literature, and the vast superiority of learned pedantry over practical sense.

To discover the evils that arise from this misdirection of education, we require only to advert to the numerous cases

of individuals who ruin their constitutions, and die in youth or middle age, not from the fury of ungovernable passions which knowledge could not subdue, but from sheer ignorance of the physical conditions necessary to health;—or to the ruined fortunes and broken hearts clearly referable to ignorance in individuals of their own incapacity for the lines in which they have embarked, of the characters of those with whom they have connected themselves, of the natural laws which govern production, or of the civil laws which regulate the transactions of men in particular states; and to ask how many of these calamities might have been avoided by instruction and by proper discipline of the mind in the fields of observation and reflection.

The question naturally presents itself, What constitutes a rational education?

First, The English language, writing, and arithmetic, are essentially necessary as *means* of acquiring and communicating knowledge. These, then, ought to be sedulously taught, and by the most approved methods.

Algebra and pure mathematics belong to the class of means. The first relates solely to numbers and their relations; the latter to space and its proportions. The most profound skill, therefore, in them, is compatible with extensive ignorance concerning every object, topic, and relation that does not essentially imply exact proportions of number and space.

All languages also belong to the class of means. In preferring one to another, we ought to be guided by the principle of utility; that one in which most knowledge is contained is best. For this reason, French, Italian, and German appear to me more valuable acquirements than Greek and Latin.

The second object of education is the attainment of knowledge itself.

The first use of knowledge is the preservation of health. This, although greatly overlooked in established systems of education, is of paramount importance. Life depends on it, and also the power of exercising with effect all the mental

functions. There are two modes of instructing an individual in the preservation of health, the one informing him as matter of fact concerning the conditions on which it depends, and admonishing him by way of precept to observe them,—the other by expounding to his intellect the constitution of his bodily frame, teaching him the uses of its various parts, the abuses of them, the relations established between his constitution and external objects, such as food, air, water, heat, cold, &c., and the consequences of observance or neglect of these relations. The former method addresses the memory chiefly, the latter the judgment. The former comes home to the mind, enforced only by the authority of the teacher, the latter is felt to be an exposition of the system of creation, and deeply interests at once the intellect and affections. The former affords rules only for particular cases; the latter general principles, which the mind can apply in new emergencies.

Such instruction as is here recommended implies an exposition of the principles of anatomy, physiology, and chemistry, with the practice of gymnastic exercises and dancing. These, then, ought to constitute important branches of education; but, for general purposes, it is not necessary to teach them in minute detail. Popular lectures, elucidating their leading principles and their application, would suffice.

The next use of knowledge is to exercise the mental faculties themselves, so as to render them vigorous and vivacious, and to promote their enjoyment.

One great evil attending the practice of teaching languages as the leading aim of education is, that it leaves the affections untrained, and the observing and reflecting powers imperfectly exercised, so that, at the close of a long course of study, the mind is very little fitted by the discipline it has undergone for feeling its way in society, for observing accurately and judging rapidly,—habits of the highest consequence to a citizen of the world. The remedy for this is to convey ideas of things that exist. These are the natural

food of the mind, and stimulates all its powers. Besides, every object placed under the control of man is capable of being turned to his advantage, if he applies it to its proper uses, or of causing him injury, if, through ignorance or inattention, he neglects its properties; so that knowledge essentially promotes success in life, and happiness. Geography, civil history, political economy, natural history, natural and moral philosophy, with religious instruction, complete a rational and liberal education. A taste or genius for poetry, music, painting, sculpture, or languages, is bestowed by nature on particular individuals, and these ought to be taught to those who desire them.

Farther, as long as the present institutions of society exist, some knowledge of Greek and Latin is indispensable to young men who mean to pursue divinity, medicine, or law, as a profession. An academy for public instruction, therefore, ought to contain classes serviceable to those who, either through natural liking, or from professional regulations, require to attain these languages.

The foregoing observations are, perhaps, too general to be useful; but I find it impossible to enter fully into minute points without writing a volume on education, which, from its length, would be little suitable for the perusal of a committee. Besides, DETAILS have been avoided, because it would have required a thorough acquaintance with a thousand minute local circumstances of which I am ignorant, to enable me to render my observations on them applicable to the case in point. With a view, however, to practical results, I may observe, that as clergymen, lawyers, physicians, and men of letters in general, have hitherto been accustomed to look with high respect on Greek and Latin, as essential branches in all systems of education, and as public opinion may not be

prepared to acquiesce in their general abandonment, some modifications may be adopted approximating to a sounder system, without venturing all the lengths recommended in the previous observations. For example,

As many classes for the physical and moral sciences as can conveniently be supported might be instituted, giving a preference to the most useful. This would place it in the power of those individuals who prefer a *real* education, or a knowledge of things and relations, to instruction in languages, to attain that object.

In the next place, the study of Greek and Latin, instead of commencing at 7 or 8, might be postponed till 11 or 12 years of age.

Sundry advantages would attend even these slight modifications; for example,

1*st*, If the dead languages are not prosecuted in after life, the time devoted to them is positively misapplied. It is a fact quite notorious, that nine out of ten of the children educated in a commercial town do not follow professions for which Greek and Latin are indispensable; and hence the time and expense bestowed by at least this proportion of pupils are most unprofitably expended. Indeed, there is a great delusion in the public mind in regard to the necessity of Greek even for the medical profession. Professor ———, when examined lately before the Royal Commission which visited the university of Edinburgh, stated, that at the school and college he had gained the first prizes for that language, and was naturally fond of it; but that from the time he had begun to study medicine, he had found his attention so fully occupied by the substantial elements of science, that he had scarcely opened a Greek book, while he had been obliged to study French and German, for the sake of the medical information they contained.

2*d*, Many pupils whose professions cannot be determined at 7 or 8, and who, under the present system, begin the study of the dead languages at these ages, merely to prepare for

contingencies, would avoid them altogether by being fixed determinately at 11 or 12 on a pursuit that did not require them.

3d, Young minds in general are passionately fond of the knowledge of *things* and *events*, when properly taught, and rejoice in instruction in them, while they nauseate the dulness and insipidity of learning mere words, which the dead languages are to them. This is proved beyond the possibility of question by the examples of Mr Owen's school at New Lanark, the sessional school of St George's, and the Circus Place school in Edinburgh. Under the present system, all children who ultimately abandon the learned professions, find themselves cheated as it were out of the intermediate years of their lives between 7 and 12, and discover, when too late, that instruction in words is not knowledge, and that they have endured suffering in pursuing a phantom, while they might have enjoyed pleasure in attaining a substance.

4th, It is erroneous to say that Greek and Latin enable a boy to understand his own language better. This must be the case only where no pains are bestowed by teachers in conveying fully the meaning and value of English expressions. All words are mere arbitrary sounds, and in itself a sound invented by an Englishman is as capable of being rendered, by proper definition, the sign of any idea or emotion, as one first suggested by a Greek or Roman. The grand requisites to the right use of speech are two,—clear conception of the notions to be announced, and accurate definitions of the words employed to designate them. The *first* will be best attained by studying *things* and their *relations*, and the *second*, by a careful exposition of our mother tongue by a person who knows scientifically both the things signified and the genius of the language.

Various obvious reasons exist why so little of English is understood by those who learn it alone at school. Owing to deficiency in their own education, teachers themselves, in general, do not possess distinct knowledge of the things sig-

nified by the sounds which they communicate; and from not understanding ideas, they have it not in their power to define words accurately. Hence they cannot, and do not, bring together before the minds of the pupils a clear notion of the things signified and of the sign, without the combination of which the right use of speech is impracticable. Farther, schoolmasters, in general, communicate only the sounds of words, and the abstract rules of grammar,—but this is not teaching a language; the latter implies unfolding the structure, idiom, and power of the tongue,—a task which requires profound reflection and extensive information.

A professor of English, therefore, would be more useful to nine out of ten of the pupils of the ——— Academy than professors of Greek and Latin; and it is only after English has been taught in this, or in such other way as may be best adapted to the human understanding, and without success, that the conclusion ought to be drawn, that it cannot be understood sufficiently for all useful and ornamental purposes without a previous knowledge of Greek and Latin.

It has often been observed, that the Greeks themselves studied no language except their own, and yet attained to exquisite delicacy and dexterity in the use of it; and why may not the English do as much? The objection, that Greek is a primitive and English a derivative tongue, is met by the answer, that every word is merely a sound designative of an idea or emotion, and that it makes no difference on the possibility of comprehending the thing signified, whether the sound was invented by the English themselves, or borrowed by them from the Greeks or Romans.

5th, From the higher development of the intellectual faculties at 11 or 12, as much progress would be made in Greek and Latin in two or three years at that age, as in five or six commencing at the age of seven; so that, even with these languages in view, no time would be lost by the proposed change.

6th, The intermediate years between 7 and 11 or 12

might be employed in studying geography, drawing, natural history, biography, the history of foreign countries, with their productions natural and artificial,—their trade, monies, mode of transacting business, &c.; and even a considerable portion of the elements of physical science contained in Mr Brougham's "Library of Useful Knowledge" might be made intelligible in the later years of the above period. This kind of instruction would forcibly exercise and excite the observing and reflecting faculties of children, and train their minds, just as gymnastic evolutions do their bodies, for higher exertions of activity and energy in after life.

The minds of women are similar to those of men, but modified in power, and also in the degree in which particular faculties are possessed. Women are subjected to the same influences from external objects and beings as men. No reason, therefore, exists why they should not enjoy similar advantages of education, adapting the subjects taught to their particular wants. In founding an academy, then, as many classes as possible should be arranged, so as to admit of the attendance of female pupils.

The committee to whom these observations are addressed are respectfully reminded, that the arrangements they may now recommend, if adopted, will, in all probability, endure for ages, and affect the mental character of the population of ——— for at least a century to come. A great revolution in education is already obviously begun, and in all probability will proceed rapidly; it would be a great advantage, therefore, to the public of ———, were the committee rather to move a few years in advance of the new order of things, if this could be done on grounds reasonably clear and safe, than, through unwarrantable diffidence, or groundless dread of innovation, to consecrate anew errors that are about to be abandoned by reflecting men in all other parts of the united kingdom. The mechanics, by aid of the exact sciences and libraries of useful knowledge, will, in half a century, greatly surpass, in vigour of intellect and practical judgment, the

higher and middle classes of society, if the latter persevere in squandering the years of youthful vigour in ancient literature.

22d May, 1827.

ARTICLE V.

SKULLS FROM MOZAMBIQUE AND SANDWICH ISLANDS, PRESENTED TO THE MUSEUM OF THE PHRENOLOGICAL SOCIETY, AND INTERESTING CASE OF A YOUNG WOMAN OF MADAGASCAR, FURNISHED BY DR SIBBALD, OF THE ISLE OF FRANCE.

It is truly gratifying to find friends to our science, and zealous friends too, declaring themselves in the most unexpected quarters, both within our own four seas and in distant regions of the world. While journalists and others in various parts of Britain are offering their zealous services for the promotion of our science, our well-wishers abroad have a still more substantial method of making themselves known to us; and so numerous of late have been the arrivals of national skulls to the Museum of the Phrenological Society, that there are but few races, we had almost said varieties, of the human species, of which one or more specimens are not now in that extensive and most instructive collection.

The Society have just learned, by means of a gift of the kind alluded to, that there is a knot of zealous Phrenologists in the island of Mauritius, who receive out the Phrenological publications, including our Journal, and intend for the Society some farther kindness in the way of donations of skulls, with descriptions of the corresponding characters. It is in this, that, when abroad, the phrenological has an unspeakable advantage over the unphrenological purveyor. While the latter, however obliging, can only furnish a very general sketch of the character of a particular race, the former, knowing what to observe in the native's

manifestations, accompanies his donation with a minutely-finished portrait of his character.

Dr Sibbald, who holds an important medical situation in the Isle of France, lately presented to the Phrenological Society two skulls from the coast of Zanguebar, on the Mozambique channel. He very properly accompanied the donation with the following caveat:—"The Mozambique skulls may "be of a far superior caste to the natives of that part of the world, "from the mixture of races on that coast, viz. Arab, Portuguese, "and Caffre; at least the developments seem far above the charac-"teristic traits of that race."—The observation is as true as the caution is judicious. The Mozambique natives are African negroes,—a race whose head presents a well-known type to the observer of natural development, and to which neither of the heads in question bears any resemblance. They are both very superior to the common negro, and, indeed, present so much of the European character, that one of them, at least, is a little above the average size of the British or German head. With integuments, it must have measured 8 by 6, with a considerably larger fibre in the directions of the intellect and sentiments than in the animal; the animal, nevertheless, is considerable, but is balanced by a fine coronal surface, and good reflecting forehead; a head, in short, utterly thrown away in the Mozambique. The other, from its length and narrowness, and large love of offspring, is evidently the skull of a female. It, too, is very far superior to the ordinary negro type in both intellect and sentiment. It even presents considerable Ideality, and a large Benevolence, with moderate Combativeness and Destructiveness, which combination would be manifested in gentleness and kindness. Its Conscientiousness, too, is much above the negro allotment of that important moral provision. Of course we decide nothing on these specimens till we see some well-authenticated native skulls, for which, and an accurate account of the character of the Mozambique race, we look confidently to Dr Sibbald, who will, we doubt not, satisfy the curiosity he has raised.

The Sandwich island skull is valuable, in so far as it presents the precise type of those of Mr Malden's donation.

But Dr Sibbald, when lately in Edinburgh, had a much more interesting, because *live* specimen, with him, namely, a Madagascar young woman as child's-maid in his family, whom he politely permitted us to see. She is about twenty-four years of age, with a complexion not black but dark, like that of the Malays, and Lascars, and other casts of the Hindoos,—lank black hair, flat and broad nose, but not thick lips, so as in no respect presenting the African negro character. She had a kind and obliging smile, indicating Benevolence, and a certain trust-worthy expression, which a phrenological physiognomist knows to be the natural language of Conscientiousness. We were surprised with the large size of the head in general for either an Asiatic or African woman,* and still more with the great endowment of the moral and intellectual,—nay, even the reflecting organs. Without asking a question, we took down the measurement and development, which are as follows:—

MEASUREMENT.

	Inches.		Inches.
Spine to 19	7½	Ear to 13	5½
2 to 19	7½	6 to 6	5½
3 to 30	7½	7 to 7	5
Ear to 19	4½	8 to 8	5½
Ear to Spine	4½	9 to 9	5½
Ear to 10	5½	12 to 12	5½
Ear to 18	5½	16 to 16	5½
Ear to 14	5½	28 to 28	3½

DEVELOPMENT.

Amativeness,	18	Acquisitiveness,	16
Philoprogenitiveness,	16	Secretiveness,	16
Concentrativeness,	17	Self-esteem,	17
Adhesiveness,	18	Love of Approbation,	17
Combativeness,	18	Cautiousness,	17
Destructiveness,	17	Benevolence,	17
Constructiveness,	16	Veneration,	17

* The head considerably exceeds in size the average of the European female head.

Hope,	15	Order,	17
Ideality,	15	Time,	10
Conscientiousness,	16	Number,	15
Firmness,	18	Tune,	8
Individuality,	15 / 13	Language,	12
Form,	19	Comparison,	18
Size,	13	Causality,	16
Weight,	13	Wit,	10
Colouring,	12	Imitation,	13
Locality,	15	Wonder,	10

Having finished noting the development, Dr Sibbald himself proposed to write down the leading particulars of the character before we should say a word of what we inferred.

He did so, and, before showing it, asked us what we thought? Any Phrenologist, who looks at this favourable development, will at once anticipate that we expressed great surprise to find it in any head except the European; and that he must have experienced in his child's-maid strong attachment, and great respect, without avarice; quite love enough for her young charge, without passionate fondness; a dread to offend, and a love of praise; great kindness, and readiness to oblige; a degree of honesty and trust-worthiness which probably he never met with in any other person of colour; not great quickness in learning, but considerable sagacity and intelligence; a marked gravity, when the ludicrous would move most Europeans;* timidity; a frequent despondency, but a capability of being roused to great anger and resentment, with cries and tears which terminate in considerably hurt pride and obstinacy; great memory for persons, and might be taught to draw; some neatness of hand, but neither Time nor Tune.

In so far as we remember, Dr Sibbald, with his lady, who was present, admitted the general correctness of this merely verbal off-hand sketch, and then gave us the following written remarks:—

* A well-known feature of the Asiatics, who think the laughing of Europeans absolute insanity.

"Phan, a negress from the central part of Madagascar, of about "twenty-four years of age (the Ovah district, the capital of which "is Tananarivo) is possessed of most of the peculiar characteristics "of natives of that part of the world, with the exception of a greater "degree of honesty, less of taste for finery, and of taste for music, "which in her seems altogether wanting, whilst it is rather a peculiar characteristic in the race."

Dr Sibbald added, as the young woman's history, that when she was a child, her whole nation was subdued by another tribe, and carried down to the coast for sale as slaves; and that it was her lot to be brought to the Isle of France, where she acquired the French language,—the only tongue in which she answered our questions;—and her good fortune to come, finally, into the hands of the kind and considerate master and mistress she now serves, and to whom she is an attached, careful, and trusty nursery-maid.

Dr Sibbald himself saw the necessity, without our suggesting it to him, of procuring a good many Madagascar skulls of undoubted nativity and locality, before coming to the conclusion to which this single and most favourable specimen would point, viz. that the natives of that island are a race so very superior to all the sable population of the tropics of which we have yet the means of judging. We hold Dr Sibbald pledged, and willingly pledged, to complete for us the Phrenology of Mozambique and Madagascar, with philosophical accuracy, and to send many an unequivocal proof for the museum; and farther,—for we are insatiable,—to do for us all he can in collecting national skulls in every quarter of the globe where he may set his foot, or where he has the means of corresponding with an intelligent friend.

As we expect to hear from many such benefactors in different regions, it occurs to us that a few simple instructions as to how they can most beneficially direct their exertions in the cause may not be here out of place,—much after the fashion of some charit[illegible]tions, who furnish an ex-
[illegible] and strictly le[illegible] will or bequest in their
[illegible]our, to guid[illegible]nce of all who may be in
[illegible]. Be it kno[illegible] to whose knowledge these

presents may come, that when they, either by themselves, or their correspondents, set about obtaining the skulls of the natives of any region or place, for the Museum of the Phrenological Society, their process should be, as nearly as possible, the following:—1. Inquire, very indirectly and cautiously, how the natives dispose of their dead; and especially whether they preserve the bones, and store them up as in the Sandwich islands. If the skulls are preserved, and, still more, if they are stored, any number may, it is thought, with a little address, be quietly procured without giving offence. 2. If they inter their dead, look for cemeteries, and, above all, for fields of battle; and whenever a native *resurrection-man* brings a skull, take it from him, and, if practicable, go with him to the spot where he found it, of which take a note. 3. Before laying aside, or sending off the skull, mark neatly with pen and ink on the top of it, turning the face towards you—the race—the variety of the race—the place where found, if in a cemetery or collection of unmixed native remains, or of natives with strangers, and whom, intermixed. If there are a variety of skulls, put a legible number, or Roman letter, on the forehead, for reference in any accompanying written sketch. 4. Write down, as minutely and comprehensively as possible, all you know, can learn, and observe, of the character of the race or variety,—as to love of sex—care of children—love of kindred and country—courage, with or without cruelty—temperance, or gluttony and drunkenness—workmanship—love of property—cunning or openness—pride or humility, and shamelessness or vanity—timidity—kindness or indifference to others—superstition—cheerfulness—poetry and finery—honesty—firmness and obstinacy;—with intellectual character, as consisting in quickness to learn—to copy and imitate—to draw—to sing and dance—to wonder—to laugh, and to reflect, or manifest sagacity and intelligence. It will subserve a useful purpose, too, although the skull will not indicate it, to add some observations on the degree in which the race manifest the

five external senses of seeing, hearing, touching, tasting, and smelling. Of the safest and speediest channel for sending home such valuable contributions, the donors will, of course, be much better judges than ourselves.

ARTICLE VI.

DONATION OF SIX ANCIENT PERUVIAN SKULLS BY MR WATSON OF GLASGOW.

We had scarcely sent the preceding article to press, when a package arrived from Glasgow, accompanied by the following letter from Mr Leadbetter, Secretary to the Phrenological Society of Glasgow, to Mr George Combe:—

Glasgow, 17*th March*, 1827.

Dear Sir,—Our friend, Mr Watson, ever anxious to promote the interests of Phrenology, had, some time ago, requested one of his mercantile correspondents in Lima to send him a few skulls of the aborigines of that country; accordingly a package arrived containing 14, accompanied with a letter, stating, "I send you a dozen from one of the Hua-"cus in the neighbourhood, and I trust that they will ena-"ble you and your phrenological friends to ascertain what "was the general temperament of the sons of the Incas."

Dr M'Kenzie and I have measured the whole of them, and, at the request of Mr Watson, I send you a half-dozen, No 1 and 6, which you will please present to the Phrenological Society;—I also give you the measurement, not only of these six, but of the other eight, and if you find that we are correct with the former, the annexed table will give additional weight to whatever evidence these skulls may afford of the truth of Phrenology. It requires merely a glance of the eye to be satisfied that they are of one

race or nation;—the peculiarity of their shape is striking, and an extreme flatness of the back part pervades the whole. This circumstance is noticed as being very marked in the skull of the Chiloan chief, the measurement and development of which has been given in an article in the eleventh Number of the Phrenological Journal; but unless that skull be regarded as below the average of the Chiloan race, the native Peruvians must be considered as superior to them in energy of character, as the measurements of those 14 evidently indicate a greater mass of brain. I hope the writer of the article alluded to will furnish the Journal with his observations on these skulls. There is yet much to explore in this branch of phrenological inquiry; it is full of interest, as its object is to trace the causes of national character, which, though built upon a structure of various parts, has its main foundation in the primary varieties of the cerebral mass.

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
From Spine to 19	6	6 1/4	6 3/8	6	6 3/8	6 1/2	6 1/4	6 3/8	6 1/8	6 3/8	6 3/8	6 1/8	6 3/8	6 1/8
2 to 19	6	6 1/8	6 3/8	6 1/8	6 1/2	6 1/2	6 1/8	6 3/8	6 1/4	6 3/8	6 3/8	6 1/4	6 3/8	6 1/8
3 to 30	5 1/8	6 3/8	5 1/2	5 3/4	5 7/8	6 1/4	6 1/4	6 1/4	5 3/8	5 1/2	5 1/8	5 3/8	5 3/8	5 3/8
Ear to 19	4 3/8	4 5/8	4 3/8	4 3/8	4 1/8	4 3/8	4 3/8	4 1/4	4 1/8	4 1/4	4 3/8	4 3/8	4 1/8	4 3/8
— to Spine	3 1/4	3 3/8	3 1/8	3 3/8	3 3/8	3 1/8	3 1/8	3 1/4	3 3/8	3 3/8	4	3 1/8	3 3/8	3 3/8
— to 10	5 1/8	5 3/8	4 7/8	5	5 1/4	4 7/8	5 1/8	4 7/8	4 3/8	4 1/2	4 3/8	5	4 5/8	5 1/8
— to 18	5 1/8	5 1/8	4 7/8	5 1/4	5 1/8	5 1/8	5 1/8	5 1/8	4 7/8	5 1/8	5 1/8	4 7/8	4 7/8	5 1/8
— to 14	5 1/8	5 1/8	4 7/8	5 1/4	5 3/8	5	5 1/4	5 1/4	4 1/2	5 1/8	5 1/8	5 3/8	4 7/8	5 3/8
— to 13	4 7/8	5 3/8	4 7/8	5 1/4	5 3/8	5	5 1/4	5	4 7/8	5	4 7/8	4 7/8	4 7/8	5
6 to 6	5 3/8	5 3/8	5 1/8	5 1/4	5 1/8	5 3/8	5 7/8	5 3/8	5 1/4	5 1/8	5 7/8	5 7/8	5 1/8	5 3/8
7 to 7	4 3/8	4 1/8	4	4 3/8	4 3/8	4 1/4	5 3/8	4	4 3/8	4 3/8	4 7/8	4 1/8	4 1/8	4
8 to 8	5 1/8	4 7/8	4 3/8	4	5	4 3/8	4	4 1/8	4 1/8	4 1/4	5 1/8	4 1/8	4 1/8	4 3/8
9 to 9	6	5 3/8	5 3/8	5 1/8	6	5 1/8	6	5 1/8	5 3/8	5 1/8	6	5 1/2	5 3/8	5 1/8
12 to 12	5 3/8	5 3/8	5 1/8	5 1/8	5 3/8	5 1/8	6	5 1/8	5 3/8	5 1/8	5 3/8	5 7/8	5 3/8	5 1/8
16 to 16	4 3/8	4 1/8	4 1/8	4 1/4	4 1/4	4	4 1/4	4 1/4	4 1/8	4 3/8	4 7/8	4 3/8	4 1/8	4 1/8

Our Society here has been in a dormant state for these two winters; the winter avocations of our medical members interfere with their attendance, and the other members, amid much mercantile distress, have had their attention diverted from a subject which, though treating a good deal of matter, must, notwithstanding, be considered of a very intellectual nature, and, perhaps, partaking too much of this character for our money-making, and of late money-losing citizens. The seed,

however, is sown, but the soil not being very genial, I do not expect that its growth will ever manifest the distinctive marks of rapidity or vigour.—I am, dear Sir, your's truly,

JOHN LEADBETTER.

This welcome accession could not have come more seasonably; for it gives us the opportunity of correcting a mistake into which we were led in regard to a Peruvian skull, already in the museum of the Phrenological Society, while, at the same time, it fixes the Peruvian type as distinct from the other races of South America. In an article on the Sandwich islanders and South Americans, in vol. iii. page 430—31, we described a skull which we then believed to be, and called that of a *Chiloan* chief, and stated, that the development was in all respects that of a race which would yield, however numerous, to a handful of Europeans, without attempting resistance. We also noticed, that there is considerable intellect and moral sentiment indicated by the development; with which part of the organization we had no means of comparing the character of the Chilotes. After we had published, under mistake, that the head was Chiloan, we were set right by Mr Malden, the donor himself, who informed us, that what, by mistaking his c for an o, we had read Chiloa, was *Chilca*, near Lima in Peru; at which last place the skull was found, being that of a native Peruvian. This information was to us a great increase of its value, in as far as the empire of Peru was more interesting than the island of Chiloa, or more properly Chiloe; and still a greater that, the skull having been found in the centre of a circle of skulls in Peru, a mode of sepulture there peculiar to the Incas, it is exceedingly probable that it is actually the head of one of that dynasty of royal priests of the sun.

We have said that the small head, defective Firmness, and very large Cautiousness, Veneration, and Wonder, would lead the race to unwarlike submission, especially to a strange

enemy with fire-arms. We should have been sadly thrown out, if, when forced to allot this specimen a different origin, we should find it at variance with the history of the race to which it is proved to belong. Had that race, instead of a timid submission to a small band of Spaniards, made head, like the Araucanians, described in the same paper, against the Spanish veterans, mounted a formidable cavalry 40 years after they had seen a horse, and defeated armies of their enemies in pitched battles. But there could be no such danger to our credit. We had the skull in our hands, and if it was the type of the race, the history of that race must correspond. Unwarlike submission in Peru differs not from unwarlike submission in Chiloe. Turning then with confidence to the Peruvian history, we find that the submission of 70,000 Chilotes,—probably unarmed and unprepared,—to sixty Spaniards, was victory compared to that of the Peruvian empire, 1900 by 500 miles in extent, with a large army actually in the field, to one hundred and eighty Spaniards under Pizarro. So much for the unwarlike character of the Peruvians. But we have said, that we noticed in the skull we had a good intellectual and moral development, of the manifestation of which in Chiloe we could give no account; but we are quite at home with such a development in Peru. While it would not take the direction of war, it would cultivate the arts of peace, and establish a regular government, remarkable for its mild character. Such was the empire founded by Mango Capac, the first of the Incas.

If Mr Malden's correction of our mistake had not been perfectly sufficient to satisfy us that we had got a Peruvian skull, Mr Watson's donation would have set the matter at rest. The moment the six skulls were unpacked, their perfect fellowship with our supposed Inca, and their dissimilarity to all other skulls of all other races in our possession were obvious to the most careless observer. As remarked in the letter which accompanied them, they all measure more than their forerunner. This circumstance struck us before we

read the letter. The whole six are larger, and the eight retained by the Glasgow Phrenological Society appear, by the measurement sent of them, also to exceed the size of the supposed Inca. Fifteen skulls from one quarter and of one race, not only agreeing in the general type, but very little differing in the details, afford proof enough at once of what the subjects of the Incas were, and of that uniformity of nature which, by the laws of propagation, stamps an impress of brotherhood upon each particular race, and gives a corresponding resemblance in character among all the individuals distinguished from the character of all other races, and therefore essentially national. If the friends of Phrenology abroad shall often bestow so liberally as Mr Watson's Lima correspondent,—every skull being of tenfold value from forming one of a number,—national Phrenology will soon be rich in its stores, and powerful in the aids which these stores afford of one of the most interesting and instructive branches of the science.

ARTICLE VII.

INFLUENCE OF EDUCATION ON THE DIRECTION OF THE SENTIMENTS.

To the Editor of the Phrenological Journal.

SIR,—I was requested to examine a head a few days ago, an account of which may interest your readers; and particularly as showing how completely blind both the sentiments and propensities are in themselves, and how essential intellect is to their proper direction and application, and, consequently, how necessary and important *education*, in its most extended sense, is to the happiness and welfare of the individual.

The subject of this examination was a young girl of

twelve, of rather precocious development, and great activity, and in the rank of a domestic servant. The head was large in all its dimensions, and the three regions of propensities, sentiments, and intellect, were very fairly balanced. The relative proportions of the organs were as follows:—

1. Amativeness, moderate.
2. Philoprogenitiveness, large.
3. Concentrativeness, rather large.
4. Attachment, large.
5. Combativeness, rather large.
6. Destructiveness, large on one side, full on the other.
7. Constructiveness, full.
8. Acquisitiveness, full.
9. Secretiveness, rather large.
10. Self-esteem, large.
11. Love of Approbation, large.
12. Cautiousness, large.
13. Benevolence, large.
14. Veneration, full.
15. Hope, rather full.
16. Ideality, full.
17. Conscientiousness, large.
18. Firmness, rather large.
19. Upper Individuality, rather large.
19. Lower do. do.
20. Form, large.
21. Size, full.
22. Weight, or Resistance, moderate, or rather full.
23. Colouring, moderate.
24. Locality, rather large.
25. Order, or Symmetry, full.
26. Time, large.
27. Number, rather large.
28. Tune, rather full.
29. Language, full.
30. Comparison, full.
31. Causality, large.
32. Wit, full.
33. Imitation, rather large.
34. Wonder, full.

Upon being asked if there was any thing remarkable in the dispositions of this girl? I answered, that the large Self-esteem and full Acquisitiveness, and large Love of Approbation, gave a strong degree of selfishness to the character; but as the Benevolence and Conscientiousness were also large, and tended to regulate the former, it would depend very much upon the direction given to them by those among whom she lived, which would predominate in her conduct. In making this statement, I was guided a good deal by an observation that I had often found verified in practice, that where an active Secretiveness and Imitation were combined in children, with a ready and reflecting intellect, no amount of Conscientiousness was sufficient to withstand the temptation to lying and deceit, so often presented by the joint activity of four or five faculties, each equally powerful as itself; and that it was not till later in life, when the intellect had acquired knowledge of the relations of man to his Crea-

tor, to his fellow-men, and to external nature, that the moral sentiments, thus enlightened, were able to maintain their supremacy and regulate the conduct.

I was then informed that the girl's moral sentiments, if she had any, must have been very ill directed; for that, on the very day she had entered the house, she had proposed to her companion to commit a theft, and that when taxed with it, she seemed not at all annoyed, but forthwith explained, very fully and distinctly, *how* she had been led to think of such a thing. It was added, that she was the daughter of a blind itinerant musician,—that her associates had been of the lowest and most worthless kind,—that her propensities had been much more diligently cultivated than either her moral sentiments or intellect,—and that, notwithstanding, she evinced so many good qualities, and such a maturity of understanding, that much hesitation was felt in adopting the expedient of turning her away; while Cautiousness was naturally enough roused in regard to the probable consequences of her stay.

Brought up in such society, this girl was evidently much in the same situation that a favourable development would be among a semi-barbarous people, who practised thieving as a duty. Surrounded by associates who were unconscious of scruples, and, very probably, ignorant of the existence of any beings more honest than themselves, it is not wonderful that an isolated individual, with even a strong Conscientiousness, should not have manifested, up to the age of twelve, any repugnance to the same practices to which she had been trained, gratifying, as these were, to the no less strong feelings of cunning and selfishness, and affording scope, as they did, for the power of acting, which she was conscious of possessing, and for the power of invention bestowed by a ready and acute understanding. Considering, indeed, the deep root which early impressions often repeated take on the mind, and the late period at which reason, when unassisted, begins to question their propriety, it would have been a subject for

greater surprise, had this girl, in such circumstances, from the pure force of a single sentiment, discovered the immorality of her previous conduct, and succeeded in reforming herself on a new and untried model, than that she should have erred in her moral perceptions.

Connected with and illustrative of what I have now stated, is an observation which must have occurred to many practical Phrenologists, that, instead of an active intellect correcting the abuse of Secretiveness in children, that combination more than any other tempts to deceit and lying. Numerous examples have fallen under my own notice, but one will suffice. A boy of six was brought to me a few weeks ago with a very remarkable development, which presented many points of resemblance with that we have just been discussing. The head was large, (being 7 inches long and 5⅝ inches across at Destructiveness, and also at Cautiousness), and the forehead remarkably developed in the region of Comparison, Causality, *Wit*, Imitation, and Ideality; and the two Individualities were full. Among the propensities, Secretiveness, Self-esteem, Cautiousness, Love of Approbation, and among the sentiments, Benevolence, were very predominant, while Conscientiousness was only full. The temperament was evidently one of intense activity.

My inferences were, that the boy would be possessed of a very acute and penetrating understanding,—that nothing would escape his notice,—that he would show a maturity of reflection, and quickness of apprehension, seldom to be found at his years,—that, from the combination of large Secretiveness and Imitation, with the great knowing powers which he also possessed, he would have both a facility and a pleasure in imitating and in acting; and that these, added to the ready invention given by a very active and consistent intellect, would afford such a temptation to *acting in real life*, or, in other words, to lying and deceit, as his only full Conscientiousness would have great difficulty in withstanding; that his Cautiousness and Destructiveness being also very large,

he would be much in the habit of employing Secretiveness to shelter himself from the consequences of the ebullitions of his Destructiveness, acting sometimes by itself, but more frequently along with a powerful organ of Wit, and giving rise to all sorts of mischievous pranks.

I was then told that this was precisely the boy's character. That with brilliant talents, and great aptitude for acquiring ideas and for reflection, he possessed in fact an extraordinary dexterity in concocting the most plausible and consistent stories, and even in acting the part of a simple-minded intelligent child, so as completely to obviate suspicion, and to set scrutiny almost at defiance; while his large Self-esteem and Love of Approbation, and big head, gave him the aspect and appearance of a person who was resolved not to be trifled with, but to be looked upon as a reasonable being.

The boy J. G., mentioned in the Phrenological Transactions, and the girl A. R., mentioned in a former Number of your Journal by Mr Carmichael of Dublin, as having allowed her arm to be cut off rather than acknowledge that she had put needles into it, are two other very striking examples of powerful intellect, rather encouraging than preventing in early life the lying and cunning arising from large Secretiveness and Imitation. And it is not wonderful that it should be so; because, if we suppose the same combination of propensities to exist with a slow and deficient intellect, it is quite obvious that, with all the desire in the world to deceive, the want of reflecting power will be an insuperable obstacle to ready invention or to *consistency* of narrative; and the only alternative, therefore, will be, either for the feeble intellect to tell exactly what happened, and *which it knows without inventing*, or for the individual to take refuge in pure Secretiveness in the shape of absolute silence. So essential, indeed, is superior intellect to successful lying or deception, that it has become proverbial to say, that "it "takes a very clever man to make a good liar."

Such then being the combination of this girl's faculties, and

such the facilities for deception afforded by her excellent intellect, the important question came to be, what chances of moral improvement did a development like hers hold out when the circumstances were changed to the better? My impression was, that the natural character and capacities were such as to afford great encouragement; and that this was precisely the case where, from the possession of the natural qualities, education was calculated to produce a most beneficial and lasting effect; and that, if separation from her old associates could be secured, there would be little risk in the attempt, and great satisfaction in the success of the experiment, in saving her from ultimate misery and wretchedness.

Very much on the faith of the development, and of some redeeming manifestations of the faculties of Benevolence and Conscientiousness, which might be supposed to be least active, a trial has been resolved upon, and, as she is now in excellent hands, the result, which, whether favourable or unfavourable, I engage to communicate, will be very interesting. The organs of both Individualities are large and prominent, and the corresponding faculties, when powerful, give such a quickness in apprehension and in observation, such a distinctness and individuality to our conceptions, and such a power of retention and ready command of our ideas, that Dr Gall long ago gave to them the name of "*Sens de l' Educabilité.*" Dr G. adds, that he has uniformly remarked, in those who possessed a large development of these organs, an instinctive facility and proneness to receive and to follow, without much discrimination, the notions and conduct prevalent around them; and that, even in different races of animals, the same feature accompanied this peculiar development so closely, that he was generally able to determine their degree of tameability or perfectibility by the simple inspection of the anterior part of the head; and that in man, particularly when joined (as in this girl) with a large Imitation, the tendency to *assimilation* of character and actions was exceedingly strong. While, therefore, this combination of talents

and propensities explains one strong reason why this girl has hitherto followed the example of her depraved associates, it affords at the same time much encouragement, on the ground that now, in more favourable circumstances, it will give her an equal facility in following a better course; and that the permanence of the improvement will be the more assured, that her higher sentiments and reflecting powers will now act in the same instead of in the opposing scale.

She is said at present to display a quickness of conception, a readiness of reply, and a power of relative suggestion, that are rare at any age, and more so at hers, and that would surprise if not explained by the great development of the Individualities and of Causality, both of which project at least 3-4ths of an inch beyond the line of Tune. Her reflecting faculties enable her to judge for herself what ought to be done without waiting for a direct admonition; and to modify the manner of doing a thing as circumstances vary. When an end is to be accomplished she never rests till it is attained; and if the way pointed out to her is inadequate, she never thinks of taking refuge in the excuse she is thus possessed of, and which an unreflecting and unconscientious servant invariably lays hold of, to leave it undone, but she invents a way of her own, and looks upon herself as deficient unless the end is accomplished, or is really unattainable by any means within her reach; and in this, conscientiousness as well as intellect is an essential element.

A familiar instance will illustrate this characteristic of her mind. When sent with a message to a particular house, she found that the person had left it. Instead of returning home with a literal fulfilment of her instructions, she set about tracing him out, and after a difficult search, in conducting which she was greatly aided by a large Locality, she succeeded, and, having transacted the business, came home, and gave a most distinct account of all her proceedings.

Although she seems to consider it no sin to pilfer for her own behoof, yet many proofs of the activity of Conscientious-

ness are frequently occurring; for, in addition to a candid openness of confession, which, where Secretiveness is large, Conscientiousness alone secures, it leads her to protect her employer's property and interests in other respects in a very satisfactory manner. Pure selfishness is ever occupied with considering the relations of every thing and of every body *solely* to *self*; and Conscientiousness and Benevolence are the chief sources of that habitual regard for the interests, and rights, and happiness of others, for which some are so much more remarkable than others. Of the latter qualities this girl is by no means deficient, and their presence has been shown even in trifles, and in circumstances in which desire for effect could have no share. Once, when suffering severe pain in her hand and arm from a festering finger, she was desired to go and get a poultice put to it. When half out of the room, she turned, and inquired if it would not do as well after tea? Upon being asked her reason for delaying so long to make an application which would speedily relieve her? she answered, that it was "because, if the milk for the poultice was taken now, the cream for the tea would be lost." This in itself was a trifle, but it showed only the more clearly that the *human* feelings, as the moral sentiments are emphatically termed, were not inactive, and that she erred more from their misdirection than from their positive deficiency.

This case is instructive in another point of view. It shows indisputably the necessity of moral and intellectual education; and it places in a very conspicuous light the benefits likely to be conferred by infant schools devoted to the regular exercise of the moral sentiments. Society is the true school for moral improvement; and *practice* and *repetition* are as essential to the development and harmonious activity of the moral sentiments (including of course Hope and Veneration) as they are to the bodily functions, or the merely intellectual faculties. In themselves reading and writing are comparatively small accomplishments when contrasted with the knowledge

and habitual fulfilment of the higher duties and relations of life, upon which happiness so directly depends.

If any fault is to be found with the (otherwise most useful) Mechanics' Institutions, schools, magazines, and libraries of useful knowledge, &c. now existing, it is unquestionably that they are too exclusively devoted to mere knowledge, to what interests the intellect and extends the physical power of man, without paying due regard, or in truth any regard, to the much more important subject of increasing his happiness by carrying him forward in the path of moral and religious improvement.—I am, &c. A.

ARTICLE VIII.

Physiologie des Temperamens ou Constitutions, &c.; par F. Thomas, D. M. P. Paris, 1826.

In all ages mankind have been struck by the diversities of character and of activity that accompanied, and were by many supposed to depend on, differences of temperament or natural constitution of the body. So far back as the time of Hippocrates we find a classification of temperaments into four great divisions, which, more or less modified, have since been often set aside and often reproduced; but up to the present day, notwithstanding the most laborious inquiries of physicians, physiologists, and philosophers, we remain almost as ignorant as ever of the physical causes on which these varieties depend, of the phenomena by which they may be accurately distinguished, and of the circumstances by which they may be modified and controlled; and thus it may be truly said, that a rational, useful, and consistent theory of the temperaments is yet only in expectation.

An approach to a better system has, however, been lately made by a French physician, Dr F. Thomas, and whether he be correct or not in all his facts and conclusions, it is impossible, we think, to read the exposition contained in the work now before us without admitting, that in principle, in simplicity, and in practical usefulness, his doctrine excels all that have preceded it; and that, whatever may be its ultimate fate, Dr T. has succeeded in making at least one step in advance in a difficult and intricate path; and that on that account he deserves the thanks and the candid attention of the public.

On looking at the animal system, says Dr T., we find it to consist of three great groups of organs, each group performing distinct functions, but all the parts of each so far analogous as to contribute to one general end. The first group is that contained in the cavity of the cranium, and the general function which it performs is to carry on, or rather to manifest, all the operations of the mind, to constitute the seat of sensation, and to supply nervous energy to, and to direct the movements of, all parts of the body. It is composed of many distinct parts, performing as many distinct functions; but all these, from a general similarity, may be regarded as belonging to the same genus, and may therefore be classed together. The second group is that contained in the cavity of the thorax, and it includes chiefly the lungs and the heart, having for their functions the processes of sanguification and circulation, which have also a general resemblance in their object. The third group is that contained in the cavity of the abdomen, including the stomach, liver, spleen, bowels, &c. each also differing from the other, but all concurring to effect the conversion of food into chyle, and the separation and excretion of the superfluous or injurious particles from the system.

All other parts of the body, the limbs, the parietes of the head, thorax, and abdomen, are evidently the mere passive instruments or defences of these more important animal functions.

The head, thorax, and abdomen, form, in fact, what is properly called the animal, while the extremities may be wanting without diminishing the Individuality of a living being. From this we come to the natural conclusion, that whatever a temperament or constitution may be in itself, the causes which give rise to it must exist in one or other or all of these three great groups of organs. And, accordingly, this inference of reason is amply borne out by observation in a way that we shall now try to explain.

When an important natural truth is brought fully to light, it is astonishing how many, how easy, and how fruitful are the applications of which it is susceptible. In our last Number, we were at some pains to show that the phrenological principle of organic size being, *ceteris paribus*, a measure of functional power, so far from being either a fancy of a heated imagination, or peculiar to the brain alone, was, on the contrary, a universal law, extending over every created object, animate or inanimate. And now Dr Thomas comes before the public with a new and distinct application of this very principle, and not only demonstrates its universal prevalence, but, by its means, elicits many other important truths, and shows that diffefences of constitution or temperament depend on the predominance in development of one or more of the three great cavities relatively to the others, and on the consequent predominance of the class of functions which its organs perform.

By phrenological readers, Dr Thomas's fundamental principle of size being an element of power, will be readily received; but as this extended application of it is new, and as, on account of its favouring "the fantastical nonsense of "Gall and Spurzheim," it is not in general repute among professors and established teachers, Dr T. wisely sets about proving it, as if it had never been heard of before. Nevertheless he is actually praised by our most inveterate (we are sorry that we cannot say most able) medical opponent, for not lending *any countenance* to the phrenological doctrines.

Of the simplicity of this opponent, our readers will judge when they are informed, that Dr Thomas begins by expressing *his astonishment* that any one should still be required to *prove* so self-evident and so palpable a proposition, as that size in an organ is a measure of power in its functions, and particularly that, now when it is plainly stated, any one should be found ignorant enough seriously to contest its truth. In endeavouring to find out why so plain a truth should have remained so long unknown, Dr T. states, that, perhaps, the most powerful reason was the false idea entertained of the force or energy of an organ. "*Promptitude* "*and facility of action*," says he, "*were generally confounded* "*with force and energy*, without attending to the fact that, most "generally, these two dispositions are not even indications of force; "for it is not, for example, those in whom the pulsations of the "heart *are most frequent*, and the motions of the limbs *most prompt* "*and easy*, who have the heart and muscles *most robust and pow-* "*erful*; the contrary is even observed on comparing the child and "the female with adult man; and the observation is, besides, applic- "able to all the organs, to the brain, to the stomach, &c. But it "is *the degree of complement of the function* which constitutes *the* "*degree of energy of the organ which executes it*; and to under- "stand *this degree of complement* of action, we must bear in mind, "that every organ has its own particular and distinct mode of "energy, according to its structure and relations with other organs; "that the brain is energetic when it perceives, remembers, com- "pares, and wills strongly, or when the intelligence is powerfully "developed, and the passions strong; the lungs, when they are the "seat of a complete and abundant sanguification; the heart, when "it precipitates with force a large quantity of blood into all the ves- "sels which issue from it; and the digestive organs, when they "form and separate much chyle." P. 86. This, we think, is a pretty clear exposition of the distinction between power and activity, to come from one who is praised and esteemed by those who continue to confound them together.

Having established the general truth, that the relative size of an organ indicates the relative energy of its functions, Dr Thomas begins with its particular applications, and, first, to the brain, in which he shows (as we did in our last Number) that all the methods hitherto tried for discovering the functions of the brain, take for granted, that size is, *ceteris pari-*

bus, an accurate measure of energy of function. But here we need not follow him, except to subjoin a very important observation which is not always kept in view as it ought to be. In answering some objections, he says, "Although the "structure and complication of the brain be variable in individuals "of very different species, the mode of application of our principle "is not at all affected, because it is applied only to the same indi-"vidual, to individuals of the same species, and to those of species "so little different, that the structure and complication of the or-"gans are almost the same.

"Thus, for example, if certain animals, monkeys, little birds, "and mice, have a cerebral predominance equally marked with "that of man,* the great differences in the organization of their "brains give to that predominance very different effects. The "ganglions of intellect and of the passions, so developed and so pre-"dominant in man, have either no, or very small, convolutions in "these animals; they are only slightly developed, and their ante-"terior, superior, and lateral regions seem to be entirely wanting; "while, on the other hand, the ganglions which correspond to the "nerves of the senses, and of all the body, are very voluminous; the "eminences, nates and testes, which are the principal ganglions of "the optic nerves, form the greatest part of the brain in birds, and "the olfactory and auditory ganglions form the greatest part of "that of the smaller mammalia. It results from these organic dispo-"sitions, that animals experience certain sensations more energeti-"cally than man, but that their sensations are fugitive, and can "neither be combined nor enlarged as in man; so that we may con-"ceive how much the effects of cerebral predominance ought to "vary in the different species of animals; since, in some, it indi-"cates only extreme general sensibility; in others, the great delicacy "of one or several senses; and in others, again, the great energy of "several faculties or passions. Let us add, that, in individuals "of the same species, where the structure and complication of the "brain are always the same, those in whom that organ is predomi-"nant have more intellect and passions than others. So that our "principles are rigorously applicable to the brain, and we can es-"tablish, without fear of being refuted by observation, that, in the "same individual, the more the brain predominates by its volume "over the other organs, the more will the faculties and passions be "energetic relatively to the other functions." P. 93. The differences here noticed in the constituent parts of the brains of

* "The cerebral organs, which in animals are an assemblage of a great "number of separate and very distinct ganglions, appear in man to be form-"ed only of two, (the brain and cerebellum), which envelope the ganglia of the "senses so much as scarcely to allow them to be seen."

animals of different species explain many things to which we cannot now allude, but which often present themselves to our observation. Let it still be remembered, that the author from whom we quote is praised by our most inveterate medical adversary for his talent and accuracy.

Dr Thomas proceeds to examine the thoracic organs, &c. and states, that when the lungs are relatively large and spacious, the numerous cells of which they are composed place a large quantity of air in contact with a great quantity of blood; from which results a complete and abundant sanguification; and that, in like manner, when the heart is voluminous and robust, the circulation is active in all its parts. And from these united, great animal heat, spread equally over the body, is the consequence; and *vice versa*.

In infancy and in females, the thoracic organs are little developed relatively to those of the head and abdomen; in them, also, the blood is more serous, the pulse softer, and the animal heat less high than in the adult, and especially the athletic, in whom the blood is fibrinous and abundant, the pulse full and strong, and the animal heat considerable.

In equal accordance we find the thoracic organs in the lowest state of perfection in cold-blooded animals; while in birds we find the lungs and heart most amply developed, and the cells of the former extending to, or rather communicating with, the interior of the bones; and this formation is in many accompanied by a higher temperature than is to be found in any other animal. Hence Dr T. regards it as established, that the more voluminous and the more developed the thorax relatively to the rest of the body, the functions of the heart and lungs are more energetic relatively to other functions.

The same thing happens with the abdomen. In the lowest animals, as worms and the zoophytes, the abdomen constitutes the whole animal. In insects, a nervous centre and a respiratory and circulating apparatus are added, but the abdomen still greatly preponderates. In reptiles and fishes

the proportion becomes smaller; and in birds and the mammalia the abdomen becomes relatively still smaller, and its functions less important.

The energy of the digestive organs must be measured by the extent to which they perform their real function. We must calculate how much *they digest and convert into chyle*, and not how much is eaten. This distinction is particularly necessary, because we often see persons eat a great deal who form little chyle, and others eat little, and form much chyle.

Herbivorous animals eat little, but often, and their abdominal organs are large and greatly developed, and in a continual state of activity. They form chyle in abundance, and hence their natural fatness. Carnivorous animals, again, which are forced to seek their food, eat rarely and in larger quantity, and exercise their thoracic organs much more than their abdominal. Hence their capacious chests and small bellies, and hence their vigour, and hence their comparative leanness. Men in whom the abdomen is predominant, or feeble, approach to the two extremes. Abdominal men eat little at a time, but often; they digest continually and sleep much, and their life is soft and tranquil like that of the herbivorous; while, on the contrary, those in whom the abdominal organs are moderately developed, relative to those of the head and thorax, eat with avidity, and appear, like the carnivorous animals, to *devour* their food; but their digestion is imperfect, and they remain dry and thin in spite of the aliment which they consume.

Having established the influence of organic size on energy of function, and pointed out the respective uses of the three great classes of organs, Dr Thomas next shows, that, during life, the size and configuration of the parietes, or walls of the three great cavities, afford an accurate index of the size and form of the contained organs. He devotes some pages to prove, that, generally speaking, the skull takes its form from, and indicates the shape and size of the brain, and

he refers to anatomical inspection for the evidence. He mentions some sources of mistake, and adds, "*3dly*, That "the skull in children is thinner than in old age, as, generally, it "then becomes thicker from the diminution of the size of the "brain. *4th*, The thickness of the bones of the skull is also vari-"able in every individual without regard to the age; but in ge-"neral it bears a relation to the other bones; so that the volume of "those of the limbs or of the face being given, we know the thick-"ness of those of the skull: of this I have satisfied myself by a "great number of dissections of subjects differing in the degree of "development of the osseous system. *5th*, The *development of the "frontal sinuses and of the orbitar cavities is never sufficiently "great to cause errors of any magnitude.*" These observations are also pretty phrenological, to come from a writer who has received the praises of our medical opponents.

That the form and size of the thorax and abdomen indicate with equal certainty the form and dimensions of their contained organs, is abundantly well established by Dr Thomas; but want of room obliges us to take this part for granted, and to hasten to the application of these preliminary and fundamental truths to the elucidation of temperaments.

From what precedes, our readers will easily perceive that temperaments are considered by Dr Thomas as "varieties "in man and animals resulting from different proportions of "three great visceral cavities." He divides them into seven kinds; 1. The mixed, in which the cavities bear an exact proportion to each other; 2. The cranial, or rather we should say, the encephalic; 3. The thoracic; 4. The abdominal; 5. The encephalo-thoracic; 6. The encephalo-abdominal; and, 7. The thoracico-abdominal. In describing each of these, Dr Thomas takes of course a broadly-marked type.

1. The mixed temperament. Every body can tell in a moment whether the head, the chest, and the abdomen, are well-proportioned. In this division, individuals apparently very dissimilar are classed. They may be tall or short, stout or thin, beautiful or ugly, but they all agree in having a just proportion in the volume and energy of the encephalic, tho-

racic, and abdominal organs. This is the essential character of this temperament.

"The Apollo Belvidere," says Dr Thomas, "the immortal work of the Greek chisel, is a beautiful variety of the mixed constitution; for not only do none of the three cavities predominate, but there is a just proportion in the limbs as compared with the rest of the body and with each other; and the bones, muscles, blood-vessels, nerves, cellular tissue, and all the secondary parts, are also in beautiful proportion. This *chef d'œuvre* of art represents man in his most perfect type; there is nothing too strong and nothing too weak; nothing in excess and nothing deficient. Phidias, inspired, has created something celestial!—that brain cannot be the seat of too violent or too impetuous passions, although it can experience them all. The intellectual faculties, sufficiently developed, do not hurry him on to the vagueness of hypotheses and conjectures; his blood is neither too fibrinous nor too much animalized; his abdominal functions are performed with facility; the chyle is separated and absorbed in sufficient quantity for the nutrition of his beautiful body; the limbs have all that is required for exercising with the greatest facility all the movements necessary to the whole; and the physiognomy represents in all its features that perfect equality of the whole body."

Some modern painters, continues Dr Thomas, have given to their Apollo the attitude, the majesty, and the beautiful proportions of the limbs of the Apollo Belvidere; but they have diminished the abdomen a little, and enlarged the head and thorax, which represents a higher moral and physical force than the original possessed, but without its harmony, health, and beauty.

The mixed temperament is common in France, and is often met with from twenty to forty-five years of age. It is attended with an enjoyment of existence, and with general good health; and it is, up to a certain limit, fit for every kind of exercise.

2. The cranial or encephalic temperament is distinguished by the relatively large head, open facial angle, moderately developed thorax and abdomen, and spare form, denoting great energy of passion, sentiment, and intellect, with less thoracic and abdominal activity. This variety, according to Dr Thomas, is found highly developed in those great men who have rendered themselves illustrious either by their talents, their virtues, or their vices; viz. in the cruellest tyrants, chiefs of sects, great authors, Catiline, Tiberius, Brutus, Cicero, Pascal, Pope, Tasso, Molière, Voltaire, Rousseau, &c. all of whom, according to their historians, were meagre and spare, and all remarkable by the predominance of the encephalic over the thoracic and abdominal organs.

When this temperament is strongly marked, it is rare that the thorax and abdomen are also much developed; for then it would require a truly enormous encephalon to predominate. Accordingly the decidedly encephalic are rarely robust and vigorous, or their digestion good. This constitution of body is most frequent between seven years of age and thirty. In Pericles it was so strongly marked, that Plutarch says, "sometimes he was to be seen sitting in the street, *fatigued* "*by the weight of his head*, and not knowing what part to "take in the disorders of the state; and at other times "thunder and lightning issued from his monstrous head "with a tremendous noise." It is known that his head was, in fact, so much out of proportion to an otherwise handsome body, that the sculptors always represented it covered with a casque.

It is in this class of constitutions that we find men fitted for great deeds, and who raise themselves to eminence and renown in spite of every disadvantage. But, says Dr T., we must not confound the essential with the occasional, and suppose that the encephalic are always remarkable for great or noble pursuits. They may predominate either in intellect, in propensity, or in sentiment; but although the particular character will then be different, the essential always remains,

that mental energy of some kind will show itself. Thus, one individual with a very powerful cerebral organization will pass his days and nights, and employ all his faculties and passions on things of little importance; he will reason continually, cry, agitate, and write against his brethren; while another engaged in commerce will expend all his energy on details; but both will be remarkable for energy, and the difference will be merely, that it is energy directed to different objects. If Dr Thomas had been a Phrenologist he would have added, that the direction of the mental energy would depend on the part of the brain that was most predominant in relation to the other parts.

The encephalic temperament is much more frequent in the male than in the female; it is more common in free countries, and in those long agitated by political dissension, in England, Germany, Switzerland, France, and Spain, than in those long bent under the yoke of despotism. It is more common in large towns than in the country; among artists, and among the scientific and educated, than among the idle and the labourer.

3. The thoracic temperament is characterized by a small head and a limited abdomen, contrasting with a voluminous and powerful chest. The Farnese Hercules is the beau ideal of this class, and it is not indifferently represented in porters, bakers, ploughmen, and other men employed in the severer kinds of bodily labour. It is about puberty that the thoracic organs begin to increase considerably. The thoracic constitution fits a man for fatigue and labour, and is seen in boxers in great perfection. Health with this temperament is robust, and diseases inflammatory.

4. The abdominal is easily recognised by the large protuberant abdomen, broad pelvis, and abundant development of the cellular substance over the whole body and limbs. Chyle is formed in large quantity, and transformed into fat. The individual is slow in his movements, and his strength and mind are concentrated in his abdomen; *latamque trahens inglorius alvum*, he eats, drinks, and sleeps alternately.

When an individual originally encephalic passes into the abdominal, he preserves something of his original state. This variety is more frequent in large towns than in the country, and in Germany, Holland, and England, than in France.

5. Or cranio-thoracic, is known by the head and chest being relatively much larger than the abdomen, and by its powerful dense muscles, and moral and physical force.

6. The cranio-abdominal presents the head and abdomen largely developed, and a chest small and contracted. The muscles are moderate in size, and plentifully interspersed with cellular substance, whence arise the rounded form and softness of the female.

7. Or thoracico-abdominal, presents the small head and ample thorax and abdomen, with large muscles, bones, and cellular membrane. It is well fitted for patient endurance of fatigue. It is more frequent in Asia and Africa than in America or Europe.

Such are the chief varieties of the temperaments, and such the physical marks by which they may be distinguished; but in many cases, says Dr Thomas, we require to look only at the face to discover the constitution. The forehead indicates the proportion of the encephalon; the part between the forehead and mouth is in general in harmony with the development of the thorax, and the lower part, including the mouth, chin, and inferior portion of the cheeks, is in relation with that of the abdominal organs; and hence the relative proportion of these parts to each other serves as an index to the particular temperament.

Having now pointed out the chief differences of natural constitution, let us inquire how far the classification at which we have arrived coincides with the phenomena.

In infancy and childhood we observe a manifest predominance of the encephalon and abdomen, with a small and narrow thorax. In accordance with this we observe the healthy child display, relatively speaking, astonishing energy of passion, and greater power of seeking and acquiring knowledge, than is found

at any other period of life. We find it also restless and mobile, and in constant pursuit of variety to gratify a number of faculties. Looking next to the abdominal development, we find the child not only eating often and much, but digesting vigorously, and deriving strength and nourishment from its food. Hence the diseases of infancy are almost peculiar to these two groups of organs, viz. convulsions and inflammation of the brain or its membranes, epilepsy, affections of the bowels, worms, diarrhœa, tympanites, &c.

In youth general growth takes place, and shortly the thorax begins to enlarge, the physical powers to unfold themselves, and the voice to change, but the head still retains its supremacy. From the age of twenty to that of thirty the cranio-thoracic is in its fullest sway; the moral and physical energy is then great, and a man shows what he is afterwards to become. It is then that genius forces its way against all obstacles. After thirty a kind of maturity or equalization begins to take place between the three great cavities, and from the gradual development of the abdomen the temperament changes to the mixed, and in old age becomes chiefly abdominal. Of course there are numerous individual exceptions, but this is the general order.

In men the cranio-thoracic and in women the cranio-abdominal is more frequent. In women the head and the thorax are generally small relatively to the abdomen. But it is not only to different ages and sexes, but even to different species of animals, that the preceding rules are applicable. We may compare the large head of the shepherd's dog with the smaller head, but enormous thorax and small abdomen, of the greyhound; or the relative proportions of the three great cavities in the Flanders horse and in the racehorse, and the striking differences in the size of the organs will be not less apparent than the differences of function or constitution. If we compare, in the same way, the same cavities in the ox or in the sheep, the same coincidence will arrest the attention in a moment.

Different temperaments enjoy very different degrees of health, and are subject to different kinds of disease. The marked encephalic is very prone to over exercise the brain, and to give rise to convulsive and nervous diseases, hypochondriasis, and mania. From leaving the thorax and abdomen, naturally feeble, unexcited by sufficient supply of nervous energy, the encephalic is subject also to asthma, bad digestion, and its numerous train of concomitant evils. The marked thoracic, on the other hand, is subject to all the diseases of excited circulation, such as inflammation and rheumatism. The abdominal enjoys on the whole good health and vegetative existence, and his diseases are slow and of long duration.

A knowledge of the constitutions or temperaments of individuals is exceedingly advantageous in regulating the choice of their profession, manner of living, and general conduct. A due degree of exercise favours the nutrition of an organ, increases its power and facility of function, while deficient exercise leads to imperfect nutrition and debility of function, and too much leads to an irritable and unsteady action, speedily degenerating into disease. To preserve the advantages conferred by a mixed temperament, therefore, a due balance must be preserved in the exercise and repose of all parts of the system, and none must be left to languish in inaction.

The cranial or encephalic temperament is one of the most disposed to excess and to disease; and when very marked, it is almost always accompanied by discontent, melancholy, and sleeplessness. To obviate those inconveniences, we must moderate the exercise of the brain, in never allowing study or thinking to continue to fatigue; in removing all the exciting causes of great passions, and in employing, on the other hand, the muscles in walking, running, mechanics, hunting, gardening, &c. A cheerful residence in a pleasant country, avoiding solitude, heat, and cold, are very effectual with the same view. The tepid bath is most useful

in moderating the dryness and inaction of the skin, and thus diminishing cerebral excitement. Vegetables, fruits, animal jellies, eggs, and all easily-digestible substances which furnish much chyle, and develope the abdominal organs, are advantageous; and tea, coffee, and stimulants, are hurtful. Wine ought to be sparingly used, and always diluted. The meals ought to be small and frequent, and followed by repose and rest, as thinking in the encephalic impedes digestion. Sleep is of great consequence to preserve the health of the encephalic.

The thoracic temperament, although less liable to diseases, requires to avoid excesses as well as the encephalic; for although the individual can undergo great physical labour, yet, if he goes beyond his strength, the effects are proportionally severe and speedy in their progress. He thinks with difficulty, and when circumstances exists and keep up in him strong and violent passions, his brain is very apt to become affected. The thoracic development ought in general to be encouraged by a proper attention to exercise and diet; when in excess, it may be gradually moderated by repose, by forcing study for a short time, and gradually extending it; by exciting the brain and abdomen, in short, at the expense of the thorax. It is the thoracic constitution that is peculiarly subject to inflammation, to rheumatism, &c. and that bears blood-letting without injury.

The abdominal temperament is the most unfavourable, and its subjects are generally inactive and feeble-minded. When it is perceived in early life, it may be diminished or remedied by removing abdominal, and employing thoracic and cerebral stimuli. Frugality, slender repasts, fibrinous meats, drinks which excite the brain, especially active physical exercises, short sleep, and forced study, properly managed, produce the best effects. Every disease in this temperament is complicated with abdominal disturbance. The other compound temperaments may be estimated and regulated from the preceding observations.

The length to which this article has already extended prevents us from saying more than that it is an incalculable advantage to arrive at the causes on which temperaments and their varieties depend, as it is only then, for the first time, that we can adopt rational measures for securing the advantages and modifying the imperfections attendant upon each. Our own experience is strongly in favour of Dr Thomas's accuracy; and already we can perceive innumerable applications to be made of his principles to the purposes of education, medicine, and philosophy; and without quarrelling at all with him for not being a Phrenologist, in the widest sense of that word, we cannot but express our obligations to him for much useful knowledge, and, in terminating our analysis, transfer to our pages the following practical remarks on the mode of changing one temperament into another. They rest entirely on the principle of *exciting* the *weaker* organs which we wish to predominate, and on condemning to *repose* those which are already too strong.

1. The change of temperament is most easily obtained at the time when the period of life naturally modifies it. In man, the cranio-abdominal child easily becomes cranial between 7 and 14; or cranio-thoracic between 15 and 25; or mixed or thoracic between 25 and 35; or thoracico-abdominal between 35 and 45.

2. The development of a particular temperament is obtained with a facility proportioned to the natural proximity of the one sought for to that already existing. It is difficult for us to make an abdominal become encephalic; but it is not so difficult to convert a mixed into a decidedly thoracic.

3. The organs to be developed must be exercised gradually and in proportion to their natural force. If too little or too much exercised, they become diseased, languid, or exhausted.

4. That one organ may be developed by exercise, all the rest must be as much as possible in a state of repose. There are even some organs that cannot be exercised freely if the

others are not in repose; the activity of the encephalon, for instance, deranges very speedily and powerfully the digestive organs, when both are exercised at the same time, and, if persevered in, soon induces disease.

5. The more numerous and powerful the causes which favour or determine the exercise or repose of an organ, the more will that organ be disposed to exertion or repose, and consequently to develope itself or to diminish.

Dr Thomas's theory, it will be observed, explains very easily the changes that take place in the temperaments at different periods of life. Thus the infant is said to be lymphatic. This arises from the predominance of the abdominal organs, and the consequent activity of nutrition producing a deposition of fat and cellular membrane. The temperament of the same individual may at 18 be no longer lymphatic, but what is called sanguine. This would arise from the thoracic organs having become relatively more developed than the abdominal, and in the same way all the other changes may be perfectly accounted for, and connected with their physical causes; whereas, on the old system, we often have a person lymphatic in infancy, sanguine in youth, and melancholic in mature age, and yet no one could tell how or why all these metamorphoses have happened.

ARTICLE IX.

AFFECTION OF LOWER INDIVIDUALITY.

To the Editor.

Sir,—When upon a visit to a clerical friend, in November last, my attention was attracted to one of his sons, a fine boy about eight years old, who seemed more than usually restless and unsettled in his manners. As there was nothing peculiar in the development, I drew the conclusion that the manifesta-

tion did not probably proceed from any peculiarity in the organization, but from a diseased state of the system. In the course of the evening I learned, from a conversation between his mother and tutor, that the symptoms were increasing to a distressing degree, and that all the means which had been employed to correct them had been unavailing. Among other things it happened to be mentioned, that "*he still complained* "*of the pain in his head.*" This immediately excited my curiosity, and, upon inquiry, I learned that the pain was local, and was supposed to be in consequence of a blow which he had received on the forehead. Upon this I begged that I might be allowed to examine the case; and when the boy was brought into the room, and questioned in regard to the pain he experienced, he laid his finger exactly upon the region of Lower Individuality. As it appeared to me that a physical remedy was more likely to prove effectual than the moral means which had hitherto been resorted to, I made out a statement of the case, and sent it to Dr ——, from whom I received an answer, from which the following is an extract:—

"There are two kinds of restlessness, one from an exuberance of "muscular power arising from a kind of *besoin*, which, in early life, "the muscles experience of being called into action, and the other "from a prying restless curiosity, wishing to know all that is going "on. The latter I conceive to apply to Dr ——'s son. If I am "right, then whatever diminishes nervous irritability would be pro-"per. If there is any thing like permanent pain, whether *funny* "*or tickling*, I would be strongly inclined to apply one or two "leeches on Lower Individuality, or one each side of the nose, per-"haps once in 14 or 20 days, unless there is any contra indica-"tion, of which I am ignorant, and to pour *cold* water on the head "and forehead *regularly* night and morning, keeping the hair short, "and he should be prohibited from reading or examining minute ob-"jects *long at a time*, or studying by a bright light, or reading late. "An occasional tepid bath (at 96°) in a forenoon, for 15 or 20 "minutes, is well adapted for equalizing excitement. Only he "must rub himself pretty sharply after it with a coarse dry cloth. "Lastly, he should attend strictly to the intestinal functions, which "are almost always imperfectly performed in such a subject; and, "in addition, if my notion is erroneous, so will the inferences and "practice here recommended be also erroneous."

This extract I forwarded to my excellent friends, the father

and mother of the little invalid, and, though not Phrenologists, they readily acknowledged the good sense that was displayed in Dr ——'s remarks, and, at the risk of being ridiculed as converts, they availed themselves of part of his suggestions with greater success than they themselves perhaps had anticipated. That there might be no mistake as to the facts, I applied to Dr ——— for a statement of the particulars, in so far as he recollected them, and the following is a copy of the answer with which he favoured me:—

———, *8th June*, 1827.

My dear Sir,—As I am not yet initiated into the mysteries of your science, I probably do not attach so much importance to my son's case as you do; I have no objections, however, to state what I recollect of it.

My son was, in infancy, a very puny child, and suffered from convulsions so severely that we almost despaired of seeing him survive his first year. He was, however, mercifully preserved, and grew up to be a tolerably healthy, though not a robust boy, being always what is called *rather nervous*. At a very early age, perhaps when he was three years old, he received a contusion on his forehead, the scar of which is still visible above the root of his nose; but this was not considered to have produced any effect on his health or habits. About two years ago, I think, when he was about eight years old, he began to complain of an unpleasant internal sensation in his forehead, which he called "a funny tickling pain," the seat of which he considered to be somewhere under the scar, between the eyebrows; and, at the same time, he was annoyed with perpetual *coryzä*, or with stuffing of the nose, indicating a morbid activity of the mucous membrane. This was accompanied with a certain increased mobility of the whole system, amounting to a fidgety restlessness both of mind and body, with an irresistible propensity to touch and handle every thing within his reach, not, as it seemed, with the view of ascertaining its nature and properties, but just to gratify

the desire he felt to throw his muscles into action. When called up in school to say his lesson with the other boys of his class, he could not stand still in his place for half a minute, but was continually shifting his weight from one foot to the other, and shuffling backwards and forwards. His power of confining his attention too seemed at times almost gone, so that he fell behind his companions in learning, although the year before he had given promise of rapid advancement by his acuteness. In this state *you* saw him, and, imputing the symptoms to some organic affection of the local cerebral organ, described his case to Dr ——, by whose advice two leeches were applied, about five months ago, over the part affected, and he certainly has experienced a marked abatement of all the disagreeable symptoms since that operation was had recourse to.

This is all that I recollect of T——'s case which appears to me worth noticing; but, as I may be incorrect in some of my recollections, I send this letter to Mr —— to revise, particularly with regard to the dates, there being, I am sensible, some very great depression in my cranium where the organ for chronology is usually situated; at least there must be if your science is good for any thing.—Your's, &c.

To this interesting letter from Dr ——— no farther explanation seems necessary. I shall merely add, that the names of all the parties are well known to you, and, though it may be as well that they should not appear in print, you are perfectly at liberty to make them known to any individual who makes inquiries from scientific motives.—I am, &c.

OBSERVATOR.

NOTE.—We lay the preceding letter before our readers, not from attaching any great importance to the individual case, but because we are anxious to direct the attention of

medical Phrenologists to the closer observation of local symptoms, and to the rational trial of local remedies. External remedies are applied with much benefit in diseases of the thoracic and abdominal organs, and also in acute diseases affecting the whole brain; and as we can see no good reason why they should not act as beneficially when applied to the head as to any other part, we are anxious to have a fair trial made. We suspect indeed that this obvious means of cure has been neglected much more from mankind regarding the mind as altogether independent of organization, and from their not being aware of any morbid action going on in the head, than from any well-founded contempt of the efficacy of physical remedies locally applied.—EDITOR.

ARTICLE X.

DU BEGAIEMENT, SES CAUSES, &c., ET MOYENS THERAPEUTIQUES POUR PREVENIR, MODIFIER, OU GUERIR CETTE INFIRMITÉ; par M. FELIX VOISIN, D. M. P.—*Paris, pp.* 47.

STAMMERING has generally been ascribed to some physical impediment in the tongue, the palate, or some other of the organs of speech; but it is easy to show that its cause is of a very different origin, and that it rarely, if ever, arises from simple malformation of the vocal organs.

It is justly observed by the author before us, who is (or was) himself afflicted to a great degree with this defect of speech, and who is therefore no very incompetent judge, that the anatomical inspection of the vocal organs does not demonstrate any vice of conformation. "The persons," says he, "that I have seen, and who, like myself, spoke with difficulty, "had not, as is alleged, the tongue larger than other people, nor its "ligaments laxer, nor its frenum excessively long, nor the teeth so "placed as to present any obstacle. It is incontestable, indeed,

"that all these lesions exist, and I have myself seen every one of "them; but when they do exist, they give rise to phenomena to-"tally different. To be convinced of this it is only necessary to ex-"amine the individuals in whom they present themselves. We shall "remark, it is true, a greater or less alteration of pronunciation, "but *never the characteristic symptoms of stammering.*"

If physical malformation were really the general cause of stammering, the effect would necessarily be permanent, and would affect the same sounds every time they recurred; but the reverse of this is the truth; for it is well known that, on occasions of excitement, the stammerer often displays a fluency and facility of utterance the very opposite of his habitual state, and that, as Dr Voisin expresses it, "*lorsqu'ils* "*se mettent en colère, ils blasphement avec une énergie qui* "*n'a point échappé aux hommes les moins observateurs.*" P. 4. But passion or excitement can never remove a physical cause, make a large tongue small, set crooked teeth straight, or tighten the ligaments of the tongue, and then let these imperfections return as soon as the storm is over. Such causes, then, may make a person speak thick or low, or indistinctly, but his utterance will still be as equable and free from stammer as before, and therefore the true stammer must depend on a totally different antecedent.

Dr Voisin proves very clearly, that the real cause is irregularity in the nervous action of the parts which combine to produce speech. This is shown by analyzing speech. The natural sounds, or vowels, are simple, and require only one kind of muscular action for their production, hence they are almost always under command. The artificial, or compound sounds, (hence denominated *con-sonants*) are complex, and require *several* distinct and successive combinations of a variety of muscles; and it is they alone that excite stammering. But it is *the brain* that directs and combines all voluntary notions, and consequently every disturbing cause, not local and not permanent, can affect the voluntary motions of speech only *through the medium of* the brain; and irregular action of the brain must thus be the indispensable antecedent or cause of the effect—

stammering. This will be obvious on reviewing the *exciting* causes of that infirmity.

First, It is no unusual thing to see a person, who is perfectly fluent in conversation, and who has never been known to stammer, become grievously affected with it, if called upon unexpectedly to address a public audience. Every one will admit that, in this case, there is no physical impediment to utterance, but that the cause is in the brain, or organ of the mind, and that it consists in an irregular nervous impulse sent to the organs of speech, and proceeding from a *conflict* between the *desire* to speak well, the *fear* of speaking ill, or perhaps a consciousness of a paucity or bad arrangement of the ideas which he is expected to communicate, or it may be a dearth of words in which to clothe them. In every instance the *essential* circumstance is a conflict or absence of co-operation among the active faculties, necessarily giving rise to a *plurality*, instead of to a *unity*, of nervous impulses, and consequently to a *plurality*, instead of to a unity, of simultaneous muscular combinations; and the irregular plurality of purposes and of actions thence resulting constitutes exactly what is called stammering.

A striking illustration of the truth of this view is the fact, that stammering, or irregularity of action, is an affection not peculiar to the muscles concerned in the production of speech, but is common to these, and to all the muscles under the power of the will. Wherever two or more diverging purposes of nearly equal power assail the mind, and prompt to opposite courses of action at the same time, there stammering appears, whether it be in the muscles of the vocal organs, or in those of the feet. We recollect a ludicrous example of this in a boy at a dancing-school ball in the Assembly Rooms. He was dancing very easily and gracefully, and with much inward tranquillity and satisfaction, when, on a sudden, on raising his head, his wonder was attracted and dazzled by the unusual splendour of the chandeliers, which he had not before noticed. His feet continued to move,

but with evidently less unity of purpose than before, and after making a few unmeaning and rather eccentric movements, or *stammering with his feet* instead of with his tongue, he fell on his back on the floor, and awoke from his reverie.

Secondly, A person unexpectedly beset by danger *stammers* from head to foot, till his presence of mind gives him an *unity* of purpose, and decides what he is to do. In this instance, it is undeniably the simultaneous existence of opposite mental impulses that produces the effect. For the same reason the sudden recollection, during an animated discourse, of something forgotten, causes a temporary stammer and unsteadiness of attitude. In short, a multiplicity of impulses causes contrariety of action, and contrariety of action constitutes *stammering*.

"The influence which the encephalon exercises over pronunciation," says Dr. Voisin, "is equally established by the observations "continually furnished by orators, advocates, and public speakers. "If the intellectual operations are carried on with rapidity, if "the ideas are clear, numerous, and well-connected, the pronunciation will be free, easy, and agreeable; if, on the contrary, the "march of intellect is slow and difficult, and the ideas are confused "and ill arranged, the elocution will partake of the internal trouble, "and the orator, thus accidentally a stammerer, will soon have fatigued his audience by his repetitions and disagreeable articulations." We have seen the same thing arise from a deficient supply of words to clothe the ideas that presented themselves; the contrariety arising in this instance from the ineffectual struggle of a small organ of Language to keep pace with the workings of larger organs of intellect.

Thirdly, The effects of wine and spirituous liquors prove the influence of the brain in the production and cure of stammering. "Look at that individual, who, without committing any excess, is moderately excited by a few glasses of wine; "*lately* he was sad, silent, and spiritless; *now*, what a metamorphosis! he is gay, talkative, and witty; let him continue to drink, "and go beyond the measure of his necessities, his head will become embarrassed, and the fumes of the wine trouble his intellectual functions. *The muscles, subjected to the guidance of a "will without power, contract feebly, and the most confused and "marked stammering succeeds* to the fluent pronunciation so late-

"ly observed, and which depended on the powerful action of the "brain on the organs of speech."

Fourthly, From the earliest antiquity accidental stammering has been noticed by physicians as frequently the precursor of apoplexy and palsy, which could only happen from the preceding affection of the brain acting on the organs of speech.

Fifthly, M. Voisin himself remarks the well-known fact, that stammerers are generally very sensitive and easily irritable, and, at the same time, timid and retiring; thus affording the essential contrariety of emotions in its strongest degree. M. Voisin forcibly delineates this state, when he says, "I shall never forget that, in 1813, when I had finished my studies, "and was entering on life, my troubled countenance (*ma contenance mal assurée,*) my embarrassment and monosyllabic answers, "and the silence which fear and timidity almost always enforced "upon me, gave to many people such an idea of my character, that "I may dispense with quoting the epithet which they were pleased "to bestow upon me."

Sixthly, Certain emotions, by exciting the brain, direct such a powerful nervous influx upon the organs of speech, that not only delivers the stammerer from his infirmity for a time, but has even sufficed to deliver the dumb from their bondage, and enabled them to speak. Esquirol gives a curious example of this fact. A dumb man had long endured contempt and bad usage from his wife; but, being one day more grossly maltreated than usual, he got into such a furious rage, that he regained the use of his tongue, and repaid with usury the execrations which his tender mate had so long lavished upon him. This shows how closely the brain influences speech.

Seventhly, Speech is the conductor of ideas, and is useless where none exist. Accordingly it is noticed, that idiots, although they hear well, and have a sound conformation of the organs of speech, and a power of emitting all the natural sounds, are either dumb, or speak very imperfectly.

Eighthly, Under the influence of contending emotions, as is well observed by M. Voisin, the tongue either moves

without firmness, or remains altogether immoveable. This, he says, occurs most frequently when Cautiousness or fear, and Veneration or respect, are the opposing feelings. Stammering from this cause diminishes perceptibly, and sometimes even disappears, in proportion as the individual regains his presence of mind and masters his internal impression. "The "observations," he adds, "which I have the sad privilege of mak- "ing on myself every day confirm what is here advanced. I have "often intercourse with men for whom I feel so much respect, that "it is almost impossible for me to speak to them when I appear "before them. But if the conversation, of which they at first fur- "nish the whole, goes on and becomes animated, recovering soon "from my first emotion, I shake off all little considerations, and, "raising myself to their height, I discuss with them *without fear*, "and without the slightest difficulty in my pronunciation." This indicates the supreme influence of the nervous influx on the movements of the vocal muscles, and it is curiously supported and illustrated by a fact mentioned by M. Itard, of a boy of eleven, who was excessively at fault whenever he attempted to speak in the presence of persons looking at him, but in whom the stammering instantly disappeared as soon as, by shutting out the light, he ceased to be visible. This is explicable only on the theory of opposite mental emotions.

Ninthly, As the individual advances in age, and acquires consistency and unity of character, the infirmity becomes less and less marked, and even frequently disappears altogether. In the same way it is generally more marked in the morning than in the evening, because the brain has not then assumed its full complement of activity, nor been exposed to the numerous stimuli which beset it in the ordinary labours of the day.

A late writer seems to us to mistake the effect for the cause, when he says that stammerers, being deprived of the means of communication with their fellows, *become* reserved and timid in society, and of exquisite sensibility; for, according to the view we have been unfolding, the natural timidity and sensibility, instead of being the effect, are in fact the chief causes of the stammer or defect in pronunciation.

And we think this confirmed by his own observation, that old age is generally a cure, and that "old men, when interrogated on the causes of the amendment, generally attribute it to their having become less hasty, or *much more* "*moderate* and *considerate*, and in a much less hurry to "force out their ideas."*

The cerebral and mental cause of stammering explains the effects of education and the rational mode of cure.

Speech being the vehicle of ideas, and of no use but to convey them, it is obvious that one important condition in securing a distinct articulation is to have previously acquired distinct ideas. Idiots, having few ideas, never learn to speak. For the same reason, children ought not to be forced to speak in the way that is generally done. This ill-timed haste has the opposite effect, for the subjects of it speak later and with greater confusion; and the extreme attention that is paid to their every word, dispenses them from distinct articulation, and causes a bad pronunciation for their whole lives. This is remarked very often in children brought up in towns. They speak earlier, but much less distinctly, than those reared in the country. Learning by rote is held by Dr Voisin to be very pernicious, as it accustoms the child to negligent and unmeaning pronunciation in his repetition of the same words.

It is remarked, indeed, that those who are late of speaking never speak so distinctly as the others; but here the effect is often mistaken for the cause, for the child is long of speaking only because his vocal organs are *naturally* embarrassed, and not because the latter are embarrassed from the want of speech. If the organs were not constitutionally impeded, why should any one child be longer of speaking than another? The child that stammers has quite as much use for speaking as any other, and in general he is stimulated

* Dictionnaire de Médécine, tome iii. p. 344.

to an infinitely greater degree to exert his power of speech. Parents become uneasy, and, by their ill-judged efforts at hastening, often cause the very defect they seek to avoid.

From this view it will appear that the cure of stammering is to be looked for in removing the exciting causes, and in bringing the vocal muscles into harmonious action by *determined* and patient exercise. The opposite emotions, so generally productive of stammering, may, especially in early life, be gradually got rid of by a judicious moral treatment, —by directing the attention of the child to the existence of these emotions as causes,—by inspiring him with friendly confidence,—by exciting him resolutely to shun any attempt at pronunciation when he feels himself unable to master it,—*by his exercising himself when alone and free from emotion, in talking and reading aloud and for a length of time, so as to habituate the muscles to simultaneous and systematic action*; and we may add, as a very effectual remedy, by *increasing the natural difficulty in such a way as to require a* STRONG *and* UNDIVIDED MENTAL EFFORT *to accomplish the utterance of a sound*; and thereby add to the amount of nervous energy distributed to the organs of speech. The practice of Demosthenes is a most excellent example. He cured himself of inveterate stammering by filling his mouth with pebbles, and accustoming himself to recitations in that state. It required strong local action, and a *concentrated attention*, to emit a sound without choking himself, or allowing the pebbles to drop from his mouth; and this was precisely the natural remedy to apply to *opposite and contending emotions and divided attention.*

Demosthenes adopted the other most effectual part of the means of cure. He exercised himself *alone*, and *free from distracting emotions*, to such a degree that he constructed a subterraneous cabinet on purpose for perfect retirement, and sometimes passed two and three months without ever leaving it, having previously shaven one half of his head, that he might not be able to appear in public when the temptation

should come upon him. And the perfect success which attended this plan is universally known. His voice passed from a weak, uncertain, and unmanageable, to a full, powerful, and even melodious tone, and became so remarkably flexible as to accommodate itself with ease to the very numerous and delicate inflections of the Greek tongue. But as a complete cure, or harmonious action of the vocal muscles, can be obtained only by the repetition of the muscular action till a habit or *tendency to act* becomes established, it is evident that *perseverance* is an essential element in its accomplishment, and that without this the temporary amendment obtained at first by the excitement consequent upon a trial of any means very soon disappears, and leaves the infirmity altogether unmitigated.

M. Itard, whom we have already mentioned, recommends very strongly, where it can be done, to force children to speak in a foreign language by giving them a foreign governess or tutor; and the propriety of this advice is very palpable when we consider that it requires a more powerful and concentrated effort to speak and to pronounce a foreign than a native tongue, and that it is precisely a strong, undivided, and long-continued mental effort that is necessary to effect a cure.

M. Itard regards weakness in the muscles of the voice as the cause of stammering, and he has invented, and used with much success, a small forked instrument which he places under the tongue, in order to give them support. We approve highly of the practice, but think his explanation of its efficacy likely to lead to error. To us it appears to serve the same purpose that the pebbles did in the mouth of the Grecian orator, viz. to solicit such an amount of nervous stimulus to the parts, and such an effort of attention as shall absorb the mind, and prevent its unity of purpose being divided by contrary emotions. And the proofs that this is the true source of the muscular debility are, that for all purposes except speaking, the movements of the lips and tongue are as powerful and as perfect as in any other indi-

vidual, and that old age, which increases real debility, and which, therefore, ought to increase stammering if it arose from this cause, almost invariably cures it. We think it right to notice this mistake in principle, as, from M. Itard's well-merited reputation, his practice is likely to be followed; and as every man will modify it according to his own lights, many, viewing it as a mere mechanical support, might do so in a wrong way, and produce mischief instead of benefit, and then blame him for misleading them.

It is scarcely necessary to add, that debility, in which this, in common with many other forms of nervous disease, often originates in the young, must be obviated by a due supply of nourishing food, country air, regular exercise, and last, though not least, by cheerful society, kindness, and encouragement. The use of Phrenology in enabling a stammerer to understand his own case, or a parent to direct the treatment of his child under this infirmity, is so obvious, that we reckon it unnecessary to dwell on it. By rendering the nature and modes of action of the mental powers clear and familiar, it aids us in removing every morbid affection of which the origin lies in them.

ARTICLE XI.

Result of an Examination, by Mr James de Ville, of the Heads of 148 *Convicts on Board the Convict Ship England, when about to sail for New South Wales in the Spring of* 1826.

Seeing that no pretension of Phrenology has been more derided than its direct application to the affairs of life, without which it would be a barren and useless discovery, we cannot do more good to the cause than by publishing examples of

its practical application. When the male convicts, 148 in number, were assembled for transportation on board the ship England in spring 1826, under the charge of Dr Thomson, a navy surgeon,* Mr De Ville was induced to go on board, and examine the whole gang *overhead*. The experiment was suggested by Mr Wardrop of London, whom we are pleased to see adding a manly avowal of the new science to his other claims to professional distinction. Dr Thomson was not previously acquainted with the subject. Mr De Ville furnished him with a distinct memorandum of the inferred character of each individual convict, and pointed out the manner in which the dispositions of each would probably appear in his general conduct on the passage. The *desperadoes* were all specifically noted, and a mode of treatment to prevent mischief suggested. One man in particular was noted as very dangerous, from his energy, ferocity, and talent for plots and profound dissimulation. His name was Robert Hughes.

The history of the voyage is minutely detailed in Dr Thomson's Journal, deposited in the Victualling-Office; and, by the politeness of Dr Weir of that office, we were, in compliance with our request, not only immediately presented with the Journal, but permitted to take extracts and publish them. From different parts of a log of above four months, we extracted all that concerned the conduct of the convicts, as follows:—

Log and Proceedings of the Male Convict Ship England, during a Voyage to New South Wales in 1826. 148 *Convicts on Board.*

9th May. Convicts disposed to be disorderly; read to them my authority to punish; and threatened to act upon it, if they did not conduct themselves in a more orderly manner.

16th —. Same complaint,—and difficulty to get them to keep their births and clothes clean.

* This charge, for the sake of economy, is committed to navy surgeons who will undertake it; and it embraces the entire management as well as the medical treatment of convicts on the voyage.

20th May. Punishment by flogging for plundering and violently assaulting each other.

30th —. Symptoms of mutiny among the convicts.

31st —. Received a letter from W. E. Taylor, requesting me to send for him as soon as possible, as he had something to communicate to me privately of the utmost importance. I immediately sent for him, when he informed me, that John George Munns had that morning come to him at the hospital very early, before he or the other convicts were out of bed, and told him privately that there was a conspiracy formed to murder him (W. E. T.) to prevent his giving any alarm, and then to murder me, and all who would not assist them to secure the ship, and run her into South America. That Robert Hughes and Thomas Jones were at the head of it, and it was their intention to carry it into effect the first time the ship was in a squall. In consequence of this information, the following memorandum was given by me to W. E. T. in the form of a protection, to be shown to such men as he could trust. As two-thirds of the convicts are the most depraved and desperate of characters, and robust athletic men, in order to prevent their taking any alarm, and assassinating in the prison during the night, as they had threatened to do, or at any future period, however distant, those convicts who should divulge their wicked intentions, every necessary precaution was privately taken, until the ringleaders could all be discovered, and safely secured without violence. *Mem.* "Dr Thomson will thank W. E. Taylor and other well-disposed men to be "on their guard, and, if possible, to get such evidence as will enable Dr T. to act against the malcontents. Dr T. promises protection, and his best services with the governor of New South "Wales, to such men as may appear to him to deserve it." Some of the soldiers had heard in prison what induced them to expect soon to be employed against the convicts. This they reported to Dr Thomson.

1st June. Hughes, for assaulting Daniel Dean, was secured and double-ironed on deck under a sentry. Munns applied for protection from being strangled or assassinated as was threatened. He gave the names of those principally concerned; Robert Hughes, (always the first), Thomas Jones, William Brown, James Hawkes, and James Norman. Jones gave himself up, observing, he was not the first bullock that had been sold, and hoped he would have a fair trial. He was double-ironed and handcuffed. Brown, Hawkes, and Norman, were all handcuffed, and placed under the sentries. Other arrangements followed for safety. Crew armed with cutlasses, &c.

29th September. Landed at Sidney. Court of inquiry on 24; Robert Hughes, Thomas Jones, &c.

We have not seen the evidence on the trial, but are informed that the facts of the conspiracy, and the shocking de-

pravity of the mode of the intended murders, were proved beyond all doubt, and that the share each person had in the matter was in very close accordance with the potandum of character affixed to each name by Mr De Ville. Hughes was especially marked by him as a person capable of ruthless murder and deep-laid plots. We have not seen Mr De Ville's memorandum, but subjoin with great pleasure Dr Thomson's letter to Mr Wardrop.

Extract from a Letter of G. Thomson, Esq., Surgeon of the Ship England, to James Wardrop, Esq.

Sydney, October 9, 1826.

"I have to thank you for your introduction to De Ville and Phrenology, which I am now convinced has a foundation in truth, and beg you will be kind enough to call on Dr Burnett, whom I have requested to show you my journal, at the end of which is Mr De Ville's report, and my report of conduct during the voyage; and likewise to the depositions against some of the convicts, who you, with your usual *tactus eruditus*, discovered would give me some trouble during the voyage, and I think the perusal of them will make you laugh, as they were going to rip up the poor doctor like a pig. De Ville is right in every case except one, Thomas Jones; but this man can neither read nor write, and, being a sailor, he was induced to join the conspiracy to rise and seize the ship, and carry her to South America, being informed by Hughes, the ringleader, that he would then get his liberty. Observe how De Ville has hit the real character of Hughes, and I will be grateful to De Ville all my life; for his report enabled me to shut up in close custody the malcontents, and arrive here not a head minus, which, without the report, it is more than probable I would have been. All the authorities here have become Phrenologists, and I cannot get my journals out of their offices until they have perused and re-perused De Ville's report, and will not be in time, I am afraid, to send them by the Fairfield."

We cannot conclude without bestowing a well-deserved encomium on Mr De Ville, for so cheerfully undertaking and so skilfully performing a task from which all but a zealous Phrenologist would have shrunk with a mingled feeling of disgust and fear. We regret that the details in the Log-book are so meagre, and that Dr Thomson has not sent home extracts from the evidence on the trials.

ARTICLE XII.

PHRENOLOGY IN GERMANY.

(*From a Foreign Correspondent.*)

At a time when certain physicians in England, who believe themselves sage and learned, strive to stop the progress of the new philosophy of mind in Great Britain, it is curious to observe the steps with which it advances every where in Europe, as well as in other parts of the world. Although the science arose in Germany, it was subsequently almost forgotten there. This was not to be wondered at, when we consider that Drs *Gall* and *Spurzheim*, in later years, only published in the English and French languages, and that the direction which the philosophy of mind has taken in Germany is quite opposite to the rules which Phrenology, founded on experience, lays down. But it is to be remarked, that the *truly* learned and scientific men of Germany *never* spoke of Gall's doctrine but with esteem, and with that respect due to all scientific investigations; and such is still the case. Though circumstances are unfavourable to Phrenology in that country, yet more attention has now begun to be bestowed on it. Dr Otto's Danish work on Phrenology has been favourably reviewed in "Hecker's Annalen," "*Gerson's* and *Julius' Magazin*," and "*Hufeland's Bibliothek*." At the university

of *Berlin* they have begun to make Phrenology an object of inaugural dissertations, which is proved by the following tract, edited 1826, "De Cerebellum inter et Systema Geni-"talium Sympathia, auct. T. P. Reimbold," in which the author adduces numerous facts to prove that the phrenological opinion of the function of the cerebellum is true. The celebrated Dr *Froriep* has, in his journal "Notizen aus dem "Gebiete der Natur. u. Heilkunde" (one of the best in Germany), communicated several translations of phrenological papers published in England. In the excellent journal of Dr *Nasse*, "*Zeitschrift für die Anthropologie*" (Psychological Journal), Phrenology is now frequently again spoken of; nay, the sagacious Dr *Amelung* has lately (in the first number for 1826), in a very acute paper on *Insanity*, adduced opinions and views which, he himself confesses, are founded on observations of the Phrenologists. Farther, *Hufeland*, in Berlin, undoubtedly one of the first scientific medical men of Germany, and *Vogel*, in Rostock, a most ingenious author, have recently paid a just tribute to the science.

Hufeland[*] speaks thus:—"It is with great pleasure and in-"terest that I have heard the worthy man (Dr Gall) himself lec-"ture upon his new doctrine, and I am perfectly convinced that "he *ought to be reckoned amongst the most remarkable phenomena* "*of the 18th century, and his* DOCTRINE AMONGST THE GREAT-"EST AND THE MOST IMPORTANT IMPROVEMENTS OF THE NA-"TURAL SCIENCES. It is necessary to see and hear himself in "order to acknowledge a man equally far from all charlatanism, "falsehood, and transcendental enthusiasm! Endowed with a "rare degree of talent for observation, of sagacity and philoso-"phical judgment; grown up in the lap of nature, he has ob-"served a vast multitude of phenomena in the whole field of "organic beings, which before were not at all or only superfi-"cially known; he has united them with ingenuity, found their "analogical relations, drawn conclusions from them, and deter-"mined truths, which are of the greatest value, just because "they are drawn from the source of experience and daily life. "Nobody has been so decided an opponent of Dr Gall's doctrine "as I, *and now, after having fully satisfied myself of the profundity* "*of his intellect, and of the palpable truth of his science,* I *have*

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[*] Hoff's Darstellung der Gall'schen Lehre, p. 117.

" *been obliged to believe in it.* Upon the whole, I agree entirely " with Gall, that the spiritual part of our nature acts by the " means of organs; that this material condition for the exercise " of mind not only is necessary as to its grosser, but also as to " its finer functions; that the brain is the organ of the mind; " and that there is great probability for supposing that, as the " external senses have their peculiar organs in the brain, so " must also the internal have theirs."

Vogel expresses himself in this manner:*—" True it is, that " the most palpable facts prove Dr Gall to be a most distin- " guished dissector of the brain, a sagacious observer of men " and human actions, an ingenious philosopher, and a firm friend " of truth. True it is, that *Gall*, by a great quantity of experi- " ments, instituted before the eyes of the highest authorities, " has procured for his doctrine esteem and attention, and that " this science, by every opportunity, deserves to be tried and ap- " plied."

ARTICLE XIII.

Outlines of Phrenology; being also a Manual of Reference for the Marked Busts. By G. Spurzheim, M.D. With a Frontispiece. London: Treuttel, Wurtz, and Richter, 30, Soho Square. 1827, *pp.* 100, *price* 2*s.* 6*d.*

This little work is designed to accompany the busts marked with the phrenological organs. It is brief, comprehensive, and perspicuous, and will prove highly convenient and useful to incipient students of Phrenology.

Section first treats of the general principles of Phrenology; section second, of the special faculties of the mind; and section third, of the usefulness of Phrenology.

The following is mentioned as the " Best manner of studying Phrenology."

" Self-conviction depends on self-observation. Whoever, " therefore, wishes to form an opinion concerning the reality of

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* Ein Beitrag zur Gerichtsartzlichen Lehre von der Z
Stendal, 1825, p. 91.

"Phrenology, must make himself acquainted, (1.) With the "situation of the special organs; (2.) With their relative de- "velopment in each individual considered; (3.) With the dif- "ferent temperaments, as giving more or less energy to the "functions of the organs; and (4.) With the true meaning of "each fundamental faculty of the mind as adopted in Phrenolo- "gy. Assisted by this knowledge, every one will be able to "convince himself that the special powers of the mind are ma- "nifested by the instrumentality of individual parts of the "brain."

In this work, Dr Spurzheim introduces the doctrine of the Temperaments as an elementary part of Phrenology, as indicative of Activity. We have made several observations on the theory of Dr Thomas, reviewed in a preceding article, and have found it strongly confirmed. If it shall ultimately prove correct, it will form a great practical accession to the science.

ARTICLE XIV.

PROCEEDINGS OF THE PHRENOLOGICAL SOCIETY.

April 12, 1827.—Mr Simpson read an account of the Mozambique skulls lately presented by Dr Sibbald. Mr Lyon read some observations upon the development and talents of Mr Vandenhoff. A portrait of Dr Spurzheim was presented by Mr Stewart Watson, for which the best thanks of the Society were directed to be returned to him. Casts of the skulls of Griffiths, Digley, and Mackaen, murderers, were presented by Sir James Gardiner, who, being present, gave the Society an account of their characters. The Society returned their thanks to Sir James for his donation. Two skulls of ancient Greeks, presented by —— Smith, Esq. Secretary to the Senate of the Ionian Isles, were laid on the table; and a Burman skull, and 3 skulls of the Vedah Tribe of Ceylon, were presented by Mr Lyon. Sir James Gar-

diner made some interesting observations regarding the frontal sinus and the size of the eye. Sir James was solicited to favour the Society by putting the observations made by him in writing. Mr Ellis, the keeper of the Museum, was authorised to give casts of those skulls belonging to the Society, which they are at liberty to communicate, in exchange to any other Phrenological Society, for casts of any skulls they may possess.

April 26.—Mr Scott read a letter from Dr Collier, Ceylon, accompanying donation of 12 Ceylonese skulls. The skulls were exhibited to the Society, and their thanks ordered to be returned for so valuable a present. Mr Simpson read farther Observations on Force, by Sir George S. Mackenzie, Bart. The session of the Society terminated, and they adjourned till November.

ERRATUM.

In last report of the proceedings of the Phrenological Society, under date January 4, 1827, instead of "The president was instructed to write to Dr "Spurzheim, accepting of his offer to lecture in Edinburgh in December next, "which was agreed to," read "The president was instructed to return thanks "to Dr Spurzheim for his kind compliance with the request of the Society to "lecture in Edinburgh in December next."

NOTICES.

London.—Dr Spurzheim has just concluded a course of lectures at the London Institution, which was attended by upwards of seven hundred auditors. His collection of specimens is rapidly increasing, and is open for inspection at his house, No 8, Gower Street, every Thursday, from 2 to 4 o'clock. At that time also he answers any question or objection concerning Phrenology. Admission is easily obtained, although not indiscriminately granted. Tickets are distributed among the friends of the science, and to those who apply for them. The individuals attending Dr Spurzheim's lectures have the first access. Dr S. will lecture in Edinburgh in January 1828, in compliance with the solicitations of the friends of the science in this city. He will lecture in Hull on his way north. He leaves England, on a visit to the continent till October.

HULL.—A Society has been established here "for the purpose of phrenological inquiry," of which the learned and esteemed Dr Alderston is president. Some interesting papers, as well as dissections of the brain, have been brought forward, and many valuable facts recorded in the minutes taken of the proceedings in corroboration of the truth of Phrenology. We beg leave to solicit from the secretary of the Society a communication of these papers and facts for the Journal. Mr G. Combe has been elected an honorary member of the Society.

LIVERPOOL.—We copy the following notice from the Albion Liverpool newspaper of Monday, 21st May, 1827:—"We perceive, by the advertisement, that Dr Cameron intends to commence his lectures on Phrenology on Monday next, the 28th instant, in the hall of the Lyceum, at one o'clock. We have read the prospectus, which is a copious one, and must confess, that the vast variety of subjects to be treated of shows to us this science in a new shape, and makes it appear something else than a mere map of the head. If the topics held forth in these lectures are at all judiciously considered, they must be attended, to the Phrenologist or nonphrenologist, both with interest and instruction. In recommending the perusal of this prospectus we quote its introduction, explaining Dr C.'s reasons for lecturing upon this subject at the present time:—

"'Dr Cameron has been induced to lecture at the present time, owing to a very general report that he had ceased to support the doctrines of Phrenology, in consequence of Mr Jeffrey's article upon this subject in a late number of the *Edinburgh Review*.

"'Dr C., in contradicting this, begs to recommend to those who have yielded, or who are inclined to yield, to the opinion of the reviewer, to read the answer of Mr Combe. The reader will then see, that this high literary authority has not adduced any argument which has not been already refuted, nor contrived any witticism which has not been surpassed.

"'Dr C. begs also to assure those individuals who will allow this reviewer to sway their belief, that the two former attempts in the same journal to demolish this science, one twenty years ago, by Dr Thomas Brown, the other ten years ago, by Dr John Gordon, both exceed this third denunciation, the first in metaphysical reasoning, and the second in a knowledge of anatomy and physiology. The plausibility of this article of Mr J.'s is the natural effect of the exertion of a mind of the first order, which can confer seeming truth upon either side of a speculative question, in which light alone Mr J. has been pleased to consider Phrenology. He sets the consideration of facts entirely aside, or disingenuously perverts those which he happens to allude to.'"

SHEFFIELD.—Great attention to Phrenology has been excited

in this town by the delivery of an able lecture on the Philosophy of the Hindoos, by Mr Montgomery.

COPENHAGEN.—Our indefatigable friend Dr Otto has sent us the first number of a Phrenological Journal published by him in Danish. The contents are,—1. The Study, Value, and Practical Utility of Phrenology.—2. Outlines of the System of Phrenology, and Vindication of its Principles.—3. On the Influence of Amativeness on the Sentiments and Intellectual Faculties, (translated from the Phrenological Journal published in Edinburgh).—4. Remarkable Criminal Cases.—5. The Progress of Phrenology.—This work has already obtained an extensive circulation, not only in Denmark, but also in Sweden and Norway. Dr Otto has also published another work, the title of which is, "Phrenology applied to Crimes and Criminals," a series of Psychological Essays, by *C. Otto*, M.D. &c. It is a reprint of some papers on this subject published in his medical journal *Hygæa*. Its contents are,—1. Remarks on Crime, Punishments, and Responsibility in general.—2. The Murderer *P. H. Nissen;* his Crimes and Life compared with his cerebral Development, (he mixed poison for his father and mother).—3. On Infanticide; its Motives, Causes, and Imputability. (He shows that infanticide only in very rare cases is to be considered as a true crime; it is rather a sort of insanity.)—4. The Infanticide, Ane Nielsdatter.—5. Remarks on Destructiveness. (The direction and abuses of this propension.)—6. The Murderer *Adolph Mall*, (murdered his mother, brother, and friend; his life and his misdeeds compared with his skull).—7. Observations on Conscientiousness.—8. The Murderer *Peder Mikkelsen*, (murdered his son-in-law).—9. Acquisitiveness in its Directions.—10. Conclusion.

EDINBURGH.—We have received an able Essay on Individuality and Memory, which, if possible, shall appear in our next number. Also an interesting communication on Concentrativeness and Constructiveness, which is at present under consideration.

NOTICE TO SUBSCRIBERS.

THE conductors of the Phrenological Journal have received numerous complaints from country subscribers, of delay in receiving their copies, and beg to mention, that the general cause of it is the following:—A subscriber in the country desires his bookseller in the country to procure the Journal. This bookseller writes to his correspondent in Edinburgh to forward each number with his *first parcel* after publication. But if the country bookseller's trade be not extensive, there may be no parcel to him from his correspondent in Edinburgh for weeks or months in succession; and in this way the Journal may lie with the

Edinburgh correspondent a long time before it is sent off. The remedy for this is, for country subscribers to send an order direct to *the publishers in Edinburgh or London*, whose names are on the title-page, desiring *them* to transmit each number immediately on publication, pointing out, at the same time, by *what conveyance it is to be sent*. If this is inconvenient or expensive, the next best method would be, to employ a bookseller in the country who is attentive to business, and has frequent parcels from Edinburgh or London. The conductors solicit every information on this subject from the subscribers, as they anxiously desire to attain punctuality in delivery of the copies.

THE

PHRENOLOGICAL JOURNAL.

No XVI.

ARTICLE I.

A COMPARATIVE VIEW OF THE RELATION BETWEEN THE DEVELOPMENT OF THE NERVOUS SYSTEM AND THE FUNCTIONS OF ANIMALS.

By Thomas Sandwith, Surgeon, and Member of the Hull Phrenological Society, &c.

"Whether the views of Gall and Spurzheim may be verified or not, our labours in this direction must be productive, must bring with them collateral advantage." LAWRENCE.

(*Read to the Hull Society, May* 1827.)

In a former essay, of which the substance is known to most of you, an endeavour was made to prove, from the closest analogy, that the *a priori* objection against Phrenology, viz. that the brain manifested none of the separate organs described by its founders, was untenable, the objection being equally applicable to the established theory of the functions of the spinal chord. The nature of the evidence on which Phrenology is erected was exhibited. The science was also shown to be in harmony with many phenomena otherwise inexplicable, as monomania, drunkenness, dreaming, somnambulism, the re-

sults of education, and national character. Several objections, having their origin in profound ignorance of comparative anatomy, were refuted, and others adverted to,—such as the tendency of the new theory to materialism, atheism, &c., —as being at length exploded. It would have been an easy matter to refute another objection commonly made by pretenders to anatomical knowledge, viz. "that the form of the "cranium is no criterion of the configuration of the brain," a no less competent observer than Cuvier himself having said, "that in all "mammiferous animals the brain is moulded in the cavity of the "cranium, which it fills exactly; so that the description of the os-"seous part affords us a knowledge of at least the external form of "the medullary mass within."* I have now the honour of calling the attention of the Society to another important consideration, viz. *the relation that obtains, throughout the animal kingdom, between the development of the nervous system and the functions of animals.* "The visible fabric of the brain "differs most widely in quadrupeds, birds, fishes, insects,—and "there is an equal difference in their intellectual phenomena, appe-"tites and instincts, every variation in construction being accom-"panied with a corresponding modification of function."† The objectors to Phrenology are unwilling to believe the notion of the perfection or deficiency of the manifestations of any mental faculty being at all dependent on the size or form of a portion of the brain. If, however, the proposition just stated be established, its truth must be admitted. We shall observe also, as we proceed, abundant evidence of the truth of Messrs Gall and Spurzheim's theory of the origin of the nervous system, viz. "that it is not an unit, but consists of "many essentially different parts, which have their own individual "origins, and are mutually in communication." This proposition, which is collateral and independent of the former, it is desirable to keep in view.

When we examine any given portion of the nervous system,—the brain, the spinal chord, the ganglions, or any part of these,—we can discover nothing of the functions which any of these perform. We do not, as in some of the other

* Cuvier's Comparative Anatomy, vol. ii. p. 13. † Lawrence.

organs, perceive a mechanical connexion between the structure and its particular uses; but when we take a comparative survey of the nervous systems of the entire animal kingdom, the result is very different. It is then "the simplification or degradation of the organization is immediately perceptible." Perfection of function is seen in connexion with full development of nervous matter, deficiency with imperfect organization, and absolute negation of function, with a corresponding chasm in the structure of the nervous system: and this is true, not only "of the four great departments of the animal kingdom, but is equally so in each department."* Being strictly experimental, this evidence is highly valuable. To compare a perfectly organized animal, in which there is corresponding perfection of function, with another in which structure and function are alike defective, is the same in effect as to ascertain the functions of the more gifted animal by the mutilation of its organs. It is, indeed, with the exception of the facts supplied by pathology, the only kind of evidence open to the physiologist. The nerves themselves admit of mutilation and division, and to experiments of this kind we are indebted for our recent knowledge of the functions of the spinal marrow. But when the centre of the system is invaded by the knife, many impediments besides death defeat the purpose of the experimenter. "The animals of inferior classes," says Mr Lawrence, "are so many subjects of experiment ready prepared for us, where any organ may be observed under every variety of simplicity and complication in its own structure of existence alone, or in combination with others."—Being presented, then, with experiments prepared by the hand of nature, who has, as it were, performed the necessary mutilations, and left no wound or scar, and no embarrassing disturbance of function, it is our business to examine them with attention, in order to ascertain whether they agree with the conclusions at which we have arrived by their means.

In the lowest order of animals, *zoophytes*, many of which seem to form a connecting link between the animal and vege-

* Lawrence, p. 101.

table kingdoms, and in some worms, which again connect zoophytic animals with the tribes above them, no nervous system is discoverable. The actions of these animals being apparently automatic, as in plants, which the radicated ones so greatly resemble, neither brain nor spinal chord are necessary; and indeed the existence of nerves has only been inferred from their being apparently endowed with *sensation*. But this mode of proof is by no means conclusive, since in them, as well as in the mimosæ and other vegetables, which are sensible to the action of light and other stimuli,* sensibility may depend on inherent irritability,—a property, according to Haller and Wilson Philip, possessed by animals, and to which nervous power is superadded. Indeed, so long as a nervous system is denied to such remarkable vegetables as the Dionœa Muscipula, Hedysarum gyrans, and Vallisneria spiralis, there is no good reason, short of demonstration, why it should be assigned to zoophytic animals. Some zoophytes, however, as the long-armed Polypi, impelled by the sense of hunger, introduce food into their mouths by *voluntary* motions. In them, therefore, a nervous system of some kind or other must be admitted; but, as no distinct apparatus can be detected, Cuvier thinks that the nervous matter must be equally diffused over the whole body. To distinguish this kind of nervous system from the cerebro-spinal and ganglionic, it is called by Macleay the mollicular, each molecule being analogous to a ganglion or centre of sensation; and it is this supposed peculiarity which accounts for the vivaciousness of such animals, many of which, it is well known, may be multiplied by division. For, as Cuvier observes, "it is only in the animals that are most perfect, and "approach nearest to man, that the connexion of the different parts "of the nervous system, and the presence of its central parts, is absolutely necessary to the existence of the animal."†

We see, then, in the lowest link of animal existence, a re-

* *Vide* Smith's Introduction to Botany, p. 2. † Cuvier, vol. ii. p. 20.

lation between the structure and functions of the nervous system. The evidence, indeed, is only inductive, but it strengthens and becomes positive as we proceed. The actions of the *acephalous mollusca*, which are next in order, are simply vital, and of course automatic; so much so, that being destitute of senses and voluntary motion, even the sexes are enclosed together in the same shell, in the same animal. We know that the actions of the vital organs, in vertebral animals, are involuntary, and, though remotely connected by the nerves with the animal powers, are to a certain extent independent of them. Of this truth the phenomena of apoplexy, concussion of the brain, &c. are illustrations. We know also that their movements are owing to certain ganglia, which at the same time isolate and connect the vital and animal functions, and are reciprocally the same to each other. Such being the condition of the oyster, it has neither brain nor chord, but two ganglia, one at each extremity of the animal; and these are the sources of its visceral nerves.

Endowed with senses, instincts, and voluntary motion, the nervous systems of the *cephalapodous mollusca*, as the cuttle-fish and calmar, and of the *gasteropoda*, as the snail and slug, approach nearer to that of vertebral animals, the inferior orders of which the former so nearly resembles. These creatures, indeed, have no spinal chord, but the nervous collar which encircles the œsophagus is probably analogous; and they have a brain in the head, bilobed in the cuttle-fish, and lunated in the snail, in both giving origin to the nerves of sense. The head of the cuttle-fish is actually pierced with holes for the transmission of the nerves. Both have also a variable number of ganglia for the nerves of the vital apparatus connected to the brain and to each other. We know little of the instincts of the snail. In the actions attendant on one of the strongest of the passions it resembles the higher animals, and, as in those of the preceding class, its power of restoration is considerable, being able to regenerate a head and tail. One of the instincts of the cuttle-fish is curious. Underneath

its liver is a gland, which secretes an inky fluid, the material, in fact, of which, it is said, the Chinese manufacture Indian ink; this fluid the animal uses to darken the water when pursued by its enemies, and in this manner escapes observation.

Crustaceous animals, the *larvæ* of insects, *insects* themselves, and *worms*; the annulosa of naturalists in many respects resemble each other. The bodies of these animals are divided into segments, each portion having to a certain extent a vitality of its own; and, as might be expected, a general analogy runs throughout their nervous systems. These consist of a brain, two, sometimes as in the larva of the tenthredo, four-lobed, a collar surrounding the œsophagus, and a medullary chord consisting of a series of ganglia, one occupying each segment of the body, and connected by a double row of nervous internodes. From these ganglia arise the nerves of the senses of the vital and voluntary powers. In the crab the knotted chord assumes the form of an oval ring of medullary matter; but the exception only confirms the rule. "The spiders too, and phalangers, which in other respects are allied "to other insects, have no chord, but, like the mollusca, single gan-"glia, not placed in a straight direction, one behind the other."*

It would require another Swammerdam to ascertain whether the instincts of the *annulosa* depend on the size and form of their encephala. The extraordinary tenacity of life in these animals, some of which, as the apus, in this respect resemble polypes, is owing probably to the inferiority of the brain when compared with the rest of the ganglionic system. This vivacious animal, which inhabits ponds, is often dried in summer, but revives on the return of water. The brain of insects being equalled in size by a single ganglion of the spinal chord, accounts for their amazing powers of motion. If an insect is cut in halves, the caudal will outlive the cerebral extremity, and during the remainder of its life the functions of the upper half will remain unimpaired. A working ant has been

* Treviranus Biologie, l. v. p. 331.

known to drag ten pupæ into a place of security, after the posterior part of its body was cut off.* All which is agreeable to a law of the animal economy already stated, that, "in proportion as we descend in the scale of existence, the nervous "system is less concentrated in a particular region of the body, and "more equally distributed to all the parts."† But the most extraordinary observations are those of Dr Herold, who has "traced the "gradual changes that take place in the spinal marrow of the com-"mon cabbage-butterfly (*pieris brassicæ*) from the time it has ob-"tained its full size to its assumption of the imago."‡ A particular account of their mutations has been given in Kirby's and Spence's Entomology, which consist, generally speaking, of a progressive shortening of the nervous internodes, their flexure, the approximation of the ganglions, the obliteration of some of their nerves, the amalgamation of two or more ganglions, the absorption of the first ganglion by the brain, the enlargement of another already formed by the union of two, at the expense of one or two others; and, finally, the lobes of the brain, which formed an angle with each other, becoming horizontal. These observations prove that the development of the nervous system is altered to accommodate it to the altered functions of the animal in its new stage of existence, in which there being a complete change in all its functions and organs, a corresponding alteration of its nervous system was required.

The actions of insects have in all ages attracted the attention of mankind. "Go to the ant, thou sluggard, consider "her ways, be wise;" and the habits of the bee, silkworm, and spider, are equally pregnant with moral instruction. On the other hand, the grasshopper is like many other mortals,

> "An evening reveller, who makes
> His life an infancy, and sings his fill."

These, in the opinion of my friend, the learned William Spence, depend not on one instinct, but many; and that

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* Blumenbach, by Gore, 221. † Cuvier, vol. ii. p. 103.
‡ Kirby and Spence, vol. iv. p. 24.

these, again, are, to a certain extent, under the control of reason, he has proved by the circumstance of theirhaving external senses, which would be useless without intellect, and by their docility, memory, and balancing of motives. The ants on which Bonaparte amused himself with experiments at St Helena, though they stormed his sugar-basin when surrounded with a fosse of water, desisted when it was surrounded with vinegar. This he mentions as a proof of the power they have of controlling their instincts, and may be instanced as evidence of their free agency. Without memory, bees, flying as they do to great distances, could not find their way home; and, for the docility of insects, we need go no farther than the story of M. Pelison, "who, "when he was confined in the Bastile, tamed a spider, and "taught it to come for food at the sound of an instrument!" or Sir Joseph Banks's spider, who, having lost five legs, changed his trade of weaver, and became a hunter! The theory of a variety of instincts receives confirmation from their successive appearance in animals, of which truth numerous illustrations might be given. A perfect locust acquires the new instinct of using its wings, its migratory instinct, and, if a female, that of depositing its eggs in an appropriate situation at different periods. To the followers of Locke, who considered the mind to be one and indivisible, the thirty-six organs of the Phrenologists have given great offence. What will they say, then, to Mr Spence, who, speaking of the bee, says, "I have now instanced at least 30 distinct instincts "with which every individual of the nurses amongst the "working bees is endowed," and concludes by saying, after the enumeration of many more, that, when all the rest are added, the number might perhaps be doubled! Whether the parallel between the insect-metaphysician, and the founders of Phrenology, extends to the specific developments of the brain, remains alone to be discovered.

From the higher orders of invertebral to the lower vertebral animals the transition is easy, the gasteropodous mol-

lusca forming a connecting link between them; and when we consider, to say nothing of their vital functions, that the actions of *reptiles* and *fishes* are for the most part sensual and instinctive, we shall expect a meaner development of brain than in animals of higher rank. Accordingly in fishes this organ is almost fluid, and does not fill the cranium. The cerebrum consists of two hemispheres, which are without convolutions, and are actually less than the origins of the olfactory nerves. The thalami and striated bodies, the cerebral ganglia of Spurzheim, are as large as the hemispheres; and the cerebellum is larger than the entire brain. Under the hemispheres are two or more tubercles, analogous probably to the corpora quadrigemina of mammiferous animals, which, as in them, are the true optic ganglions. The magnitude of the olfactory tubercles, of which there are two pairs in the perch and salmon, accounts for the remarkable sense of smell in fishes, of which superiority naturalists have left on record many curious examples.* "These animals," says M. Serres, "have the largest quadrigeminal tubercles, "and the most remarkable eyes and optic nerves." "The "eye of a codfish," says Dr Fleming, "is equal in size to "that of an ox;" and their reproductive powers, which bear a proportion to the size of their cerebellum, may be estimated by the profusion of their spawn. In reptiles, except the serpent, "which is more subtle than the other beasts of the "field," the anterior third of each hemisphere appears to be a bulb or root for the olfactory nerves. In all other respects there is a general resemblance between the encephala of these animals. It is worthy of remark, that some individuals of these orders, which, according to the tables of Cuvier, are pre-eminent for the relative size of their brains, have some degree of intellect. Trout become very docile, and old carp are said to be wary and cunning. A variety of

* Monro's Comp. Anat. p. 127.

tricks are taught to the cobra de capello, boa, and other serpents. Toads, and even crocodiles, have become tame, and learned to know their benefactors.

It has been doubted by some naturalists whether fishes and reptiles have taste and hearing; but that the nerves of these senses is feebly developed is certain. In fishes the auditory nerves arise so near to the origin of the fifth pair, that they have been considered as the same; and the nerves which supply the tongue are branches of those which proceed to the gills. A similar analogy runs throughout the remainder of their nervous systems. Like the nerves, both cerebral and spinal, the spinal chord is in proportion to the bulk of the body, and not to the brain with which it is connected; as in insects and zoophytes, it is this circumstance which accounts for the tenacity of life and powers of restoration of many reptiles. Tortoises will live for months after the removal of their brain, and the head and eyes of the decollated newt are regenerated. In serpents, which have no arms, there are no brachial nerves; and their size in fishes is proportional to the comparative smallness of those rudiments of arms, the fins. Again, as these latter animals respire by gills instead of lungs, the distribution of the pneumogastric nerve (*par vagum*) presents important deviations from its usual course in vertebral animals. Are we then to believe that the divisions of the nervous system, which appertain to the senses and voluntary powers, are adapted to the condition of the animal, and that the corresponding degradation of the cerebral portion, which belongs to the manifestations of the mental functions, is merely accidental? Mr Charles Bell has said, "There are no accidents in nature!"

Not much higher in the scale of intelligence, for "they "sow not, neither do they reap, nor gather into barns," birds have a brain analogous to that of reptiles and fishes. It consists of six distinct masses or tubercles; two hemispheres, two thalami, a cerebellum, and medulla oblongata. The hemispheres consist principally of the striated bodies;

and the thalami, as in reptiles and fishes, are round and hollow. The cerebellum is also hollow, and, consisting of but one lobe, has no cerebellar commissure or pons, and the pyramidal and olivary bodies are hardly apparent. Their existence was denied by Cuvier and others; but until Gall and Spurzheim appeared, anatomists were not aware that these, and the restiform bodies, are the rudiments of the cerebrum and cerebellum. The surface of the brain presents no convolutions,—a most important deficiency, and a far more striking characteristic of defect than the comparison of relative size and weight; and they want the commissures called corpus callosum and fornix, and, of course, the septum lucidum and mamillary bodies. But they have, according to Dr Spurzheim, analogous organs of communication. The olfactory tubercles arise from the point of the hemispheres, of which they appear to be a mere continuation. Between the cerebral ganglia, or corpora striata, and thalami, as they are called, there are four roundish bodies, similar to those of fishes, analogous probably to the corpora quadrigemina of mammiferous animals, and, as in them, proportioned to the size of the optic nerves. Birds, like fishes, having no diaphragm, are without phrenic nerves; the nervus accessorius is wanting for a similar reason; and, as might be expected, the facial nerve is hardly developed.

Between the instincts of birds, which, in the gregarious and migratory species, are very remarkable, and their cerebral configurations, Messrs Gall and Spurzheim have discovered a relation. The aquatic differ in this respect from land birds; and of the passeres, the brain of the male, which sings, is different from that of the female, which cannot sing. Again, birds which build nests and provide for their young are unlike the cuckoo and ostrich, whose heads are similar, and in which these instincts are never manifested, and so on throughout the entire range of their propensities. That many birds have intellectual powers is evident from the docility of the parrot, raven, and falcon. The gull, the wild duck, and the

plover, will feign lameness, to lead intruders from their young. And the conduct of the hooded crow (corvus cornix) in obtaining food from the larger shellfish, is perfectly rational. Dr Fleming, who was an eye-witness of its proceedings, thus describes them:—"We have seen the hooded "crow in Zetland, when feeding on the testaceous mollusca, able to "break some of the tenderer kinds by means of its bill, aided in "some cases by beating them against a stone; but as some of the "larger shells, such as the buckie (buccinum undatum), and the "wilk, cannot be broken by such means, it employs another me-"thod by which it accomplishes its object. Seizing the shell in its "claws it mounts up into the air, and then loosing its hold, causes the "shell to fall amongst stones, (in preference to the sand, the wa-"ter, or the soil of the ground,) that it may be broken, and give "easier access to the contained animal. Should the first attempt "fail, a second and a third are made, with this difference, that the "crow rises higher into the air, in order to increase the power of "the fall, and more effectually remove the barrier to the contained "morsel. On such occasions we have seen a stronger bird remain "an apparently inattentive spectator of the process of breaking "the shell, but coming to the spot with astonishing keenness when "the efforts of its neighbour had been successful, in order to share "in the spoil."*

We now come to the mammalia, between which animals and man there is the nearest resemblance in functions and cerebral development. That brutes, in addition to the senses and instincts, have knowing faculties, is on all hands admitted. "The ox knoweth his owner, and the ass his mas-"ter's crib." Nor are they entirely destitute of sentiments, as Cuvier observes. "The affliction many of them feel on "the absence or loss of a companion, friend, or benefactor, "is manifested by evident signs, in the same manner as they "testify their attachment without any temporary induce-"ment." Surpassing him in the perfection of the senses and strength of the propensities, their inferiority in intellect and sentiments to man is unquestionable; and yet when we see how feebly these are exerted in some men, and the consequent abuse of the propensities, we may exclaim with the poet,

"Each kindred brute may bid thee blush for shame."

* Fleming's Phil. of Zoology, vol. i. p. 231.

Corresponding differences are to be found in their respective nervous systems. The nerves of sense in man are palpably smaller; he has a smaller cerebellum and nervous chord; but he surpasses all other animals in the perfection of the brain. It has, indeed, been truly said, "that by taking away, diminishing, or changing proportions, you might form from the human brain that of any other animal; while, on the contrary, there is none from which you could in like manner construct the brain of man."* With respect to size, man, according to Sœmmering, has, without exception, the longest brain in comparison with the nerves that issue from it. The inferiority to the smaller birds in weight, when compared with the body, is not wonderful, when their leanness and natural levity are considered. Indeed, this criterion is in every point of view objectionable; nor is that much better which is founded on the comparison of the cerebrum with the cerebellum and medulla oblongata, these parts and the brain bearing by no means a constant proportion to each other. As to form, the cerebrum of the human subject is elevated, whereas in brutes it is without elevation. It is nearly spherical in man; but in brutes is either oblong, as in herbivorous animals, or triangular, as in the carnivora. The differences in development and structure are no less remarkable. Excepting in the quadrumana, many of whose actions are almost human, and who differ from man to a distance indeed which is immeasurable, Cuvier says, the posterior lobes are wanting, and the anterior ones are imperfect, consisting in many animals of little more than the processus mamillaris or olfactory organ. The thalami or cerebral ganglia are smaller than in man. The convolutions are fewer and shallower, the corpora quadrigemina larger, being proportioned to the superior size of the visual organs, and there is considerably less cortical than medullary matter. "Independently of weight and size, Sœmmering observed fifteen visible

* Lawrence, p. 195.

"material anatomical differences between the brain of the "common tailless ape and that of man."

Among the various orders of mammiferous animals there is the greatest diversity in docility and intelligence, and, as far as has been observed, corresponding differences in cerebral development. Sœmmering, who divides the brain into two parts, one connected with the senses, the other with the intellectual powers, observes, "Animals of various kinds "seem to possess a smaller or larger quantity of the latter portion "of brain according to the degree of their sagacity and docility." Mr Lawrence says, "The number and kind of intellectual phenomena in different animals correspond closely to the degree of the "development of the brain." The large cranium and high forehead of the ourang-outang lift him above his brother monkeys; and he is said, by Dr Elliotson, to be "curious, "imitative, covetous, social," and to perform many actions usually considered human. "The gradation of organization and of mind passes through the monkey, dog, elephant, horse, to other quadrupeds." Notwithstanding the exaggerated reports of travellers, the superiority of intelligence and adaptation to circumstances in the beaver is, says Blumenbach, beyond dispute; and, according to the tables of Cuvier, there is a marked superiority in the size of his brain. Dogs differ as much from each other in instinct and docility as they do in cerebral development. Compare, for example, the bull-dog and the hound, the hound and the greyhound, the mastiff and the poodle. The crafty fox and the ermine, like the dog, lay up stores for the future; on the contrary, in some of the inferior quadrupeds the instincts are not under the dominion of reason. Thus the hamster breaks the wings of dead birds as well as live ones to prevent their escape. All which is agreeable to the observation of Cuvier, "that "the convolutions become fewer and shallower as the brain "diminishes in size; there are none in the rodentia, none in "very small brains." As might be expected, the cetacea, having no sense or organ of smelling, have neither olfactory nerves nor processus mamillaris.

We are indebted to Tiedemann for the attempt to demonstrate the gradual evolution of the nervous system. He has traced its progress from its embryo condition to its maturity, and his observations prove that the developments are commensurate with the manifestations of its functions. Monsieur Serres, also treading in the same path, has ascertained that the several portions are formed in succession. The outline of the spinal chord, he says, is soonest completed, then the crura and corpora quadrigemina, and last of all the cerebellum.* Blumenbach observes, "The human encephalon "undergoes considerable changes after birth, in its entire "mass, in the proportions of its parts, and in the texture "and consistency of its substance;" attaining, according to the Wenzels, its full weight before the fifth, and size before the seventh year. "The gradual evolutions of the mental "faculties correspond to these alterations, which indeed ac-"cord with the slow development of the human frame in "other respects." In infancy the brain is pulpy, and the proportion of the cortical exceeds that of the medullary matter; and both before and after birth the nerves, which, according to M. Serres, are first perfected, are larger than in the adult. In the latter "the cerebellum is equal in weight "to about the eighth or ninth part of the brain; whereas in "the new-born infant it is not a sixteenth or eighteenth part "of it, with a corresponding difference in the manifestations "of its functions." Dr Spurzheim has ascertained that the spinal marrow has obtained solidity and firmness while the brain is pulpy and devoid of fibres; and thus accounts for the muscular activity of children, and their comparative feebleness of intellect. Again, in old age the brain is actually diminished in size, with a suitable degree of apathy and mental decadency.

Between eminently intellectual individuals and idiots the

* Spurzheim's Anat. of Brain.

difference is similar to that which obtains between man and the mammalia. Men of large heads, according to Magendie, have capacious minds; whereas in idiots, as in the quadrumana, the brain is small, the convolutions few and shallow, and the anterior lobes but little developed. If, indeed, we extend the comparison through all the intermediate gradations of intellect, we shall be astonished to find a corresponding agreement. "The mind of the negro and the Hottentot, of the Calmuck and Carib, is inferior to that of the European, and their organization is less perfect,"*—"the intellectual characters are reduced, the animal features enlarged and exaggerated." Even hatters have ascertained that servants and negroes have smaller heads than others. Women are as unlike men in the form of their heads as in the qualities of their minds. In men of commanding talents the greater quantity of cerebral matter is anterior to the ear; but in heads which are truncated before, and largely developed in the opposite direction, the passions will be found to be stronger than the understanding. The higher sentiments elevate the *calvaria* or top of the head; it is accordingly observed, that from men whose heads are flattened, as in quadrupeds,

"Conscience, virtue, honour, are exiled."

Pope Alexander the Second is an illustrious example. Other differences might be enumerated; but to extend our observations further would be to trench upon the discoveries of Messrs Gall and Spurzheim, whose conclusions, indeed, are but an extension of this comparison founded on *observation*, and confirmed by *experiment*.

BEVERLEY, *April* 30, 1827.

* Lawrence, p. 108. Magendie, by Milligan, p. 420.

ARTICLE II.

CASE OF T—— D——.

T—— D—— was intended for the medical profession; but, when about 18 or 19 years of age, showed obvious aberrations of mind that unfitted him for any employment. His father having died, and left him a sum of money, the interest of which, under economical management, might suffice for his support, application was made by his relations to the Court of Session, who appointed Mr G. Combe curator of his effects, it not being necessary to confine his person. This power was conferred in 1819; and from that time up to July 1827, when T—— D—— died, he continued under Mr Combe's superintendence.

In 1819, T—— D——'s head was fully of an average size; the knowing organs were largely developed, the forehead rose high and rather perpendicularly, but was not broad. The organ of Comparison was considerably larger than Causality and Wit. The organs of the propensities were developed in about an average degree; Acquisitiveness and Secretiveness having rather the predominance. The organs of Self-esteem and Love of Approbation were decidedly large, the former much above an average. Imitation was large; and the moral organs were well developed, particularly Firmness. There was no circumstance in the size or shape of the brain that indicated insanity; so that the disease was obviously one affecting its internal constitution.

His alienation presented the following features. He was easily provoked, and fierce when irritated; but otherwise free from all malevolence. He entertained an exalted opinion of his own greatness, and conceived himself to be a genius of the highest order, particularly in the drama, and on this account adopted the name of Shakspeare. For many years he subscribed his name "T—— Shakspeare D——." He was

fond of money, extremely alive to order, and a great admirer of the fair sex. In other respects his mind presented no particular appearances.

The notion of his own greatness was obviously referable to his ample development of Self-esteem; and its direction towards the drama is accounted for by the combination of large Secretiveness, with Imitation and Comparison. He was fond of frequenting the theatre, and imitated with considerable success Kean and other striking actors. To establish his title to the name which he had adopted, he wrote a farce, presented it to Mr Murray of the Theatre-Royal to be acted, and, in astonishment at his rejection, printed it to convict the manager of deficiency of discrimination and taste. It was destitute of all coherence, aim, or object; but replete with the most stupendous conceptions and terrific comparisons. One of his personages says, "I'll tell you what, when "the universe assumes the form of a handkerchief near falling "out of a gentleman's pocket, that union which you contem-"plate upon will happen." Another is described as "looking "just like stupidity benumbed by Covent-Garden tailors, and, "when you talk, your teeth present the appearance of rumps "of hedges."—"O loggerhead, have I lost my wits, that you are "arraying your farce with all the gravity of a lawyer taking a "guinea-note when he was entitled to a pound." A young fop is characterized thus: "When he plays upon the piano, it's just "discordance drunk,—impudence dressed like a puppy,—ex-"travagance and nonsense sitting at the fire, having been ban-"quetting and lounging there, being full gorged with the fat "luxuriance." His remarks on female beauty are frequent. One of his characters addresses a lady who is in love with him: "Go to—go to,—take your plain feet hence; moreover, I hate "plain feet. I have truly uttered my voice." To another, whom he admires, he is more complimentary: "Be thou great "cozening Venus, madam, or the resemblance of the dawning "day, ushering thy form and potent quibbling lips before our "eyes, just as the light descending down the skies." A lady who repeats a commendation on herself as likely to make "a "goodly wife," is told that it is "as huge a lie as a man endur-"ing the massy weight of a tan-yard on his back." He sold his farce among his friends, enjoyed their praises of its merits, and ever after conceived his equality with Shakspeare indisputable. In this production his large Comparison is

very conspicuous. In it, as well as in his general conduct, his knowing organs, propensities and sentiments, manifested themselves in tolerable sanity, while his reflecting intellect appeared greatly obscured.

His appetite for money was so great, that he sometimes nearly starved himself through aversion to pay for food. He was fond of spirituous liquors, but fonder still of money; and never drank when he required to pay; so that, except when unprincipled individuals filled him drunk to render him a spectacle for their own amusement (which was sometimes the case), he was habitually sober. This showed the activity of Acquisitiveness and Self-esteem.

His love of order was conspicuous. He was sometimes oddly, but always cleanly dressed; and his lodgings were a pattern of arrangement.

It was not necessary to put him under confinement; but when a legal guardian became necessary, the puzzle presented itself how to get his own mind reconciled to it. To have told him that he was insane, and required a curator, would have rendered him furious, and aggravated his malady. Mr C. overcame this difficulty with complete success by addressing his predominant faculties. He recalled to his mind the poverty and ruin that had imbittered the lives of men of genius, particularly poets, from Homer down to Burns; told him that his genius had been recognised; that to free him from every similar danger, and also to leave his mind at freedom to take its loftiest flights unencumbered by paltry cares, a curator of his pecuniary interests had been appointed, who should merely collect his funds, and be at all times accountable to him for their disbursement. He was delighted at this idea; and submitted without the least reluctance to Mr C.'s control.

Occasionally, however, he met with persons who seemed desirous of torturing his mind in the most vulnerable points; they assured him that he was treated as insane, that his guardian was not accountable to him, but held his funds for

the benefit of his relations; that the expense of management was enormous, and was a robbery committed against him; and by such representations wrought him up to the fiercest indignation.

In this humour he regularly visited Mr C., and poured out a storm of abuse; but in a few minutes, by addressing his faculties in an agreeable way, he was calmed. Mr C. asked him whether men of genius were not pursued by envy, and whether he was well assured that the representations he had received were not dictated by that spirit, and intended merely to detract from the honour he enjoyed. This was a view of the case highly gratifying to his Self-esteem, and he readily seized upon it. Knowing his parsimony, Mr C. requested him to make the experiment whether his funds were not at his own disposal, and desired him to write a donation of L.50 to the Infirmary, or any charitable institution, and see whether it would not be paid; or to take L.20, and amuse himself with an excursion in the country. Such was the constitution and state of his mind, that it was just as impossible for him to have done either as to convert himself into a real Shakspeare; but, like many wiser persons, he had no idea that his actions were controlled by his dispositions; he declined making these experiments as unnecessary, and retired quite satisfied that he possessed the uncontrolled disposal of his effects.

Some of his productions show strongly the state of his faculties. The following note is dated 25th February, 1823, and, in the profusion of assumed titles in it, forms an amusing illustration of the activity of his Self-esteem and Love of Approbation:—"President D—— herewith transmits his "compliments to President Combe, W. S. and requests to know "why Mr T—— L—— (Mr Combe's clerk) writes him a card "about some L.3, 19s. 4d., which afterwards he does not ac- "knowledge personally. Physician D——, A.M. LL.D. &c. "&c. having previously chalked it down in his day-book.— "Yours, "T—— D——, M.D. F.R.S.E."

In the month of May last he became seriously indisposed, but could not be persuaded to follow medical prescriptions,

or even to take the necessaries of life. His landlady was instructed to supply him with every thing that could minister to his comfort, as if *in a compliment out of her profound respect for the honour he had conferred on her by lodging in her house*, but to be paid privately by Mr C. This took effect at once. As long as he had to pay, he pretended he had no appetite, and that he could not eat; but when the compliment was mentioned, he acquired vigorous powers of digestion, and ate readily. His complaint was in the lungs, and one day, when very ill, he was met by a friend at the head of the Vennel, a very steep lane in Edinburgh, leading from the Grassmarket to Laurieston, and held the following discourse:—"I have had a sore battle," said he. "With "whom?" "With my body to be sure. When at the foot "of the Vennel there, it rebelled and would not mount; but "I assured it that I had never yet submitted to my body, and "was resolved it should not conquer me now. I told it that "it might take its time, but ascend it should to the top. So," continued he, "I set out, but had not got ten yards when my "body rebelled again, and refused to mount; but I just replied, "that up it *must go*, and that it was in vain for it to try to get "off; and so to it again I went; and here I am you see: I have "forced it up, after half a dozen of stoppages. I am deter-"mined that I shall never be beat by my body." The real cause of the rebellion was weakness and want of breath. In this disseveration in personality of himself from his body, he reminds us forcibly of the metaphysicians, some of whose discourses about the mind's independence of its organs are not much superior in sense to the foregoing dialogue.

Among the last acts of his life were, preparing to rise, not to yield to his body, and desiring a chair that was out of its place to be put in its proper position.

His head decreased in size during the progress of his insanity, and to such an extent that he observed the circumstance himself, and said that he required a smaller size in each successive hat that he purchased. His intellectual faculties were obviously feebler in the latter years of his life, for he became incapable of collecting money by presenting receipts, and performing some other little pieces of business

which in former years he had accomplished, and his forehead very perceptibly diminished and retreated during the corresponding period. He accounted for the decrease in the size of the hats he required, by ascribing it to the sublimation of his brain; he said he was becoming purely etherial, and that the grosser particles of his head were evaporating daily.

"The body was opened forty-two hours after death. The small "size of the forehead was remarkable. The integuments were "very adherent, and the skull so dense as to be sawn with diffi-"culty. It was of very unequal thickness; and the forehead pre-"sented a large frontal sinus of great depth, which also extended "backwards over the orbitar plate nearly to the bottom of the "socket. The dura-mater adhered firmly, but presented no "unusual appearance, except being, in common with the skull "and brain, more highly vascular on one side than on the other. "One hemisphere was turgid with blood, and when cut into, "presented numerous red points, a very deep red brown "*corpus striatum*, and a little bloody serum in the ventricle. "The other was rather paler than natural, forming a contrast "in every point with its fellow. Nothing else remarkable was "noticed in the head; and no symptom indicated, during life, "this inequality of affection. The head was under the average "size, but high, particularly towards Self-esteem and Firm-"ness."

These appearances, particularly the great density of the skull, and the remarkable extent of the frontal sinus backwards over the eyes, show the existence of long-continued morbid action in the head, and afford a strong presumption that the anterior region of the brain, which is the seat of intellect, had undergone a diminution even greater than that indicated by the external surface of the bone. It is also worthy of notice, that the corpus striatum, which was evidently much changed in structure from the healthy state, serves to form, or rather to increase, the mass of brain corresponding to the organs of the intellectual faculties.

ARTICLE III.

NOTICE OF THE NATURAL DISPOSITIONS AND TALENTS OF MR JOHN VANDENHOFF, AS INFERRED FROM HIS DEVELOPMENT.

(*Communicated by Mr George Lyon.*)

SEVERAL years ago a phrenological friend (Mr G. Combe) put into my hands notes of several developments, with a request that I would draw the inferences which they indicated. Of these, one belonged to a Member of Parliament, another to a Writer to the Signet, and the third was Mr Vandenhoff. I had not (as I never have in these experiments) the most remote idea of the source from which the developments were taken; and, least of all, could I suspect that of Mr Vandenhoff,—a gentleman with whom I was not only personally unacquainted, but whom I had never so much as seen. I was only informed that the development belonged to "a gentleman between 30 and 35 years of age—well-edu-"cated—moves in good society—a learned profession—not "the church."

The development is as follows:—

MEASUREMENT.

	Inches.
From Spine to Lower Individuality,	7½
From do. to Comparison,	7⅞
From do. to ear,	4
From ear to Lower Individuality,	5
From do. to Firmness,	5½
From Destructiveness to Destructiveness,	6
From Cautiousness to Cautiousness,	5½
From Ideality to Ideality,	5⅔

DEVELOPMENT.

1. Amativeness, rather large.
2. Philoprogenitiveness, rather large.
3. Concentrativeness, rather large.
4. Attachment, rather large.
5. Combativeness, rather large.
6. Destructiveness, rather large.
7. Constructiveness, rather large.
8. Acquisitiveness, full.

9. Secretiveness, large.
10. Self-esteem, large.
11. Love of Approbation, large.
12. Cautiousness, full.
13. Benevolence, very large.
14. Veneration, rather large.
15. Hope, rather large.
16. Ideality, large.
17. Conscientiousness, large.
18. Firmness, rather large.
19. Upper Individuality, full.
19. Lower do. moderate.
20. Form, rather full.
21. Size, rather full.
22. Weight, or Resistance, rather full.
23. Colouring, rather full.
24. Locality, rather full.
25. Order, or Symmetry, full.
26. Time, rather large.
27. Number, full.
28. Tune, large.
29. Language, rather full.
30. Comparison, rather large.
31. Causality, large.
32. Wit, rather large.
33. Imitation, very large.
34. Wonder, full.

From the above information and development I drew the following sketch :—

The combinations which rise to the view of a Phrenologist, from considering this development, are so interesting and so pleasing, that I have been almost tempted to think that Phrenologists ought to have admitted a special faculty and organ of sympathy; for it is scarcely possible to contemplate the harmonious activity of such a combination of the primitive faculties without this supposed faculty becoming active. I can, therefore, have little doubt that the individual in question is an almost universal favourite; at least, I know that I entertain a most sincere regard for him, slight as our acquaintance is; and, presuming upon this acquaintance, I hope he will permit me to deviate somewhat from the mere *secundem-artem* style of sketch, and be a little more discursive than is usual to me.

I have said that he is a universal favourite; hence I suspect that many a dinner-invitation lies on his table, and few are the parties where the landlady, in arranging her party, does not make it a *sine qua non* that he should be present. Human nature, however, is selfish, and I will by no means pretend to say whether at times Mr V.'s company may not have been sought more on account of his admirable tact at telling a story, than for certain other more valuable qualities which he possesses. Perhaps he has had penetration enough to perceive this, and thus certain thoughts might

steal across his mind, and certain resolutions might be formed, that he will be more wary in future in regard to the stories aforesaid. But has he been enabled to keep these resolutions? Has the earnest, yet respectful request circulated round the table, after the cloth was removed, for a repetition of what was heard by some, but not by all who are present, been always refused? And when his consent has been obtained, and the story told in his own inimitable way, the high approbation with which it has been received, Well that's capital! Done to the life! &c. will re-echo round the circle; and as the love of praise is as little a stranger to his bosom as is the delight of witnessing the happiness of others, and of contributing to this happiness, I do not think that the first story will be the last. I trust, however, that he will not number me amongst those who perceive no other qualities of mind or sentiment, because I have noticed this talent sooner. I have done so merely because it is a very striking one, and because it happened first to attract my attention; for I shall have little faith in Phrenology if he is not a humourist, if he cannot tell a story with that exterior gravity which is of the essence of humour, and if he cannot accompany this with that imitation of voice, manner, language, &c. which enter into the composition of a complete actor. He has nothing more to do than to try it, if he has not done so already, and he will find that he is an actor of no ordinary power. Indeed, I think he must often have perceived himself insensibly endeavouring to catch the tones and manners of those around him, with the farther capacity of personating or conceiving those feelings and passions indicated by that natural language which he is so prone to imitate. Hence, too, he will be an excellent judge of human nature; for he has the power, to a considerable degree, of penetrating into the motives and sources of the conduct of others, and of tearing off the veil with which the less artful fancy that they have concealed themselves. But let it not be supposed that this power is even allied to suspicion. I know few indivi-

duals who are so open-hearted and sincere as Mr V.; and, however paradoxical it may appear, I beg to appeal to himself for the truth of the remark, whether the habitual tendency of his mind is not to believe every one as sincere and candid as he is himself, and that with all his insight into human character, he is still unsuspicious and unsuspecting? There is nothing so anomalous as human nature, and these, from apparently opposite views of Mr V.'s character, have forced themselves on my notice; and while I content myself, in the mean time, with simply stating them, I shall tell him, when we meet, how they may be reconciled.

When I sit down to sketch a character, I always determine, like a sound Phrenologist, "nothing to extenuate, or "set down aught in malice," and yet censure is always so ungracious, that I unwillingly touch upon it. But I am saved this unpleasantness in a great degree in the present case; and it is, therefore, only to show my impartiality, that I tell Mr V. that he is sometimes satirical, and that I warn him to guard against the effects of a hasty temper. It is even quite possible that he may have been in a passion; and I can by no means answer for it, that he may not once and again have taken deep offence under the influence of wounded pride and vanity; but he has so much of the milk of human kindness about him, that it is quite impossible for him to harbour malice against a single human being; so much so, that just let him be told that he has quarrelled with any one, and has been ill-treated, and I am so satisfied that his opponent is in the wrong, that I engage to give him my hearty assistance to sally forth with him and knock down the aggressor, "*sans ceremonie.*"

I beg to say, that I entirely sympathize with him in his loyalty and nationality. It is decidedly patriotic. I beg to put this and some other faculties to the test. A French writer, speaking of the greatness and splendour of the British empire, has the following passage:—"Three hours after the "sun has illuminated with his parting rays the towers of Quebec,

"he gilds with his morning beams the pagodas and minarets of "Calcutta." *Now*, if he can read this without a thrill of emotion, I will forswear the occult sciences for ever, whether the more ancient or venerable ones of Astrology and Palmistry, or their more youthful successor, Phrenology; for they are all alike in the opinion of the "Great Unknown;" and Mr V., in particular, is too great an admirer of his poetry and novels to call in question so high an authority.

And, speaking of poetry, there can be no doubt that he is a sincere and ardent worshipper of the muses. I cannot say if he has presented any offerings of his own. He will be found more frequently in the temple of Calliope than in that of Erato; but I shrink from the task of pointing out even a specimen of those different kinds of poetry which will delight him.

He is less scientific than literary. I do not apprehend that mathematics, botany, or natural history, ever engaged much of his attention; while works on general literature, history, metaphysics (if, indeed, this last science is not tottering to its fallbefore Phrenology), &c. must, I think, have exercised the powers of a mind naturally strong, penetrating, and even profound. But I must counsel him to study Phrenology; he will find scope in it for all his powers; and do let him take a friend's advice; and, when he has fairly understood it, it will expand and enlarge his mind in a manner to which at present he is an utter stranger.

As to the tender passion, I shall only say, that if Cupid has hitherto spared him, he may be very thankful; for, if once his dart shall rankle in his bosom, I must then regard him as an object of real compassion.

If I only knew whether he sings (for as to his love of music that is *undoubted*), I could then say, that for comic singing, in particular, I know few that can match him; and, *mutatis mutandis*, he may apply all that I have said, in regard to story-telling, to *story-singing*.

But I must come to a conclusion. I am ready to answer

all pertinent questions; and it may perhaps appear, that I know Mr V. as well, if not better, than he does himself. These are bold words; but let it be observed, that it is the science which is every thing, the experimenter is nothing.

To those who are personally acquainted with Mr Vandenhoff, and can appeal with confidence for the correspondence of the sketch with the actual character; and to those who are not, I am warranted and authorised to state, that the experiment was completely successful. These experiments, indeed, are very simple; though to the uninitiated they appear to partake somewhat of the occult arts hinted at in the sketch. A knowledge of the functions of the primitive faculties, and of their combinations, is no doubt necessary; but when this is attained, (and the attainment may be made by any one without difficulty,) it is just as easy to make a *mental* as a *chemical* experiment. And, since it is universally admitted in the latter science, that physical truth must stand or fall by the test of experiment, no just reason can be assigned why the same rule of judgment should be inapplicable to Phrenology, or that our appeals to observation should be met by *à priori* arguments founded upon false analogies.

It must be objected, however, that, in "taking a development," the Phrenologist is often guided, or insensibly deceived, by his knowledge of the previous character; and that, therefore, such experiments as the present afford no certain evidence of the truth of Phrenology. Now, it is perfectly true that, in the present case, Mr Combe was intimately acquainted with Mr Vandenhoff; and though I can now add my own testimony to the accuracy of the development as taken by Mr Combe, yet we shall admit, for the sake of argument, that the objection is well-founded, and inquire for a moment what is its value.

Phrenology, then, is a system of human nature, by which we have discovered that the primitive faculties of the mind are thirty-three or thirty-four in number, and that these are possessed by every individual in different degrees of relative

strength or power. Now, the point to be ascertained is, in what degree of strength are these primitive faculties possessed by each individual? It is from this knowledge, however acquired, that the natural dispositions and talents of the individual are to be ascertained. This knowledge may be obtained in two ways. The first, which is at once the most certain and the most speedy, is by manipulating the head. But this is not the only way. It may also be obtained by a knowledge of the manifestations, either by attentive observation, or by information from the individual himself, or his friends. The objection immediately occurs, that this is a mode which may be followed whether we know any thing of Phrenology or not. Not quite so. *After* Phrenology has put us in possession of this most important information, viz. what the primitive faculties of the mind really are, it may be less difficult to ascertain from observation what are the different degrees of power in which these faculties are possessed; but without that information, we never could have moved a single step, and the science of mind would have been involved in the same obscurity in which it was before the discoveries of Dr Gall. Many of the primitive faculties are denied to be such; and Phrenologists have been derided for admitting into their system such faculties as *Combativeness*, *Destructiveness*, and *Secretiveness*. But if the very existence of these is denied, it is absurd to suppose that any one holding that opinion would seriously seek for evidence of their manifestations, and with the view of forming an estimate of the character into which those elements are supposed to enter. It is surely a point of some importance to ascertain whether a genius for poetry or music depends on habits of business, or on faculties which are primitive and innate. Again, from knowing what are the primitive faculties, and what are their respective manifestations, we arrive more speedily and more accurately at a knowledge of character. Suppose a Phrenologist wishes to know the natural dispositions of some individual, and he either sees or hears that Mr A. is subject to violent fits of

passion. This is a clear indication of *Destructiveness*; and if he farther knows the circumstances which in general lead to these ebullitions, he may perhaps infer a large endowment of *Self-esteem* or *Love of Approbation*. He knows that Mr A. is remarkable for keeping a secret. This indicates *Secretiveness*; if a determined disputer, *Combativeness* and *Firmness*; and so on. A single clear and undoubted manifestation of any of these faculties is sufficient to determine the degree of power in which the faculty is possessed; and when the observations as to the others are, in like manner, ascertained, a Phrenologist can, from the effects of the combinations, predicate upon the whole character with a degree of certainty, and to an extent, which, on any other mode, it would require a tract of years to arrive at.

Nor is all this a mere hypothesis. My friend, Mr James Law, junior, knowing that Mr Combe was possessed of Mr Vandenhoff's development, determined to observe his manifestations on the stage, and to infer what the development ought to be from the natural language of the faculties. He accordingly did so; and, on comparing the inferences thus obtained with the actual development, the two were found almost exactly to correspond.

A knowledge of the effects produced by the combinations of the different faculties, according to their relative degrees of strength, is one of the most important practical uses of Phrenology. Without such a knowledge, a simple development conveys little information, or, at least, the greatest errors may otherwise be committed. Phrenology is now beginning to be attended to, and in part, at least, to be understood; and the objectors, forgetting entirely the source of their knowledge, pretend that many of the discoveries of Phrenology were equally well known before it was heard of, while, perhaps, that very knowledge was unconsciously acquired by them from the lights of Phrenology itself. Take, for instance, the combinations which produce humour, irony, satire, modesty, humility, timidity, &c. &c.; and though it

appears very simple *after* the combinations are pointed out, yet, perhaps, it is this very simplicity which makes the discovery at once difficult and important. At least, Lord Bacon remarks, that the observation which has universally been made by mankind after some great and important discovery has been made, is the wonder that it was not made before, and an expression of surprise by the superficial at the stupidity of their forefathers in never having perceived it. The falling of a stone to the ground led Sir Isaac Newton to the discovery of the laws of gravitation, and the lifting of the lid of a tea-kettle by the steam of boiling water to the magnificent discovery of the steam-engine. The true way, therefore, to ascertain the importance and value of the phrenological combinations is to put into the hands of a person, totally ignorant of the science, a note of a development; and I should consider it little short of miraculous if he succeeded, by the mere efforts of his own mind, to infer the character which it indicated.

If it should be desired, I may trouble your readers, at a future period, with a statement of the principles from which the inferences of character in this particular case were drawn.

GEO. LYON.

August, 1827.

ARTICLE IV.

OBSERVATIONS ON THE FACULTY BY WHICH WE PERCEIVE AND COMPARE THE DIVISIONS OF DURATION OR TIME.

IN our fifth Number (vol. II. p. 134), we concluded a short article on the faculty of Time (to which we beg now to refer as useful to be read again before perusing the following paper), in these words:—" The brief sketch now offered will

"have attained its object if it shall point out the way to farther "observation of the function of the organ of Time, so as to lead "to its unquestionable establishment as one of the primitive fa-"culties of man." The communication from a London correspondent, which follows, is most acceptable, and just what we wished. Indeed it seems impossible to read it, to observe nature, and still to doubt that there is a distinct faculty for perceiving Time. We especially desiderated a well-authenticated example of the faculty in diseased action, the most satisfactory of all proofs of its distinctive character. We had one case, but withheld it as not sufficiently unequivocal or minutely inquired into; namely, that of a man we saw in Bethlem hospital, who danced, when permitted, almost without ceasing. The case of Alice Whitworth is not only most curious in itself, but gives consistency to the other, which may therefore now be mentioned.

(*From a Correspondent.*)

THAT there is a faculty of the mind by which we are rendered capable of appreciating and comparing the divisions of Duration or Time is evident from these facts: 1st, Impressions on any of the senses periodically repeated, such as the visible oscillations of a pendulum, or the audible strokes of a clock-bell, cause the expectation of other equally distant impressions, and when this expectation is disappointed by the intervals being prolonged or shortened, we perceive and are capable of estimating their differences. 2dly, When a series of such equal divisions of time is discontinued we can continue to mark similar divisions, and generally with as much precision as when the sensations were still subsisting. 3dly, We are able to compare the different frequencies of these periods so as to distinguish the varieties of quick and slow intervals; and, 4thly, There is as great a diversity among individuals respecting this power as in the other perceptive powers of the mind.

Writers on the philosophy of mind have in general disregarded these phenomena; but many authors who have writ-

ten on music and prosody, and who, from the nature of their researches, could not avoid observing them, have admitted, to explain them, a primitive faculty of the mind, to which they have given various appellations. Steele, in his Prosodia Rationalis, designated it as the *instinctive sense of periodical pulsation*, and Lord Monboddo gives his approval to this designation.

Baron Dupin, in his "Geometrie et Mécanique des Arts et Métiers," has so fully stated the useful purposes to which this faculty is subservient, and the advantages to be derived from its artificial cultivation, that we cannot do better than translate his observations on this subject from that part of his work which treats of the education of the senses:—

"We gradually learn to measure the duration of sounds and "of intervals of rest. In many arts the knowledge of this dura-"tion acquired through the senses is indispensable. By repeat-"ing similar sounds, separated by longer or shorter intervals of "rest, we acquire the knowledge, or, we may call it, the sensa-"tion of the duration of these intervals. Thus, the voice of an "instructor, or the sounds of the drum or of musical instru-"ments, are employed to give to a newly-recruited soldier the "sensation of a more or less accelerated measure, corresponding "with each variety of step appropriate to military evolutions. "When it is required to drill a regiment of soldiers to perform "their exercise together, the duration of each part of these ex-"ercises is divided into equal intervals, each of which is occupied "by a motion. A real cadence is thus produced in the exercise, "without which the desired effect cannot be obtained. It is by "this means that eight or nine hundred well-drilled men are "able, at the mere command of, *Charge your arms*, to perform "successively, and without any new signal, twelve divisions and "more than thirty movements with perfect simultaneousness. "This education of the faculty requires less time in proportion "as the recruits are taken from a nation whose organs are in "general more susceptible. French soldiers are much better "drilled by explaining the movements to them than by continu-"ally repeating them before them; but there is but one means "of initiating the soldiers of other countries less advanced in "civilisation, that of placing before them a fugleman to make "each movement separately, for each soldier to repeat by his "faculty of imitation, until he has acquired the habit of making "his limbs alone perform the exercise without his head being at "all employed in the operation. These great differences merit "the attention of the philosophic observer."

The preceding observations refer to the faculty of Time as informed by the sense of *hearing*; those which follow relate to its instruction by visible impressions:—

"We should learn to measure motion as we learn to measure "space. This measurement is effected by means of Time. Our "senses and our mind should therefore acquire the sensation of "Time and Duration. On seeing an object advancing to or re-"ceding from other objects, we should be able to state with "accuracy the space it passes over in a given time, or the whole "time it takes to arrive at a given distance. We should not "only learn to estimate the motions performing before us at the "moment of their existence, but we should also preserve in our "mind the measure and circumstances of their motion, in order "to compare them should it become necessary."

"The sergeant who instructs the recruit to perform the or-"dinary or the quick step 1, 2; 1, 2, &c. has acquired the sen-"sation of the duration of these equal intervals; and when he "afterwards sees his men march, he judges of the degree of "quickness, as the officer does that of the march of his regiment, "*by the mere sight.*"

"When we observe men, horses, carriages, ships, &c. moving, "we may equally accustom ourselves to estimate and measure "the velocity of their motion, in the same manner as a musician "by merely hearing an air acquires the knowledge of the proper "time in which it should be performed. All these kinds of "knowledge are useful in a great number of arts. The inspec-"tor of a manufactory or a work-shop should, by merely seeing "or hearing the operations of the workmen, be able to tell them "whether they work too quickly or too slowly."

The remarks of this useful writer and accurate observer, if we make due allowance for the latitude of his phraseology, are in strict accordance with the doctrines of Phrenology; but as his original language seems to imply that *the faculty* by which portions of duration are rendered objects of perception is acquired through the senses, and, as similar misconceptions are prevalent with respect to the other perceptive powers of the mind, it may not be irrelevant in this place to state, in a general manner and in a few words, the broad distinguishing characteristics and mutual dependencies of sensation and perception.

The external senses are those parts of the nervous system which, by means of appropriate apparatuses, receive impressions from the external world, and produce in the brain

sensations of these impressions. They consist of the optic, the auditory, the olfactory, the gustatory nerves and organs, the nerves of feeling, properly so called, and the nerves which transmit the sensation of the condition of the muscles. These, administering to the perceptive faculties of the mind, reveal to the living being all the sensible phenomena of the universe, thereby enabling him to enter into communication with the immensity of nature, and to associate himself with all the beings which exist around him. Some of the senses, considered individually, occasionally minister to more than one perspective faculty; thus, the auditory nerve transmits both those inflections of sound which constitute the elements of melody and harmony, and those modifications of voice which form the alphabets of all the spoken languages of mankind; but, to be converted into ideas, these impressions act on different parts of the brain, the former on the organ of Tune, the latter on that of Verbal Memory or Language; at other times the same organ of perception is excited into activity by impressions received through different senses. The faculty which forms the subject of the present article is an instance of this, the divisions of duration being equally appreciable whether indicated by visual, auditory, or tactual impressions. These observations are sufficient to show that the functions of the organs of the perceptive faculties and those of the organs of the senses essentially differ from each other, the latter being the mere communicators of external impressions to the brain generally; whilst, in the former, these perceptions give rise to ideas of different kinds.

Returning from this digression to the immediate object of our attention, the faculty of Time, we have now to take into consideration other modifications of its activity than those which have hitherto been enumerated; for, independently of the useful purposes to which it is subservient, by its giving us more extended and accurate knowledge of the phenomena of nature than without it we should have possessed, it ministers also to our intellectual pleasures. The faculty finds

gratification in the symmetrical arrangement of the various divisions of duration it is capable of perceiving; and as this order may be marked either by musical sounds, by words, or by the graceful motions of the body, to the pleasures resulting to the mind from the proper consecutive arrangement of a series of either of those objects of perception, is added that which results from the symmetry of time.* Hence the origin of rhythm, without which we should have had neither melody, poetry, nor dance, and to which all that these arts have in common is attributable.

Rhythm is constituted of a series of periods† having very simple relations with respect to their duration, contained within periods of longer duration forming other series, and which are again subordinate to another series, the periods of which are of still longer duration. The containing is distinguished from the contained series by the sounds, &c. which terminate the periods having a more intimate and evident relation in the former case than in the latter. As the most subordinate series, on account of the simple relations of the durations which compose it, is capable of division into *equal* parts, these divisions are taken as the ultimate elements of rhythm; and accordingly, as they are of longer or shorter duration, the *time* is said to be slow or quick. A series of periods, *each* equivalent to the same number of these elements, viz. 1, 2, 3, 4, 6, or 8, constitutes measure, each of these periods being also termed a measure (bar); and a series of periods, each equivalent to several measures, forms rhythm, in the ordinary and restricted sense of the word.

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* The number of these combinations capable of giving pleasure to the mind may not yet have been exhausted. The Père Castel conjectured that a new kind of music might be formed by marking the periods of rhythm by means of *colours*; those relations which he conceived to constitute their harmony he proposed employing for this purpose. The instrument by which he attempted to realize these ideas he called an ocular harpsichord.

† For want of a more convenient term, the word *period* is here employed to indicate a lapse of duration, whether rendered perceptible by the continuance of a sound, motion, &c. or by its limitation by two transient impressions. In the latter case the lapse is termed an interval.

The music of the ancients had no rhythm but what it borrowed from their poetry, and which was confined to the symmetrical distribution of short and long syllables into feet, termed dactylic, trochaic, iambic, &c., constituting that part of rhythm which we now call measure. But when, in later times, music became an independent art, the harmonic relations of the different sounds led the unshackled musician to employ these to mark longer periods; and thus arose what is now distinctively termed rhythm. The modern invention of rhyme, or of marking periods by similarities of sound, and which was a consequence of this, has since enabled the poet to transfer all the varieties of melodic rhythm to verse. Our music and our poetry, therefore, possess much more rhythmic variety than the same arts did when cultivated by the Greeks and Romans.

The influence of the various developments of the organ of this faculty on the productions of the poet needs no explanation; but the modifications which they occasion in the manifestations of the musician not being so well understood, a few remarks may be necessary.

The uncombined activity of the faculty of Tune disposes to the cultivation of *harmony;* a lower activity, combined with a good perception of rhythm, gives a disposition for *melody*. The genius of a *harmonist* consists in a ready perception of sounds and their relations, as exemplified in their combinations, transitions, and contrasts; that of a *melodist*, in a moderate perception of the degrees and relations of tune, with a quick appreciation of rhythmic varieties. These distinctions are not only to be found among individuals, they enter also into national character. The Germans generally show a greater disposition for harmony, while the Italians give the preference to melody. Reicha, the professor of musical composition in the Conservatory of Paris, says, "It "is important in our schools to attend to these differences, "and to apply a scholar who shows more predilection for "harmony to a close study of the art of melody, without

"which he will remain, if not a bad, at least a veryindiffer-
"ent melodist." This distinction demands the attention of the practical Phrenologist; for it does not appear that, in this point of view, it has hitherto been taken into consideration; and many of the failures in estimating musical talent by cerebral development may have hence originated.

Some of the inferior animals have the faculty of measuring time; for the feathered songsters, when instructed by man, will change their native strains for melodies subjected to the strictest rules of rhythm; and even the unwieldy elephant may be taught to move in measured cadence.

The remembrance of chronological epochs, and of the successive order of events, has been referred, even by Drs Gall and Spurzheim, to the faculty by which we perceive duration; but, in our opinion, they are to be attributed to another faculty, the important manifestations of which we shall take a future opportunity of illustrating; and we shall, at the same time, attempt to explain the origin of what is termed our abstract idea of time.

To complete the proofs of the primitive nature of the faculty of Time, we cannot more properly conclude than by adducing well-authenticated instances of its extraordinary as well as of its morbid activity. Previously to this, however, it may be remarked, that if the following conjecture of Steele (who, in his work already alluded to, has shown that ordinary speech is subjected to the rules of rhythm) be correct, one of the causes of stammering may be looked for in the *deficient* development of the organ of Time. "People who stutter," says he, "pronounce partly in this latter manner (*i. e.* they de-
"stroy the rhythmus of their speech); but it is notorious, when
"such persons sing, they never hesitate or stutter; whence it
"may be supposed, the most easy and effectual method of
"curing them would be to accustom them to beat time to their
"reading and common discourse, by which means they might
"learn to speak in just time to the proper measure of their
"words and phrases; for, it should seem, the cause of their
"hesitation and stuttering arises from some inaptitude to fall in
"immediately with the *rhythmical pulsation* or *poise* befitting
"their words, but which, in singing, they are enabled to do by

"the additional influence of the *diastematic* melody, wherein "the CADENCES are more certainly pointed out than even in "poetry, or any language, without additional music."

The following curious and important case was sent by M. Chavannes to the Society of Natural Sciences of Switzerland, and is inserted in the Bibliothéque Universelle, vol. xxvii. We copy it as abridged in the Journal of the Arts and Sciences:—

"M. Chavannes, whilst residing during last summer (1823) "at Wesarrens, near Echallons, had occasion to hear some ac- "count of a man who, without any uncertainty or mistake, "could indicate the precise hour by day or night, and even the "minutes and seconds. Induced by these reports to make "close inquiry as to their foundation, he visited the man, and "obtained the following results:—

"His name is Jean Daniel Chevalley, aged 67 years. In his "youth the ringing of bells and the vibrations of pendulums "constantly attracted his attention; and he gradually contracted "a habit of counting isochronous vibrations, and displayed con- "siderable ability in calculations. When strong enough, he "took pleasure in sounding the bells at school and church; "and, in his attention to town and church clocks, observed that "the beats were 20 or 23 per minute, but more particularly 20, "counting from the moment of departure to that of return. "After this he endeavoured to force his attention to the pre- "servation, as long as possible, of an *internal movement*, similar, "as to the extent of time and number of vibrations. 'At first,' "'he said, 'by adding 20 vibrations to other 20, or minute to "'minute, I could easily arrive at the conclusion of an hour, "'and mark all the subdivisions which I wished, and that "'without confusion; but the thoughts and corporeal occupa- "'tions suffered by this attention. By degrees I was able to "'count whilst thinking and acting; but I could not proceed "'far, because my mind, making a certain effort for a length of "'time, though but slightly sensible to myself, became fa- "'tigued, and dropped the chain of calculation. Nevertheless, "'in 1789, I succeeded in acquiring the invariable posses- "'sion of this faculty, which has never since left or deceived "'me.'

"He was then 22 years of age, and occupied at a school; "but, in consequence of some singular habits, as that of sound- "ing bells, and of some mystical notions he had acquired, and "also certain disputes about the correction of the village-clocks, "he was dismissed, and went to his mill, where, continuing to "sound his bells and make his clocks strike, he was nicknamed "the Mummy of the Mill.

"Being on board the steam-boat on the lake of Geneva (July "14, 1823,) he soon attracted attention by his remarks, that so "many minutes and seconds had passed since they had left "Geneva, or passed other places; and, after a while, he engag-"ed to indicate to the crowd about him the passing of a quarter "of an hour, or as many minutes and seconds as any one chose, "and that during a conversation the most diversified with those "standing by; and farther to indicate by the voice, the moment "when the hand passed over the quarter-minutes, or half-mi-"nutes, or any other subdivision previously stipulated, during "the whole course of the experiment. This he did without "mistake, notwithstanding the exertions of those around him "to distract his attention, and clapped his hands at the conclu-"sion of the time fixed.

"Mr Chavannes then reverts to his own observations. The "man said, 'I have acquired by imitation, labour, and patience, "'an internal movement, which neither thought, nor labour, nor "'any thing can stop; it is similar to that of a pendulum, which, "'at each motion of going and returning, gives me the space of "'three seconds, so that twenty of them make a minute, and "these I add to others continually.' The calculations by which "he obtained subdivisions of the second were not clearly under-"stood by M. Chavannes, but the man offered freely to give a "proof of his power. On trying him for a number of minutes, "he shook his head at the time appointed, altered his voice at "the quarter, half, and three quarter minutes, and arrived ac-"curately at the end of the period named. He seemed to assist "himself in a slight degree by an application of mnemonics, and "sometimes in idea applied religious names to his minutes up "to the fifth, when he recommenced: this he carried through "the hour, and then commenced again. On being told that the "country people said he made use of his pulse as an indicator, "he laughed at the notion, and said, it was far too irregular for "any such purpose.

"He admitted that his internal movement was not so sure "and constant during the night; nevertheless 'it is easy to "'comprehend,' he said, 'that when I have not been too much "'fatigued in the evening, and my sleep is soft, if, after having "'gently awakened me, I shall reflect a second or two, and my "'answer will not be ten minutes in error. The approach of "'day renews the movement, if it has been stopped, or rectifies "'it, if it has been deranged, for the rest of the day.' When "asked how he could renew the movement when it had ceased, "he said, 'Sir, I am only a poor man; it is not a gift of Heaven; "'I obtained this faculty as the result of labours and calcula-"'tions too long to be described; the experiment has been "'made at night many times, and I will make it for you when "'you please.' M. Chavannes had not, however, the opportu-"nity of making this experiment, but he felt quite convinced "of the man's powers. He states, that the man is deaf, and

" cannot hear at present the sound of his clock or watch; and " farther, that neither of them vibrate twenty times in a minute, " which is always the number indicated by the motions of Che- " valley when he wishes to illustrate his internal movement; " and he is convinced, according to what he has seen, that *this* " *man possesses a kind of internal movement, which indicates mi-* " *nutes and seconds with the utmost exactness.*"*

The singular talent evinced by this man, though the organ of calculation must be allowed to have had some share in it, shows the accuracy with which intervals of time may be mentally determined, when practice has aided the original high endowment of the faculty which is the subject of our notice. The case which follows is no less important; it exhibits the same faculty in a state of diseased manifestation, resulting either from a disordered affection of its cerebral organ, or from a subjection to its activity of the irregular motions occasioned by a morbid state of the function which presides over the voluntary motions.†

The account was communicated to the Medico-Chirurgical Society of London in January 1816, by Mr Kinder Wood, surgeon, and is published in the seventh volume of their Transactions, under the title of " History of a Case of Chorea " Sancti Viti, occurring in an Adult, and cured in an unusual " Manner." The patient was " Alice Whitworth, aged 22, " married, and residing with her father, Samuel Whittaker, " a respectable householder at Sarah-moor, near Oldham;" and the case is stated as having been seen by hundreds dur-

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* We have been informed by Sir G. Mackenzie, that an illiterate man, a Highlander, who was long in his service as a ploughman, could tell the hour of the day with great exactness, and also the time of high water, though he resided seven miles from the sea. He was accustomed to carry in his mind the age of the moon, and was consulted by the country people as to probable changes of weather in connexion with those of the moon. We regret that our friend had not become sufficiently acquainted with Phrenology before this man's death.—Ed.

† We know several individuals, especially one gentleman, who have laid aside their watches, from finding by experience that they never require to consult them.

ing its progress. We omit the details of the incipient progress of the disease, which exhibited only irregular motions of the voluntary muscles, and proceed directly to the more important parts of the narrative:—

"*February* 27, 1815.—The attack commenced in bed, and "was violent, but of short duration. When she arose about "ten, she had a second attack, continuing an hour, except at "intervals of five minutes. She now struck the furniture more "violently and more repeatedly. Kneeling on one knee, with "the hands upon the back, she often sprung up suddenly, and "struck the top of the room with the palm of the hand. To do "this, she rose fifteen inches from the floor, so that the family "were under the necessity of drawing all the nails and hooks "from the ceiling. She frequently danced upon one leg, holding "the other with the hand, and occasionally changing the legs. "In the evening, the family observed the blows upon the fur-"niture to be more continuous, and to assume the regular time "and measure of a musical air. As a strain or series of strokes "was concluded, she ended with a more violent stroke, or a "more violent spring or jump. Several of her friends also at "this time noticed the regular measures of the strokes, and the "greater regularity the disease was assuming, the motions being "evidently affected, or in some measure modified, by the strokes "upon the surrounding bodies. She chiefly struck a small slen-"der door, the top of a chest of drawers, the clock, a table, or "a wooden skreen placed near the door. The affection ceased "about nine o'clock, when the patient went to bed.

"*February* 28.—She rose very well at eight; at half-past "nine the motions recommenced; they were now of a more "pleasant nature, the involuntary actions, instead of possess-"ing their former irregularity and violence, being changed into "a measured step over the room, connected with an air, or se-"ries of strokes, and the beat upon the adjacent bodies as she "passed them. In the commencement of the attack, the lips "moved as if words were articulated, but no sound could be "distinguished at this period. It was curious indeed to observe "the patient at this time moving around the room with all the "vivacity of the country-dance, or the graver step of the mi-"nuet, the arms frequently carried, not merely with ease, but "elegance. Occasionally all the steps were so directed as to "place the foot constantly where the stone flags joined to form "the floor, particularly when she looked downwards. When "she looked upwards, there was an irresistible impulse to spring "up to touch little spots or holes in the top of the ceiling; when "she looked around, she had a similar propensity to dart the "forefinger into little holes in the furniture, &c. One hole in "the wooden skreen received the point of the forefinger many "hundred times, which was suddenly and involuntarily darted "into it with an amazing rapidity and precision. There was

" one particular part of the wall to which she frequently danced, " and there, placing herself with the back to it, stood two or " three minutes. This by the family was called ' *the measuring* " ' *place.*' At noon she had an interval of three hours.

" In the afternoon the motions returned, and proceeded much " as in the morning. At this time a person present, surprised " with the manner in which she beat upon the doors, &c., and " thinking he recognised the air, without further ceremony be- " gan to sing the tune; the moment this struck her ears, she " turned suddenly to the man, and dancing directly up to him, " continued doing so till he was out of breath. The man now " ceased a short time, when commencing again, he continued " till the attack stopped. The night before this, her father had " mentioned his wish to procure a drum, associating this dance " of his daughter with some ideas of music. The avidity with " which she danced to the tune when sung, as before stated, con- " firmed this wish, and accordingly a drum and fife were pro- " cured in the evening. After two hours of rest, the motions " again re-appeared, when the drum and fife began to play the " air to which she had danced before, viz. the ' Protestant " ' Boys,' a favourite popular air in this neighbourhood. In " whatever part of the room she happened to be, she immediate- " ly turned and danced to the drum, and as close as possible to " it, and there she danced till she missed the step, when the in- " voluntary motions instantly ceased. The first time she missed " the step in five minutes, but again rose, and danced to the " drum two minutes and a half, by her father's watch, when, " missing the step, the motions instantly ceased. She rose a " third time, and, missing the step in half a minute, the motions " instantly ceased. After this, the drum and fife commenced as " the involuntary actions were coming on, and before she rose " from her seat; and four times they completely checked the " progress of the attack, so that she did not rise upon the floor " to dance. At this period the affection ceased for the evening.

" *March* 1.—She rose very well, at half-past- seven. Upon " my visit this morning, the circumstances of the preceding af- " ternoon being stated, it appeared clear to me, that the attacks " had been shortened. Slow as I had seen the effects of medi- " cine in the comparatively trifling disease of young females, I " was very willing that the family should pursue the experi- " ment, whilst the medical means were continued.

" As I wished to see the effect of the instrument over the dis- " ease, I was sent for at noon, when I found her dancing to the " drum, which she continued to do for half an hour without " missing the step, owing to the slowness of the movement. As " I sat counting the pulse, which I found to be 120, in the short " interval of an attack, I noticed motions of the lips previous " to the commencement of the dance, and placing my ear near " the mouth, I distinguished a tune. After the attack, of which " this was the beginning, she informed me, in answer to my in-

" quiry, that there always was a tune dwelling upon her mind, " which at times becoming more pressing, irresistibly compelled " her to commence the involuntary motions. The motions " ceased at four o'clock.

" At half-past seven the motions commenced again, when I " was sent for. There were two drummers present, and an un- " braced drum was beaten till the other was braced. She danced " regularly to the unbraced drum, but the moment the other " commenced, she instantly ceased. As missing the time stopped " the affections, I wished the measure to be changed during " the dance, which stopped the attack. It also ceased upon in- " creasing the rapidity of the beat, till she could no longer keep " time: and it was truly surprising to see the rapidity and vio- " lence of the muscular exertion, in order to keep time with the " increasing movement of the instrument. Five times I saw her " sit down the same evening, at the instant she was unable to " keep the measure; and, in consequence of this, I desired the " drummers to beat one continued roll, instead of a regular move- " ment. She arose and danced five minutes, when both drums " beat a continued roll; the motions instantly stopped, and the " patient sat down. In a few minutes the motions commencing " again, she was suffered to dance five minutes, when the drums " again began to roll, the effect of which was instantaneous; " the motions ceased, and the patient sat down. In a few minutes " the same was repeated with the same effects. It appeared " certain that the attacks could now be stopped in an instant, " and I was desirous of arresting them entirely, and breaking " the chain of irregular associations which constituted the disease. " As the motions at this period always commenced in the fin- " gers, and propagated themselves along the upper extremities " of the trunk, I desired the drummers, when the patient arose " to dance, to watch the commencement of the attack, and roll " the drums before she arose from the chair. Six times succes- " sively the patient was hindered from rising, by attending to " the affection; and before leaving the house I desired the fa- " mily to attend to the commencement of the attacks, and use " the drums daily.

" *March* 2.—She arose at seven o'clock, and the motions com- " menced at ten; she danced twice before the drummer was " prepared; after which, she attempted to dance again for se- " veral times; but one roll of a well-braced drum hindered the " patient from leaving her seat; after which the attacks did not " recur.

" This woman, previously to the complaint, could never dance, " even a country-dance, and yet I saw her execute steps which " could not be taught without difficulty. At times she would " rise upon the toes, and move forward, alternately advancing " each heel into the hollow of the opposite foot; at other times, " poising the body upon one foot, and with the heel raised, she " would beat time with the toe and heel of the other.

"In this case there was no wandering of the intellect, either "during the paroxysm, or in its absence. The perception and "judgment were accurate and just, and all questions were an-"swered correctly. During the intermission she did many "household affairs, nursed her child, &c. &c. although the "troublesome curiosity of her numberless visitors undoubtedly "disturbed her ease. There was a constant wish to recover; a "just knowledge of her situation, and of the advantage she "received from the agency of the instrument, with an anxious "desire to continue its use.

"How far the mind was in a state of excitement in the com-"mencement of this disease it is difficult to decide, since the "connexion betwixt the involuntary ideas and the involuntary "motions was only observed on the 27th of February. After "the dancing commenced, I noticed the patient always to be in "good spirits, evidently to enjoy the drum, and to turn to it in-"stantly upon the very first stroke, in whatever situation the "involuntary motions had then carried her.

"This disease appears to have consisted in an highly-irritable "state of mind, with which the organs of voluntary motion be-"came associated; and the cure was effected by interrupting "this irregular association. It is probable that the noise of the "instrument in a room scarcely six yards square was very ad-"vantageous, by interrupting the chain of musical ideas im-"pressed upon the highly-excited mind, and re-establishing the "ordinary relation of the mental operations with external things. "The voluntary muscles also early associated themselves with "the instrument, as was shown by the instant cessation of their "unnatural actions when the time could no longer be kept.

"The involuntary actions became more frequent, as their du-"ration was shortened by the means put in force; so that it "would seem as if the disease struggled to renew actions which "had not been permitted to arrive at an ordinary period."

With this pathological case we conclude; and on summing up the evidence the preceding pages have afforded, we are compelled to admit that there is a *primitive faculty of the mind by which we perceive, compare, and remember the divisions or intervals of duration or time*, and that the combinations of this faculty with the other powers of the mind are necessary to explain a variety of mental capabilities, of which otherwise no satisfactory explanation can be afforded.*

* Some interesting observations in accordance with the views stated in this paper will be found in the fifth number of this Journal: the article is entitled "Observations on the Faculty of Time, and on the Deaf and Dumb Dancing."

decrepitude, two very sensible prominences thence arise. And the opponents of Phrenology maintain that it is these two prominences which I mistake for the external indication of Locality. I had formed the answer to that objection long before it was made to me. My adversaries, or anatomists in general, are wrong in admitting that frontal sinuses exist in every individual. In women they are rarely found; they are often wanting also in men up to an advanced age, when the internal table falls in, but without causing any external prominence. It is true that these apparent ridges formed by the frontal sinuses are at the place where the external mark of the organ of Locality begins; but then they are placed in an almost *horizontal* direction, in general immediately between the eyebrows, and sometimes extend to the two sides as far as the middle of the superciliary ridge. The prominences arising from a large organ of Locality are, on the contrary, more uniformly rounded, without inequalities, and extend to the middle of the forehead, *following an oblique line* from below, upwards and outwards.

To guard against confounding the development of the organs of Locality in the lower animals with the prominences produced by the frontal sinuses, it is necessary to study very minutely the structure of the head in the different species. In some, all the adults have large sinuses, as in the bull, the buffalo, the elephant, the lynx, and the sow; in others, as in man, the sinus exist in some individuals and not in others. Little varieties of the dog, and often individuals of that very variety, seem to have large frontal sinuses, whereas anatomy demonstrates that they have none, and that in them the brain is placed immediately behind very thin cranial bones.

The first idea being once obtained, continues Dr Gall, we immediately find ourselves in possession of riches, the existence of which we never before suspected. Long before I made these observations, I had two dogs, the one of which, little as he was, often left home to make excursions, and never failed to return. The other lost himself whenever he turned his eyes from me in the street, and I could never find

distinguished for the same power. The great landscape-painter, Schœnberger, told me, that in his travels he usually made only a very imperfect sketch of the countries that interested him, and that afterwards, when he began to convert his sketch into a regular landscape, every tree, every shrub, and every stone of any magnitude presented themselves to his imagination in their natural order. I took a cast of his head, and placed it beside that of my schoolfellow Scheidler. At this time I became acquainted with M. Meyer, author of the romance of *Dia-na-sore*, who is happy only when wandering. Sometimes he goes from one country house to another; at other times he attaches himself to some rich man going on his travels; and he also has an astonishing facility of recollecting the different places which he has seen. I made a cast of his head, and placed the copy beside the other two. I then compared the three with great attention; they offered remarkable differences in many points, but I was struck with the singular form which the region immediately over the eyes and at each side of the organ of Individuality presented in all of them. Here two great prominences commencing at the root of the nose, and rising obliquely outwards towards the middle of the forehead, were very conspicuous.

It was then that the idea involuntarily occurred to me, that the power of recollecting places might also depend on a fundamental faculty, the organ of which might be situated in the part of the head alluded to. Granting this to be true, every thing that is said about local memory becomes explicable. This then furnished abundant matter for new reflections.

But, before proceeding, I must remove a difficulty which will often present itself to those of my readers who are unacquainted with anatomy. In some human heads, and especially in some heads of men, the external table of the bone is separated from the internal immediately above and on each side of the root of the nose; and, as in these cases the external lamina projects externally and not internally, as in the age of

decrepitude, two very sensible prominences thence arise. And the opponents of Phrenology maintain that it is these two prominences which I mistake for the external indication of Locality. I had formed the answer to that objection long before it was made to me. My adversaries, or anatomists in general, are wrong in admitting that frontal sinuses exist in every individual. In women they are rarely found; they are often wanting also in men up to an advanced age, when the internal table falls in, but without causing any external prominence. It is true that these apparent ridges formed by the frontal sinuses are at the place where the external mask of the organ of Locality begins; but then they are placed in an almost *horizontal* direction, in general immediately between the eyebrows, and sometimes extend to the two sides as far as the middle of the superciliary ridge. The prominences arising from a large organ of Locality are, on the contrary, more uniformly rounded, without inequalities, and extend to the middle of the forehead, *following an oblique line* from below, upwards and outwards.

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The first idea being once obtained, continues Dr Gall, we immediately find ourselves in possession of riches, the existence of which we never before suspected. Long before I made these observations, I had two dogs, the one of which, little as he was, often left home to make excursions, and never failed to return. The other lost himself whenever he turned his eyes from me in the street, and I could never find

him again, except by sending through the public crier and advertising him. I had afterwards a little dog that could never learn on what floor of the house I lodged. Sometimes in going out with me, she lost sight of me, stood still, and did not advance a step, and all that I had to do to find her was to retrace my steps. I saw one day a little bitch eating greedily on a mass of filth. At that time she could be only four months old at the most, as she had still all her first teeth. It appeared that the way I looked at her had inspired her with confidence, for she followed me without my being able to send her away. I took her with me to the house of a lady, who the next day lost her outside of the barriers of Paris. That and the next day it rained heavily without intermission; the third day the little animal returned to the lady, whose house was in the very centre of Paris, in a little out-of-the-way street. Although it was warmly attached to its mistress, it ran about all day in all parts of the city, even when it had young ones, but it never failed to reappear at the hours of eating. One day it was lost thirty miles from Paris, and yet it returned to the house before its mistress. A dog was transported from Vienna to Petersburgh in a carriage, and at the end of six months returned to Vienna. Another was brought from Vienna to London. He there attached himself to a traveller, embarked with him, and, as soon as he gained the shore, escaped, and returned to Vienna. Another dog was sent from Lyons to Marseilles, and there embarked for Naples, whence it returned by land. The gamekeeper in my own district sold a pointer to another sportsman, who carried him 300 leagues off, to the remotest part of Hungary. In a short time a letter arrived, stating that he had run away; and some months after he arrived at his old master's, extenuated with fatigue. There are none of my readers who are not acquainted with similar facts; but how are they to be explained?

Recourse is generally had to the exquisite smell of the dog. But sometimes dogs that return in this way have very

obtuse smell; and, besides, how can a dog discover, by means of its nose, traces of a journey made either in a carriage or by water, some months after having made it? Will not the wind, the rain, and the sun, destroy all the emanations? Who will be bold enough to maintain that the dog can discern the atmosphere of its master at the end of a radius of some hundred leagues? Moreover, it is an ascertained fact, that in these cases the dog does not go straight to its first domicile; that it goes, on the contrary, by many windings, and often by a road different from that which it formerly followed. These circumstances seem to some naturalists inexplicable by smell, and they have consequently resorted to a supposed sixth sense.

It is indeed impossible to explain these phenomena by the aid of the sense of smell. Nobody ascribes to pigeons a strong sense of smell, and yet everybody knows, that, if carried away in a sack to great distances, and to countries absolutely unknown to them, and there let loose, they immediately return to the pigeon-house by the shortest road. Messrs Van Heynsbergen and Van Breda communicated to me the following fact:—"Two pigeons, male and female, of the "species called *pirouetteurs*, whose flight is very rapid, were "sent from Vlaardinge (a Dutch town on the banks of the "Meuse) to Iceland.

"The vessel was scarcely arrived at its destination when the "male escaped, and rose to such a height that the eye could "scarcely follow him. The captain of the vessel, fearing that "he would not return, let go the female, in the hope that she "might attract and bring back the male; but she, after some "flights among the rigging, rose and went to join the male. "After their reunion, they amused themselves for some time in "skimming through the air, and at last directed their flight "towards Holland with as much precision as the captain himself could have done by consulting the compass. From comparing the date of the log-book, it appeared that the birds "arrived at Vlaardinge on the third day, and were then seen on "the house-top from which they had been taken. They were "so fatigued and exhausted, that they fell from the roof into "the court, after having been long called in vain by their "master, who gave them food; and that they did not go out for "a week."

It is not long since the journals gave an account of a wager, in consequence of which pigeons were carried to a great distance from Bourdeaux and Toulouse, to let them loose at a place agreed upon.

Baron de Haak had a male and female pigeon transported from his country-house, near Manheim, to a distance of twenty-four leagues towards Voralberg, where they were set at liberty. Both returned to their home.

I saw at Vienna an Iceland falcon, which, after a captivity of several years, had not been able to forget its own country. As soon as its hood was removed, when taken out to hunt, it ascended perpendicularly from its perch, described some circles in the air, and then proceeded straight towards the north. Joseph II. drew the attention of the spectators, among whom I was, to the direction which the bird took. The amusement of the emperor was to let fly after this falcon two *lannerets*, which ascended still higher than it did, and then attacked it.—When, in a country abounding in honey, bees are transported to a distance of some leagues, they rise to a considerable height, describe a circle in the air, and, although belonging to an hundred different hives, each at once returns to his own.

In O'Meara's *Napoleon in Exile* are the following words of Napoleon:—

"There exists a link between man and the Divinity. Man "is only an animal more perfect than the rest. He reasons "better. But how do we know that the animals have not a "language of their own? My opinion is, that it is presumption "in us to deny them this, merely because we do not understand "them. A horse has memory, knowledge, and attachment. "He distinguishes his master from his domestics, although "these be more constantly with him. I had a horse which dis-"tinguished me from all the world, and which manifested, by "his bounding and his haughty gait when I was on his back, "that he carried a man superior to those by whom he was sur-"rounded. He would not allow any one to mount him except "myself and the groom who took care of him; and when the "latter was mounted, his movements were so different, that he "seemed to know that he was only a valet. When I lost my "way, I threw the bridle on his neck, and he always found it

"again, in places where, with all my observation and particular "knowledge of country, I could never have succeeded. Who "can deny the intelligence of dogs?—There is a chain of ani-"mals. The plants are as many animals that eat and drink; "and there are degrees up to man, who is the most perfect of "all. The same spirit animates all in a greater or less degree."

These examples, taken from the animals, show clearly that the expression, *memory of places*, is far from designating all the extent of the sphere of activity of the sense of Locality; for dogs, pigeons, falcons, &c. which set out to regain their own country, do not return by the same road by which they went. The sense of Locality is rather the faculty of steering a course relatively to places, of finding the direction in which one wishes to travel, notwithstanding windings, woods, rivers, and mountains, &c. It is the faculty of recognizing the relations of space; and on that account I use the expression, *Sens des Localités, Sens des Rapports de l'Espace*, in preference to that of *Memory of Places*.

Such a sense is indispensably necessary to animals. They require to return to their nests, their holes, and their young; and what would become of them without this faculty? How could we conceive, without it, many of the most remarkable phenomena of animal nature, such as the migration of animals, which is, without contradiction, the most important point in the natural history of the sense of Locality?

Dr Gall then makes some interesting remarks on the causes of the migration of many animals, and proves most completely, that it is neither the inconvenience of a temperature unsuitable to the constitution of the animal, nor the pressure of hunger, that induces them to emigrate, but that it is the result of an instinct seemingly connected with the faculty under consideration. But we must pass over these for the present, and proceed to the consideration of the external appearance of the organ in animals.

At first sight, says Dr Gall, this organ does not appear to be situated at the same place in animals as in man, and it seems to be even very differently placed in different species;

but the fact is apparent only, and the anomaly is easily explicable. When one or more organs are found placed laterally and exteriorly to the organ of Locality, as Colour, Tune, or Number, then the organ of Locality appears more or less near to the mesial line; but when, on the other hand, the above faculties are wanting, the corresponding organs are also wanting, and that of Locality is found placed quite at the outside of the forehead,—a convincing proof that the brains of animals are only fragments of the human brain, and that the former are, like the latter, composed of several organs.

In the smaller species of migratory birds, the organ of Locality is too difficult to be distinguished. Even in the larger species it might be confounded with the organ of Philoprogenitiveness. In the woodcock, and in some kinds of falcons, the organ appears exactly as in man, except that it is placed towards the sides, and that it almost touches the posterior part of the orbits.

In the mammalia, we must always notice whether the animal is of a migratory kind, or is distinguished from others of the same species only by an organ of Locality more fully developed.

Squirrels sometimes migrate in numerous troops to a distant country; they generally quit in winter the woods where they are incommoded by cold, and establish themselves in gardens. They have the organ of Locality generally large. In early life I had always some of them. In the daytime they scaled the walls and the houses, to get into the neighbouring gardens. In the evening they returned in great haste to the house to pass the night in boxes lined with cotton. Two large oval prominences appear on their skulls, immediately behind and above the great bulb of the olfactory nerve, and a little behind the eye. The squirrel has no frontal sinus.

The lemming, or *mus lemmus* of Linnæus, assembles in troops at stated periods; and at the approach of autumn

appears in innumerable bodies. They issue from the mountains in order of battle, go down to the plains, and continue to march in a straight line, without being turned aside either by obstacles or perils. Is this conceivable, asks Goeze, unless we suppose that these animals are impelled by a particular instinct, if they are not endowed with intellectual faculties?

In examining the head of this animal, one cannot but be struck with the internal cause of this instinct. Its head is, on the fore part, and immediately behind the eyes, very broad and prominent, not narrow and pointed, as in most other animals: it is on this account that the desire to travel is absolutely irresistible in these animals: they are arrested neither by water nor by fire; they pass brooks, rivers, marshes, and lakes, although thousands perish by the way. Those which survive the expedition return the following summer, and establish themselves anew in the Alps.

As the sense of Localities differs so singularly in different individuals of the dog-tribe, a very instructive collection may be made of their skulls. All the heads of dogs in my possession confirm my discovery relatively to the organ of Locality. The skull of the bitch that could never remember on which floor I was lodged is narrow at the anterior and lateral parts. That of the one, that at the age of four months always found out the house of its mistress after ranging through the town, and being lost at the outer barrier, is very broad and prominent in the same region, both laterally and upwards. While the animal was alive, I was always in doubt whether the prominence was not caused by the frontal sinuses; but on examining the skull, I saw that all the skull was filled with brain, and that there were no sinuses. All the skulls of dogs are broader or narrower in the region pointed out, according as they have the sense of Locality more or less strong. Compare pl. LXXXI., fig. 1. with fig. 2., in my large work.

After all these proofs, which receive confirmation from every species of animals and individuals endowed with an

energetic sense of Locality, can it still be doubted that this sense is a fundamental faculty, of which the organ is placed in the region, which, from multiplied observations, I have assigned to it?

Dr Gall then gives an ulterior exposition of the organ of Locality, and of the sphere of the activity of the faculty of man.

The faculty of judging of the relations of space extends in man to other objects. It gives him a facility in finding his way; it gives what is called a *coup d'œil*; it serves to reconnoitre a country, to determine the position of armies, and to regulate marches: it enables an officer to choose the shortest road, or to approach, by concealed windings, the place he wishes to occupy. When the general is deficient in the sense of Localities, he requires an aide-de-camp eminently gifted with it. It is thus, it is said, that Villars supplied this power to Turenne, who was deficient in it. I have constantly found this organ greatly developed in all military men who were known to excel in the art of guiding themselves. The faculty is consequently a very important one in all the operations of war. Without it neither topography nor geography would exist. All those who are distinguished for giving exact maps are so qualified from possessing a great development of this organ.

It is in virtue of this faculty that the mind of man traverses the boundless space in which worlds move. Gifted with this and another faculty, (that of Number,) the astronomer calculates the distances and the movements of the stars. I have never yet seen a great astronomer who had not a large organ of Locality. Kepler, Galileo, Newton, Tycho Brahé, Descartes, Pascal, Hell, Lalande, La Place, Burgs, Bessel, Bode, Olbers, Zach, &c. are familiar examples. Locality, with Constructiveness and Colour, produces the landscape-painter. Often, when I was asked in society to give an opinion of an artist, I have been able, by means of organology, to determine the subjects to which he would apply in preference to others.

Most persons believed that in these cases I was playing a trick, and that I knew beforehand the talents which I assumed the air of divining. At Munster, I was asked what I thought of an artist. I answered that his natural vocation was that of landscape-painter. In him, the organs of Locality and Colour were particularly developed. In point of fact, he was a portrait-painter, and it was supposed that I had blundered; but M. Kinglage declared that he painted portraits as a means of living, and that from his infancy he had had a decided taste for landscape.

The portraits of Claude Gelé, dit le Lorrain, of Vernet, of Hackert, of Breugel, in pl. 82, may be examined as examples.

I have often been asked what is the organ for the passion of gaming. I have sought for it in several devoted professional gamesters, but I have found nothing constant, and the reason is, that the different games differ so much as to require different talents. Hence it is conceivable why some persons who excel in card-playing can never become, by every effort, even moderately good chess-players, and why, on the other hand, the best chess-players are often very indifferent card-players. Having had occasion to see many of the most famous chess-players, I noticed that all of them had the organ of Locality extremely developed, and imagined that the great talent of these persons consisted in the power which they enjoyed of representing clearly and quickly in their own minds, a great number of the possible positions of the pieces. But it is different with card-playing, which requires rather the talent of prompt combination.

It frequently enough happens that this organ is very well developed, without any frontal sinus existing. In these cases it is much less prominent than when accompanied by these swellings. But its true direction is better marked out. When these same individuals have the integuments of the face thicker than usual, it becomes difficult to estimate it by the eye, and the touch alone can detect at once its true dimensions.

When the sense of Locality is very active, the result is a strong propensity to change of place, and a taste for travelling. Idle and ignorant persons then easily become vagabonds. Servants thus organized seldom remain long in the same family. Those who possess other talents joined to a great Locality generally carry them to some distant country, and seek their fortune. The painter traverses different countries in search of landscapes; the devotee becomes a missionary; the naturalist, neglecting an acquaintance with the objects among which he was born, runs to examine another hemisphere; the diplomatist seeks a foreign mission; and the young physician attaches himself to a nobleman on his travels, &c. Without having seen them, one may engage without risk to find the organ in question largely developed in all such persons. They are impelled by an internal force, the very existence of which they never suspect.

A young lady had always a great desire to travel. She eloped from her father's house with an officer. Grief and remorse undermined her health. I attended her, and she made me remark two large prominences, which, she said, the pain she had endured had caused to grow on her forehead. These excrescences, which appeared to her the consequences of divine wrath, were, in fact, the organs of Locality, to which she had never before paid any attention.

I met, in the streets of Vienna, a middle-aged woman, who struck me by the enormous development which the same organs had acquired in her. I entered into conversation with her, and before I could ask her a question, she told me with vivacity, that she had fled from Munich to get employed as cook in Vienna, in the intention of collecting 3000 florins, that she might pass the rest of her life in travelling, as ladies did. In the mean time, she had changed masters almost every four months, from the impossibility of remaining longer in the same house.

At Torgau, we saw a man blind from birth, the development of whose organ of Locality forcibly arrested my atten-

tion, and I begged those who accompanied me to notice the conversation which I should have with him. As soon as I had asked him his favourite occupation, he swore that there was nothing he loved so much as to hear of foreign countries, and that he was always dreaming of new scenes.

In the biography of Captain Cook, it is expressly remarked, that he had the frontal protuberances very large, and yet his biographer could know nothing of my doctrine. The portraits of Christopher Columbus, and of Vasco de Gama, who immortalized himself by the discovery of a passage to the East Indies by the Cape of Good Hope, offer the same conformation. Regnard had from infancy an ardent desire to travel; and the following inscription of his is a proof:—

Gallia nos genuit; vidit nos Africa; Gangem
Hausimus, Europamque oculis lustravimus omnem;
Casibus et variis acti terrâque marique,
Hic tandem stetimus, nobis ubi desinit orbis.

M. Jaubert, *maître des requêtes*, and Professor of Oriental Languages at the *Bibliothèque du Roi*, furnishes another strong proof. This savant was always passionately fond of travelling, and always employed by the government in important missions in Turkey, in Persia, &c.; and, accordingly, in him the organ of Locality is even more remarkable than in the landscape painter, Brengel.

I might here give a long list of travellers, both dead and living, in whom the organ of Locality is very much developed. Such are Messrs Choris, Gaimard, Freycinet, Humboldt, &c.

An individual well known in London by the name of Memory-Corner Thompson is remarkable for an astonishing local memory. In the space of twenty-four hours, and at two sittings, he drew a correct plan of the whole parish of St James's, with several streets belonging to the parishes of Mary-le-bone, St Ann, and St Martin. This plan contained all the squares, streets, lanes, courts, passages, markets, churches, chapels, public buildings, houses, stables, angles of houses, and a great number of other objects, as wells, para-

pet-stones, trees, &c., and an exact plan of Carlton House and St James's Palace. He executed all this without the aid of any plan, without compasses, without book, or any other data. He made out also, from memory, an exact plan of the parish of St Andrew's; and he offered to do the same with St Giles's in the Fields, St Paul's, Covent Garden, St Clement's, and Newchurch. If a particular house in any given street was mentioned, he would at once tell what trade was carried on in it, the position and appearance of the shop, and its contents. In going through a large hotel, completely furnished, he is able to retain every thing, and to make an inventory from memory; but a dialogue, on the other hand, that he may have heard even two or three times, will be quite new to him in the course of a few days.

When this faculty is very energetic, it is by no means rare that the passion resulting from its activity degenerates into disease. Avicenna had long ago described such an alienation under the name of *cububut*, or *errabond melancholy*. Dr Beutel communicated to us the history of the Abbé Dabrowski of Prague, equally known for his wit as for his extensive attainments. That man has an invincible propensity to travel, which often shows itself by an urgent and instantaneous desire to change his place; and these fits are so violent, that they have all the characters of real disease. Sometimes, on waking during the night, he cannot resist running across the fields. He had a fit of this kind in a very severe frost, and, in spite of all that his reason could suggest, he rose, dressed himself in the dark, and set out on the instant. It was only when he had gone about two leagues knee-deep in the snow, that he could prevail on himself to return and go to bed. Dr Beutel, who at that time had no knowledge of Phrenology, told me, that the only thing that struck him as remarkable in the Abbé's appearance, was *two enormous projections of the frontal bone, immediately over the root of his eyebrows*.

M. Foderé, in a memoir of M. Savary, entitled, *Faits*

pour Servir à l'Histoire des Lesions des Facultés Intellectuelles, mentions an example of disease in this organ :—

" A carpenter, aged 47, having all the appearances of good " health, is assailed by a host of unusual and incoherent ideas. " He often believes himself soaring in the air, and traverses in " thought the most beautiful countries, apartments, old castles, " woods, and gardens, which he had seen in his infancy. Some- " times he fancies himself walking in courts, squares, and pub- " lic places, which are known to him. When at work, the mo- " ment that he is about to give a blow with a hatchet on a par- " ticular point, an idea comes across him, makes him lose sight " of his object, and the blow descends in another place. One " day he arose at midnight and set out for Versailles, and ar- " rived there without any recollection of his having been upon " the road, &c. All these hallucinations do not prevent him " from reasoning soundly. He is astonished, and even laughs, " at his fantastic visions, but without being able to dispel them."

This faculty is sometimes very active, even in idiots. At Dresden, M. Blode spoke to us about a man who was ill at ease whenever he was obliged to remain more than one or two days in the same place. He employed the whole year in going over Saxony, Lusace, and Silesia. He has food and quarters fixed for every day. He goes to see the proprietors, to whom he carries the compliments of their relations and friends; his eyes shut and his body immoveable, he relates even the minutest particulars of his journey with astonishing volubility. M. Blode assures us, that he has the organs of Locality very strongly marked.

After all these proofs, says Dr Gall, can it still be doubted, that the sense of Localities is a fundamental faculty connected with the cerebral part which I have indicated? He concludes by obviating some trifling objections which we have neither space nor inclination to notice.

ARTICLE VI.

SIZE OF HEAD, NATIONAL AND PROVINCIAL, OBSERVED BY AN EXPERIENCED HAT-MAKER OF LONDON.

To the following curious and unexpected communication we have more than ordinary satisfaction in giving a place. It was read to the London Phrenological Society; and from the very extensive field of observation enjoyed by its author, and from the manifest accuracy and even scrupulosity of his statements, we regard them as entitled to confidence, and as really valuable to the extent of demonstrating the fact of different sizes of heads belonging not only to different sexes and districts of country, but to different classes of society. This is a great step towards connecting general mental power with general size of brain; but a greater and more difficult still remains, viz. to determine the particular regions of the head in which the greatest relative size prevails in different classes and in different counties. This cannot be accomplished by the efforts of one, but by the multiplied and corrected observations of many; and we merely suggest it to our author, as a person likely to interest himself in the inquiry, and qualified to conduct it. We have made many observations on the relative developments of the different organs in heads of similar general size in different counties in Scotland, and only delay publishing them to avoid falling into mistakes by too rash an induction. We trust, however, that the following paper will soon attract attention, and lead to the acquisition of abundant information.—EDITOR.

Having, in my avocation as a hat-maker, for some years observed the various sizes of the human head, and satisfied myself that much peculiarity of shape exists not only in individual cases, but also in various classes of society, it may be believed that, upon attaining a knowledge of the first principles of Phrenology, I became the more easily a convert

to its doctrines. My intention this evening is to present to the Society some facts with regard to variations in the size of the human head, the result of my own experience, confirmed by all the aid I have been enabled to obtain from others better-informed than myself. But I beg to state, that I wish to confine myself to the detail of mere facts, independent of phrenological inferences, anticipating that every information connected either with the form or size of the human head will prove acceptable to the friends of the science. I am nevertheless aware, that any conclusions I might draw, as a Phrenologist, from partial information, would be liable to objection, as leading to dangerous errors; for size to the Phrenologist is but one point, and, singly, is inadequate to furnish the means of judging of mental capacity; how much more partial and unsatisfactory must be the mere measurement of a hatter. In the quality of general size, many of the most barbarous nations rank equally with, if not superior to, the more cultivated and intellectual inhabitants of Europe; while the Hindoo head, although small, is known to indicate a much higher intellectual capacity than that of many nations that are above them in mere measurement. The quality of head as well as the quantity must be attended to; and it is only in the proportions of the several regions joined to general measurements that a knowledge of the latter becomes useful. Mr Combe states, with regard to size, page 44, "General "size has no indication of particular power; an individual may "wear a large hat, indicating a large brain, and yet have no "scope of intellect, no ability in the general sense of the term. "If the large hat is requisite from the great development of "the animal organs, the individual may be a powerful animal, "and at the same time a weak man. It is only when great size "pervades the whole three classes of organs, propensities, sentiments, and intellect, that Phrenology authorises us to expect "a character vigorous, comprehensive, and profound."

Inquiring into the general size of the head in some national cases, but more particularly confining myself to the various classes of society, and to different provinces of this kingdom, it will be necessary to state the mode of a hatter's measure-

ment, in order rightly to appreciate its value. Various methods are adopted, but the most general is to take the simple length and breadth of the head, which, although inadequate to phrenological purposes, is sufficient for ascertaining general size. The head being oval, the length and breadth are taken, the medium thereof being the diameter or hatter's measurement, from which the circumference is ascertained. For instance, a hat 8 inches long by 7 broad, is 7½ diameter, or hatter's measure; 7 inches by 6 is 6½ medium, or diameter. Upon this principle, blocks are used in the manufacturing and measuring of hats to particular sizes, varying from 5 inches, the size of an infant, increasing by the ¼ of an inch to 7¾, the general full size of men. In using the term size, or large and small heads, I must be understood to speak of hatter's measurement, applying only to the circumference of the head within the range occupied by the hat, comprehending the reflective organs to the middle of the forehead, forming an oval round the head, resting upon or covering a portion of the basilar region on the sides and posterior portions, so that the perceptive faculties and the coronal surface are out of its contact.

By this mode of measurement the range of the male head in England, at maturity, is from 6½ to 7¾, the medium and most general size being 7 inches. The female head is smaller, varying from 6¾ to 7 or 7¼, the medium male size. Fixing the medium of the English head at 7 inches, I shall be enabled to distinguish the portions of society above from those below that measurement. Commencing with London, a perceptible difference will be observed between the higher and lower classes of society. In the former, the majority are above the medium, while amongst the latter it is very rare to find a large head. This is easily proved by the different qualities of hats in requisition by each, in the manufacturing of which a distinct difference in the scale of sizes is observed. Taking the two extremes of society, this rule will be found invariable throughout the country, the middle ranks of life forming a

medium between the two. Establishments at the west end of the town, confined exclusively to the service of the higher circles, require more large hats in proportion than other hatters whose trade is confined to the middle ranks; and again, the business with the lower class presents the same relation to the class above them, requiring a greater proportion of small hats than either of the other classes. These statements can be proved in a variety of ways. Take the average sizes of livery-hats for servants, the scale will be found less than their masters. The sizes observed in furnishing a regiment of soldiers are easily ascertained. Seafaring men, and individuals connected with shipping and on the water, wear a peculiar small hat; and the japaned leather hat, the dog-hair hats, worn by carters, waggoners, and the labouring agriculturist, the round-crown-shoulder hats, in use by coal-heavers, corn-porters, &c., and the common plated hats in general request by the working classes, present great facility for judging of general measurements for the lower orders, in all of which, as compared with the finest hat made, there is a striking and manifest difference. In the lower ranks of life, the majority are below the medium of 7 inches, and the higher classes of society above it. Not only a difference in size is observed, but also a variation between the two classes, exists in the circle of the head coming in contact with the hat, so as to influence the measurement. The upper portions of the head, comprehending the reflective faculties Ideality and Caution, come in contact, to increase the general circumference of the hat in the higher classes of society; but the same effect is not observed in the lower walks of life; the circle round the head in immediate connexion with the basilar region, the hat resting upon, or covering the ear, will show that the size is more to be ascribed to that fraction of the head than to the upper region. The slanting off of the lateral superior circumference much decreases the general measurement. The weavers of Spitalfields have extremely small heads, 6½, 6¾,

and 6¾, are prevailing sizes. In Coventry, almost exclusively peopled by weavers, the same facts peculiarly are observed.*

Leaving London, to the north and north-east, in the counties of Hertford, Essex, Suffolk, and Norfolk, a greater number of small heads will be found than in any other part of the empire. Essex and Hertfordshire are the most remarkable for requiring small-sized hats—7 inches, the medium size given, is here, as in Spitalfields or Coventry, a full size—6⅞ and 6½ are prevailing sizes, and 6⅝ the usual size for a boy of the age of 6 years, is here often to be met with in the full maturity of manhood. Crossing over the Thames to Kent, Surry, and Sussex, we observe an immediate increase in size of the usual average; and the inland counties in general, I believe, are upon nearly the same scale; but, as I in-

* This correspondent of between size of head and class of society, is a fact of peculiar interest, and we earnestly recommend to the author to extend and systematize his observations upon it. It is established phrenological doctrine, that size of brain is just that power of character which will extend the influence and advance the rank of its possessor. It is, or rather it was, by no means essential that the size shall be an intellectual, or even moral development. As society is constituted, a very large endowment of the selfish sentiments of Self-esteem, Love of Approbation, Firmness, added to the propensities of Acquisitiveness and Secretiveness, which gives tact, or *savoir faire*, with Combativeness, and an may troublesome impediments from size in the regions of Conscientiousness, Benevolence, and Veneration, all keeping in activity, (good meeting that,) will be found the fittest endowment for what is called *pushing* the individual fortune. In ruder times, when, be it remembered, the most valued high rank was established, such were many of the heads which achieved it and retained. Such was the head of Bruce and Napoleon, both far above average size. In the universally-admitted law of propagation, the type of size is likely to remain with the descendants of these large heads to an extent sufficient to mark the class, although, in many individual cases, intermarriage with inferior heads may distinguish the size. Such degenerate heads, if not supported by artificial means, such as entails, will descend again in society, and are doing so every day; while larger heads are rising from the lower to the middle, and from the middle to the higher ranks; "the descendants of those who rode in coaches are changing places with the posterity of those who sat on the coaches." It would be very interesting to observe, on a minute examination into the actual development of the middle classes, as compared with the higher and lower, whether there is ground in superior *moral* endowment for its proverbial mental superiority. Keeping in mind what has already been said, that a very scrupulous *moral* endowment, as religion has constituted, is rather an impediment to a great ascent in life; and this, notwithstanding that great intellectual power, as in Napoleon, is more in request than it was in the days of Bruce.—EDITOR.

tend to confine myself to personal experience, or information I can perfectly rely on, I shall pass unnoticed, those portions of the country of which unsatisfactory report only has informed me of the existing peculiarities, reserving for a future period, and after a more extended inquiry, the detail of these. Towards Devonshire and Cornwall the heads are quite of the full sizes—many very large hats are required for both counties. The Welsh heads are above the usual average; and in the county of Hereford, on the borders of Wales, they are much superior to the London average.* I have been inclined to the opinion that a difference exists in point of size between agricultural and manufacturing districts, from observing many parts of the country entirely devoted to the former pursuits exhibiting small heads when contrasted with those in many manufacturing districts. But further inquiry has shown the distinction objectionable; as there are many manufacturing towns and districts whose average sizes are by no means superior to those of the tillers of land; while Devonshire and Herefordshire, which are purely agricultural, show full-sized heads—the latter, in particular, is remarkable for its average, being above this metropolis. Travelling towards the north, a gradual increase will be observed, the counties of Lancashire, Yorkshire, Cumberland, and Northumberland, having more large heads in proportion, than any other part of the country; the largest sizes I could ever trace have had their origin in the northern part of England, or Scotland, the neighbouring portion of the kingdom; and, on the contrary, I have traced repeatedly the small head to the districts I have before alluded to as exhibiting that peculiarity, Essex, &c. &c. &c.

Entering Scotland, the full-sized head is known to be possessed by its inhabitants.† It is unnecessary for me to

* The Welsh are Celts, and the type of the Celtic head is not large. That the Welsh head exceeds the usual average, would require a wider and more accurate induction.

† There is a very common anecdote of an ostler at an inn, who was asked

say much upon the general measurements of the Scotch head; our friends in that country are far more competent to give the information; I wish only to confirm the observations of the Edinburgh Phrenologists, and acknowledge their superiority, in point of size, over our more southern region,—the full size of the English head I have before fixed at $7\frac{5}{8}$,—but here an increase upon that measurement is to be met with to $7\frac{3}{4}$, $7\frac{7}{8}$, and even 8 inches. Such extreme size, no doubt, is rare. The contrast in the trade of Essex and Hertfordshire with this country, in point of sizes of hats, is very manifest; 7 inches, the general medium, being a large size in the former counties, is considered in the north approaching to a small size. Large heads are, no doubt, to be found in Essex, and small heads in Scotland; but they must be viewed as exceptions rather than as the provincial or national sizes. The scale of measurements in furnishing a Scotch regiment is larger than that required for an English regiment; and in my search for

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how he, being *Yorkshire*, had never *risen* in the establishment, who answered, "*Master's* Yorkshire too, sir." "Too far north for me" is a southern adage, meaning not only superior sagacity, but superior power. These are very apt to be looked upon by Self-esteem as mere craft and cunning; hence the phrase has received a sort of reproachful meaning. The notorious rise of Scotch privates in English regiments to the rank of non-commissioned officers may be the joint result of relatively larger head and superior education. A profound notion prevails in London, that Scotsmen are excluded from the direction of the Bank of England—which, by the way, a large Scotch head first projected—because, as has happened in the India house, when one gets in, the direction is apt to *grow* all Scotch together. For centuries, a population in Scotland, probably under half a million, maintained their independence against the greatly-superior population and wealth of England, and when once it was lost, recovered it by an exertion of tremendous energy. The most formidable enemies of the Scots were their immediate neighbours in the north of England. Marmion, (himself still more a Southron,) when lying wounded, thinks of the northern English to save the battle:—

> "To *Dacre* bear my signet ring,
> "Tell him his squadrons up to bring;
> "Bid *Stanley* charge with spur of fire,
> "With *Chester* charge, and *Lancashire*;
> "Full upon Scotland's central host,
> "Or victory and England's lost."
> * * * * * *
> "Charge, *Chester*, charge!—on, *Stanley*, on!
> "Were the *last* words of Marmion."

EDITOR.

information, I met with the following order, received by a London military house from a correspondent in the north for 220 yeomanry caps:—"Pray be particular in the sizes; let "the majority be large, none less than $6\frac{7}{8}$, and a very few of "that size." In another letter, received by the same house, there is this expostulation from the neighbourhood of Aberdeen:—"Once more I must tell you, not to send hats $6\frac{3}{4}$ or "$6\frac{7}{8}$ without orders. I have now more than I can sell for "twelve months. Let the order now enclosed be sent exact "in sizes,—

"2—$7\frac{3}{4}$	6—$7\frac{1}{2}$	12—$7\frac{1}{4}$	All above the English
"2—$7\frac{5}{8}$	6—$7\frac{5}{8}$	8—$7\frac{1}{8}$	medium."

Although this order cannot be taken as a criterion of national sizes, as it is evidently given to make up for a previous consignment of small hats, it is sufficient to prove a degree of measurement in the north which this country cannot boast of.

The low-priced goods are supplied wholly from Manchester, consequently my information with regard to that trade is limited. But a circumstance connected with the same trade came under my observation last year, which will partly show the relative sizes of the two countries:—A manufacturer at Manchester received an order from a London house to send off immediately a particular quality of hats. Having the same description of order ready packed for Scotland, he sent off that package promptly to oblige his London correspondent, without any regard to the sizes, to the metropolis. To the mortification of the individual to whom they were invoiced, they proved to be perfectly unsaleable, from the whole of them being very large in sizes; the consequence has been, that nearly the number of hats sent, from their extra size for the lower trade, remain to this day on hand.

Respecting the Irish head, it is stated in the second volume of the Phrenological Journal, page 17, that the heads of the educated classes in Dublin are generally small; and information is required by the writer from some London hat-

ter as to the average size of fine hats sent to that city, anticipating that they are inferior in sizes to those sold in London and Edinburgh. In so far as I know, I am not enabled to confirm this statement, as the average sizes of fine hats sent from this city to Dublin are superior to those in the London trade. My information is gathered from the sales of the three first houses in Dublin. The general request in orders received in London from them is to send large, and not small sizes, the latter remaining useless upon the shelves; the scale always observed is above the London average, and orders are sometimes received equal in size to the full Scotch head. The higher classes from Ireland residing in this country are likewise above the English average; and the lower order of Irish resident here exhibit a superiority in size to the English labourer. In so far as I am experienced, I should say, that the Irish generally possess larger heads than the English; but those persons who have visited that kingdom are better able to decide the point, as the individuals in this country cannot be considered a fair national type, and as my opinion is formed on grounds too partial to lead to a general conclusion.*

Respecting foreign nations, I am unable to speak with much certainty; I shall therefore confine myself to a very few remarks on them. All *northern* nations have large heads; the Norwegian sailor is much superior in point of size to the English sailor; and the women's bonnets and hats exported to that country are required larger than is necessary

* There is a great population in Dublin, and within the pale as it was called, essentially English; still the prevalence of moderate-sized heads was there observed in the better classes. In the theatre, or at an assembly, in Dublin, for example, the heads of the men appeared to the eye to be smaller than the heads of the same classes in London or Edinburgh. We are not aware of the extent to which London hats are used in Dublin. If they are confined to a certain rank, they will not afford a correct standard of the general size. Farther observations may reconcile the apparent discrepancy. Of the lower Irish heads the author does not speak. Few orders for *new* hats to cover these will, we take it, reach London.—EDITOR.

for the population at home.* Hats for the West Indies are smaller than the English standard; and hats exported to our colonies can safely be stated to be generally below the sizes of the average English head.

Dr Spurzheim, treating of national faces, says, "The inhabit-"ants of the south-west of Scotland, those of the north-east, "and those of the Highlands, belong to three different races. "England and Ireland have been occupied by various nations, "particular districts of each have a population originally differ-"ent. In the county of Norfolk, the same round and well-fed "figures are seen which Rubens has transferred to his canvass "from natives of Holland;" and Dr Abel of Dublin stated to this Society some time since, that there is a race inhabiting a portion of the south-west coast of Ireland distinctly different from the general class of Irish, both in features and cerebral development, whose ancestors are believed to have been originally from Spain. That race exhibits still several peculiar marks of the Spanish character. It is well known that national heads exist as well as national faces, and that there is a possibility of tracing one as well as the other; I have confined myself to size alone, and have endeavoured to prove that there exists not only a national, but a provincial difference in that particular; but as a comparison has been made by writers on Phrenology between the size and cerebral development of the conquerors and of the conquered in various parts of the world, so as to account upon the phrenological principle for the superiority gained, it would be interesting to ascertain, if possible, how far these principles can be applied to our own country, by tracing the form and size of head from which the several districts were originally peopled; so as to show, in those who so successfully overran the country, a superiority of development over its primitive inhabitants.

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* New blocks had to be made in France, of a larger size, for the British army; and it was some years after the peace before Parisian hatters could fit English gentlemen who applied to them. The French head is known to be smaller than the English.—EDITOR.

The Saxons, the Danes, and the Normans, have each, in their turn, invaded and established themselves in England. History also informs us, that the ancient Britons were either exterminated by their invaders, the Picts, the Scots, and the Saxons, or forced to take shelter on the confines of Cornwall, or in the mountains of Scotland and Wales. I am aware of the difficulty of tracing, at this advanced period, any vestige of the primitive inhabitants of this country; but, if a possibility does exist, to Wales I should give the preference for research. The remnant of Britons retiring to that country, the barrier formed by the range of mountains separating Wales from England, and preventing intercourse between the inhabitants, and the peculiar prejudices, customs, and habits of the Welsh at this day, favour the conjecture, that if the form or size of cranium of the ancient Britons can now be found, it will be in that country.

Before I conclude, allow meto make a few observations upon the supposed increase and decrease of the head at various periods of life after the age of maturity. As much difference of opinion exists upon this point, I trust I shall not be deemed presumptuous in differing from writers far my superiors in the science, provided I show a consistency in my objections. An impartial Phrenologist is an admirer of truth. We have all the same aim: if we differ, nature alone will put us right. Upon my first acquaintance with the science, this subject, the increase in size at various periods, so strenuously insisted on by an experienced London Phrenologist, cast a damp upon my zeal in its favour. Since that time I have endeavoured to make every necessary inquiry which the interest of the science so justly demands, but cannot find one single well-attested fact to warrant me in supposing that the head does either increase or decrease after the period of full manhood; and that the apparent variation in size of the skull, which is, after such period, often observed, is to be ascribed solely to the integuments and hair. The time I have occupied this evening prevents my going

much into particulars; but I have heard it stated of a certain learned judge, whose judicial knowledge was so enlarged, and practice so extensive, that his wig was no longer able to cover the necessary expansion of his skull! Alteration, splicing, or remaking, was the inevitable consequence, in order to render this said wig wearable. Nay, a Phrenologist has asserted, that, in one of the campaigns of Buonaparte, the increase of his soldiers' heads rendered their helmets useless; but, upon their return into winter-quarters, they assumed their former dimensions. If it were possible for such circumstances to occur, no experienced individual in the hatting trade could possibly doubt their consistency; but the reverse is the fact. My own experience has been to this effect:—That the heads of infants increase very rapidly the first and second years, the health and vigour of the child influencing the development. In the first seven years the head attains an increase, from its birth, greater than in any seven years afterwards. It is needless for me to reply to the several objectors to Phrenology, who assert that the brain attains its full dimensions at this period of life, and alleging the increase afterwards to be caused by thickness of skull, hair, and integument. I can only say, that a great increase is observed in the head after the age of seven years, the cause of which I leave the explanation of to others more competent to decide than a hatter, who is satisfied with his circumference. From seven years the head undergoes a gradual increase until the period of maturity. Great increase is sometimes observed at particular periods, and likewise a total stand, for a length of time, is observed in different youths; but upon this, without a knowledge of the general health, and every circumstance likely to affect the activity of the brain, it would be imprudent in me to hazard mere conjecture. The head I have always found to attain its full dimensions in accordance with the bodily frame. I fix the utmost limit my experience will allow to the age of 25 years. The more general period of full attainment of size is between 17 and 23. Many heads

are at their full size at the age of 16; in confirmation of which I can appeal, not only to my own experience, but to every individual in the trade who has devoted himself to a just consideration of the subject, and also to a register of sizes kept for the last 25 years by one of the most extensive establishments in Bond Street, for the sole rule and guidance of its manufacturers, wherein are numbered the names of gentlemen of all grades of intellect, and men of all professions and pursuits, in the higher circles of society, where no apparent increase can be found to warrant a conjecture at variance with the opinion I have stated. The facts I could adduce, the names I could enumerate, of individuals who have figured in the political world, and in the literary and scientific, would trespass too much upon your time. I shall appeal to one or two circumstances only. English gentlemen, upon their appointments to settlements in India, leave with their hatters the measurements of their heads before their departure from this country, and annual exportations are made of their several orders for ten, twenty, or thirty years, during their residence. No difficulty is found by the hatter in fitting; no increase is thought of. The body returns sometimes emaciated, the head retains its usual size, saving the consequent decrease arising from the loss of integument or hair. At home, gentlemen residing wholly in the country, and others occasionally in town, never see their hatter for years, nor is it ever considered necessary, provided an accurate measurement of the head has been taken. If variation in size did take place, such a circumstance, from the numberless instances of strong excitement and increased action of the mental powers, would be easily manifested, and renewal of measurements must be continually necessary. The hatting trade in general would not be, as they now certainly are, entirely ignorant of the fact. But the subject cannot remain long a matter of doubt. The increased facilities of casting, the numerous characters in various situations of life which are now annually added to the catalogue of

public and private collections, together with the interesting experiments, by a member of this Society, in taking the curves and circles of the head, will soon set aside all differences. I shall always be willing to exchange error for truth, and, with a sufficient confirmation of facts opposed to my present ideas, hail its dawn, and acknowledge myself benefited by the correction. L.

ARTICLE VII.

DR FOSSATI'S LECTURE ON PHRENOLOGY.

De la Nécessité d'étudier une nouvelle doctrine, avant de la juger, et application de ce principe à la physiologie intellectuelle. Par M. le Dr Fossati. Paris, 1827.

We have just received a very sensible pamphlet with the above title, from Dr Fossati, the pupil and friend of Dr Gall. The discourse was delivered on the 14th January, 1827, at the opening of a course of Lectures on Phrenology, in Dr Gall's house, at Paris, and the subject was well calculated to remove prejudice, and to lead to the patient examination of the principles and facts of Phrenology.

Dr Fossati shows, by the history of all great discoveries, that the new doctrine is any thing but singular in the amount of opposition with which it has been met, and in the ridicule and alarm which have been raised in their turn against it. It is even in the very nature of a discovery that it should be received with suspicion and distrust; for what is a discovery but the manifestation of a truth previously unknown? And on the other hand, what are the false systems but new errors announced as truths? How then can the public be expected instantly to distinguish the true from the false, particularly

if the thing announced requires meditation, study, and research? Most men give the same reception to the charlatan and to the man of genius; to new extravagances and new errors, as to new truths and new inventions. These are first left to float vaguely about, then they are decried, then consequences are deduced from them, then applications are made of them, then one becomes enthusiastic, and another angry, and all take good care in the mean time not to examine them. Who are the men that form their opinions only after study and inquiry? Where are they who have fixed their political, physical, religious, or philosophic opinions, only after having known, weighed, and decided the real grounds on which truth ought to stand?

History shows human nature to have been the same in all ages. "Everybody knows the persecution suffered by Galileo, for having innocently proved that the earth turns on its own axis every day, and moves round the sun every year; but the vexatious annoyance which he met with from the learned men and critics of his time are less generally known. Even the professors of Padua mocked him, and the mathematicians, the natural philosophers, and the academies, spoke of his discoveries just as our peasants speak of them in our own day, when you try to explain to them the earth's motion. In 1597 he invented the geometrical compass, and ten years after he was forced to seek a decision against Balthazar Capra, who had appropriated the invention. In 1609 he invented the telescope, discovered the inequalities of the moon, and that the milky-way was nothing more than an infinity of fixed stars; he discovered the spots on the sun, the phases of Venus, the planets of Jupiter and their periods; and more lately, the mode of marking in degrees the longitude at all times and at all places; he discovered the rotation of the sun on its own axis; and as a reward for so many discoveries, he was summoned to the Holy Office at Rome, and condemned to two years' imprisonment. His letters and his writings, particularly those in the *Saggiatore*, show the kind of imputa-

tions directed against him, and how he was obliged to defend himself, and the complaints which were forced from him of the hatred which his discoveries had caused, and of the 'calamitous state' to which they had reduced him?

The same persecution was long the reward of Columbus, as Dr Fossati points out at some length, and also of Harvey and of Jenner. For demonstrating the circulation of the blood, Harvey was cruelly persecuted both by the philosophers and medical men of his day, and after many honours, was at last disgraced by his own king, over whom the ignorance of his adversaries had greater influence than the merit of the illustrious discoverer. In the case of Jenner again, in our own day, not only the prejudices of the people warred against vaccination, but authors, magistrates, ministers of religion, and, what is still more remarkable, a very large proportion of medical men, declared themselves hostile to the discovery, and laboured with reckless animosity to extinguish its then feeble life.

But does any one *now* believe that those who denied the motion of the earth, those who denied the existence of another continent, those who denied the circulation of the blood, and those who arrayed themselves against vaccination, did so only *after* having studied the facts and the proofs upon which these great truths were established? Certainly not. We all know now, that they reasoned hastily from the knowledge they had previously acquired, and without taking the trouble to observe experiments, examine, or scrutinize by a sound logic, the new ideas which were laid before them; and that they preferred breaking out in diatribes, and redoubling in activity and hatred, not only against the principles, but also against the persons that wished to enlighten them. Such, in short, is human nature, and let them pause therefore who think themselves secure in rejecting the new philosophy on the notion that it *must* be false because it meets with opposition from the learned, and with disregard from the established teachers of youth.

Dr Gall's fate differed in no respect from that of the great men already alluded to. After he had advanced a considerable way in his discoveries, he held conferences at Vienna with his friends, and with men of learning, and submitted to them his observations and inferences. The Austrian government imposed silence on him, and did its best to strangle in its birth the new physiology of the brain. Circumstances led him to quit Vienna, and he then visited the north of Germany. Every where he astonished the savans and the public by the novelty and importance of his researches, and by the successful application of his principles in prisons, lunatic asylums, hospitals, and schools. At last he came to Paris, and, conjunctly with Dr Spurzheim, he demonstrated to the Institute the anatomy of the brain, and explained, in a memoir, his anatomical discoveries. The judgment passed upon them by this learned body, and the influence which the despot of the day exercised upon them, are well known. Almost every anatomical fact was denied, and they tried to show that the physiology was a deduction from the anatomy, and that it also must of course be false. The journalists adopted this decision, and gross pleasantries, absurdities, falsehoods, calumnies, and reproaches, were launched forth and spread from the centre of the civilised to the remotest regions of the scientific world. The founder of the new physiology, firm as the rooted oak, unshaken by the storm, was not disconcerted. He pursued his researches, and gave to the world his great work. He answered objections, added new facts, and completed the exposition of his principles. But man continued to act according to his nature, *to judge without knowledge*. The work remained unconsulted, and many physicians, philosophers, and men of genius, continued their ridicule and their pleasantries. They did not even stop here. They excited the *femmes de la halle** against the person of Dr Gall; they prepared a masquerade to turn him

* A kind of female porters at the public markets.

into ridicule, which, however, the prefect of police, M. le Comte Dubois, prohibited; and they attacked him by attempting to excite the authorities, by some of the charitable insinuations usual on such occasions, to remove him from Paris. Not being then naturalized in France, they sought to have him expelled, on the pretext of his being an alien.

Dr Fossati adds, in regard to the masquerade, that he is in possession of a plaster medal, which Dr Gall himself procured for him, representing the comic personages that were to have appeared in it. On the middle of the medal is engraved *Marche comique du Docteur Gall.* Our imperturbable philosopher, says Dr F., would have wished to amuse himself by seeing it performed; but the prefect pretended that it would be a disgrace to the nation.

The anathemas of the Academy of the Catholic Religion at Rome, in which Phrenology is condemned as "contrary "to the morality and precepts of the Catholic religion, and "as being based on the most absurd fatalism, and on the "erroneous doctrine of predestination," are next quoted, but need not be repeated. No reasonable mind can look back to the past history of the world, and continue to view the treatment of Gall as a proof of the erroneousness of his doctrines.

There is one illustration by analogy that struck us as a happy one. In a French journal in 1822, in speaking of the organ of Locality, which the critic calls the organ of travelling, he says, that "swallows and Captain Cook, cranes and "Christopher Columbus, &c. are equally remarkable for a "pretty little bump, which is half hidden in the frontal "sinuses." Here there is an insinuation that it is impossible that the same cerebral organ determines man and animals to change place, or to travel. "But if I told you," says Dr Fossati, "that the same organ, the heart, causes the blood "of the swallow and that of Mr Canning to circulate; that "the same organ, the optic nerve, receives the impressions "of light in the eyes of a crane and of a Bolivar; and that "the same muscle [illegible] the deer and the huntsman to

"run, the surprise will immediately cease. It will be no "longer difficult to conceive the possibility of internal organs "of the same nature producing similar actions in different "species of animals."

But I cannot conclude, continues our author, without drawing your attention to the fact, that, in spite of all the obstacles raised against it, Phrenology has ensured its triumph. It has triumphed in spite of the moderate means of its founder, and in spite of the war waged against it by philosophers and journalists. Dr Gall, alone and unaided, by the sole force of genius and perseverance, without the aid of any government, of any academy, or of any rich or powerful patron, has succeeded in securing the reception of his anatomical and physiological discoveries, and enjoys the satisfaction of seeing societies of intelligent men founded for the cultivation of his doctrines in the principal cities of Great Britain, America, and even in Asia. Not only at Edinburgh and at London, but also at Philadelphia and at Calcutta, do Phrenological Societies pursue their labours. The author then notices the Transactions of the Phrenological Society, the existence of our Journal, and concludes by quoting the rules of the London Phrenological Society, which he approves of, and supposes to be nearly the same in all other similar societies.

In a letter to Dr A. Combe, accompanying the pamphlet, the author, who is in constant and familiar intercourse with Dr Gall, takes occasion to notice the feeling of respect and friendship which Dr Gall has for the Society, and the intention which he entertains of writing them, in regard to some of his views, and to the best means of forwarding the cause of truth. We shall be delighted to see this intention fulfilled, and we know that it would give infinite satisfaction to the Society.

ARTICLE VIII.

MORBID EXCITEMENT OF THE ORGAN OF NUMBER BY DR ALDERSON OF HULL.

Master B., a very fine ingenuous youth, about fifteen, complained, on his return from school the last vacation, of an intense pain over the outer angle of each eye, darting obliquely through the eyeball to the root of the nose,—there was not the slightest appearance of inflammation in any of the coats of the eye; his pulse full and hard, his manner highly excited, his tongue creamy, he was costive and chilly.

He had always shown a decided preference for figures, and was highly read in mathematics; but his father (himself eminent for the classics and mathematics, and a high wrangler,) was desirous that his son should persevere, and lay aside his mathematics, in order to perfect himself in classics before he went to Cambridge. To accomplish this wish of his parent, he bent the whole of his mind and faculties, during the session to this end, and at the vacation he returned with every demonstration of having done his utmost, to the entire satisfaction of the master, for he had awarded him the prize for the first classic of the year; but, alas! this was not obtained without a high degree of morbid excitement in the brain, and that, too, precisely in the places I have already pointed out, as far at least as can be judged of by symptoms. I immediately forbade all application whatever to those studies in which he had hitherto addicted himself, and ordered employment in the trifling amusements of his young brothers; having put him under the most decided antiphlogistic treatment, he recovered in a few days, and was, to all appearance, perfectly himself again.

In the course of a week I called upon him accidentally, when he declared himself perfectly well; but I detected him at his favourite pursuits; he had got a new publication on

mathematics, and I prognosticated a relapse; the very next day his pain, as intense as before, attended the left eye at the outer angle. He submitted to his former treatment, and was restored, he has remained well ever since, and has gradually returned to a well-regulated course of study.

I have drawn the attention of this Society to this case, because I have no doubt they will see this young man return from Cambridge with the honours that have adorned so many of his townsmen at that University.

ARTICLE IX.

GLASGOW BRIDEWELL.

We recently inspected this establishment, and were very much pleased with the manner in which it is kept, and with the intelligence, frankness, and practical good sense of Mr Brebner the superintendent.

From 2d August, 1825, to 2d August, 1826, the total number of prisoners committed was . .		1399
The four great classes of offences were the following, viz.—		
1. Theft, pocket-picking, and attempting to steal,	399	
2. Reset of theft, fraud, and swindling, . .	77	
3. Assaults, outrages, breach of the peace, rogues, vagabonds, vagrants, and disorderly characters, following no lawful employment, . .	275	
4. Disorderly prostitutes, guilty of breaches of the peace, ...	323	
	1065	
Add returning from banishment, having been formerly convicted of crime, . .	194	1259
All other offences, ...		130

In surveying the heads of the offenders, the difference between the development of the thieves and swindlers, Nos 1

and 2, and that of the individuals committed for outrages and breaches of the peace, Nos 3 and 4, was obvious and striking. In the former, the organs of Acquisitiveness, Secretiveness, and Cautiousness, predominated; in the latter, the base of the brain, viz. Amativeness, Combativeness, and Destructiveness, evidently held the ascendency; in them there was great breadth across the head, immediately above the ear, with a large portion of brain behind that line. Of course we speak in general; for among the prisoners there were some whose development might have led them into either class, according as external temptations prompted them. In a few cases, especially among the young, the moral and intellectual organs were so deficient in proportion to the animal, that we should despair of their reformation while they were left open to the suggestions of their own minds, influenced by want and profligate society. In many of the criminals, however, these higher organs were fairly developed, although in conjunction with a large base of the brain; and in them instruction and moral restraint might be expected to produce a decided and salutary effect.

All criminals may be regarded as patients. Their offences, when traced to their causes, appear to spring either from evil dispositions, or external temptation too strong for them to resist. Every Phrenologist knows that depraved tendencies are the accompaniments of animal organs predominant in size over the moral and intellectual organs; and that, on individuals thus constituted, temptation exerts its greatest influence. Until we shall practically apply these principles, we shall not succeed in preventing, or greatly diminishing, crime. At present, however, all we can accomplish is to proclaim the truth, and record with approbation, whatever appears to approach to it. The Glasgow Bridewell, we are happy to say, is excellently managed on the old system. With very few exceptions, every prisoner has a sleeping cell and a working cell for himself; and all communication with each other is completely prevented. They are employed in

picking cotton, spinning, winding yarn, weaving, making shoes, &c., in solitude, during the day, and are locked up in solitude during the night. Even on Sundays they are not permitted to assemble together. On week-days a regular teacher visits each cell, and communicates instruction, and on Sundays some pious individuals teach religion. These meritorious persons have formed themselves into a society, and all their members are freely admitted to the prisoners: ladies visit the females and gentlemen the males.

The effect of this treatment will obviously be to abate the vivacity of the animal propensities, and to rouse the moral and intellectual powers. Solitude and labour will tend powerfully to accomplish the first end; but the means employed for attaining the second are too limited. The average number of prisoners in confinement is 250, and it is impossible that the teacher and visitors can remain with each a length of time sufficient to make a deep or lasting impression. The periods of confinement also are too short to favour reformation by moral means. While we approve of the practice of preventing the criminals from associating together, we think they would be greatly benefited by more extensive social intercourse with moral characters. Human nature demands enjoyment as its first and greatest want. If the only experience of a state of morality afforded to criminals is characterized by severe privation of animal pleasure, and the almost total negation of moral and intellectual excitement, they must necessarily form a very unfavourable opinion of the attractions of a virtuous life. We should like to see them, if possible, made acquainted, from experience, with the pure and vivacious joys that flow from activity of the higher faculties of man.

Mr Brebner favoured us with the following tables of commitments:—

Crimes and Offences.

	Year ending 31st December, 1825.			Year ending 31st December, 1826.		
	Males.	Fems.	Total.	Males.	Fems.	Total.
Number of commitments during the year,	558	703	1261	688	713	1401
Deduct re-commitments of the same individual in the currency of the year,	101	279	380	124	281	405
Remains nett number of different persons,	457	424	881	564	432	996
Whereof in custody for the first time,	360	209	569	444	189	633
Old offenders,	97	215	312	120	243	363

He has observed that offenders committed for the first time, for only a short period, almost invariably return to Bridewell for new offences; but if committed for a long period, they return less frequently. This fact is established by the following table, framed on an average of ten years, ending 25th December, 1825.

Of prisoners sentenced for the first time to

14 days' confinement,	there returned for new crimes, about	75	per cent.
30 ditto	ditto	60	ditto.
40 ditto	ditto	50	ditto.
60 ditto	ditto	40	ditto.
3 months	ditto	25	ditto.
6 ditto	ditto	10	ditto.
9 ditto	ditto	7½	ditto.
12 ditto	ditto	4	ditto.
18 ditto	ditto	1	ditto.
24 ditto	ditto	none,	ditto.

During the ten years 93 persons were committed for the first time for two years, of whom not one returned.

Mr Brebner conceives that punishment must never be lost sight of. The effect of the two years' confinement he attributes partly to the fear of punishment, and partly to the habits of order and industry acquired during it. When prisoners come back two or three times, they go on returning at intervals, for many years. He has observed that a good many prisoners committed for short periods for

first offences, are afterwards tried before the High Court of Justiciary, and transported or hanged.

These results confirm the doctrine, that individuals cannot change their character and conduct by a mere act of volition, but that their minds must be operated upon by long-continued influences, and gradually ameliorated; just as disease cannot be removed from the body by a spell, but by a sanative process, requiring both attention and time for its completion. The present practice is founded upon ideas of punitive justice, which appear, at first sight, natural and beneficial, but which do not stand the test of reason and rigid analysis. A boy picks a gentleman's pocket of a handkerchief, and is sentenced to 14 days' confinement in Bridewell; which seems a moderate and just punishment for a trivial offence; and if any one were to propose to imprison him for two years, the extravagance of the infliction, in proportion to the crime, would startle the public mind, and he would become the object of universal sympathy. Yet, if the real welfare of the boy be kept in view, and if we believe the foregoing facts, we shall find it difficult to resist the conclusion, that the sentence of 14 days is, in its ultimate results, attended with far greater severity, and more positive injustice, than would accompany confinement for two years. The offender, in the former case, becomes familiarized with crime, almost invariably returns to Bridewell, and proceeds from step to step till he is transported or hanged; in the latter case, his whole habits are changed, and so deep an impression is made on his mind, that he very rarely re-appears in the criminal kalendar. We say rarely, because the circumstance of his not afterwards becoming an inmate in Glasgow Bridewell is no proof of his entire reformation: he may have removed to another territory, where he thinks the law will be administered with less severity. But if the great majority of those confined for long periods did not abandon their criminal pursuits, some would undoubtedly find their way back to their old quarters; and as *none* appear to return, we may safely infer that many are permanently reformed.

It seems to us, then, that a sentence of fourteen days for a first offence is, in its ultimate consequences, more prejudicial to the welfare of the criminal than one for a long period; and yet there appears an evident absurdity in proposing to punish a grave delinquency with imprisonment for fourteen days, and a trivial one with confinement for two years. But this just proves that there is an error in the *principle* on which criminal justice is administered. The absurdity arises from this circumstance, that the criminal law regards every offender as a voluntary devotee to crime, and occupies itself exclusively in administering a certain quantity of suffering for a certain degree of guilt, without the least reference either to the causes of the transgression or the consequences of its own treatment. If this principle were sound in nature, it would be successful in practice. The infliction of fourteen days' confinement would not, in its general effects, turn out more severe than imprisonment for two years. In short, the facts contained in the table of "prisoners returning" could not happen.

On the phrenological principle much greater consistency is obtained. According to it, no man can become criminal unless from predominance of the animal organs over the moral and intellectual, or from strong external temptation. Neither of these are voluntary conditions on the part of the offender; he is therefore to be viewed as unfortunate; and, that he may be cured, the *cause* of his depravity must be removed. On this principle, pocket-picking is one symptom of moral disease, lifting tills another, house-robbery a third, swindling a fourth, and so on. The extent and depth of the disease are to be gathered from the whole symptoms and condition of the patient, and the sanative process ought to be conducted with reference to these. A boy whose father is out of work, and who has tasted no food for twenty-four hours, may steal a loaf from a baker's basket standing temptingly on the street; another boy, well-fed, clothed, and educated, may pick a pocket, and drink the produce of his depredation. Both of these acts are thefts; but the one may

happen with a boy of very considerable natural morality, who would be completely protected from offending again by removal of the temptation; in other words, by being supplied with food. The other indicates a decided deficiency of natural morality, with great strength of depraved appetite; and to prevent the offender from repetition of his crime, his mind would require to be subjected to a long course of discipline, one part of which will necessarily consist of measures for abating his evil tendencies, and another of means for elevating his moral and intellectual principles. According to this view, the treatment of each criminal would bear reference to his depravity, and not depend exclusively on the external form in which his evil qualities manifested themselves. One man may fall senseless to the ground through inanition, and another from apoplexy. What should we think of a physician who should treat both in the same way? The case of the mind is parallel; and it is only gross ignorance of mental philosophy that can perpetuate the present system of criminal legislature.

We have been assured by an enlightened friend connected with the administration of the criminal law in Scotland, that the imperfection of the practices now in use is seen, felt, and greatly deplored by almost every judge in the country, from police magistrates up to the president of the High Court of Justiciary; and that, if the public mind were enlightened, and brought to desire a thorough reformation with the introduction of a rational treatment, the judges would hail it with pleasure. Mr Brebner admitted, that a boy confined for a long period for his first offence was really more fortunate than one confined only for a few days; but he objected to the apparent injustice of long imprisonment for slight offences. The injustice, however, is obviously only apparent; the real severity is in the short confinement. No doubt, as long as offenders are committed with the view of punishment exclusively, Mr Brebner's objection is unanswerable; and the

principle of cure or reformation must be adopted, before consistency between intention and result can be obtained. In the Glasgow Bridewell, every thing that can be done, in the way of restraining evil tendencies, appears to be accomplished. The solitary confinement, regular employment, and mild treatment of the prisoners, are well calculated to allay the excessive activity of the animal propensities; but we repeat, that much is wanting to elevate their moral and intellectual faculties. The effects produced by long confinement, even with this deficiency, however, show forcibly how much good might be accomplished by a well-conducted penitentiary.

ARTICLE X.

An Address to the Members of a Society for Phrenological Inquiry at Hull, on their first Meeting, April 5, 1827. By J. Alderson, M. D. F.

The study of mind has in all ages been a source of the highest pleasure to the wisest men; and now new direction has been lately given to the mode of investigating and ascertaining the laws which regulate our actions as rational and social beings, it is the object of this association to inquire

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* We insert this Address, not because it contains any thing new, but as a record of the spirit with which Phrenology has been opposed by intelligent respectable men in Hull in the year 1827. In Edinburgh, some of the firmest supporters of the established church, men whose intelligence, piety, and sincerity are known and respected by the public, openly profess their belief in Phrenology, after full examination; and nevertheless in Hull it is considered as subversive of religion by persons ignorant of every fact and argument by which it is supported. When will philosophers become ashamed of this miserable appeal to the prejudices of the vulgar? We sincerely hope the opponents of Dr Alderson will, on reflection, feel ashamed of this weapon, and leave it to bigots and the followers of unfounded superstitions.—Editor.

into their origin and influence,—to instruct each other by observation and experiment on the true nature and operation of this principle, the mind, through its organs seated in the brain—in order that we may understand and duly exercise the powers thus intrusted to us for their legitimate object and end, namely, the well-being of society at large, and our own true and personal happiness.

To have separated ourselves from a general body of literary men, who seem to have attended discussions on the subject of Phrenology with no other view than mere idle pastime, cannot be wondered at. I need not say how mortifying it was to have had to deliver sentiments, observations, and the result of experience, to a class of men who only sought to derive amusement from the most detestable source, a desire to see the ingenuous and inquiring mind reduced by ridicule to a level with the ignorant. To avoid this in future is the excuse for our separation. Thus, whilst we profess ourselves only inquirers, we shall contribute to each other's improvement by experiment and observation, and become better informed as a body, as well as better able to defend ourselves as individuals. When the ignorant combine to ridicule, it is right for the ingenuous to associate, to the end that, by mutual support, the truth may be found, and our knowledge rendered useful, as well as a pleasurable source of enjoyment for its own sake.

In our study of Phrenology we are attempting to acquire knowledge, and in arranging that knowledge we are at least doing all we can to form it into a science, (for science is nothing more or less than knowledge properly arranged), which has this good effect, that, when we speak of certain facts, and connect them with circumstances previously arranged, we can more readily communicate our sentiments and the result of our observations to one another.

When we speak of the mind as seated in the brain, influencing our sentiments, feelings, and propensities, we are not considering the mind and brain as synonimous terms.

We must keep in view, that the principle is always distinct from the machine. The power that actuates the brain we must always consider as a principle wholly beyond the possibility of description. It is what "no eye hath seen, no ear "hath heard, nor can it ever have entered into the heart of "man to conceive it" as a substance cognizable to our senses. It is, to all intents and purposes, immaterial, and we can only know its actions and operations through the instrumentality of the brain: therefore, in all your discussions, never allow any one to charge you, as you were charged the other night, with the absurdity of dividing the immaterial and immortal soul into parts. We hold no such doctrine, nor can any such doctrine be discovered in any of Dr Spurzheim's writings. We are not so weak as not to be able to distinguish between principle and process, between the power that moves and the instrument moved. As well might the ingenious mechanic be charged with attributing the power of a steam-engine to the arms or paddles, because they move the boat. He knows better. So, whenever we speak of the brain, we always wish it to be understood that it is the seat of the impressions which have been conveyed by the senses, and deposited there, each in its proper organ, to be employed as directed on future occasions. Are we not taught by observation and experience, that these external instruments, the senses, do nothing more than collect and convey information to the mind by the instrumentality of an infinite number of fibrillæ of a certain texture, which, we believe, will one day be traced from the external organ of sense to a distinct part of the brain,—to a specific point destined by nature as best adapted to receive the impressions, and to retain them? The facts upon which this opinion rests are the result of very careful and minute investigations, but require to be corroborated by diligent observation. It is this exercise of our talents,—it is this delightful interchange of sentiments and opinions, this search after knowledge,—it is this *social* employment, which gives to the inquiring mind the highest gra-

tification. But we shall never have done our duty as Phrenologists, or brought the science to perfection, till, as anatomists, we have actually by dissections traced each fibrilla from the centre of the brain to its utmost periphery; what has been already done by Dr. Spurzheim leads us to hope that we shall yet accomplish this desideratum, for this is all that is wanted to convince the most bigoted sceptic of the truth of Phrenology, or the ablest metaphysician that the faculties of his system have organs distinctly appropriated. You must, therefore, let slip no opportunity of dissecting the human brain, with this view; at the same time, as every day affords the means of observations, by comparative anatomy, much expertness and much benefit will be derived by frequently unfolding the brain of beasts, and birds, and fishes, in the manner recommended by Spurzheim. We shall then be able to show every discriminating variation between man and other animals, and demonstrate the right to that superiority which we claim as men over every other created being.

Mr Locke has considered the human brain as a *tabula rasa*, or single tablet, at birth; but may it not rather be considered as an album, or blank book of many leaves, properly headed, varying in every individual, both in shape and texture, from large to small, from fine to coarse? Not only in the size of the volume does one man's book differ from another, but each leaf in the same volume differs; on one page we observe benevolence marked, on another firmness, on another conscientiousness, &c. One leaf is formed of fine hot-pressed paper, capable of receiving and retaining to the latest period of life a distinct and well-defined text, whence nothing is obliterated; though crossed and crossed again, it still retains its first impressions, when they have been traced there from acute observation by a good pen. Another leaf has the texture of mere blotting paper, on which impressions conveyed by the senses are very readily made; but, alas! they are never after legible; others are wholly incapable of

being impressed at all, from the nature of their surfaces; and from many others, various diseases are daily obliterating by degrees every trace of former acquirements; so that, when the active principle of mind has occasion to refer for ideas to express her will, some link is wanting in the collection, and thus the chain is broken that constitutes reason. Hence insanity, palsy, &c.

Nature has provided her book, after the leaves are formed, with a covering more or less flexile, and thus we daily see, agreeably to our metaphor, one book will open freely, and expose every leaf for inspection; so there are others containing information which we cannot get at when we want. Some men's book is so well bound, that it opens at will, just where the impressions that are wanted are enrolled; whilst some open so slowly, that the possessors are never in time with their argument.

Thus we see the difference of acquirements and talents in different individuals, when placed in the same circumstances and at the same school.

How many leaves or organs each brain contains is more than I know; but I am certain, that there are men who have many a blank leaf in their book until the latest period of time; and we have lately witnessed several who have preferred this perfect ignorance to any further information, at least on the subject of Phrenology. We are also fully convinced, that there are others that require the Indian rubber to obliterate errors and remove infantile prejudices from their leaves of ass's skin.

Again, let me urge you not to be discouraged in the prosecution of your inquiries, either by ridicule or the charge of irreligion. The acquirement of knowledge can never be ridiculous in the eyes of those whose praise is worth obtaining; and you will always keep in view, that the utmost attention to the philosophy of mind, or the organization by which it is manifested, has nothing to do with religion. As

philosophers, we limit our inquiries into the truth of our opinions and belief to this proposition, that the human mind operates through an evolution of organs or structure, infinitely superior to that of any animal whatever, (for every animal that has a brain at all has a certain degree of mind); and when we, as lovers of natural history, shall have made out our point, when we shall have proved that we are entitled to this high distinction, how much more open will be the path that leads our reason on to the temple of religion, where the Almighty has by revelation shown every true believer the rewards and glories of a future state of existence, "immortal in the heavens!"

When the scientific mind began to expand after the dark ages, had it been deterred by either of these considerations, we should never have been favoured with the discoveries of a Galileo, a Newton, or a Harvey; it was the experiments on the laws of motion which Galileo displayed in his public lectures, that first led the way to the discovery of the revolution of the heavenly bodies in space; and it was the fame of these discoveries that provoked the jealousy of a priesthood, whom we, as Protestants, acknowledge to have been ignorant pretenders. It was the dread of heresy that induced the government of his country to send this great philosopher to the prisons of the Inquisition. It was a detestable mendicant friar, that first, by preaching, excited the public to warrant such proceedings by their approbation.

This preacher of the Gospel disgraced his holy profession by punning on an expression of Scripture, when he took for his text, "*Viri Galilei quid statis aspicientes in cœlum;*" hence he convinced his audience, that these followers of Galileo, these men of Galilee, as he called them, were acting contrary to Scripture; "thus bad men, when clothed in "holy garments, can, at any time, quote, or rather mis-quote, "Scripture for the vilest of purposes."

I remember a story on this subject. A party of ladies and

gentlemen, amongst whom was a priest, once travelled together shut up in a stage-coach. The reverend gentleman displayed, before his admiring auditors, the ladies, his various acquirements, and, as became his cloth, he thought, deduced every fact from, and confirmed every assertion by, some *text* of *Scripture*; and so long as he kept himself to moral or religious opinions, no one thought it right to offer the least objection; but, finding he had obtained an undisputed power over his auditors, he ventured into physics; for when one of the ladies expressed her thoughts that the earth was a perfect flat from east to west, and that the sun rose out of the sea in the morning, and set in it again in the evening, he smiled at her ignorance, and assured her that the earth was round, round as an orange, ma'am! Round, sir! said an old gentleman, who had never spoken before—round, sir! why the earth is square. The better-informed priest now showed his teeth in a most contemptuous grin, and assured the ladies that the old gentleman knew nothing of philosophy. Philosophy, sir, said the old gentleman, I'll prove it from Scripture, from which you have proved every assertion you have made this day. Is it not written, that "the Lord called his people from the four corners of the earth." Now, sir, if the earth have four corners, I take it it is square, not round! Such is the power of fanaticism over the hearts of bad men, that they will support their opinions, even on the sacred subject of religion, by the most horrible of means; and many a heretic has experienced, and many a martyr to the true religion has been the subject of an *auto-da-fe*, for only asserting opinions on the conviction of reason; and I have no doubt, that there are this moment some who think they are doing God justice, and are promoting the good cause of religion, when they oppose Phrenology, and denounce it as tending to atheism. Such men would, were we inhabitants of Spain at this moment, condemn us all to the stake. Happy are we that we live in a country where

our persons are safe. But we must be very careful how we conduct ourselves, that we have not our reputations placed on gridiron for our philosophy of the brain as the organ of mind. With respect to Dr Spurzheim on the anatomy of the brain, he must be content to bear with the same treatment as the great Harvey experienced. The discoveries of Harvey by inference involved all the then teachers of anatomy throughout Europe, in the reproach that they were all ignorant of the true dissection and office of the heart. In the same manner, Spurzheim has proved that the anatomical teachers in every college were ignorant of the true structure of the brain; hence the virulence of your Barclays and Gordons. Harvey was not only ridiculed by the teachers, but he was so belied as to suffer in his reputation, and was called, as you have lately heard the truly respectable and legitimate professors of Phrenology called, Quack; he lost his practice for a time in consequence as a physician.

Nay, Linnæus lost his employment as a practitioner of physic, because, *proh pudor!* he talked of the sexes and spermatic vessels of plants, and called the parts by names appropriated to men and women. For our consolation, however, and for your encouragement to prosecute your inquiries into the brain, as containing the organs of that principle which governs our actions and thoughts in this sublunary world, we have lived to see even the most bigoted religionists allow that Galileo was justified in asserting that the earth turned round on her axis; that the discoveries of Newton have not injured true religion; and, I trust, you will yet live to see the world do that justice to Dr Spurzheim for his discoveries on the anatomy of the brain, which every anatomical chair throughout all Europe now does to Harvey for his discoveries of the circulation of the blood.

ARTICLE XI.

PROCEEDINGS OF THE HULL SOCIETY FOR PHRENOLOGICAL INQUIRY.

THE Society was formed March 27, and it held its first meeting at the house of Dr C. Alderson, when an address was delivered by the President, Dr Alderson, on the cause of our associating ourselves "as a Society for Phrenological In-"quiry."—(This address is published in our present Number.—EDITOR.)

The second meeting was held at Mr R. Casson's, surgeon, April 19, 1827, and, in the absence of the President, the chair was taken by Mr John Young, (the oldest surgeon in the town), who made some few observations on the superiority of the science of Phrenology.

Mr Casson read an excellent paper, and adverted to the fundamental truths of the science, as furnishing the best illustration of the poet's advice,

"Man, know thyself; all wisdom centres there."

He adverted to some very absurd objections made in another society to the organ of Constructiveness, and exhibited the heads of a rabbit and a hare; in the former he pointed out the great development of the organ of Constructiveness, and the want of it in the latter, which is in exact agreement with their natural history, &c.

The third meeting was held at Mr R. Craven's, surgeon, May 3, 1827, Dr Alderson in the chair. Mr Craven read a paper on the dissection of the brain, and pointed out the manner or mode of doing this by the old anatomists, as being not only defective in a scientific point of view, but likely to mislead the judgment with a set of unmeaning phrases.

Two brains were procured for the occasion, the one an adult's, and the other an infant's of twelve months old. The nervous structure, the decussation of the fibres, and the unfolding of the convolutions (as in the case of *hydrocephalus internus*) were shown. One fact transpired more immediately connected with the Society; a section was made through the thalamus of both brains; in the adult's the fibres radiated from a centre, distributing them superiorly, laterally, anteriorly, and posteriorly; but in the infant's, the radii were only apparent anteriorly, or in the direction of *Individuality*, *Locality*, and *Language*.

Also a letter was read by the secretary, (addressed to the learned president.) It contained a *post-mortem* examination of a gentleman who retained his mere animal senses, but who lost all power of ratiocination, and died insane. The affective organs were nearly disorganized in consequence of a spicula of bone acting as the irritating cause; and the membranes exhibited great fulness of the vessels, and were highly inflamed.

The fourth meeting was held at Mr Sleight's, surgeon, May 17, 1827, Dr Alderson in the chair, who made some remarks on two casts taken by Mr Levison (at his request) from two children. One was troubled with fits, and had a large portion of brain on one side, amounting to a deformity; and the other was a hydrocephalic patient. In the latter the enlargement was most remarkable in the region of Secretiveness and Cautiousness, but had evidently decreased since the doctor's professional attendance. The use, he said, of taking casts would be to enable us to observe the progress of development of the organs, and mark the degree of their functional activity, and how far they would be modified and influenced by education and other moral causes.

Mr G. Combe of Edinburgh was proposed as an honorary member by Mr Levison, "in testimony of esteem for his "very splendid talents, and the ardour he has evinced in pro-

"mulgating the science of Phrenology," &c. which was unanimously carried without going to ballot.

The Rev. John Blezard was proposed a member of the Society, and admitted unanimously.

An excellent paper was then read by Mr Sandwith, surgeon, of Beverley. He gave a comprehensive view of the nervous system of the whole animal kingdom, and pointed out the peculiarities of each, with the corresponding functions. —(This able essay forms the first article in the present Number.—EDITOR.)

The fifth meeting was held at Mr Edward Munton's, surgeon, and, in the absence of the president, the chair was taken by Dr Turnbull.

Mr Munton read a paper on the science of Phrenology, and cleared away the unphilosophical charges of materialism, &c. He adverted to Dr Ferriar's cases, which had been cited by a gentleman (a surgeon opposed to the science) in another society, who also made use of the following case, as being one which would give a quietus to Phrenology, viz. "That a young woman received a blow at the back of the head, "when some of the brain was effused, so that the *organs of* "*Amativeness were destroyed*, but that she afterwards became a "*fille de joie*, and therefore the science must be very absurd." Mr M. then adverted to the impossibility of the cerebellum being injured by external violence, (and this was the organ of physical love), as it is secured by the tentorium internally, and several powerful muscles externally, as the trapezius, complexus, splenius, &c. which are inserted in the ridge of the os occipitis above, considerably superior to the situation of the cerebellum. He then adverted to the *post-mortem* examination of Lord Byron, which, he observed, was in itself a tower of strength in favour of our science, and concluded with some warm eulogiums on the founders, Drs Gall and Spurzheim.

Dr Allen of London was then proposed as an honorary member by Mr Casson, and unanimously admitted.

Mr Harding stated, that he had found in children in whom the organ of Cautiousness was large, that they invariably walk a long time before they ventured alone, and those in whom it was small, with large Firmness, it was vice versa.

The sixth meeting of the Society was held at Mr R. Harding's surgeon, June 14, 1827, Dr Alderson in the chair. The president observed, that, in animals having the sense of smelling very acute, there was a greater surface of membrane provided for the ramification of the olfactory nerve; the same applied to the eye; when that organ exercised an intensity of vision, the optic nerve was folded in plaits to form the retina. He therefore suggested that observations should be made on the convolutions of different brains, in order to determine whether or not the same law applied to the organs of the encephalon, that is, whether there was not in some organs a greater number of convolutions to increase the surface for the action of the nervous process produced by their being in folds, and consequently having an increased number of fibrilla. (This subject is treated at some length in our 14th Number.—Editor.)

Allusion was also made by Dr Alderson to the difference in the phrenological busts of London and Edinburgh, which prevented us from using the same numerals instead of "words to express the organs."

Dr Elliotson of London was then proposed by Mr Levison as an honorary member, "in testimony of the Society's "esteem for his contributions to the science, and that he was "one of the earliest defenders of the truth of the science "(and its value pathologically) in England," &c. Admitted unanimously.

A letter was read by the secretary from Mr George Combe, in answer to a communication made to him, which gave the Society much pleasure, as it proffered that gentleman's assistance to serve them in any of the difficulties connected with the science, &c.

As no essay was read, the evening was concluded with a spirited and interesting conversation on the science of Phrenology. Many views were then given to illustrate the effect produced in the development of the organs by the influence of education, by the Rev. J. Blezard. Dr. Alderson made some curious observations on the causes that operated to perpetuate the peculiar traits in different savages and semi-barbarian tribes. He said, that whilst the female gave the preference to some peculiarity, say the reclining forehead, &c. it would follow as a consequence, that the race would preserve all their physical distinctions and mental deficiencies. He then illustrated these remarks by adverting to the various barbarian nations of North America, Africa, &c. and concluded with an anecdote related by Mr Cookman, a missionary, who stated, that those barbarians who retained the peculiar form of head that belonged to their *caste*, or *tribe*, remained immoveable to their superstitious notions and rites, but that he could make converts of those who possessed finer-developed crania, that is, *who were mentally superior to their race.*

The seventh meeting of the Society was held at Mr John Young's, surgeon, who took the chair in the absence of the president.

Mr Casson proposed the great and enlightened philosopher, Dr Spurzheim, as an honorary member. Mr C. communicated to him when in London, that our Society had been formed "For Phrenological Inquiry," and he, Dr S., observed, "that we did right to designate ourselves inquir-"ers; then we should appeal to nature for ourselves," &c.

Mr Levison informed the Society, that Dr Philip, a missionary, made a communication (through a gentleman) of a very interesting fact, viz., "that the children of the Christian "converts had anteriorly-developed crania, approximating "to the European ones." If moral causes have this effect,

said Mr L., what incalculable benefits Phrenology will confer upon the whole human race!

The eighth meeting was held at Mr Levison's, July 12, 1827, Dr Alderson in the chair. Mr L. read a paper, "to prove that man's cerebral organization destined him for civilization, and that the barbarous races of the human family (if they are the production of one original stock) are examples of degeneration," &c.

Many highly-interesting and valuable remarks were made on the paper, connected with perfection and degeneration of animals by breeding, and crossing the breeds of families of the same species, by Dr Alderson, Messrs Casson, Craven, Rev. J. Blezard, Mr Lyon, &c.; and other parts of the paper were then alluded to.

A letter was read by the secretary from Dr Elliotson, in answer to one sent to that gentleman, in which he thanks the Society for their politeness, &c., and states that at the next meeting of the London Phrenological Society he intended to propose our president, Dr Alderson, a corresponding member of theirs.

The ninth meeting was held at Dr Turnbull's, July 26, 1827, (Mr Lyon acting as secretary.) The minutes of a former meeting were read, and a paper commenced by the Rev. J. Blezard.

The tenth meeting held at Mr Robinson's, Mr Young in the chair, when the paper of Rev. J. Blezard was continued.

The eleventh meeting of the Society was held at Mr Lyon's, surgeon, on Thursday evening, August 23, 1827, the Rev. J. Blezard in the chair. After the minutes of a former were read by the secretary, the Society was favoured with some curious remarks on George Noakes, (by the Rev. J. Blezard), a youth celebrated for his powers of calculation. Many numerical questions were put to him, to which

he gave prompt answers. Mr B., in conclusion, asked this question,—Is the talent which that boy displays, some peculiar perceptiveness, the effect of a general concentrated nervous influence, rather than that of a particular organic development, such as that of Number?

Mr Casson read a curious case of disease of the brain, highly interesting, as illustrating Drs Gall and Spurzheim's theory of the structure of the brain.

Mr Levison read to the Society an account of an individual in the work-house at Scarborough, and stated, that, although he was now an idiot, it was the result of an accident to the brain, but which, instead of presenting any obstacles to the study of the science of Phrenology, might be cited rather in proof of its fundamental truth, viz., that the mind exercised itself through the instrumentality of material organs, and therefore, whenever they were diseased, the process of ratiocination becomes defective. A cast will be (if possible) procured, when a farther account will be furnished the Society.

Mr Craven read a *post-mortem* examination of a lad of seven years old, belonging to the Society of Friends, who, during the latter part of his disorder, (inflammation of the brain, &c.) occasionally sung, with great skill, hymns, &c. although music is not cultivated or practised by those of his religious tenets. Mr C. found the organs of Tune considerably increased in bulk, and rather more appearance of inflammation on their surface than the neighbouring parts presented. But the brain itself was much larger and heavier than usual, and the boy exhibited very great precocity of talent.

Mr Blezard offered to translate Dr Gall's French work for the Society, if they furnished him a copy gratis.

it simply by itself, or in reference to the influence which its comparative strength or weakness has over the individual character. As we are possessed of one faculty of mind, by which we recollect individual phenomena or events, so we are possessed of another, by which we recollect the relations which we trace or perceive among these phenomena or events. To the former power a place is assigned by Phrenologists; but the latter, according to their present views, is referable to a variety of faculties, varying in their functions, and attended with very different effects. Thus, the power, which we possess of remembering relations is scattered over a variety of powers, and has no distinct or independent existence from these,—or, in the language of Mr Combe, "The ideas "formed by the reflecting faculties can be recalled by *an act of* "*recollection, and they are therefore said to have memory.*" We are compelled to give this statement a positive denial, and shall now proceed to give our own views on the subject, and illustrate them by a reference to facts.

We are of opinion, that each of the Individualities is a faculty of the mind quite distinct from the other. To the lower we ascribe that function by which we are enabled to remember single unconnected phenomena or events. To Upper Individuality belongs that function by which we remember relations of every description, whether these subsist between external phenomena, or between these phenomena and the mind itself. These positions, we maintain, are founded upon accurate observations. An individual who has Lower Individuality large, with the Upper small, will recollect phenomena or events which come under his notice very unconnectedly. He will be unable to remember the order in which they occurred, or, in other words, he will forget the relationship of one to another, though he may still recollect all the individual phenomena themselves. A person who has Upper Individuality very full, with the Lower moderate, will be unable to form a very vivid or clear conception of any individual object or phenomenon. These will be

been unfolded;—nay, the simplest operations of the mind could not have been retained for one moment. It is by means of this faculty that we are regulated in our most ordinary as well as in our most difficult pursuits. We must possess the power of recollecting the relation in which we stand to external objects, otherwise all the feelings and sentiments with which we are endowed would be utterly useless.

Mr. Combe states, that "the mind has no power of calling "up into fresh existence the emotions experienced by means of the "propensities and sentiments by merely willing them to be felt, and "hence we hold these faculties not to possess memory."

But this statement we conceive to be a mere evasion of the difficulty. The mere feeling, it is admitted, cannot confer the power of recalling the relation in which we may have stood to some being. The feeling itself is a simple and single phenomenon, as is likewise the individual object by which it may have been excited; and it is therefore plain, that the same faculty of the mind remembers both. But no account is given of the faculty, by means of which we are enabled to remember the relation in which the internal feeling stood to the external object. Without this faculty, the mind would have been made up of so many successive emotions, without any link by which to connect them with external nature. External circumstances might have excited our feelings, but without a faculty by which we are enabled to recollect the relation between the internal feeling and the external object, the external circumstances would no sooner cease to operate upon our feelings than every trace of these phenomena having existed in connexion would be utterly obliterated. It would be needless to proceed to illustration to show how much of our knowledge depends upon this principle of the mind. We may generally refer to the amazing knowledge of life and character possessed by Shakspeare. His perceptions were not only quick and powerful, but, in addition, he possessed the faculty, by means of which he stored up his own rich speculations on life and manners. This power of the mind, therefore, is of the highest importance, whether we regard

it simply by itself, or in reference to the influence which its comparative strength or weakness has over the individual character. As we are possessed of one faculty of mind, by which we recollect individual phenomena or events, so we are possessed of another, by which we recollect the relations which we trace or perceive among these phenomena or events. To the former power a place is assigned by Phrenologists; but the latter, according to their present views, is referable to a variety of faculties, varying in their functions, and attended with very different effects. Thus, the power, which we possess of remembering relations is scattered over a variety of powers, and has no distinct or independent existence from these,—or, in the language of Mr Combe, "The ideas "formed by the reflecting faculties can be recalled by *an act of* "*recollection, and they are therefore said to have memory.*" We are compelled to give this statement a positive denial, and shall now proceed to give our own views on the subject, and illustrate them by a reference to facts.

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suggested to him in consequence of recollecting relations which he had previously traced or observed, or in consequence of recollecting the order in which such objects or phenomena were presented to his mind. A person who has both Lower and Upper large will, on the contrary, manifest an uncommon facility in recollecting both individual phenomena or events, and the order in which such phenomena or events occurred or were presented to his mind. In illustration of our principles, we take the liberty of availing ourselves of the example which Mr Combe quotes from Shakspeare, in page 279 of his System. We allude to Mrs Quickly's speech to Falstaff. She is reminding him of his promise of marriage, and says,—"Thou didst swear to me "on a parcel-gilt goblet, sitting in my dolphin-chamber at the "round table, by a sea-coal fire, on Wednesday in Whitsun-"week, when the Prince broke thy head for likening his father "to a singing-man of Windsor; thou didst swear to me then, "as I was washing thy wound, to marry me, and make me my "lady thy wife. Canst thou deny it?—Did not goodwife "Keech, the butcher's wife, come in then, and call me Gossip "Quickly? coming in to borrow a mess of vinegar, telling us "she had a good dish of prawns; whereby thou didst desire to "eat some; whereby I told thee they were ill for a green "wound; and didst not thou, when she was gone down stairs, "desire me to be no more so familiarity with such poor people, "saying that, ere long, they should call me madam? And didst "not thou kiss me, and bid me fetch thee thirty shillings? I "put thee now to thy book-oath; deny it if thou canst."—"Here," Mr Combe remarks, "is a surprising variety of trivial "circumstances connected by no link but that of the order of "their occurrence." But Mr Combe does not distinguish between the power of recollecting the individual events and that of recollecting their connexion with each other. According to our views of the mind, we remember individual phenomena or events by a distinct power from that by which we remember their connexion or order of occurrence. If a character such as Mrs Quickly had possessed Upper Individuality large, with the Lower moderate, these minute circumstances would have been suggested to her rather by recollecting the order of their occurrence than by directly recollecting the circumstances themselves; and, in consequence,

there would have been awanting that vivid and distinct conception of each minute circumstance which so strikingly marks her character throughout.

We next proceed to show the connexion which Upper Individuality has with the reflecting faculties, and shall simply state the abstract principle, and give a few examples by way of illustration. We maintain, then, that *Upper Individuality remembers the relations which the reflecting faculties trace or observe either in external nature, or between external nature and the mind itself.* When we speak of phenomena, we refer to those of mind as well as matter; and our doctrine is this, that all unconnected phenomena are taken cognisance of by Lower Individuality,—that the reflecting faculties observe or trace relations between these phenomena,—and that these relations are stored up by Upper Individuality.

Causality simply traces or perceives the relation of cause and effect between phenomena; Comparison compares objects or phenomena; Wit perceives the difference between phenomena or ideas; and Upper Individuality remembers all the relations which these powers have traced or observed. An individual, therefore, who has all the reflecting organs large, if his Upper Individuality is small, however quickly he may trace relations between phenomena stored up in Lower Individuality, will be much inferior in memory of relations to the man who has the reflecting powers only full, with Upper Individuality large, supposing the condition of *cæteris paribus* to hold in regard to the other powers of both. So much for the connexion which Upper Individuality has with the reflecting faculties. We may here notice the manner of the operation of Upper Individuality in regard to Ideality, which seems to hold a place between our intellectual powers and sentiments. Mr Combe, in his chapter on Ideality, seems to be of opinion that this power confers the sentiment of beauty, and is accordingly necessary to the conception of the sublime. This view of Ideality we admit to accord strikingly with the fact,—When a person with this

organ large looks on a beautiful landscape, he perceives nothing externally which a person with the organ small does not perceive, but he feels the emotion of beauty in his own mind with a degree of vividness which the other cannot feel. Every thing he looks on has a degree of exquisiteness and perfectibility about it which a person with the organ small cannot experience. The individual object and the feeling, as separate and distinct phenomena, are remembered by Lower Individuality; but how do we remember the relationship between the object and the feeling? At the time when the external object is perceived and the sentiment of beauty is felt, it is Causality which perceives the relation of cause and effect, as between the external object and the sentiment of beauty, and it is Upper Individuality which remembers this relation. We may thus recollect both the object and the feeling or emotion separately by means of Lower Individuality, but we remember the relation in which they stood to each other by means of Upper Individuality,—or, in other words, we remember that the perception of the object excited the vivid emotion described. This influence of Upper Individuality in reference to Ideality is borne out by observation. We have visited Westminster Abbey, St Paul's, and many other public places in London, where busts of poets are to be found, but in vain, to discover one very deficient in Upper Individuality. Most of them have it very full, some only full, but none have it small.

After what we have stated in regard to the function of Upper Individuality with reference to Ideality, it will not be necessary to go into detail in order to show its connexion with the other sentiments and feelings. We may observe generally, that Upper Individuality gives the power of recollecting the relation in which we stand to external objects calculated to excite our sentiments or feelings; Causality perceives the relation of cause and effect as between these objects and our sentiments or feelings, and Upper Individuality retains the relation so perceived. If a single example is pro-

duced contradictory of these principles, we will readily abandon them; but we are certain, from the observations which we have made, that they accord with the laws of nature, and, without claiming the least indulgence, we freely submit them to the severest scrutiny.

In illustration of our principles, we beg leave first to refer to the cerebral development of the Right Hon. Richard Brinsley Sheridan, a cast of whose head is to be found in the collection of the Phrenological Society. That individual, without large reflecting powers, contrived, if not to outstrip, at least to equal the most remarkable of his contemporaries by the splendour of his eloquence and the brilliancy of his wit. Now, it will be observed, that the largest of his intellectual powers are the Individualities, both of which are in him decidedly large. If our opinions on the subject of the Individualities are correct, this celebrated person had a wonderful aptitude for storing up in his mind all the phenomena which came under his observation, and an equal aptitude for recollecting the order in which they occurred or were presented to his mind. Accordingly, with moderate powers of penetration, he possessed a minuteness and accuracy for detail which has seldom been equalled, and we may safely say never surpassed. His mind seldom led him to deep or intense reflection, but he was perpetually observing, and consequently acquiring knowledge. He surveyed only the surface of things, but his survey was comprehensive and accurate. Accordingly, his knowledge of men and manners, without being profound, is accurate, being drawn from the stores of a boundless memory. The reflecting powers of Sheridan were not, however, very deficient, and by means of them he traced relations for himself, and compared and contrasted these relations with those which he had previously stored up in his mind. Hence it is, that with Wit, or the perception of difference, moderate, by the aid of his Upper and Lower Individualities, he possessed a brilliancy and vividness of conception altogether peculiar to himself. Being largely endowed with that

faculty by which he remembered accurately all the relations either of difference, or of any other kind which he had either traced or observed himself or derived from reading; so otherwise, he could avail himself of them when an occasion presented itself. Such too, we believe, is pretty nearly the character of Sheridan, as given by Mr Moore. But it is needless to dwell upon the character of an individual. Pope the poet, a bust of whom is to be seen in Mr O'Neil's, Canongate, has Upper Individuality very full, with the Lower moderate. His writings are remarkable for their abstract didactic character, and for nakedness in his illustrations drawn from phenomena. Dryden, a bust of whom is to be seen in Westminster Abbey, has, on the contrary, Lower Individuality very full, and Upper not so full, and his writings are characterized by a vivid conception of phenomena.

We are told by the biographers of Pope, that when an idea struck him he immediately committed it to paper. When he went upon a visit to any of his friends, "it was punctually "required that his writing-box should be set upon his bed before he "rose; and Lord Oxford's domestic related, that in the dreadful "winter of Forty-one, she was called from her bed by him four times in "one night to supply him with paper, lest he should lose a thought." —*Johnson's Life of Pope.*

According to Pope's development, and to our principles, he remembered phenomena not directly, but by recollecting the relations which he had traced or observed among them; they were suggested to him through the medium of these relations, and not directly remembered. He accordingly found it necessary, when any phenomena were suggested to him illustrative of his subject, to jot them down, because he wanted a facility in recalling phenomena directly. Accordingly, Dr Johnson, in analyzing the characters of Pope and Dryden, very justly remarks, that "in acquired knowledge "the superiority must be allowed to Dryden, whose education was "more scholastic, and who, before he became an author, had him "allowed more time for study, with better means of information. "*His mind has a larger range, and he collects his images and illustrations from a more extensive circumference of science.*

"*Dryden knew more of man in his general nature, and Pope in his local manners. The notions of Dryden were formed by comprehensive speculation, and those of Pope by minute attention.* There is more dignity in the knowledge of Dryden, and more certainty in that of Pope." In further illustration of their respective characters as poets, Dr Johnson remarks, that "Dryden's page is a natural field, rising into inequalities, and diversified by the varied exuberance of spontaneous vegetation; Pope's is a velvet lawn, shaven by the scythe and levelled by the roller." The sentiments of Dr Johnson, as to the respective merits of these two poets, entirely correspond with the principles which we have stated. Dryden was "superior in acquired knowledge;" not, however, because he was more studious than Pope, but because "his mind had a larger range, and he collected his images and illustrations from a more extensive circumference of science." Pope was naturally more studious, and possessed greater powers of application than his contemporary; and, accordingly, his works are characterized by their remarkable correctness of style and arrangement. Notwithstanding of this we are told, that "Dryden knew more of man in his general character," and Pope only "in his local manners."—In other words, and in application of our principles, Dryden caught the hues and impressions of surrounding objects directly from nature; they were transferred to his mind in all their living reality, and treasured up there without an effort, and thence embodied in his page in all their native beauty of dress and colouring. Pope, on the other hand, with equal powers of imagination or fancy, in consequence of being inferior to Dryden in conjuring up individual existences or phenomena to illustrate his subject, is wanting in that vividness of conception so well described by Dr Johnson. He treasured up phenomena not directly, but by means of the minute relations which he had traced or observed among them, and hence it is that his knowledge of man "in his local manners" was more accurate than that of Dryden. Dryden, on the contrary, observed the actions and manners of men, and traced these directly to the feelings and sentiments from which they sprung; hence it is, that his

knowledge of man was more comprehensive than that of Pope. The character of Pope's mind led him not merely to observe, but likewise to remember minute relations, and in this way he came to a knowledge of more general facts. His Lower Individuality being moderate, and his Upper very full, phenomena were suggested to him by means of the relations which he had traced or observed among them. Dryden, on the contrary, had Lower Individuality very full, with Upper not so full. He accordingly recollected phenomena directly; but relations were re-suggested to him rather by means of recollecting the phenomena themselves than in consequence of the power of recollecting relations directly. Hence it is that the writings of Dryden are of a very unequal character. Sometimes he is remarkable for the brilliancy of his conceptions, and at other times he sinks into the most profound carelessness, and writes verses that would disgrace an inferior poet. We are frequently struck with the brilliancy of his conceptions and the vividness of his descriptions, but we are as often disgusted at his inequality. Pope, on the contrary, is equal to a fault,—the same abstract metaphysical air reigns throughout. When he brings forward facts to illustrate his subject, he touches them lightly;—they are all of that faint shadowy character which impart but an imperfect conception of the originals. In a word, Pope and Dryden, in their mode of thinking, stand as completely opposed to each other as they do in their cerebral development.

We might give numerous other examples from the poets and historians of the last century illustrative of the truth of these principles; but as an analysis of the character of each would necessarily occupy more time than we can well spare at present, we shall defer this investigation till some future opportunity. We propose, in the first place, however, to analyze a few of the most famous men of the present day, and we shall endeavour to select such only as have obtained pretty general notoriety, to enable even those who are least interested in the fate of the science to apply the principles which are here stated.

ARTICLE XIII.

To the Editor of the Phrenological Journal.

Glenhoulakin, 31st September, 1827.

Dear Mr Editor,

A great variety of rumours, some about the astonishing success, and others about the dreadful overthrow of our favourite science, have of late been reverberated like echoes among the hills in this remote corner of the world; and I am impatient for the receipt of your last Number, to see what portion of truth they contain. One report, for instance, affirms, that the eloquent editor of the Edinburgh Review has not only become a Phrenologist, but has actually written and published, in his 88th Number, a very clever and spirited satire of our opponents, in the form of an attack on the science, in which all the exploded arguments against it are urged with such a ludicrous gravity and outward solemnity of manner as not only broadly to expose their inherent absurdity and emptiness, but to produce a strong positive conviction of the truths against which they are in appearance directed. It is added, that while this article is converting all the sensible antiphrenologists of the three kingdoms as fast as they can read it, and stirring up a demand for books and plaster-casts to an astonishing extent, so as to raise the price of stucco almost 50 per cent., and to call into active operation swarms of Italians as numerous and troublesome in your streets as bakers' apprentices, but groaning under loads of stucco instead of bread, there are still a few persons remarkable, it is in justice added, for very narrow and retreating foreheads, and strong in a rich endowment of Self-esteem, who persist in reading and understanding the article literally, just as they do Gulliver's account of the Lilliputians and Brobdingnagers, and who con-

sequently look upon this clever production as a literal death-blow to the new doctrines. It is also reported, that the learned editor, in his zeal to promote the great cause, and to make every reparation for his former maltreatment, has become so enthusiastical and impetuous, that Mr Combe has positively been obliged to write a pamphlet for the express purpose of keeping him within bounds! Now, Mr Editor, if you will just conceive for a moment the intense curiosity one must naturally feel to get a full and satisfactory account of the quantum of truth in all these rumours in a region so remote as this, I am sure your Benevolence will be excited to such vivid action as will instantly prompt you to gratify us by adopting more efficient means for the regular and speedy transmission of your periodical.*

And now that my pen is in my hand, I may tell you, Mr Editor, that I have long had a desire to write something for your Journal; but when I recollected what a terrible thing it was, and how trying to the nerves, to see one's lucubrations in print, and especially to hear one's self laughed at, cut up, or abused, as often happens to printed men, my big Self-esteem and Cautiousness revolted at the idea, and drove me from the attempt; but now that I have begun, my valour rises within me, and I shall e'en go on at every risk; but, as my Concentrativeness is none of the biggest, if I ramble a little in my story, I

* Some of our readers may marvel, that, at so late a date as the 31st September, our 12th Number, containing the results of Mr Jeffrey's attack, should not have reached Glenhoulakin; but our much-esteemed correspondent and subscriber explains the mystery by telling us, in a private letter, that his venerable residence is so far removed from the line of mail-coaches, rail-roads, and steam-packets, and the half-yearly carrier's horse is so lame in two knees and one ankle (besides being blind of an eye), that he can never calculate on receiving any of his periodicals sooner than twelve months after date. He wisely adds, that this is, after all, no such great hardship as might at first be supposed, as he receives, say the October Number of 1826, about the 31st September, 1827, and he has only to fancy the year the same, to have it in precise course the day it is due, and to have all the pleasure of novelty unimpaired. Some notion of the extreme remoteness of Glenhoulakin from our meridian may be formed from observing the very singular fact of the earth's motion being so much modified there, by its distance from the centre, as to give *thirty-one* days to *their* September, when, for time immemorial, *ours* has only been gifted with thirty.—EDITOR.

hope you will not refuse to keep me company, at least till you are tired, or I am done.

But perhaps you think it is time to begin;—I am of the same opinion, and therefore proceed to tell you a "hantel about" what I have to say.

You once had a very sensible article about Mr Owen's parallelogramatic communities, in which you discussed the *possibility* of men living together in numbers on terms of union, equality, and co-operation; and you talked as if no such experiment had ever before been tried. Now, I propose to show that you are wrong in this supposition, and that communities of union and mutual co-operation exist in all quarters of the world, and have existed from the earliest times, and that they are always found to work well where the institution has been properly framed from the beginning, and established in a favourable soil.

It is, perhaps, not the least singular circumstance in the history of the communities to which I allude, that, although, as has since been proved, they have existed and flourished almost, if not altogether, as long as man himself, yet it was not till late in the 18th century that their existence and constitution were discovered and explained to the world by a German of the name of Gall, who has since gained great celebrity by his discovery. Many people, called philosophers, had indeed suspected their existence, and some of them seem even to have occasionally stolen a glance in at the windows, and described what they saw; and almost everybody had remarked the exterior of the buildings so occupied, but without troubling themselves much about the number, habits, or occupations of the tenants. And another kind of men, called anatomists, have been known to examine many of these edifices, after they had been forsaken and abandoned by the proprietors, and to investigate their arrangements and structure with great care, in the hope of finding out the uses of the machinery, and the number and particular occupations of the artists; but every thing they saw was so totally unlike

every other kind of machinery with which they were acquainted, and the actual uses to which each particular part was applied being no longer observable, they also were defeated in their attempts. Most people had at last come to regard each of the edifices and all its contents as a single large storehouse occupied by a single tenant; but a few, particularly of those who had peeped in at the windows while business was going on, insisted that, in fact, each building was subdivided into a variety of parts, each inhabited by a partner, who carried on a distinct branch of business for the general behoof. But it remained for Gall the German to put their real nature beyond a doubt; and he succeeded where others had failed, only because, instead of contenting himself with looking in at the window of occupied tenements, or with inspecting forsaken ones, he persevered in his entreaties till he was let in at the door, and had an opportunity of seeing with his own senses the kind of use to which every individual part of the machinery was applied.

Gall, Mr Editor, was a very curious and a very reflecting man, and he made his discovery in a very curious manner. Being placed by accident in the immediate vicinity of one of the communities, he was often made to suffer from the pertinacious loquacity of a voluble little man, with *very big eyes*, and who was never amissing from his station under the porch in front of the edifice, where he seemed ever on the watch for a new victim on whom to inflict his ceaseless prattle. Curiosity prompted Gall to enter into conversation with him, and to inquire how it happened that he was always at the door, apparently idling away his time to no purpose. His little friend told him that this was a sad mistake, and that he was there in discharge of the important duty of interpreter and speaker for the whole establishment, (not a speaker, like he of the House of Commons, *a non loquendo*;) and that, besides, he assisted the secretary in reading the correspondence and in the composing of his letters, neither of which the secretary could accomplish without him, whether from nature

or from habit he was uncertain, as it was not within his province, but belonged to another member to think. He farther added, that not one member of the whole community could either speak, write, or read, a single word without him, however trivial and schoolboy-like such accomplishments might seem to be; and that he, in executing all these multifarious functions, discharged his share of the duties, and consequently was entitled to and received an equal share in all the comforts which the community could command. He also informed Dr Gall, that in these establishments every member, on the true principle of a division of labour, was intrusted with a particular department of business, and was answerable for its proper execution, and that every thing being thus regulated, and each having his own lodging fitted up expressly for himself, and adapted to the nature of his employment, it was astonishing how successfully business went on.

Gall was at first greatly surprised at this information, and was long doubtful of its truth; but having kept up his acquaintance, he at last prevailed upon his little friend to introduce him to some of the other inmates, that he might have an opportunity of observing how the system worked; and then, to be sure, he saw between twenty and thirty members, each installed in a lodging of his own, occupied exclusively in his own peculiar business, but contributing his share to the common good.

Scarcely had Gall satisfied his curiosity by gaining admittance to one building, than a strong desire to inspect a great many more all at once seized upon his mind; and, in looking around him, he was amazed to observe that he had actually been living in the midst of them, without ever suspecting what was going on within. The other buildings, to be sure, varied in size, in convenience, and in furniture, but were all erected on the same general plan, and with the same number of apartments and of tenants; and it now appeared that it was their very number and similarity that had hitherto prevented their true government from being inquired into.

Thus, the first person that he came into contact with, in approaching all of them, was always the little big-eyed interpreter seated under the porch in front; and what struck him as very remarkable was, observing that his little friend's fluency and volubility of utterance was exactly proportioned to the size and accommodation of his apartment. At first he was surprised to meet with some of those gentlemen, whose monosyllabic answers and dearth of words seemed to indicate almost an absence of the power of speech; but he soon gathered from them, and, indeed, saw with his own eyes, that this arose from their own diminutive stature, and from the scanty furniture and narrow limits of the lodge putting copiousness entirely out of their power. And it was this observation that, pursued farther, ultimately led him to remark, that the capabilities and efficiency of all the members were exactly proportioned to the extent of their accommodation; and, after a great deal of trouble, and time expended in visiting an immense multitude of communities, he ascertained, that although all were occupied by the same number of individuals, intrusted with the same functions, and domiciled in the same apartments, yet immense differences were to be met with in regard to the extent of accommodation possessed by each; and thus it appeared, that all were not carried on with equal success or with perfect harmony, as will afterwards be more fully explained.

In many other respects, too, these communities were found by Gall to differ from those patronized by Mr Owen. Mr Owen's, as you, Mr Editor, well know, are intended for two or three thousand members; but those seen by Gall, and which abound in the world, are on a much smaller scale, none of them containing more than from thirty to forty individuals, although he was informed that a few of the members had escaped his notice, and had been confounded by him with others with whom they were in the habit of associating. Mr Owen, being fond of straight lines and sharp corners, places his societies, as you know, in stiff parallelograms.

Those described by Gall are placed in edifices of a very different shape and construction. With a little variety of form, most of them are of an irregular oval oblong shape, of unequal height and breadth, but many of them exquisitely proportioned, and of beautiful elevations. Indeed, some of the finer specimens are so inimitably beautiful as to seem fitter for the abodes of immaterial spirits than of beings of an earthly form; and from this circumstance we find one of them denominated "the palace of the soul" by a late great poet, who saw it to infinite disadvantage, after it was abandoned by its inhabitants as unfit for use.

When Gall began to visit these communities, with the view of ascertaining the number of their inhabitants, their occupations, and general economy, he was very often repulsed by a very grave, timid, croaking, dismal-looking fellow, and a smooth-faced, twinkling, sly person, who were urgent for his exclusion. The former sounded fear and alarm till the very walls shook; and the latter insisted that nobody should see their secret, and thus be enabled to lay plots against them. But as the one had shown himself a coward, even when no danger existed, and the other had often shown more duplicity than veracity, their objections were generally overruled, and Gall was admitted; and the only assistance he then required was to guard himself against being misled by the lies and mystery in which his disappointed enemy endeavoured to envelope every transaction. But in this also, thanks to a very upright and honest member living in another apartment, he completely succeeded.

Gall soon found, that in these, as in other well-regulated communities, each member was accommodated with a couple of apartments, one on each side of the building, and that, to prevent mistakes, each had his own number on both of his doors. Those, however, who reside in the central part have their apartments so close to each other that one large folding door served for both, and one number was all that was required. This idea of numbering the residence of the mem-

bers is convenient in more respects than one; for, as the existence of these communities was first discovered in a foreign country, many of the members still retain the long and uncouth foreign-like names and titles which were at first attached to them; and hence, to avoid circumlocution, it often happens that the individual occupant is spoken of numerically, instead of nominally. Thus, the dignified president of the Society is often styled simply No 10,—his residence being at No 10 in the building. Again, that grave, long-faced, apprehensive-looking person, Mons. de la Circonspection, is known to every one as No 12, and never takes this numerical designation at all amiss. This your readers will at once recognize to be the plan practised at inns. The unknown gentleman sleeps in bed-room No 9 for instance, and, on asking for his bill, he finds, "No 9.—Dinner, 5s., Claret, 10s. 6d.," &c. &c., which he pays, and leaves the house as mysteriously as he entered it.

The most delightful thing observable in the domestic economy of these communities is the strict impartiality which regulates the distribution and furniture of the different apartments,—the size, situation, and splendour of each being admirably proportioned to the wants of the occupant and to the extent and importance of the duties with which he is intrusted. Here, for instance, as in all well-regulated communities, those who have the charge of the household arrangements, and perform the coarser work, and attend to the eating and drinking departments, and take care of the children, are domiciled on the sunk floor or base of the building, while those who superintend the moral, religious, and intellectual welfare of the flock occupy the higher apartments in front and on the upper floors. A few, indeed, there are, whose office is almost a sinecure, but who, nevertheless, are useful enough in their own way, and whose constant watchfulness and occasional assistance are quite indispensable to the comfort and success of the establishment. These occupy the lower rooms in front, at Nos 20, 21, 22, 23, &c., where, it

must be admitted, they are somewhat narrowly lodged; but their accommodation being in other respects complete, and, in point of extent, proportioned both to their wants and to the nature of their services, they are as contented and happy as any of the others. Those, again, whose duties are of a higher order, and of greater importance to the happiness and guidance of the rest, are lodged in spacious and elegant apartments, and they also are satisfied with their condition.

"But how," I think I hear you exclaim, "*inequality and union!* the thing is impossible!" No doubt it is; but there is no inequality here. Real equality consists in having immunities and privileges proportioned to our nature, and not in every one having the same. If, for instance, you were to install the little fellow who lives at No 21, and who, from his small dimensions, is nicknamed Size, into the spacious halls of the grave and retiring big gentleman at No 12, what would become of him? He would absolutely be lost in one corner or other, and might die of hunger before he was discovered. As to what the solemn man would do in the little box of the little fellow, the question is useless. He could not get in! If, again, you were to make the proud and dignified sign or at No 10 evacuate his lofty and commanding station, and to pop himself into the quarters occupied by the sly fox-looking figure at No 9, what would follow? It is clear he would go mad on finding himself obliged to lay aside his stately and perpendicular attitude, to lie down horizontally, with his head sticking out to one side, and his feet to the other, like two long 24-pounders on the middle-deck of a man-of-war; and be watched, too, by his chicken-hearted friend in No 12, lying all the time above him like a nightmare on an alderman's breast at five o'clock in the morning, after a Lord Mayor's feast. And how would his sly friend like the exchange? To find himself placed, as it were, like a monument on a hill-top, for everybody to gaze at; he, whose delight it is to peep unseen through holes and from behind screens. Assuredly he would not rejoice at the change.

But how, you will say, in this society of union and co-ope-

ration, are not all the members of one mind and of one way of thinking? Quite the reverse, Mr Editor; they are as different in their tastes and ways of thinking as any set of men can be. But then they are generally all of one mind as to one very important point; and this is the chain which links them together, and which old society ought instantly to adopt on a larger scale, viz. every one of them is satisfied that he is most effectually promoting his own interest and gratification, when he most zealously employs the particular talents and qualities which he possesses for the general benefit, and, that none of them may have the pretence of forgetting for a moment the course which he ought to pursue, the whole community is generally placed under the direction of the Chief Justice, the High Priest, and the Grand Almoner, who live respectively at No 17, 14, and 16, and who are supported by the rest, on condition of acting as faithful and upright monitors, and attending to the impartial administration of the laws, to the interests of religion, to the wants of the poor, and to the recovery of the sick. Their injunctions are not indeed always fulfilled; but as their own practice strictly accords with their precepts, and they lead upright, useful, and honourable lives, they are much respected, and their approbation sought for even by the most turbulent members of the household. When the community is guided by them, it is observed to flourish, and to enjoy great internal peace and happiness; but when, as sometimes happens, the suggestions of the men below are listened to in preference, and contrary to their advice, anarchy, turbulence, and discontent, are sure to follow. For example,

To repel aggression, and give a healthy principle of resistance to the community, and also, it must be admitted, from a lurking love of contention and fighting in the man himself, the indweller at No 5 has been constituted a Soldier; and, for equally good and obvious reasons, he of No 6 has been appointed Butcher, he of No 8 Banker, he of No 24 the Traveller, he of No 28 the Organist, and he of No 33 the Imitator, and so on; and each in his own vocation is an ex-

ceedingly respectable and useful member of society. But when any one of them takes it into his head to set up for himself, and carry on his own trade in his own way, and for his own exclusive advantage, every thing goes to wreck and disorder. The Soldier, when abandoned by the prudent foresight of the wary gentleman at No 12, gets his brains knocked out, not in battle with the enemy, but in a senseless quarrel with his comrade, Grady O'Flanagan, about the question, whether St Patrick was a native of Tipperary or Conamara. The Butcher, when deaf to the admonitions of the Chief Justice, gives way to his furious rage, commits murder, and gets himself hanged, to the great annoyance, and, in fact, to the total destruction of the whole community; for the people being carnivorous, cannot live without him. In like manner, when the Banker sets up for himself, and despises the admonitions of the Chief Justice and High Priest, he uniformly commits usury, and gets himself prosecuted under the statute of Queen Anne, which, you know, imposes forfeiture of the debt, and treble the amount of it in name of penalty; so that he becomes daily poorer the more he labours to become rich. The Traveller also, when left to himself, sees mountains where there are only seas, and forgets his business in thinking about friths and headlands which have no existence but in his own imagination, and thus loses his employment. The Time-keeper at 26 goes mad, and dances himself into convulsions; and the Organist, lost to all sense of propriety and of melody, alarms the community with discordant and uncouth sounds, which cease only when his instrument no longer answers to his call. The Imitator, forsaken by reason, enacts the part of Harlequin, and, in concert with the Wit at 32, makes a mock of every thing under the sun; till, by the chaotic din, the three great powers, roused to extremity, turn the one against the other, and by making the Butcher break the head of the Soldier, and the Soldier pummel the ribs of the Butcher, and by setting the Time-keeper to subdue the Organist, and so on, the whole are again reduced to

reason. But when each exerts himself in his own department under the guidance of the three great functionaries already mentioned, matters go on very differently. Each then applies himself to the branch for which his genius peculiarly fits him, and is satisfied that he best consults his own happiness by confining himself to his own department, instead of exerting a restless anxiety to raise himself to one which he conceives to be of a more refined nature. There is thus union in its best sense, and each, by pursuing his own trade, gratifies himself and his neighbours at the same time. But you will understand this better when I give you the characters and habits of a few of the members a little more in detail.

Some of the inhabitants who reside in the lower floors, are, as I have already hinted, somewhat prone to violence and excess. The Butler, who has charge of the cellar, occasionally gets drunk, tipsifies the Butcher, who lives close by him, and who, even when sober, is somewhat of a passionate, mischief-loving disposition; and then the two together make a tremendous uproar, and break, smash, and destroy the crockery, furniture, and every thing else that comes in their way; and it is reckoned fortunate if the Butcher does not, as already mentioned, commit a murder. Occasionally they are joined by the Soldier, a person naturally addicted to all sorts of fighting and contradiction; and then he goes about squaring his fists, and giving bruises and bloody noses to every one whom he meets; and the Butcher sometimes slips a knife into his hand, and then he becomes a perfect demon. When the Butler, Butcher, and Soldier of one community happen to meet the same members of another, both parties being drunk, at a late hour, when the Chief Justice and High Priest are gone to bed, they kick up a tremendous uproar. They curse, swear, and blaspheme, threaten, slash, bite, kick, and maul each other in the most flagrant and disgraceful manner, and never stop till some of the more moral and benevolent members come down and put them all in the stocks.

In some communities, however, from the lower floor being small, and the accommodation of these inferior functionaries being limited, and a strict discipline being kept up by the higher officers, such disturbances never happen, and each fulfils his duties, and is happy in his own sphere. Indeed it is only in those societies where the servants have unfortunately been provided with larger apartments than their business requires, and more leisure than is good for them, that they have become dangerous and ill-behaved.

The Butcher living at No 6 is, as I have said, accused of being naturally of a mischievous disposition, and fond of cruelty, and various methods have been tried by the Chief Justices of different communities to tame him. The favourite plan is to flog him; whenever he makes a row, he receives a dozen of lashes; when he repeats his offence, he gets two dozen; but this is not found by experience to have any good reformatory effect. He seems either to like flogging, as I have heard reported, or he soon forgets it. The more successful way has been to find proper employment for him in his line, and to look narrowly after him. His proper occupation is killing animals for support of the community,—a species of work declined by all the other members, but of which he is rather fond. Those who succeed in keeping him out of mischief, give him, in addition, the duty of cutting down the wood, breaking stones for the roads, and blasting rocks with gunpowder. As a child, it was observed, that he would often, in his recklessness, have burned off his fingers, or blown himself up, had it not been for the attention of the cautious gentleman at No 12; and, improving on this hint, the whole community joins in soliciting this wary personage to take charge of him for the general safety of the whole establishment.

I had a great deal more to say, Mr Editor, but I have already consumed all the paper in the Glen, except a single sheet, which I must reserve for some great occasion, as my next supply may not reach me for three months to come;

and I must therefore conclude, and I only rejoice that this will reach you so very soon, as a long-legged young collegian, who is hastening to the south, promises to carry it in the briefest space of time that such a journey ever was accomplished in.—I have the honour to be, dear Mr Editor,

The Laird's third cousin,
And your very humble servant,
MICHAEL THE STAMMERER.

ARTICLE XIV.

THEORY OF THE TEMPERAMENTS.

WE stated in our last Number, that, by a new application of the universal principle, of size in an organ being a measure of its energy of function, Dr Thomas of Paris had succeeded in developing a rational, and, as to us it seemed, most important theory of the temperaments; thereby solving, in a clear and consistent manner, what had been so long felt as a hiatus in medicine and in philosophy, and what had been so long a stumbling-block to the most zealous cultivators of mental and moral as well of physiological as medical science.

Since that time we have very often tried Dr Thomas's views by the test of experience, and have not hitherto met with any exception, but, on the contrary, have found them singularly felicitous in throwing light upon some previously obscure cases, and of great value in estimating the relative activity of the nervous system in different constitutions; and it is the conviction of their great practical importance that leads us to press them again on the attention of the reader. That they have been partially appreciated is evident from some of our best newspapers,—such as the Scotsman, the Morning Chronicle, and the Englishman,—having copied them from our pages; but that they are not yet sufficiently known

is obvious, from their still remaining unnoticed in most of the medical and literary journals of the kingdom.

Dr Thomas's principle is simply, that as size is a measure of power, and as the whole system is made up of the nervous, the sanguineous, and the digestive apparatuses, contained respectively in the head, the thorax, and the abdomen, so will the natural constitution differ in proportion to the relative equality or predominance of all or any of these three great divisions. Thus, a great size of brain and head, with small thorax and abdomen, will give a constitution characterized by a necessary predominance of the cerebral over the thoracic and abdominal functions, viz. great nervous energy, activity, and force of mind, with little aptitude for muscular efforts, and rather weak digestion; and a large and capacious thorax, with small head and small abdomen, will give a constitution characterized by abundant sanguification, powerful respiration, and vigorous propulsion of the blood to the extreme points, and, consequently, by an aptitude for muscular efforts and active exercise, much more than for mental activity or active digestion. And, again, a capacious abdomen, with small head and narrow thorax, will give a constitution characterized by great powers of nutrition, plumpness, and sloth, much more than by mental or bodily energy, or vivacity of motion. And the other compound combinations of them will produce constitutions participating in the qualities of their constituent elements,—such as the cranio-thoracic, with large head and thorax and small abdomen; the thoracico-abdominal, with large thorax and abdomen, and small head; and the cranio-abdominal, with large head and abdomen, and small thorax, &c., as already fully explained in our last Number.

Hitherto we have been greatly at a loss how to estimate the degree of activity of the brain, except by observing the manifestations; but we are inclined to think that Dr Thomas has provided us with the means of approximating, at least, if not of positively deciding. Supposing the health to be good, if the head and brain be large and the thorax and abdomen

relatively small, we shall find not only predominance of cerebral power, but also, so far as our observation goes, cerebral activity. Or, if the head and thorax are both large, with a small abdomen, we shall find mental power and muscular energy combined; but, as part of the nervous energy will necessarily be expended in supporting the greater demand of the muscular system, the mental power will be less purely intellectual in its manifestations, and less capable of long-continued efforts of thought, and, consequently, the individual will make a less permanent impression of intellectuality; and, in our conceptions of his character, the thorax and locomotive manifestations will also be felt as constituting no small portion of the man. A big thorax cannot brook confinement and sedentary occupations, and is, consequently, not favourable to long-continued mental efforts.

A large brain, again, with a large abdomen, and strong powers of nutrition, will constitute another modification of temperament, in which the vivacity and permanence of the mental functions will be subdued still more than by a large thorax; and although the cerebral energy will still be felt, it will appear much more in fits of exertion than as a durable state, and, in our conceptions of the man, the abdomen will constitute a large proportion of the figure, and the animal appetites will be felt to consume, at least, as much of the nervous energy as the purely human or intellectual powers.

The practical uses of these views are numerous and invaluable. Let us suppose that we want a man fitted to make a good general. If we choose a decidedly encephalic candidate, with small thorax and abdomen, we may find in him every intellectual and moral qualification that heart could desire; but how would he withstand the bodily fatigues of an active campaign? The feebleness of the thoracic functions, and the consequent inaptitude for active muscular exercise, would induce a drain upon his nervous energy to carry his body through space, that would deprive him, on emergencies, of half of his mental activity and superiority; whereas, if we

select a man, like the Duke of Wellington, with an ample thorax added to a large brain, we have at the same time the power to endure fatigue without detracting too much from the nervous energy; and, consequently, we have the power of rapid mental combinations, undiminished, ready to take advantage of every opportunity. Or, if we select a man with a small head, joined to a large thorax and big abdomen, then we have the mere animal force, with only a glimmering of mind to guide and direct it.

In choosing a profession also, and we know not a more important question, Dr Thomas's theory is admirably useful. If the youth is remarkable for a fine broad chest, a moderately-sized head, and full abdomen, no Phrenologist would ever recommend to him a sedentary profession requiring much confinement, whatever might be, in other respects, his cerebral qualifications; because he would see in this configuration the indelible stamp of nature, pointing out to him a *more active* field of usefulness, and threatening him with disgust and restlessness if he ventured on a sedentary course of life, so much at variance with his natural constitution.

If, again, the youth is remarkable for predominance of the cerebral over the thoracic and abdominal functions, the Phrenologist acquainted with the temperaments would never recommend a profession requiring much bodily activity and strength in addition to much intellectual superiority, because he would at once foresee the inability of such a frame to cope with the demands to be made upon it, and the miseries to which it would lead. As an advocate, solicitor, or banker, such a person might be happy and successful; whereas as an engineer, or any other profession requiring both mental and bodily vigour, he would be miserable.

In education the use of Dr Thomas's theory is equally obvious. In early life the temperaments may be modified more easily than at any future period, and hence the importance of attending to them in the young. A boy of a thoracic temperament will be prone to violent exercises, and comparatively

averse to mental occupation; but, by a judicious and persevering superintendence, and by gradually and proportionally extending the latter, and withdrawing the incentives to the former, a very beneficial change may, there is every reason to believe, be ultimately accomplished. And, again, the encephalic boy, with weak chest and muscles, may in time, by withdrawing the incentives to and opportunities of too much mental exercise, and by a properly-regulated gymnastic training, and muscular exertion in the open air, be greatly improved in bodily vigour, and yet retain his mental powers undiminished. And, lastly, the abdominal boy, whose belly is his god, may, by proper regulation of diet, and mental and bodily exercise, be brought within the pale of humanity; whereas, if left to himself, animal indulgence and mental sloth would be his portion for life.

In fact, while we write, examples of the applicability of this theory to education, to professional purposes, to morals, and to medicine, crowd in upon us; and, if we refrain for the present from proceeding further, it is with the view of securing the groundwork, by earnestly recommending our readers to go back to the analysis of Dr Thomas's book, given in our last Number, and not to leave it till they thoroughly understand it. We shall speedily return to the subject.

ARTICLE XV.

On the Functions of the Sense of Sight, considered chiefly in its Relations to Ideas of Form, Colour, Magnitude, and Distance.

The object of the following pages is to show that the eye, or external organ of vision, serves only to receive and transmit the impressions of light, and not to form ideas of any kind, whether of colour, distance, or magnitude.

That the function of the eye and optic nerve is simply to receive and to transmit to the organ of mind, the impressions made on them by the luminous rays with which they are in contact, and that in themselves they do not form any kind of ideas, or judge of any kind of qualities; and that, for this purpose, the co-operation of the brain is absolutely indispensable, will plainly enough appear on an attentive examination of the structure of the eye, and of the phenomena consequent either upon its destruction, or upon its restoration to health.

In the case of vision, as in all other varieties of sensation, the nerve is the really active or essential part, and the ocular apparatus upon which it is distributed differs from that on which other nerves are ramified, from the ear for instance, only because light, or the object to be perceived, differs in its physical properties from the objects cognized by the other nerves, as from the air in the case of hearing. If the nerve of hearing were ramified on the membrances of the eye, it is quite obvious that the non-adaptation of the mechanism of that organ to the propagation of the atmospheric vibrations would render it utterly useless as a nerve of hearing; and if, on the other hand, the nerve of vision were ramified on the internal ear, it is equally obvious that it would be utterly useless, because the rays of light could never reach it. The nerve of vision, then, requires the aid of, and is attached to, the eyeball, solely because the latter is so exquisitely adapted to the properties of light, that while the transparency of its humours allows the free transmission of the luminous rays, the relative convexity and form of its membranes modifies them in their passage, in such a way as to produce a distinct and well-defined image on the nervous expansion, which is destined to receive and transmit the impression to the brain or organ of mind. That this is the real and sole use of the eyeball, and that it does not form ideas of any kind, is apparent from the fact, that, even after death, or after extraction from its socket, the eye retains the power of forming a distinct image of external objects on the retina or nerve, so

long as its membranes and humours retain their transparency, and the eye is not suffered to collapse; and also by many instances of disease in which the eyeball remains unaltered, and transmits the luminous rays to the retina with perfect fidelity, but where, from changes in the optic nerve, or in the brain, no cause of sensation is communicated to the mind.

If then it be admitted that the nerve is the essential organ of the external sense, it must also be granted, that, singly, it cannot form ideas or judge of qualities, and that, as in the case of other nerves, *it is the mind acting in connexion with the cerebral organs that is their true source.* This accordingly is the received phrenological doctrine; but, as much confusion still exists in the public mind on this subject, some farther facts, arguments, and illustrations, may not be misplaced.

If the case were otherwise, and the eye itself were the true source of the kind of ideas already specified, persons born blind, and who consequently could never have enjoyed or manifested any of the functions attached to that organ, ought to possess no notion of form, colour, distance, or magnitude; and, on the principle that destruction of an organ necessarily involves the destruction of the function belonging to it, those who have been so unfortunate as to lose both eyes by accident or by disease, must, if the eye be the real source of these ideas, have lost not simply the *power of vision*, but also all perception and recollection of the distinguishing qualities of external objects. But when we come to consult nature, precisely the reverse of all this is found to hold good; for not only are ideas of form, colour, and distance, retained in perfect vigour after the loss of both eyes and the total destruction of their function—*vision*, but many blind people, who have never seen at all, excel in these very perceptions, and have a more accurate conception of the form and properties of a cube or a sphere, than nine-tenths of those who have them always before their eyes. Saunderson, who, it is well known, was born blind, was a capital mathematician and

teacher of mathematics, a science treating of and founded upon the very qualities of forms, magnitudes, and quantities, that are still so absurdly ascribed to the only sense which nature had denied him!

If the eye is the sole source of our ideas of distance, how does it happen that the born-blind daily display such accuracy of perception of distance and relative position in the rapid and almost unerring certainty and safety with which they thread their way through the crowded streets of a city, and judge of the distances of horses, carriages, and other moving obstacles, which they so cautiously avoid? If the eye is the true origin of such ideas, how does it happen, that, after the loss of both eyes and of the functions which they perform, a man still retains accurate notions not only of form, or of distance, but even of colour, which at first sight seems the most dependent of all upon the integrity of the eye? If Milton had been indebted to the eye alone for his sensibility to the harmony of colours, he would have lost that taste when the organ that gave it was destroyed; but, instead of this, the pathetic and affecting address to Light, which he wrote when perfectly blind, shows demonstrably that his sense of colour was as vivid as ever. Nay, even persons born blind, and whose eyes never surveyed the varied hues of nature, have nevertheless a distinct conception in their own minds of the quality of colour, which of itself is enough to prove that the eye is only a medium or inlet to, and not the origin of, that sensation. And on this view we can easily explain the ability of the blind to understand and to teach the laws of optics, and even astronomy; and also the exquisitely appropriate descriptions of the beauties of colours by such persons as Dr Blacklock, whose eyes were never open to the light of day. "In his poetical productions," says an ingenious writer, "Dr Blacklock alludes to the various beauties of the visible "world, and to the charms and delicacies of colour, with all the "propriety, and with all the rapture and enthusiasm, that ever "fired the breast of a poet who had the fullest enjoyment of his "eyesight. *Nor was this done mechanically or merely by rote;* "for having himself put it as a question,—'How shall we ac-

"'count for the same energy, the same transport of description "'exhibited by those on whose minds visible objects were either "'never impressed, or have been entirely obliterated?' he as- "'sures us that, 'however unaccountable this fact may appear, "'it is no less certain than extraordinary.'"*.

Here then we have the most unequivocal testimony in proof of ideas of form, size, distance, and colour, being independent of the mere organ of vision, and of the latter being no more than a medium of communication between external objects and the internal faculties of form, colour, &c., which take cognizance of these qualities. Many philosophers, indeed, and Mr Alison among others, explain such cases as Dr Blacklock's, by referring his delight in colours, not to any distinct original conception of their beauty in his own mind, but to the influence of association in connecting other feelings with the words which he made use of to denote colours; but although it is extremely difficult for us to conceive, themselves of the ideas of colour entertained by such persons, yet there is abundant evidence, not only from their own declarations, but from their manifestations, that they do actually possess them.

The simplest way of determining the functions of the eye is one within reach of everybody. It is merely to shut the eye, and then attend to the ideas and functions which still remain;—vision is at an end; therefore we may say vision is the function of the eye; but the form of our friend's face, the colour of his eyes and hair, the size of his head and nose, and the distance at which he lives, are just as accurately present to the mind as ever they were, and consequently these cannot constitute any part of the function of the eye, which is completely inactive.

Daily and most familiar experience is in strict accordance with this. Every one knows that it is clear and distinct vision, and not a talent for colouring, form, or perspective, that is the invariable accompaniment of a favourably-constituted eye; and that many a weak-sighted man is remarkable for an

* Edinburgh Encyclopædia, vol. III., p. 601.

exquisite taste for painting, (colour), drawing, (form), or perspective; while, on the contrary, many examples of the lowest endowment of all of these talents are to be met with in union with the most powerful vision. Mr. James Mylne is one instance out of many, known to all our readers, of quick sight co-existing with inability to distinguish some of the most palpable shades of colour with each other. Mr Ferguson, mentioned in Mr Combe's System, is an instance of deficiency in the perception of perspective,—a deficiency which, by the way, seems to be more characteristic of the Chinese than of almost any other people, their mere eyesight being as good as our own. And, in fact, this non-relation of force of vision to taste for colouring, &c., is so well known, that a man would be laughed at by the very children on the street, were he seriously to affirm that looking through a telescope would give such persons as Mr Mylne a high relish for the beauty of colour; which, however, it would do, were mere force of vision all that was wanted to improve his talents.

The phenomena of disease support our views equally as those of health. When the eye alone is disorganized, as when the cornea or the crystalline lens has lost its transparency to such a degree as to impede, but without altogether interrupting the passage of the rays of light to the optic nerve, the consequence is not any derangement in our ideas of form or of distance, but simply the imperfect formation of an image on the retina, *and the perception by the mind of this imperfection as an existing quality of the image.* And in another affection, ophthalmia, which is confined to the eye alone, there is increased *sensibility to light*; but, unless the disease extends to the brain, and delirium supervene, there is no disturbance of our ideas of colour, of form, or of distance; whereas, in diseases of the brain, *the eye remaining sound*, false perceptions of distances, features, and relative position, are constantly occurring and leading to fearful mistakes, as is daily seen in mania and in fever. In surgical cases of pressure of the brain from fracture of the skull, *the eye all*

the time remaining the same, vision may often be suspended, or restored, by increasing or diminishing the pressure made on the brain by the broken bone; thus, in every instance, affording the strongest proof, that the eye and optic nerve do not form ideas, but serve only to receive and to transmit the impressions made by the luminous rays; and that to perceive, or to *become conscious of these impressions*, and to judge of their qualities, require indispensably the operation of the whole or of some parts of the brain.

The eye being thus shown to be in a great measure a passive instrument, and to act upon the rays of light in virtue of the physical properties of its component parts, it follows, that whenever its development is complete, it will execute its functions with perfect precision, independently of experience. But this truth has been greatly lost sight of. It has often been alleged, for instance, that, as we have two eyes, we ought necessarily to see single objects double, and that, as the image formed on the retina is an inverted one, we ought necessarily to see objects also in an inverted position; but, as we know that we see them single and not inverted, philosophers have long racked their brains how to explain these anomalies, and have invented many laboured and profound theories to solve the difficulty. One, that has been rather a favourite among them, affirms that, at first, we do actually see double and inverted; but that this false perception being constantly corrected by touch, we come at last, by dint of experience and scholarship, to see single and upright. But a *woful* aberration of judgment is here, which Experience might have corrected, had she been faithfully consulted. When a stick is plunged into water, sight sees it bent from the straight line, and touch feels it not to be bent, but straight, and judgment decides that sight is deceived by appearances. But, although the mind knows that sight is wrong, the latter, nevertheless, continues to the end of time to *see it bent*; and, in virtue of the constitution given by nature, the eye cannot, by any possibility, or by any experience,

see it otherwise than in obedience to the laws of light. This goes to the root of one sense being corrected by another. *The mind, which judges and directs* actions, is corrected, and knows the sense is in error; but the sense itself never varies in its tale. Touch may tell us that our bodies are not at the back of a mirror, but sight continues, nevertheless, to see the same form there as before. It is our judgment, and not the sense, that is corrected, as the impression on the latter remains identically the same. Keeping this in view, can any thing more absurd be proposed, in the shape of philosophy, than to affirm that, by nature, we see objects double and inverted, and, by touch, *learn to see* them single and in the reverse position? It is very true, that we cannot yet satisfactorily explain *how* we see every thing single and uninverted; but when we know that many animals see accurately at birth, and without experience, and that no blind man, on being suddenly restored to sight, ever saw objects either double or inverted, it is better to say, that we enjoy correct vision or correct judgment by the bountiful gift of the Creator, than to obscure the fact by a load of false explanations, or to deny it altogether till we shall be able to discover to our own satisfaction *how* the corresponding structure acts in producing the effect,—a point, most probably, much beyond the reach of our faculties ever to determine.

But it will be said, it is quite certain that by means of vision we acquire ideas of distance, magnitude, or position; and these, therefore, must depend on the eye. To this we answer, that vision is one inlet to the external cause that gives rise to these ideas, but that, as both it and its organ may be destroyed, and yet the power of forming such ideas may exist in full activity, the latter cannot be referrible to the eye as their real origin. The strongest proof that these conceptions depend not on the organs of sense, but on the brain, is, that by sound and by smell, as well as by sight, we may judge of distance, of volume, and of position; and that, as the power of forming these ideas may be retained in perfection after the destruc-

tion of each of these organs separately, it cannot possibly be held as a part of the immediate and necessary functions of any of them. Positive experience comes to our assistance here, and demonstrates, that all ideas attended with consciousness originate in the brain or organ of mind; and further, that the perception of the qualities, already alluded to, of form, colour, &c., depends on the existence, development, and activity of particular parts of the brain, which are the material organs of the corresponding mental powers, and of which the eye is only an instrument of communication, placing them in relation to the external world. Experience proves further, that in those animals, such as the chicken, the partridge, the bee, and the butterfly, in which the eye and the cerebral organs are perfectly evolved at birth, so far from any preliminary education being necessary, colours, forms, and distances, are appreciated, and vision, in short, is performed from the first moment of existence, with a facility and fidelity equal to those enjoyed at any subsequent period of life; whereas, if, as in man, either the eye itself, or any of the cerebral organs, are naturally defective, or are not developed till some time after birth, their vision remains proportionally incomplete in spite of experience and of the efforts of the other senses. In originating and forming ideas of colour, distance, and form, the activity of the whole brain is not required. Phrenology and experience show, that distinct mental faculties take cognisance of each of these qualities, and that the sensibility to each depends on the predominance and development of a distinct and independent cerebral organ, and is thus not at all proportionate to the others; and that, of any number of individuals, in all of whom vision is equally acute, one may have instinctively a much quicker and more accurate perception of forms, another of colours, a third of relative position, than any of the others can ever attain, however great their experience, and however anxiously they may have exercised their powers. Thus it is common enough to meet with painters who excel in one

department and are inferior in another; one excels in colour, another in perspective, and a third in outline or figure; and none of them are able to remove the deficiency by any effort or by any study.

In forming a correct theory of vision, it is exceedingly important to attend to these natural differences in the power of estimating different external qualities, unconnected as they often are with any difference in the power of sight. We all know how much philosophical reasoning has been founded on the phenomena consequent on sudden restoration of sight, in adults, who are supposed to be able to give an account of their sensations; of one it is said, that he had great difficulty in distinguishing colours, but none in recognizing forms; of another, that he perceived colours with ease, but failed in appreciating distances, and so on; but, in inventing explanations of these phenomena, not the slightest allowance is ever made for any natural difference of capacity independent of the eye; and the whole reasoning is carried on as if every mind were completely equal in the force and the proportions of its powers to another; and the greatest errors are thus inadvertently committed, as may be shown by selecting, for example, two individuals possessing the same quality in opposite extremes. Mr James Mylne, whose sight is rather keen, is, nevertheless, from an imperfect endowment of the organ and faculty of Colour, unable to distinguish many shades of colour from each other, while he readily appreciates differences in shape, size, or position. Rubens, on the other hand, from a large endowment of the faculty in which Mr Mylne is deficient, excelled in his perception and judgment of tints, while his appreciation of figure, from a smaller endowment of the organ of Form, was avowedly less perfect. Mr Mylne could not surmount this defect, and was in consequence obliged to change his profession. Now, suppose both of these individuals to have been born blind, and restored suddenly to sight at the age of thirty, is it not quite evident that Mr Mylne would never have learnt, by any amount of

experience, to distinguish colours with any thing like the accuracy which Rubens would have displayed from the first. And, if we neglect these immense differences at the very basis of all the speculations, what is likely to be the value of the superstructure when actually raised? If the perception and appreciation of forms, magnitudes, and distances, depend neither on touch, nor on sight, nor on any external sense exclusively, but on internal faculties acting on data furnished by the senses, and we neglect to ascertain the natural differences of capacity in the subjects of our observations in regard to these qualities, it is in vain to expect to arrive at satisfactory or consistent conclusions.

But, in addition to a sound eye and a proper endowment of the requisite cerebral organs, another very important condition is necessary for the perfect exercise, both of direct vision, and of the indirect inferences in regard to the qualities of external objects, but which is often overlooked, viz.—*the power of directing and steadily fixing the eye upon an object.* Mr Charles Bell, in one of his excellent essays in the Philosophical Transactions, on the functions of the nerves, has explained the mechanism and influence of the different kinds of motion, voluntary and involuntary, to which the eye is subjected; and has shown that many of the perceptions generally attributed to that organ take their rise from a particular state of the muscles. P. 178.—"When an object is "seen," says he, "we enjoy two senses. There is an impression on the retina; but we receive also the idea of position or "relation, which it is not the office of the retina to give. It is "by the consciousness of the degree of effort put upon the voluntary muscles that we know the relative position of an object to ourselves. The relation existing between the office of "the retina and of the voluntary muscles may be illustrated in "this manner:—

"Let the eyes be fixed upon an illuminated object until the "retina be fatigued, and in some measure exhausted by the "image, then, closing the eyes, the figure of the object will remain present to them; and it is quite clear that nothing can "change the place of this impression on the retina. *But, notwithstanding that the impression on the retina cannot be changed, "the ideas thence arising may;* for, by an exertion of the volun-

"tary muscles of the eyeball, the body seen will appear to "change its place, and it will, to our feeling, assume different "positions, according to the muscle which is exercised. If we "raise the pupil we shall see the body elevated, or if we de-"press the pupil, we shall see the body placed below us; and all "this takes place when the eyelids are shut, and when no new "impression is conveyed to the retina. The state of the retina "is here associated with a consciousness of muscular exertion; "and it shows that vision, in its extended sense, is a compound "operation, the idea of position of an object having relation to "the activity of the muscles.

"We may also show, by varying this experiment, that an "*agitated state of the muscles, or a state of action where the* "*muscles are at variance or confused, affects the idea of the* "*image.* If we look on the luminous body so as to make this "impression on the retina, and then cover the face so as to ex-"clude the light, keeping the eyelids open, and if we now "squint, or distort the eyes, *the image which was vividly im-*"*pressed upon the retina instantly disappears, as if it were wiped* "*out.*"—"If we move the eye by the *voluntary* muscles, while "the impression continues on the retina, we shall have the no-"tion of place or relation raised in the mind; but if the motion "of the eyeball be produced by any other cause, by the *invo-*"*luntary* muscles, or by pressure from without, we shall have "no corresponding change of sensation."

There is much truth in these very remarkable observations, as is shown, not only by Mr Bell's experiments, but by facts of daily occurrence; and it is scarcely possible to place in a stronger view the passive nature of the eye itself in leading the mind to ideas of visible qualities. The eye, in fact, is to the mind just what the telescope is to the eye itself. It receives, modifies, and transmits the luminous rays, but without being in any degree conscious of their properties, and of these the mind itself alone judges; and according to the steadiness with which the telescope is held, and the direction in which it is pointed, do our conceptions become more or less accurate, and more or less different; and the same law holds obviously in regard to the eye.

Indeed, the unsteadiness consequent upon want of exercise and simultaneous co-operation among the voluntary muscles is one of the greatest, if not actually the greatest obstacle that exists to accurate vision, immediately after sudden restoration

to sight; and it is one which, as we shall have occasion to notice, has been altogether neglected, in the many attempts to reconcile the phenomena with preconceived theories of vision. Another difference between the organs of sense and their functions and those of the brain, and which may enable us to distinguish between them, is the much greater amount of improvement of which the cerebral functions are susceptible from exercise and education; whereas, from the organs of sense acting chiefly in obedience to physical laws, they execute their functions (when their development is complete) with almost as much ease and accuracy from the very first, as after the greatest possible amount of experience. If it be said that touch or that taste improves by exercise, it is granted; but then it must be observed, that the change here is not solely in the amount of impression made by the external object, but almost entirely in the increased attention which the *mind* bestows in listening to it; and, consequently, I mean here, it is the cerebral organ, and not the external sense, that is *chiefly* modified. When a clock strikes in a room in which we sit, intent on another object, no sound is heard. *The vibrations strike the ear as before*, but the brain does not attend to the impression communicated, in consequence, by the auditory nerve. But suppose that we sit in expectation of hearing a very gentle tap at a particular hour, we hear it distinctly when nobody else in the room has heard it. This sensibility on our part cannot be said to arise from a greater and suddenly-acquired perfection of the organ of hearing in us, and is at once admitted to arise from the mind being active in a certain direction; and this is known to depend on the state of the brain. The sensibility of a nerve may, no doubt, be augmented by education; but the degree in which it may be increased, within the limits of health, is very trifling, when compared to the extent to which the action of the internal faculties, which take cognizance of its operations, is modified by exercise. The promptitude of action which the reflecting faculties acquire from exercise is well known; and

experience shows, that those of Form, Colour, Size, and Locality, which are most employed in the sense of vision, are no exceptions to the general rule, the facility and accuracy of all of them being susceptible of great increase from education; but *always in exact relation to the original endowment.* No education whatever could ever make Mr Mylne, for example, a judicious colourist. When, therefore, a blind person is restored to sight, even supposing that the eye itself instantly returns to a healthy state, it is quite to be expected that he will be a less perfect judge of colour, form, and distance at first than after six months' practice. But as the organs, when present and in health, always execute their functions in a greater or less degree, so, from the first moment that a distinct image is formed upon the retina, will such a person be able, to a certain extent, to distinguish a bright from a dark colour, or a large from a small object, or a square from a round one, although he may not be able to apply the proper name to designate what he sees for the first time. For the same reasons, the facility and accuracy of his perceptions will be gradually increased as he proceeds to compare and to contrast a greater variety of objects of different qualities, and to collect materials for forming that mental standard of comparison which is absolutely necessary for correct judgment, and which every one acquires only by varied and extensive experience. But when, by way of explaining this increased accuracy of perception and of judgment, we are seriously told, that it arises solely from the illusions of vision being corrected by the sense of touch, and that without such aid we could have no idea of form, magnitude, or distance, we cannot but demur to the proposition. Touch, we have already seen, cannot alter the impression made by the luminous rays on the retina, and conveyed to the mind by the optic nerve; and, therefore, if touch, repeated till the end of time, cannot alter in any degree the light or the shade, the form or the size of the objects, as seen by the eye, it is self-evident, that no re-

petition of touch could ever suffice to enable us to *see* distances different from what they at first appeared.

In looking at distant hills in very clear weather, objects actually remote seem then to be near at hand; and, if allowance is not made by the reasoning faculties for modifying circumstances, our decision as to the fact will inevitably be wrong. But in this case it is the internal faculties that decide on the data supplied by the sense, and not the sense itself that is corrected.

Precisely the same principle holds good with Colour, Form, and Size, as in regard to distance. The newly-acquired sense is but an inlet and an outlet to the operations of internal mental faculties, which judge of these qualities. And as the organs of Colour, Form, and Size are, like those of Time or Causality, susceptible of education, it follows, that exercise improves their powers. But, as these are also innate, and not artificial, it necessarily happens that, being possessed in a greater or less degree by all mankind, the moment clear and distinct vision is acquired, the qualities corresponding to them must be perceived more or less perfectly from the very first. And such, accordingly, is found invariably to be the case.

Having explained the functions of all the parts connected with vision, and with the appreciation of visible objects, we might now usefully proceed to consider the history of a very interesting case of restoration to sight in a lady aged forty-six, who was blind from infancy, and an account of which, by Mr Wardrop of London, has been published in the Philosophical Transactions for 1826, and which, moreover, has been the subject of much hypothetical speculation; but, our limits being exhausted, this must be deferred to another opportunity.

ARTICLE XVI.

SUBSTANCE OF A LETTER TO DR A. COMBE, FROM THE SURGEON OF H. M. S. BLOSSOM.

Our readers are aware that, about two years and a half ago, H. M. S. Blossom, Captain Beechey, left England for the Pacific, on her way to Behring's Straits, on a voyage of discovery, and to endeavour to fall in with Captain Franklin's party, proceeding in the opposite direction overland. That Captain Beechey was not successful in the latter object is now also generally known and regretted, particularly as it appears that at one time the distance between these enterprising travellers was very small; and that, had they been aware of each other's proximity, they could easily have met. Interesting as all information connected with the progress of such an expedition must be, we are happy to be able to lay before our readers the substance of a letter just received by Dr A. Combe, from his friend, the very intelligent and able surgeon of the Blossom, whose phrenological remarks so greatly add, in our eyes, to the value of the information communicated. The late arrival of this letter (our present Number being then almost printed off) precludes us from making any comments. The beginning is dated H. M. S. Blossom, 55 miles east of Chain Island, Pacific Ocean, 10th March 1826, and the end 28th February, 1827.

"At Rio de Janeiro the negroes are so numerous as to be about six to every white, and from forty to fifty thousand are imported annually. They are of different tribes, and come as well from the Mozambique Channel as the western coast of Africa. Their general resemblance consists in the dark colour of their skin, their black hair, flattened noses, small rounded heads, the considerable projection of the frontal eminences over the

organs of Causality, giving an uprightness to the forehead; whilst on each side of these the head is flattened, showing a scanty Ideality. The organ of Self-esteem is sufficiently developed in some; but I did not remark that of Vanity to be in general very prominent. The whole head bears a tolerably just proportion to the body, which is below the average size of that of Englishmen. The common height appeared to be about five feet five inches; not often gifted with broad shoulders or brawny limbs. The calf of the leg is particularly deficient, and the knees not unfrequently inclined inwards; but, for the most part, the lower extremities are very straight. They differ most in the degree of projection of the lower part of the face, in some being very great, in others the front of the face and head are nearly in a perpendicular plane. The different form of the tattooing no doubt distinguishes different tribes on the African peninsula. The tattooed part is very often considerably raised above the natural surface,—what I have never seen among the natives of these seas. The Portuguese Brazilians are notorious for their want of intellect, want of education, and every thing manly.—I speak more particularly of the Rio Janeirians.—The famed aborigines of Chili, the daring tribe of Araucos more particularly, we met with at Conception. They are of low stature, thick and clumsily made, yet their famous wars against the Spaniards declare them a bold, intelligent, and active race of barbarians. Their countenance is broad, their eyes small, projecting, and grey, and, when I saw them, looked suffused with the previous night's debauch. The forehead is low, narrow, and retiring; the nose of tolerably good form, neither aquiline nor low; but the extreme dilatation of the nostrils gives it the appearance of flatness. The back part of the head is high and full. The organs of Self-esteem, of Firmness, and Courage, appeared to be large. They generally wear their hair long and tied up, encircling the upper and back part of the head. The side-view of two whom I saw uncovered, and divested of this profusion of

hair, forcibly reminded me of a profile of Buonaparte, said to have been very accurate, and taken when he was commander-in-chief of the armies of Italy; differing, however, in the low and retiring forehead of the Araucanians. Their greatest delicacy is mare's flesh; and, to preserve these animals in fit condition, they exempt them from all labour, except the labour of bringing forth. Molina gives the best account of these people and this part of America. The Spanish Chilians from the country I can say little of. I saw some fine-made men, with excellent features, but no foreheads, and nearly as little room for brains. I saw others, a motley and most awkward squad, in rags, learning the military exercise in the grand square of Conception one Sunday evening. These were all below the middle size, and looked most provokingly stupid. Cock-fighting is the Sunday's amusement of the better classes, who, like the French, are not destitute of general information, but possess small heads. The churches are only attended by the females. The head of the hierarchy of Conception was said to be in prison.—Valparaiso is chiefly usurped by English and Americans.

As we proceeded to the shore in Cook's Bay, Easter Island, we were met, at half a mile's distance from it, by about a hundred naked men and women, all swimming, raising a most discordant clangout with their voices, and bringing with them potatoes, sugar-cane, bananas, bundles of rush, and the *ava* root. I was struck with their fine oval countenances and regular features. Their smooth, rounded, slightly receding, and high but narrow foreheads, the rather small, but somewhat sunken dark-brown eye, and the strong regular rows of ivory-white teeth of almost every one immediately around us, impressed me with their strong similarity to what I had conceived of the New Zealanders, from the dried heads of that people brought to Europe. The general contour of the body was tolerably good, but the muscles flabby. The men were about five feet seven and a half inches high, their colour a delicate broccoli-brown, with a tinge of brownish

purple-red; the women smaller in proportion, more neatly and delicately made; yet they seem to possess here the same ascendency over the men as elsewhere. The size of the head of the men was about that of ours. One I tried my cap upon was rather larger. The women's heads not larger, I think, than that of the Venus de Medicis,—the forehead of the same general shape as the men's, but narrower and higher. Upwards of five hundred waited our approach on the heights of the shore, flocked around us, and assisted us over the rocks.—Some made us presents of what they had, others rifled our pockets, snatched off our hats and caps, and ran off; some also were trying to pillage the boats, whilst one handsome young woman had taken her place in one of them and amused the crew with her humming, and examined every thing at her leisure. The depredations upon our shore party were becoming too frequent and daring, and in such a crowd that we had no means but violence of putting a stop to it. Presents were tried, but only partially. We saw too some clubs in the hands of the natives. Deeming it more prudent, then, to return, (we had merely ascended the rocky and sloping cliffs), a shower of stones saluted our sight, and the report of musketry our ears. Hostilities had commenced. Our assailants disappeared, and sheltered themselves behind the rising ground, excepting a few, who a second time assisted us in a friendly manner over the rugged rocks, after being deprived of our head-dresses; and some more daring, who the minute before had received a present, and now struck the door with a huge stone on the back as he turned to go to the boat. This act of ingratitude was said to have been repaid with death from a musket-ball. The former friendly convoy may have met (I hope not) with a similar acknowledgment; for I fear too much was promiscuous. Judge of the precision with which our enemies directed their stone missiles, when, in the space of less than five minutes, the crews of two boats, twenty-six in all, received thirty-five wounds. Five were severe cuts on the head, penetrating to the pericranium. Five persons

only (I was one) escaped untouched. I was doubly fortunate in not being robbed of any thing. The stones were of lava, of different degrees of hardness; the weightiest which I found in the boats was about 1 lb. 15 oz.; in general they appeared to be about 1 lb.—*See* La Perouse's, Cook's, Kotzebue's, and Roggewein's account of these islanders.—We had nothing more to say to them.

The Hybrid colony of Pitcairn's Island is taller and more generally robust than either of the varieties from which they are descended. We found the population, in December, 1825, amounting to sixty-five souls; but two of these had been introduced from a whale-ship. Of this number John Adams was the only survivor of the nine mutineers who originally came to the island. The others, all to one, (Young), met with violent deaths. Five of them were killed in one day by their black servants, whom they had oppressed in every way; and this day of assassination was a few years only after their arrival. There are eleven sons grown up to manhood descended from them. These men are in general about five feet ten inches, and so strong (several of them) as to carry upwards of six cwt. for some considerable distance. Nor do they in general want vanity so far as not to pride themselves on such a Herculean feat. The females approach the males more in general appearance than I have any where seen. Their heads are larger, their bodies as large, and I think they perform the heaviest part of the work of their own free will and desire. The features are much unbrowned, and show very little of the ruddy hue in the grown-up race. Some have the Tahitian, some the English, but the greater number the former. The distended nostrils and thick lips appear most universal. The M'Coy family is a striking contrast of fine European features among the Tahitian. The head is large, in one twenty-two and a half inches in circumference at the occipital spine and eyebrows, in another, twenty-one and an eighth, and in one of the women twenty-three (three-fourths to an inch will be required to be deducted for the hair). Self-

esteem is generally predominant, and the intellectual region is well filled. They are a strictly moral and religious race, live with few misunderstandings; but the first generation are too high in their own estimation to admit the patriarchal sway of old Adams in their worldly matters; but do not contend the pulpit with him, where he duly performs service, &c. on the Sundays, and once or twice on the Wednesdays. One of the new-comers has taken the schooling charge out of his hands. They have been very healthy, without using any medicines or drugs, excepting the salt water of the ocean. The old man was married to the woman he had long lived with by our captain. I am uncertain whether the ceremony, and privileges consequent thereupon, afforded the ancient couple the same delight it generally does to the young and ardent lovers. He testified, however, great anxiety to be relieved from a state of disobedience to and of sinning against the evangelical law.

"An anatomical remark, that the position of the internal ankle (*malleolus*), &c., to the external, is not the cause of the toes and foot being directed outwards, is forcibly impressed on the mind by seeing this robust set of men with the ends of the great toes nearly meeting, whilst their heels are at some distance.—The feet of the Sandwich islanders have a similar position.

"We ultimately left Pitcairn's Island on the 21st December, and on the 23d made the island of Deno, one of the low coral formation, and the least advanced in progress that we afterwards saw. We unfortunately lost a boat and one man in attempting to land upon it the following day. It is not yet inhabited. I have been informed that old Adams and the youth of Pitcairn's afterwards visited it in the Roscoe, a whale-ship, for the purpose of ascertaining whether it would be an eligible place to colonize when their descendants should become too numerous for their present island.

"On the 27th we made the low and nearer Crescent Island, and the elevated and more distant group of islands

named Gambier's. A few half-naked natives showed themselves on the former; but the so recent accident at Deno had probably a great share in deterring us from attempting the surf, and we did not land, nor did the inhabitants venture out to us. We observed no sort of boats among them. From a distant view we could only infer, that these people, according to subsequent observation, were in every respect similar to those of Gambier's group, which we approached on the 29th. It is composed of eleven islands, —nine volcanic, rocky, and high, the other two coral; for this last formation is completing a zone round the other islands, and filling up the harbours, bays, and spaces which lie at their base. The inhabitants presented to us similar manners, customs, and behaviour, that did the natives of the Sandwich Islands to Captain Cook on his first discovery of them. They were, however, more presumptuous, more determined thieves, or rather robbers; nor could it even be for a moment imagined that our commander inspired them with the awe and respect they proffer to their gods, for he was the chief sufferer. At the first interview they deprived him of the rudder of his boat, and at a subsequent attempt to conciliate them he lost his musket, bayonet, and a white flag of amity fixed to the point of the latter,—a rather incongruous combination! These were never recovered,—the rudder was. Blood was shed on their side on both occasions, and some lives lost on the latter. After this we scarcely permitted them to come within sight, whilst we watered the ship under a strong guard. Our boats, however, individually, had some partial communication with a few at a time; and before our departure a party, consisting of the greater number of the officers and the marines, headed by our enterprising commander, made a last effort at general conciliation, and at regaining his lost arms. We visited one of the chief villages upon the largest island, where each native seemed to select a friend, and some acted their part without deceit in a time of need. We saw a man whom we supposed to be chief. Presents were exchanged, and all seemed

to go right, till the delivery of two drums, which the captain had purchased, was refused at our departure,—a person different from the one who had received the purchase-money (an old knife) stepping forward and claiming them; nor would he let them go when offered a second knife. The chief had already got his present, and would not interfere. The captain, I believe, was persuaded to give up his claim, and we soon assembled for our departure, or retreat, and had gone some way, thinking we were all collected, when we heard and saw Lieutenant W——— running after us, beset by some of the natives, and calling for assistance. We turned, and those who were nearest our hitherto friends assailed us with their long poles or bare hands. Two had the scabbards of their cutlasses snatched from their side. A few shots were fired; one man fell, and the rest quickly vanished among the trees. Lieutenant W——— had been at the further end of the village, busily employed sketching, at the moment we retired; and had it not been for his native friend, who accompanied him from the time of our landing, giving him warning of our departure, he might have fared worse. He was permitted, unmolested, to pass the crowd in the middle of the village where he had been, but was soon afterwards powerfully grappled by a strongly-made person, whom he dashed to the ground, and made what haste he could, till again closely surrounded and grasped; but he was now in sight of us.

"They respect their women, and appear fond of their children,—live chiefly on a substance made from taro and, I think, bread-fruit, similar to the food which the Tahitians prepare from the former. Fish, I should think, also formed a great part of their food.

"The dead are preserved above ground, wrapped in numerous folds of fine white tapa of their own manufacture, and laid out in different places; often, especially when falling to pieces, under an overhanging ledge of rock in the cliff. The whole integument is dried, like that on the New Zealand

dried heads. My *craniological* observations are the following:—

MEASUREMENTS.

		No. 1. Male aged 18.	No. 2. Adult male.	No. 3. Adult male.	No. 4. Aged male.
		Inches.	Inches.	Inches.	Inches.
Occipital Spine	to Lower Individuality,	$6\frac{1}{8}$	$7\frac{1}{8}$	$7\frac{1}{8}$	$7\frac{1}{8}$
	to Ear,	4	4	$3\frac{7}{8}$	$4\frac{1}{8}$
Ear	to Lower Individuality,	$4\frac{1}{4}$	$4\frac{3}{8}$	$4\frac{7}{8}$	$4\frac{3}{8}$
—	to Comparison,	—	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{8}$
	to Benevolence,	$4\frac{1}{2}$	$5\frac{1}{8}$	$5\frac{1}{8}$	$5\frac{1}{8}$
	to Veneration,	$4\frac{5}{8}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$
	to Firmness,	5	5	$5\frac{1}{4}$	$5\frac{1}{8}$
	to Self-esteem,	$4\frac{5}{8}$	$5\frac{1}{4}$	$5\frac{1}{8}$	$5\frac{1}{8}$
Destructiveness	to Destructiveness,	$5\frac{1}{12}$	$5\frac{1}{8}$	$5\frac{3}{8}$	$5\frac{1}{4}$
Ideality	to Ideality,	$4\frac{1}{2}$	$5\frac{1}{8}$	$5\frac{1}{8}$	$5\frac{1}{8}$
Cautiousness	to Cautiousness,	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$

DEVELOPMENT.—No. 1.

1. Amativeness, full.
2. Philoprogenitiveness, large or very large.
3. Inhabitiveness.
4. Adhesiveness, large or very large.
5. Combativeness, full.
6. Destructiveness, full.
7. Constructiveness, moderate.
8. Acquisitiveness, moderate.
9. Secretiveness, full.
11. Love of Approbation, full.
15. Hope, full.
17. Conscientiousness, full.
18. Upper Individuality, very large.
19. Lower ditto, very large.
20. Form, large.
21. Size, full.
22. Weight, small.
23. Colouring, small.
24. Locality, small.
25. Order, small.
26. Time, full.
27. Number, small.
28. Tune, full.
29. Language, moderate.
30. Comparison, small.
31. Causality, small.
32. Wit, full.
33. Imitation, full.

DEVELOPMENT.—No. 2.

1. Amativeness, moderate.
2. Philoprogenitiveness, small.
3. Concentrativeness, moderate.
4. Inhabitiveness, small.
5. Combativeness, small.
6. Destructiveness, full.
7. Constructiveness, full.
8. Acquisitiveness, rather small.
9. Secretiveness, rather small.
10. Self-esteem, small.
11. Love of Approbation, large.
12. Cautiousness, large.
13. Benevolence, large.
14. Veneration, small.
15. Hope, small.
16. Ideality, moderate.
17. Conscientiousness, small.
18. Firmness, full.
19. Upper Individuality, full.
20. Lower ditto, full.
21. Form, moderate.
22. Size, full.
23. Weight, moderate.
24. Colouring, small.
25. Locality, rather small.
26. Order, rather small.
27. Time, small.
28. Number, full.
29. Tune, full.
30. Language, moderate.
31. Comparison, full.
32. Causality, small.
33. Wit, small.
34. Imitation, full.

DEVELOPMENT,—No. 3.

1. Amativeness, full.
2. Philoprogenitiveness, moderate.
3. Concentrativeness, moderate.
4. Adhesiveness, full.
5. Combativeness, full.
6. Destructiveness, full.
7. Constructiveness, full.
8. Acquisitiveness, full.
9. Secretiveness, full.
10. Self-esteem, small.
11. Love of Approbation, full.
12. Cautiousness, full.
13. Benevolence, rather full.
14. Veneration, full.
15. Hope, small.
16. Ideality, full.
17. Conscientiousness, rather small.
18. Firmness, moderate.
19. Lower Individuality, small.
20. Form, small.
21. Size, rather full.
22. Weight, full.
23. Colouring, rather small.
24. Locality, rather small.
25. Order, full.
26. Time, small.
27. Number, small.
28. Tune, full.
29. Language, small.
30. Comparison, full.
31. Causality, rather small.
32. Wit, full.
33. Imitation, full.

DEVELOPMENT,—No 4.

1. Amativeness, large.
2. Philoprogenitiveness, large.
3. Concentrativeness, rather small.
4. Adhesiveness, large.
5. Combativeness, rather small.
6. Destructiveness, rather small.
7. Constructiveness, rather small.
8. Acquisitiveness, full.
9. Secretiveness, rather full.
10. Self-esteem, small.
11. Love of Approbation, large.
12. Cautiousness, very large.
13. Benevolence, very small.
14. Veneration, full.
15. Hope, full.
16. Ideality, full.
17. Conscientiousness, small.
18. Firmness, full.
19. Lower Individuality, full.
20. Form, rather full.
21. Size, small.
22. Weight, small.
23. Colouring, small.
24. Locality, small.
25. Order, small.
26. Time, small.
27. Number, small.
28. Tune, small.
29. Language, small.
30. Comparison, small.
31. Causality, small.
32. Wit, small.
33. Imitation, rather full.

"After leaving Gambier's group on the 18th January, we spent several weeks in taking a superficial survey of and discovering the coral islands, which form chiefly what is called the Dangerous Archipelago; but we found it by no means meriting this appellative. Some were inhabited, some not, but bone traces of former population. On one, about 350 miles eastward from Chain Island, we met a number of persons, male and female, who had left the latter island, more than two years ago, to proceed to Tahiti, but had been driven to the eastward thus far by repeated gales of wind. They were all anxious to get back; but we could only take one fa-

mily, which we landed, to its inexpressible joy, at Chain Island. This is another fact to be added to those already known in explanation of the manner in which man has been spread over the numerous islands of the Pacific Ocean.

"We arrived at Tahiti on the 18th March, and remained there till the end of April, feeding upon pigs and bread-fruit. The Tahitians are a very indolent, yet a lively people. The chiefs are generally men of sense, and, as the greater part are converts to the Christian religion, they do much for the good behaviour of the lower classes, and the general good conduct of the inhabitants; but this is notoriously thwarted by the profligate manners of the queen-dowager, and her sister, the queen-regent. The princess, sister to the young king, unfortunately treads in their footsteps. The boy is six years of age, entirely kept and educated at the Missionary school of Eimeo.—The island possesses a code of laws, for which it is indebted to the Missionaries.—They assemble once a year, in May, one day, to consider of the spiritual and temporal affairs of the Missionary establishment, and another to debate the affairs and laws of the island. The chiefs of the different districts, and, I believe, any one else, may give their opinions, and this is all that can be styled meetings that can be construed into a parallel with an English house of parliament. The Tahitian head is remarkable for its height and breadth at Cautiousness. The posterior part is perfectly flat, and said to be occasioned by the nurse continually pressing it with her hand. I could see nothing of this sort, nor did the natives themselves say that this or any other pressure produced it.

"Whilst we lay there, the women dared not openly to come on board; but I am told that the Peacock, an American sloop-of-war, that was there some months after us, was crowded with them, and that the Missionary cause had suffered a great check, many having openly avowed their enmity to it.

"We reached the Sandwich Islands in the latter part of May, where we found a less handsome set of people, darker

colourably but more laborious. If we strip the chiefs of the dandy European dresses, and the ladies of their China silks, they will all appear inferior to the Tahitians in wearing apparel. The houses, with the floors covered with substantial mattings, are decidedly cleaner to all appearance; yet I suspect the swarms of fleas point out too clearly that little care is taken in airing these mats, which serve at once as carpet and bedding.

"The moral character of this people is probably sufficiently painted in Cook's, Vancouver's, and other voyages. The particular cranial development differs in probably the majority, by the greater extent of the superior region, the lateral surfaces sloping inwards and downwards. The head, too, often assumes an oblong form, not unlike the Gothic Scotch. The crania which you have procured from these islands may not show these peculiarities.

"We left the Hawaisan (as now called) Islands on the 1st June, and arrived in the Bay of Avatscha on the 29th, where I only saw one Kamschatkadale, whose head was so buried in an immense bush of black hair, that it was in vain to search for general form or particular organization.

"At the St Lawrence Islands I had only some minutes' time to view, at a short distance, the figures of the natives, who agreed in general with those of Kotzebue Sound, and of the American coast farther north. They are evidently an Esquimaux race, but much superior in stature and features to those on the European shores. Their habitual retreat is generally a considerable village of half-subterranean huts, roofed with wood covered with turf. These became more frequent to the N. E. of Cape to the World's End, the utmost limit of Mr Elson's progress in the barge.

"The carvings and etchings, if they may be so called, on ivory and bone, of the figures of their most familiar objects, —themselves, their dogs, boats, seals, rein-deer, walrus, and other animals,—their dances, with attendant musicians, &c. —the small ivory images of themselves, are perfectly charac-

teristic of their general likeness.—The dead are deposited in rude coffins of hewn logs of wood, and covered with several others,—not interred. I robbed some of their tombs, and took the following measurements:—

MEASUREMENTS.

	No 1. Male adult.	No 2. Female aged.	No 3. Female adult.	No 4. Male adult.	No 5. Female aged.
	Inches.	Inches.	Inches.	Inches.	Inches.
Circumference at Spine and 19,	21	19½	19¾	20½	20⅜
From Spine to Lower Individuality,	7 3/16	6 9/16	6¼		7 1/16
Ear to Spine,	4½	3 4/16	4 3/16	4 4/16	4 4/16
— to Lower Individuality,	4 3/16	4 1/16	5	5 3/16	5 4/16
— to Self-esteem,	5 3/16	5 1/16	4¾	4 9/16	5
— to Firmness,	5½	5 3/16	5 1/16	5 3/16	5 4/16
— to Veneration,	5 4/16	5 3/16	4 9/16	5	5 1/16
— to Benevolence,	5 3/16	5 3/16	4 3/16	5	5 3/16
Destructiveness to Destructiveness,	5 3/16	5¼	4 7/16	4½	5 1/16
Cautiousness to Cautiousness,	5¼	4 1/16	4½	4½	5
Constructiveness to Constructiveness,	4¾	4½	4 1/16	4 3/16	4 1/16
Acquisitiveness to Acquisitiveness,	5½	4 7/16	4½	—	4½
Ideality to Ideality,	4 1/16	4 3/16	4 3/16	4½	4 3/16

DEVELOPMENT,—No 1.

1. Amativeness, very large.
2. Philoprogenitiveness, large.
3. Concentrativeness, full.
4. Adhesiveness, full.
5. Combativeness, small.
6. Destructiveness, moderate.
7. Constructiveness, large.
8. Acquisitiveness, large.*
9. Secretiveness, full.
10. Self-esteem, rather small.
11. Love of Approbation, full.
12. Cautiousness, large left, full right.
13. Benevolence, rather small.
14. Veneration, large.
15. Hope, full.
16. Ideality, large.
17. Conscientiousness, moderate.
18. Firmness, full.
19. Upper Individuality, moderate.
19. Lower ditto, moderate.
20. Form, moderate.
21. Size, full.
22. Weight, full.
23. Colouring, full.
24. Locality, large.
25. Order, small.
26. Time, moderate.
27. Number, moderate.
28. Tune, very small.
29. Language, large.
30. Comparison, full.
31. Causality, rather small.
32. Wit, rather small.
33. Imitation, rather small.

DEVELOPMENT,—No 2.

1. Amativeness, full.
2. Philoprogenitiveness, large.
3. Concentrativeness, rather small.
4. Adhesiveness, rather small.
5. Combativeness, moderate.
6. Destructiveness, moderate.
7. Constructiveness, rather large.
8. Acquisitiveness, moderate.
9. Secretiveness, full.
10. Self-esteem, full.
11. Love of Approbation, full.
12. Cautiousness, large.
13. Benevolence, large.
14. Veneration, large.

* Grooved by action of temporal muscle.

15. Hope, moderate.
16. Ideality, large.
17. Conscientiousness, full.
18. Firmness, large.
19. Upper Individuality, moderate.
19. Lower ditto, moderate.
20. Form, full.
21. Size, full.
22. Weight, full.
23. Colouring, moderate.
24. Locality, moderate.
25. Order, moderate.
26. Time, moderate.
27. Number, moderate.
28. Tune, moderate.
29. Language, moderate.
30. Comparison, full.
31. Causality, full.
32. Wit, very small.
33. Imitation, very small.

DEVELOPMENT,—No 3.

1. Amativeness, large.
2. Philoprogenitiveness, large.
3. Concentrativeness, full.
4. Adhesiveness, large.
5. Combativeness, full.
6. Destructiveness, large.
7. Constructiveness, very large.
8. Acquisitiveness, full.
9. Secretiveness, full.
10. Self-esteem, moderate.
11. Love of Approbation, large.
12. Cautiousness, rather small.
13. Benevolence, large.
14. Veneration, moderate.
15. Hope, full.
16. Ideality, large.
17. Conscientiousness, small.
18. Firmness, very large.
19. Upper Individuality, full.
19. Lower ditto, large.
20. Form, full.
21. Size, full.
22. Weight, small.
23. Colouring, small.
24. Locality, moderate.
25. Order, full.
26. Time, small.
27. Number, full.
28. Tune, moderate.
29. Language, full.
30. Comparison, moderate.
31. Causality, moderate.
32. Wit, full.
33. Imitation, moderate.

DEVELOPMENT,—No 4.

1. Amativeness, large.
2. Philoprogenitiveness, moderate.
3. Concentrativeness, moderate.
4. Adhesiveness, large.
5. Combativeness, full.
6. Destructiveness, full.
7. Constructiveness, large.
8. Acquisitiveness, full.
9. Secretiveness, rather small.
10. Self-esteem, full.
11. Love of Approbation, rather small.
12. Cautiousness, rather small.
13. Benevolence, large.
14. Veneration, large.
15. Hope, very small.
16. Ideality, large.
17. Conscientiousness, small.
18. Firmness, large.
19. Upper Individuality, large.
19. Lower ditto, large.
20. Form, large.
21. Size, very small.
22. Weight, very small.
23. Colouring, rather small.
24. Locality, rather small.
25. Order, rather small.
26. Time, rather small.
27. Number, moderate.
28. Tune, full.
29. Language, rather small.
30. Comparison, rather small.
31. Causality, moderate.
32. Wit, rather small.
33. Imitation, moderate.

Want of room prevents us giving the development of the fifth skull; but this is of less consequence, as we hope to have the whole before us in the course of a few months.

INDEX

TO THE

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