Essays on phrenology : or an inquiry into the principles and utility of the system of Drs. Gall and Spurzheim, and into the objections made against it / by George Combe ; with notes and additions, comprehending memoirs on the anatomy of the brain, and on insanity.

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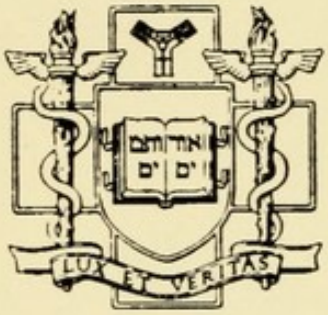
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ESSAYS

ON

PHRENOLOGY,

OR

AN INQUIRY INTO THE PRINCIPLES AND UTILITY OF THE SYSTEM

OF

DRS. GALL AND SPURZHEIM,

AND INTO

THE OBJECTIONS MADE AGAINST IT.

BY

GEORGE COMBE.

Res non verba quæso.

WITH NOTES AND ADDITIONS, COMPREHENDING MEMOIRS ON THE ANATOMY OF THE BRAIN, AND ON INSANITY.

PHILADELPHIA.

PRINTED FOR H. C. CAREY AND I. LEA.

1822.

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TO

PHILIP SYNG PHYSICK, M. D.

PROFESSOR OF ANATOMY

IN THE UNIVERSITY OF PENNSYLVANIA,

MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY, AND PRESIDENT OF THE PHRENOLOGICAL AND MEDICAL SOCIETIES, OF PHILADELPHIA, &c.

THE FOLLOWING WORK,

BEING AN ATTEMPT TO ENLARGE THE DOMAIN OF

PHYSIOLOGY,

AND IMPROVE THE PHILOSOPHY OF THE HUMAN MIND,

IS WITH PECULIAR PROPRIETY

INSCRIBED,

AND ITS ACCEPTANCE SOLICITED

AS A SINCERE, THOUGH INADEQUATE,

TESTIMONY OF RESPECT FOR HIS ACKNOWLEDGED TALENTS

AND EXTENDED USEFULNESS,

BY HIS OBEDIENT SERVANT,

JOHN BELL.

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* Those articles with an Asterisk prefixed are added by the Editor.

Directions to the Binder.

Put the Plates of the Organs at the End of the Volume.

The one of the Convolutions of the Brain, to follow p. 186.

ERRATA.

Page viii, line 14 from the bottom, for "*porportion*," read "*proportion*."
xi, 4 from the bottom, for "*aspicientis*," read "*aspicientes*."
82, 23, for "*frontel*," read "*frontal*."
147, 20, for "*culling*," read "*cutting*."
149, 3, for "*as in man*, read "*as well as in man*."
165, 7, insert after "*enlargements*," the verb "*present*," and for "*or*," read "*a*."
169, 22, for "*ammoni*," read "*ammonis*."
176, 9, for "*paunch*," read "*pouch*."
207, 6 from the bottom, for "*parets*," read "*parents*."
230, 18, for "*perceptor*," read "*preceptor*."
241, 13, omit an *l* in "*rellished*."
260, 3 in the note, for "*tune*," read "*time*."
348, 1, for "*unnessary*," read "*unnecessary*."
352, for 252.
361, line 18, for "*low*," read "*lower*."
365, 1 from the bottom, for "*Physic*," read "*Physique*."
2 from the bottom, for "*de*" read "*des*."
7 from the bottom, for "*teaches*," read "*teachers*."
384, 3, for "*memory*," read "*remedy*."
414, 9 from the bottom, for "*pulsy*," read "*palsy*."
415, 12 from the bottom, place a *period* after *Lupemania*, in place of the *comma*.
417, 2, for "*Menomania*," read "*Monomania*."
433, for "*On Genius*," read "*On Insanity*."
458, line 12 from the bottom, for "*sentamentalist*," read "*sentimentalist*."

PREFACE OF THE AMERICAN EDITOR.

Le gaing de nostre estude, c'est en estre devenu meilleur et plus sage.—*Montaigne.*

With a firm conviction that he is promoting the cause of sound philosophy by introducing this work to the American public, and inviting to a candid examination of its contents, the Editor feels little solicitous to deprecate the displeasure of those who will be now compelled to retrace their steps in the study of the mind, and abandon their pleasing chimeras, for the less ostentatious, but surer support of observation and inductive reasoning. To others who may with well meaning fear, object to the supposed tendency of the doctrines of Phrenology, he can solemnly aver, that after the closest attention to their bearing and application, he could find nought in them but what is conformable to human nature, to the laws of sound morality and the grand truths of revealed religion. If extrinsic proofs of this be required, they will be found in the character of many on both sides of the Atlantic who, while professing their belief in the great outlines of Phrenology, have shewn themselves by their sacred office and exemplary conduct, able advocates in the cause of truth and piety.*

He who is unable to cleanse others of their impurities, does well when he can himself keep clear of contamination, and it is highly commendable to oppose even the firmness of belief to the cavils of infidelity; but that person is a much more efficient member of society, who is able to combat the sophist with his own weapons, to deprive him of the triumph of metaphysical quibbles, and

* The Edinburgh Phrenological Society, though not consisting of more than fifty members, has among these two clergymen, and in our own we have one who for fervid zeal in his high calling yields to none.

to show by proofs and illustrations drawn from nature, the error of his opinion. Such will in degree be the power of these new doctrines, as essentially opposed in their physiological part to mere materialism, as any truth in natural history, and equally at variance in their moral application, with the blighting tenets of the misnamed philosophy of Hume and Voltaire.

So far an explanation is due to the honest prejudices of those who are startled at every proposition which is not at once in entire unison with their previous opinions and belief, like our ancestors, and even many good people of the present day, who at first consider as absurd and then decry as contrary to scripture, the fact of the earth's revolving round the sun, insisting strenuously on the more orthodox idea of this latter planet going round our globe; else why, say they, should the sun and moon have stood still at Joshua's command. We too often find that theologians, though skilful polemicks, are illy calculated to observe the succession of the phenomena of creation, or to pronounce judgment on the demonstrations of science. Lactantius, more successful in defending and expounding the tenets of Christianity than when attempting to teach natural philosophy, asserted that the earth rests on water, and that there could be no sky under the earth, consequently, it was *ridiculous and absurd* to suppose that there are antipodes. He regards with pity and disdain those philosophers who "have reached that pitch of folly, to make the earth a ball and to surround this ball with the heavens," *lib.* iii. *chap.* xxiv. The good St. Chrysostom, about a century after, (A. D. 400), exclaims in his fourteenth homily, "Where are those who pretend that the heavens are moveable and that their form is circular."

The narrow bounds of science at that period afford an apology for the harshness of such strictures, but we would beg leave seriously to ask those persons, whose means and opportunities enable them to enter into the investi-

gation of a subject whether moral, political or scientific, if their prompt and violent declamations against it, though masked under the plea of good intention, will be received by the world as a sufficient justification of their retarding what is found to be the progress of truth. Doubtless many, who are now enlisted on the side of arbitrary power and bigotry in Europe, think they are the champions of order and morality, but will the pen of history affix no mark of reprobation to their names, or will the judgment of more impartial posterity be suspended in consideration of the sincerity of their intentions. A very serious evil resulting from this spirit of hasty condemnation and intolerant zeal is, that many, who confound the doctrines with the expounders, are driven to a course of direct opposition to tenets which they are thus induced to consider as narrowing the mental horizon, and as barriers to advancement in general knowledge and philosophical disquisition. To the Jesuit preceptor of Voltaire, and the dissenting bigot who was the first master to Bolingbroke, must be attached much of the blame of their early immoralities and subsequent efforts against religion, which, from the associations of their early youth, always appeared to them clad in a most forbidding garb. It is not probable that either of them would ever have made a very devout Christian, yet had a little more attention been paid to repressing the bad feelings, not by harshness, but by cultivating the good, their great intellectual powers might, in place of being made an engine to subvert morality, have been either harmless in their application or promotive of the general good. But we shall be told, and we willingly believe it, that these remarks are only applicable to the other side of the Atlantic, and that here few men of sound sense and upright intention will be found sporting their caveats on questions, the importance and correctness of which they have not maturely weighed.

In reference to the subject more immediately treated of in the following work, the Editor hopes he will not

give offence to the declaimers against it, by asking them whether they have read what they so freely condemn: nor is he fearful in so doing, of meeting with the fate of the celebrated Boerhaave who, hearing one of his fellow travellers in a passage boat indulge in vague invectives of blind zeal against Spinosa's doctrines, "calmly asked him whether he had read Spinosa's work which he so much derided. The bigot was suddenly struck dumb and became fired with silent resentment. As soon as he arrived at Leyden, he spread abroad a rumour that Boerhaave was become a Spinosist. Boerhaave, finding these prejudices to gain ground, thought it more prudent to pursue the science of physic than risk the refusal of a licence from the pulpit." Thus was a man lost to the church who was every way calculated by his extensive learning, habits of industrious research and ready eloquence to support and advance the good cause, and whose thesis on taking his degree in philosophy at Leyden was a confutation of the doctrines of Epicurus, Hobbes and Spinosa.

And here, for the honour of a profession the great end of which, from the primitive ages, has been the relief of human suffering, mental and corporeal, we must protest against the injustice and impolicy of the insinuations thrown out against its members, as persons leaning to materialism and infidelity. The history of those most distinguished in medical science, the general tenor of conversation and conduct of its professors taken collectively, shew that the charge is unjust. That it is impolitic, is manifested in the downright avowal of unsound doctrines by some who were before wavering, and had every disposition to listen to the truth, but who, hastily condemned by the ostracism of self-styled orthodoxy, yielded to that too active principle of human nature, which impels man to the adoption of evil when he finds impossible to get reputation with or support from the good. Call a man bad, and you take the first step to render him such. This spirit of dictation and condemnation might be pallia-

ted if it proceeded from well founded fear for religion and social order, but, unhappily, it is more usually the consequence of indolence, if not of wounded vanity; and we hear those loudest in their denunciations of materialism, who are most ignorant of the laws of organzied matter, and who find it more convenient to indulge in the verbiage of soul, spirit, ethereal, &c., than to study minutely the works of creation: they are incapable of admiring the wisdom displayed by the mighty Architect in the adaptation of the materials to the structure, the accommodating of means to ends; and yield to a kind of abstract feeling too indefinite for either self guidance or mutual instruction. It is the revery of Platonism, the dream of sentimentality, rather than the observation of nature and preparation for the active duties of life. But after prosecuting our inquiries to the full extent of human power, there is a point at which we must stop and acknowledge that the animating principle comes from above. Here we have recourse to Revelation, which is not opposed to reason: the former, while giving us a glimpse of futurity, does not forbid the exercise of the latter, restricted as it must necessarily be, to what is, not what will be. "We know not how it is that the living brain executes mind; we do not even know how it is that the brain and the rest of the body are alive; nay, we do not even know the ultimate nature of a single particle of matter."

But after all of what use is this system, enquires the matter of fact man, who thinks that every natural truth ought, like a bale of goods, to bring its price in the market. We might reply by asking the question of Franklin to one of these merchant philosophers: "Of what use is a new born child; it may become a man," or on higher authority say, "we ought not to demand what is this good for, the usefulness will be known in its due time." Even to such a caviller however we can point out its utility. If he is a father, he will be naturally solicitous to educate his child to advantage, in conformity with his peculiar

capabilities, and without unnecessary waste of time and money in keeping him at studies in which he has not the faculties to succeed. Now by this system, he can tell with some degree of precision, the extent of his child's powers, at least he will find it an useful auxiliary: and who will refuse availing himself of all possible aids in furthering an object so important to worldly and eternal happiness, and to the successful prosecution of which so many impediments avowedly exist? By acknowledging the plurality of faculties and the separate nature of propensities, sentiments and intellect, as they are explained in this work, we may conform to the maxim of Cicero, that education begins at our cradle; and it may be successfully commenced without waiting for the evolution of reasoning powers as is the cry of the many. We educate our domestic animals and break them of their vicious tricks without reasoning. A child may be made to acquire all the habit of good, to shun evil, and worship the Deity without being able to understand the abstract nature of right and wrong, or the attributes and wisdom of the Creator. Reason may come afterwards to strengthen the laws of habit: it will make us avoid temptation, but rarely if ever is it sufficient in the hour of trial, to check the storm of passion, to substitute temperate resolve or mild forbearance, for blind indulgence. Success must depend on the lower *propensities* being early controuled, and the *sentiments* being suitably and early cultivated. Voltaire's reason made him the eloquent and able advocate of toleration and reform, but from injudicious education and unrestrained vanity, he was always under the influence of the lower passions where he himself was concerned, and for want of the better sentiments having been early and properly called into action, he never could forgive a man who thwarted him, or who would not bow to his literary supremacy. His reason told him there were many grievous corruptions in the Roman church; but it was not

benevolence which influenced him in attempting their reform: his unbridled *love of approbation* hurried away *conscientiousness* and *veneration*, when he impudently told D'Alembert, in reference to their efforts against Christianity, "*to lie, lie boldly!*"* We might easily multiply examples of this kind, but it is sufficient for our present purpose to have indicated the prominent advantages of the system in education, and for aiding us to form a more correct estimate of human character. Success in this course will then prompt us to yield our entire assent to the opinion that; "true Christianity will gain by every step which is made in the knowledge of man."†

This Edition contains a memoir on the anatomy of the brain, translated from the work of Gall and Spurzheim, entitled *Recherches sur le systeme Nerveux en general et sur celui du Cerveau en particulier.*

So superior and natural is their method of demonstrating the structure of the brain that it is now adopted by some of the distinguished teachers in Europe, and will no doubt soon become general. It offers us at least a more probable means of becoming better acquainted with the diseased state and deranged functions of this very important part of the human frame.

The medical profession has been accused of illiberal opposition to Gall and Spurzheim, and of a desire to detract from the merit of their discoveries; but, though the charge be too well founded, it gives us pleasure to be able to mention several notable exceptions. "Mr. Astley Cooper declared in his lectures at the Royal College of Surgeons, that he knew nothing of the brain, before he read Dr. Spurzheim's book; and both Dr. Barclay and Mr. Abernethy requested Dr. S. to demonstrate the brain in their theatres." Mr. Beclard, the present able professor of anatomy in Paris, has, we are informed, adopted Dr. S's method: and our own worthy Professor of anatomy and his adjunct in the Pennsylvania Univer-

* Le Pan, Vie de Voltaire. † Spurzheim on Education.

sity have displayed every disposition to treat Gall and Spurzheim's opinions with entire impartiality. Dr. Parry, whose work on Pathology is extolled for sound reasoning couched in a perspicuous style, after giving an abstract of the views of these two anatomists on the brain and nervous system, refers to their two works on the subject, "both of which," he thinks "may be considered as a model of profound investigation and luminous exposition." And, in sections DCLVIII, and DCLIX, he holds the following language.

"Of late, the physiologists whom I have before quoted, M. M. Gall and Spurzheim, have viewed the subject in another light, and have endeavoured to shew, that the capacity for the respective arts and sciences, as well as the sentiments, moral tendencies, and other intellectual faculties are connected with the comparative proportions of certain parts of the convolutions of the brain, and indicated by the proportions of corresponding parts of the cranium."

"These conclusions, which are illustrated by those physiologists with great force of demonstration, have not hitherto received the sanction of general experience. But to deride them solely on that account would be highly absurd; since we are justified in concluding, that, as it has pleased Providence to make an organised material substance, the medium of all the mental faculties, these several faculties may depend for their existence on certain parts of the organised mass, and for their degree, on the porportion of those parts."

The additional article on Insanity may be instructive to some and not without interest to all.

The directions to the student of Phrenology extracted from Sir G. S. Mackenzie's Illustrations, &c., and introduced into the present work will be found worthy of attention and observance, as well for furthering the study, as for correcting mistaken impressions which have gone abroad relating to it.

The few additional facts in support of the system, taken from the New Edinburgh Review, afford a strong proof of its practical importance, particularly to those who direct the studies of youth, and who have it in their power to contribute so greatly to its advancement.

PRELIMINARY ESSAY,

BY THE EDITOR.

"THAT implicit credulity is a mark of a feeble mind will not be disputed, though it may not, perhaps, be as generally acknowledged, that the case is the same with unlimited scepticism.

"In the midst of these contrary impulses of fashionable and of vulgar prejudice, he alone evinces the superiority and the strength of his mind, who is able to disentangle truth from error—and to oppose the clear conclusions of his own unbiassed faculties, to the united clamours of superstition and of false philosophy."*

Such is the language of one of the first philosophers of the day, and such ought to be responded by every man, who prefers the mild light of truth to the glare of fashionable error. Much as we boast of our enlightened age, and of our freedom from the thraldom of prejudice, which pressed so heavily on our ancestors, still are there but too many content to float smoothly along the current of popular prejudice, and while courting every transient gale of applause, care not whether they be finally lost on the sands of apathy and forgetfulness, or end their course on the broad expanse where new worlds, new ideas, open to their astonished minds.

True, indeed, we have not now to fear, in the promulgation of any new doctrine in philosophy or discovery in

* Stewart's Elements of the Philosophy of the Human Mind, p. 30, 31.

physics, the faggot and the stake, or the dungeon's gloom; though we are still opposed by intolerance, the offspring of pride and indolence, which, anxious to shroud itself under the veil of higher feeling, is ever ready to cry out, that religion and morality are in danger—that the social edifice will be shaken, in the attempt to substitute new and graceful columns, for the heavy and disjointed masses of discordant materials and disproportioned parts.

Taking a retrospect of the past, we shall have little reason to boast of the strength of philosophy, or power of discrimination displayed by the great and the learned, in their opposition to novelty, whether consisting of moral doctrines or scientific illustrations. Need I mention the prince of philosophers, who first introduced the knowledge of one great cause to the minds of his countrymen, benighted in the darkness of polytheism, and who, the object at first of their raillery, and subsequently of their hatred, could only expiate his imaginary crime by drinking the deadly draught. To what indignities, what tortures, did not the author of our holy religion submit, for teaching those pure and sublime truths, which expand the mind, while they warm the heart, and which are now, as they ever will be, received as the lamp that lights our steps in this world, and guides us to the next.

In following the march of time we see the successors of Saint Peter—of those same men who, afraid to meet the light of day, used to celebrate their religious rites, and preserve their holy mysteries in dark caverns and subterraneous passages,* thundering from the Vatican

* If, on ascending from the catacombs of Saint Sebastian, the cemetery of persecuted Popes and of tens of thousands of martyrs, in the passages of which were excavated at once couches for the living, graves for the dead; where the neophyte first received the sacred sign of the cross, and the saint encouraged his brethren to press on in their high calling, to win the crown of immortal glory,—we glance at the lofty dome of St. Peter's, towering in the heavens, and emblazoned with the wealth of Christendom; what an instructive moral lesson is conveyed! how forcible the appeal to charity and benevo-

their anathemas on the reformers of religion, and imprisoning a Galileo for opinions, now universally acknowledged as incontrovertible truths, which it were folly to deny; then, stigmatized as heretical and contrary to common sense and scripture.* Nor was he who substituted correct reasoning in philosophy for the pedantic sophistry of the Peripatetic school, more fortunate than his great cotemporary—and Descartes, now styled by his countrymen, the reformer of the human mind, opposed and persecuted by the decrees of the Sorbonne, was compelled to end his days in exile, and seek that tranquillity in a foreign land denied him in his own. In approaching nearer our own times, we find the followers of this same philosopher, who was far less happy in his explanation of the phenomena of nature, than of the operations of the human mind, oppose with passionate warmth, and ridicule, as absurd, the views and discoveries of a Newton; and France was, after all, indebted to the poet and historian, for making her acquainted with the truths laid down by that great and good man.

Then, as now, the language of opposition was in the same strain—working on the timid through their fears, and the sensitive by ridicule—appealing, alternately, to names over whom time had thrown his venerable mantle, or authorities, which, by being blindly followed for years, were thought stable. But the most scrupulous need not hesitate in yielding their attention to those novelties which can only be met by general accusations for innovation, or satirized as occasionally lending to the ludicrous. Ridicule is generally an unlawful, as it too

lence, to toleration and mutual indulgence: but alas! how mortifying the reflection, that this mute but eloquent instruction should have been so often overlooked and disregarded!

* The text of *Viri Galilæi quid statis aspicientis in cælum?* chosen by a preacher as the *argumentative* beginning of a laboured denunciation against the doctrines of Galileo, while that eminent man was confined in Rome, is no unapt specimen of more recent attempts at wit and reason.

frequently has been a profane weapon, which, cutting both ways, may wound him to-morrow, who has triumphantly wielded it to-day. Fear may compress, but can never guide the energies of reason—and though justice occasionally use it for the preservation of external right, religion and pure morality disclaim its aid.

These observations naturally lead us to the subject for which we have now met—a subject not to be viewed as gratifying idle curiosity, or giving license for impertinent conjecture, but as involving consequences the most necessary to a correct study of the human mind, and exerting an important bearing on our social happiness.

Most of you* are no doubt acquainted with the circumstance which first led Gall to the study of the mental faculties, as manifested by particular parts of the brain. This gentleman was first induced to consider the subject, from observing at college, that although he excelled many of his companions in powers of observation and reflection, yet they frequently bore away the prize at the examinations, from their better memory. By one, particularly, whom he was very anxious to excel, in this way, he found himself foiled, nothwithstanding all his efforts, and his conviction that in other respects he was the superior. He, at first, attempted to find out the cause of this difference by studying the physiognomy of his companion, whose eyes were very prominent—and applying this sign to others, he discovered that all those distinguished for their verbal memory possessed it. For a time he thought it indicated memory in general, but meeting with some persons who remembered very well the different places they had ever visited and their peculiarities, yet had not prominent eyes, he began to think

* This essay, merely intended as an *exposé* of the doctrine, is given in nearly the same form as when first read before the Phrenological Society; though it ought, perhaps, now to be rendered in a more didactic style, unincumbered by redundancies of expression or discursive argument.

there must be some other sign to mark this latter faculty, and observing attentively those who displayed it, he found in all a protuberance or fulness at the upper part of the internal border of each eye-brow. Among the busts that he took of these persons, was that of his young companion, named Scheidler, who possessed, in a very strong degree, this faculty, so as to remember the places where he had ever been before, and even to point out each bush, where, in their boyish days, they had found bird's nests, and this without any artificial sign. In him the organ was much developed. Gall met a woman one day in Vienna, in whom this part was so prominent, as to produce deformity of the face, and having interrogated her about her inclinations, learned that her greatest pleasure consisted in travelling. Experience has since confirmed, that the love of travelling, as well as the accurate remembrance of places and scenes, depends on the development of this organ. I could myself mention a strong proof of this, in a most intelligent gentleman, who rarely seems content unless on a journey or tour.

Extending his observations, Gall soon discovered part of the head much developed in those who displayed strong feeling and passions. A beggar, among others, acknowledged, that his pride had reduced him to indigence, and that from his very infancy, he thought himself superior to others, and would never learn any thing. The posterior and upper part of his head, where the hair usually divides, was found very prominent, and the same configuration was met with in others remarkable for their pride.

Thus furnished with so many proofs of coincidences between the development of different parts of the brain and the display of the intellectual and moral nature of man, Gall was compelled to renounce the obscure and incomprehensible doctrines of the schools, and applied himself to the study of the primitive faculties. Having

associated Dr. Spurzheim with him in his labours, they extended the sphere of observation, and visited the different cities of Germany and France, where, in the prisons and museums, as well as in society at large, they had ample means of verifying their opinions and adding innumerable facts to their support. At a later period, Spurzheim visited Great Britain, where, though the new doctrines were opposed with all the violence that abuse and ridicule could suggest, they have since gained advocates and supporters among the most intelligent in different professions, as is amply proved by the interesting essays of Combe, Mackenzie, Lockhart, and others—and by the establishment of a Phrenological Society of Edinburgh—in the very city where the opposition was at first most warm and intolerant.

It is not my intention at this time to enter into a minute consideration of the objections urged against the study of phrenology, but I shall content myself with a notice of the most prominent, as with their refutation the others may be readily overlooked. And first, the very foundation is attempted to be subverted by a denial of the brain's being necessary to the manifestations of the mind: this indeed is now so untenable a position, that it is seldom taken, unless by those in whom metaphysical vapours have obscured the clearness of ideas which they might readily attain on the subject. There is scarcely a point better established, or more clearly demonstrated in physiology, than that a general development and healthy state of the brain are necessary for the regularity and strength of mental exertion. We shall draw proofs of this from numerous sources other than from Gall, Spurzheim, or their followers. Magendie, one of the first physiologists of the age, says, "The brain is the material organ of thought: this is proved by a number of facts and experiments." The committee of the French Institute, composed of Cuvier, Pinel, Portal, Sabatier and

Tenon, appointed to report on the memoir of Gall and Spurzheim, though differing from them in some respects, say, "Experience has early proved that the brain is the material instrument of our mind, and the essential organ of animal life." Those celebrated teachers in the Edinburgh school, Cullen and Gregory, have both announced the same opinion. The former says, "We cannot doubt that the operations of our intellect always depend upon certain motions taking place in the brain:" and the latter, in his *Conspectus Medicinæ Theoreticæ*, tells us, that the brain is the primary organ of the intellectual senses. (meaning memory, imagination, judgment.) Willis, Haller, and Blumenbach, announce similar opinions. But why dwell on authorities, however great their judgment or celebrated their genius, when daily instances are met with in every large city, of extinction of intellect from injuries of the brain by external violence, producing fracture, and depression of the bones of the cranium, or by effusion of blood or serum in its cavities, as in apoplexies.

We are told indeed, that there are instances of the powers of the mind being perfect, when there has been a loss of part of the brain, and nearly an obliteration of it in some cases. That persons who have thus suffered, have not become, in consequence, idiotic or insane, we can readily believe; though much greater accuracy of detail and nicety of observation are required, before we can be satisfied of their memories, imagination, or judgments, not having been impaired. Between the active exertion of a faculty, and its passive operation, there is a wide difference, which our common language does not sufficiently express, or our observations mark. We may say of a man recovered from a violent disease which had interested some of the vital organs, that he is as well as he ever was, or of another who has had his ancle sprained, and recovered the use of his limb, that he can use it

now as before—Yet let the former be ever so little exposed beyond his usual custom, or the latter attempt the race in which he may have before excelled, and both will tell you, that though they be well for the world or their friends, they are not as they used to be. All that we wish inferred from these remarks is, that the exceptions are too few, too vaguely described, to have the necessary weight in opposition to the principles we advance: nay, more—in proportion as we minutely observe the effects of these morbid changes on the brain we shall have additional proofs of the correspondence between cerebral development and mental manifestations. The brain being double, accounts for the operations of mind going on through this organ, though it may have lost part of its substance, in the same way as the ideas formed of colours and external objects by the instrumentality of sight, are nearly as perfect with one eye as with two. The power of accommodating itself to the changes induced by slow disease, with which Providence has invested all organised matter, is no argument against the functions attributed to different organs. We are not the less satisfied of the lungs being the organs of respiration, and of the full size and integrity of the pulmonic apparatus being necessary to the preservation of health, from the circumstance of one lung having been gradually destroyed by ulceration, without the person suffering much inconvenience. A longer explanation of this point would lead us to anatomical details, which for the present we are desirous to avoid.*

* This waving the discussion of the subject proceeded from the circumstance of many of the members of the society being gentlemen of the bar, or of other professions, who, I presumed, were not yet acquainted with the anatomy of the brain. The subject which I here passed over was one at first urged with an air of triumph, as an insuperable objection against the position we now advocate—but which, by more recent and accurate observations, goes to prove the superior anotomical and physiological knowledge of Gall and Spurzheim; and confirms their phrenological views—I speak now of dropsy of the brain or *hydrocephalus internus*.—The accumulation of fluid in the ventricles gradually

In idiots the brain is found deficient, and though not of any specific form or size, is always deformed. Who among you has seen one of these unfortunate beings, that had not at the same time defective cerebral development. We know that too small a head is one of the obstacles which prevent the manifestations of the soul. Willis of London, Bonn of Amsterdam, Pinel and Esquirol of Paris, all describe idiots in whom the brain was exceedingly small, and imperfectly developed. On the other hand, those who have been distinguished for their great talents—Bacon, Leibnitz, Haller, Bossuet, Voltaire, &c., and in our country, Franklin, had all voluminous brains. It will be afterwards seen, that though this be a general criterion of intellect, we must specify the part developed, to determine, whether intellect or passion most abound. We say nothing of those who have some single talent in a high degree, for they might have this, with a brain of a very moderate size, but we shall find the development of the organ corresponding to the particular talent. To Magendie we again refer: in general, says this experimentalist, the volume of the brain is in direct relation with the mental capacity. When, however, we speak of a large brain being favourable to the display of the intellectual faculties, it is but fair to hold in mind that we are to be understood as alluding to one with some degree

distends them, and insinuating itself between the medullary or internal surfaces of the convolutions, gradually unravels, as it were, these latter, and reduces the brain to the appearance of a sac or membrane filled with fluid: the cranium in the mean time accommodates itself to the pressure from within, and becomes enlarged sometimes to an enormous extent, three or four feet in circumference—but without, as was once asserted, the sutures being opened, or the ossification being incomplete.

This shows that the enlargement of surface compensates for thinness of structure of the brain, and that though altered in form, it is not necessarily absorbed or destroyed, and may on occasions be adequate to the usual employment of its faculties. Gall and Spurzheim have unravelled, as it were, the brain, and produced an appearance somewhat analogous to that described above as resulting from disease.

of symmetrical proportions—in the same way as when we speak of the athletæ, gladiators or pugilists, as large powerful men—size, though a general requisite for success, is not the only one; and nobody would tell us that large men are not strong, because some individuals, loaded with fat, or puffed out with dropsy, have size but no strength. In some idiots there is a considerable mass of brain, but we shall draw from this circumstance an additional proof in favour of our system, when we come to speak of the plurality of organs.

Admitting then, say our opponents, that the brain is the seat of the mind, and that on its perfect development depends the perfection of mental power, still we cannot tell from the external configuration of the skull or cranium, the size of the brain. This is an objection urged with much eagerness and apparent plausibility, but is met by the physiologist just quoted, who tells us, that the only method of estimating the volume of the brain in a living person, is to measure the dimensions of the cranium; every other method, even that proposed by Camper, is erroneous—The Edinburgh Reviewer with all his warmth of opposition says: "but we will acquiesce implicitly for the present in the proposition, *(familiar to physiologists long before the age of Gall and Spurzheim,)* that there is in most *instances a general* correspondence between the size of the cranium, and the quantity of cerebrum," (brain). This once admitted, we might rightly infer, that the correspondence of the figure of the skull, and development of the brain, will be found in particular parts, as well as in the whole structure. Spurzheim used to prove this, by using the skull as a mould, for casts of plaster of Paris, on which the correspondence between their external surface and that of the skull, was clearly displayed. Doctor Harlan, of this city, has satisfied himself of this coincidence by similar means.

The last and expiring effort of metaphysical obscurity,

against observation and inductive reasoning, is in the denial of the innateness and plurality of faculties, and of their corresponding organs—It will tell us that the soul or the mind sits enthroned, and acts by various ways to us unknown ; sometimes showing its strength in making this man a poet, another a mathematician, a third a painter, by certain processes called perception, memory, imagination, judgment, &c.*—how, we are not to inquire, or why there is such a woful discrepancy in the definitions and deductions of philosophers, who have treated this subject: so that except acquiring a few fanciful thoughts and metaphorical allusions to images, sympathies, associations, &c. those persons who have most studied the common works on the philosophy of the mind, will tell you there is nothing left, nothing to which they can attach definite meanings to guide them in the study of human nature. These speculations go about as far to explain the operations of intellect and feeling, as the old doctrine of the horror of a vacuum did in accounting for several natural phenomena. We smile at this language now in natural philosophy,—the day will come when we shall smile with similar feelings at our present systems of moral philosophy.

Though the plurality of faculties, and their being assigned corresponding seats, seem so repugnant to the mysticism of the present school of philosophy, it is ne-

* That is by faculties, (assuming for the moment that they are such,) common to man and brutes. That the latter have perception and memory, is acknowledged by all: their dreams—their "lively conception of objects of sight," the ability of some to accommodate themselves to peculiar circumstances and situations, of course making comparisons,—prove their possessing imagination and judgment. Locke gives brutes the powers of comparison and composition —that is, the combination of the above primitive faculties as they are incorrectly termed, but endeavours by metaphysical subtilty to establish a difference between man and them, by denying them abstraction—"an excellency which the faculty of brutes does by no means attain to." The following up this distinction, requires so much abstract belief in lieu of comprehension, that I must acknowledge my inability to do it. We shall apply these facts as we advance.

vertheless an idea that had been advanced by many physiologists, and even some divines, but was supported by few data, and no attempts were made to fix the seats of the faculties or observe the coincidence between cerebral development and mental manifestations, before the time of Gall, who is entitled to all the credit of original discovery and successful applications.

The analogies of nature and the operations of the mind, all go to prove the brain's being divided into different organs. Each salt and mineral, has its peculiar crystallization: each kind of tree is differently organized, as also its different parts—the wood, leaves, flowers and fruits—The organization of each animal is equally modified, and in the same animal each function is attached to a particular organ, as the heart to circulate the blood, the lungs for respiration, &c. In the nervous system we see the five senses separate and independent of each other: there are as many instruments as kinds of impressions. More direct proofs are furnished by the actions of man and animals in a state of health and in disease. As respects the latter, their brains must differ in the totality, since the qualities of these animals depending as we have shown on the brain, are unlike. The beaver that builds a hut, the dog that hunts, the tiger crouching for his prey, the docile elephant, cannot have the same constituted brain. The different individuals of a species, never possess the faculties in the same degree; some are distinguished by their peculiar qualities,—others are stupid—consequently the organization cannot be equally perfect. There must also be modifications in the cerebral development of the two sexes, for we know that some faculties are most active in women, others in men. But we have only spoken of the brain as a totality. If it were not composed of different organs, why do we find in the scale of beings that it is more complicated in proportion as faculties are multiplied.

In our own species we see at an early period, in infancy and tender age, one part of the brain well developed, the other only becomes so at a later period: the first, composed of the upper and posterior part, enables them to show at once most of the passions which mark the more mature man: while it is only with the gradual and more perfect development of the anterior portion, that the intellectual faculties are displayed, and assume a controlling power over the former. Here then in the healthy state we have two grand divisions of faculties and corresponding organic structure marked out. In those unfortunate creatures who have never displayed the usual signs of intelligence, and whom we term idiots, there is not simply imperfect development, but absolute deficiency of organization,—the anterior part of the brain seems wanting, and its height is much below the common standard—yet many of these beings display the lower propensities strongly, while the higher feelings and intellect are wanting.—If brain were an unit, ought we not in these idiots, as in children, to see a proportionate activity or a proportionate feeble display of passion and intellect, of feeling and reason.*—That such is not the case we all know, but finding that certain propensities and passions exist in all their energy in the infantile state, as in idiocy, whether in casual cases or among the cretins of the pays de Vaud—and accompanied with a certain development without which they would not exist,—we must assume the latter as a distinct and separate cause, from that producing intellect or higher reasoning powers, which we observe accompanied with a development of another part of the brain, and which may render them very active without any marked display of passion or strong feeling. Here are two sets of

* See the representations and descriptions of such beings in Pinel *sur l'alienation mentale*, and in Spurzheim on Insanity, also Richerand's Physiology under the head of Sensations.

faculties, two sets of organs, which every man, who will give himself the least trouble of observation, must admit. The charm of unity once broken, he will not stop at simple duplicity, but will soon satisfy himself with the plurality of faculties and their organs.

In the same person certain inclinations and certain faculties are manifested with much energy, others very feebly. One man may have much verbal memory and little reasoning power; he may be a great poet and no general; a good painter and no mathematician. He may be devout and either stupid or intelligent; each has his gifts,—consequently a similar mass cannot be adapted to all these functions. If there were but one external sense, it might suffice to perform the offices of the whole; it ought to see, hear and smell; but since the functions of the external senses are attached to different organs, they may exist separately, and one may be very strong while the other is very weak. It is the same with the internal senses. If the same organ were destined to manifest all the faculties, how could the soul exercise with this instrument such a faculty in perfection, and such other in a limited degree; or why should not all the faculties increase in activity, or decrease at the same time—whereas some, as already remarked, are very energetic in children, others only displayed in adult age,—some decline at forty or fifty—others last till decrepitude comes on.

How can we, on the commonly received principle, account for the mind, fatigued with continued attention to one subject, applying itself to another with vivacity and pleasure. The plurality of organs explains this, in the same way as when the eye is fatigued with looking at brilliant colours, or varied landscapes; and almost incapable of action, the ear may still be flattered by agreeable sounds. The state of sleep and dreaming affords proofs to the same effect. If the brain were one organ, there must be either watchfulness or entire repose—per-

fect sleep, whereas we know that in some persons the mind is very active during this state, calling up a variety of imagery and succession of events. The circumstance of the subjects of our dreams seldom occupying much of our attention during our waking hours, and of those subjects most studied being least dreamed of, is readily explained on the principle of the faculties which these latter kept in exercise, being fatigued and requiring complete repose; whereas the others, little thought of during the day, and the faculties on which they depended having been little exercised, do not repose like the others, but rather disport themselves by enlarging and combining new ideas. It is with the faculties of the mind as with those of the body; exercise must be followed by rest or sleep, which is more complete the more active and universal the exercise has been; but if this be carried beyond a certain point, that of simple fatigue in either, and the faculties are overtasked, as in the body by excessive muscular exertion, in the mind by very intense study, strong fear, disgust, or great anxiety and grief,—fever, restlessness and tossing will ensue in the former, and dreams partaking of the predominating feeling in the latter. The modifications of dreams produced by the different periods of life, afford additional illustration. In early age and youth, our feelings or propensities give the impress to our dreams; in manhood, the intellectual faculties being matured, divide the night with the former, while, in old age, the same faculties being enfeebled, the dreams run back to childhood and early life.

Somnambulism affords another instance in favour of the plurality of organs. We know that the brain acts on the external world through the medium of the senses, the voice, and the instruments of voluntary motion. This may be partially displayed in sleep, according to the number or energy of the cerebral organs that are active; some dream and speak; others dream, speak, and even

hear; others again, in their dreams, will get up and perform various actions; it is generally this latter state that we term somnambulism. Visions, inspirations, hallucinations, are only explicable on the same principle of the plurality of organs.

It is impossible to reconcile the facts of partial insanity, or monomania, with the notions of the unity of the brain. Some persons are, we know, only deranged on one subject, and display in other respects a consistency of conduct, and occasionally a strength of reasoning, that would deceive a stranger. So in the external senses, sight may be destroyed, and hearing and touch become more accute than ever.

But if mind must be an unit to coincide with unity of consciousness, we can readily admit it, in the same way that life or the vital principle is said to be an unit; and as the latter is modified by different organs, each having its peculiar modes of action and function, so is the former; and digestion and respiration, sight and hearing, are not more distinct modes of action, than verbal memory and causality, or local knowledge and ideality.

The weight of reasoning is decidedly in favour of the opinion of a plurality of faculties and organs, and we should be perfectly justifiable in regulating our studies and views of human nature accordingly, and entitled to give our science the name of Phrenology; but it is by observation and experience that its advocates propose testing its truth, and displaying conclusive proofs in its favour. Happily here is no appeal to credulity, no attempt to bewilder the mind in the mazes of metaphysical conjecture; the unprejudiced man has but to study the basis of the doctrine, and look abroad on the world, for the demonstration of its correctness. Conviction must be the result of such conduct. Then will he regret his former levity, and regard with pity and sorrow, the feeble attempts of those who substitute vague conjecture

for observation, and ridicule the harmonies of nature and the work of God.

We must not here omit noticing some other objections made to this doctrine, not indeed deduced from *à priori* reasoning, or experimental observation, but from presumed final effects. Though they be sometimes urged with art, and with an intention to alarm where they cannot convince, yet as occurring to those whose amiable sensibilities would make them shudder at being led on to the adoption of any opinion that might lessen their exalted veneration for the Deity, we shall pause for a moment to show the unreasonableness of their fears, and satisfy them that a very contrary effect will follow their studies on this head. It is not a little singular, that almost every philosopher, whether in morals or physics, has been in his day charged with supporting materialism—much too substantial a term for so vague and unmeaning an accusation.* Locke, when he denied that there were any innate ideas, was charged with materialism. The Phrenologist, in contending that man is born with innate faculties and propensities, labours under the same accusation. The former was at first said to be an atheist—a deist. The same charitable insinuations have been thrown out against the latter. The opinions of Locke have, however, been received and commented on by philosophers and divines. Ere long the same honours will be conferred on Phrenology, with so much the greater probability of permanency and utility, as its doctrines are founded on the intimate constitution and nature of man.

When we say that mind is displayed through the medium of the brain, we do not say that mind and brain are

* The following explanations are intended for those who really have sensibilities for the moral tendency of any doctrine, and reason enough to be convinced when suitable arguments are used. As to the crowd, it will be sufficient to ask what they mean by materialism and fatalism.

one, any more than that life and flesh are the same, though for the display of both mind and life, a certain organization is necessary, in this our present state of existence.

"So far, the properties which we have discovered in bodies were constantly inherent in them, and seemed essentially attached to the matter which composes them. It is thus that ponderable bodies cannot be deprived of weight, nor their molecules of the property of mutual attraction." (Such is materialism.) "We are now going to examine other kinds of modifications, which may be temporally impressed on bodies, and which are so much the more singular, as without adding, or taking away from their particles any tangible or ponderable principle, they develope nevertheless very powerful actions, the mechanical influence of which may subsequently put in motion material agents." *Precis Elementaire de Physique Experimentale, par* J. B. Biot. tome I. p. 403—4. The language of this philosopher, you will doubtless imagine, has reference to the nature of mind and life—by no means—it is the introductory notice to the chapter on electricity, which, as well as galvanism, magnetism, and even light and caloric, we know as little of in the abstract as of mind itself. It is only when acting on matter, or combined with it, that we become sensible of its presence. Still are we enabled, by an attentive observation of its conductors, and its mode of transmission, to lay down some general rules on the subject, and to render it not simply subservient to curiosity, but a powerful means in the hands of science, for laying open some of the hitherto concealed operations of nature. So of mind in the abstract, we can only conceive it as emanating from the Deity, but like every thing here below, displays its powers by certain modifications of matter. Light and electricity are not changed in themselves, but may be rendered more or less apparent or active, according to the

nature or quantum of the body employed for collecting or conducting them. Is it not more natural to suppose mind as coming from the Deity, and intrinsically the same, though favoured or impeded in its display by a more or less happy organization, and by health and disease, than to imagine an immaterial principle, independent we are told of matter, yet sometimes puny, or sick, altering its state like the stomach ; surely this fashionable idea savours most of materialism, or at least tends most to degrade the dignity of mind, and diminish our exalted admiration of omniscience. If indeed asked, why there should be a necessary connection between the mind and the brain, we cannot tell : we only attempt to go a link higher in the chain of causation : the first cause is hidden from us ; as it ever has been, and ever will be, in this world from all others.

The second grand objection urged against phrenology, is its supposed tendency to fatalism. We shall not, as we might, rest our answer on the principle that what forms part of the creation and enters into the plans of the Deity cannot be wrong, and that we have only to examine and take things as we find them, not ask why they are so. On attentively observing the march of things, the operation of cause and effect, of actions and motives, we shall discover that man has strong animal feelings and propensities, which may, and unhappily often do, impel him to the commission of crimes, destructive of his own peace and the world's welfare. The gloomy prison and the triumphal arch—the last abode of the ignoble robber, the proud memorial of the haughty conqueror—are but too striking proofs of this melancholy truth, acknowledged by the philosopher and deplored by the saint. But that man, a world in himself, should be necessarily or irresistibly led away by these meaner propensities, must be denied by all, and by none with more zeal than by the advocate of phrenology, who points out

higher and nobler faculties, by which we are impelled to adore a Supreme Being and know what is due to our species; which prompts us to kindness to our fellow men, and carries us beyond the confines of the present, looking with eagle gaze to the light of futurity. All these, while they tend to elevate the natural man above the brute, enable him to receive the truth of revealed religion, and, joined to his intellectual faculties, give him a triumph over his animal propensities, in the same way as he is able to control and regulate the different races of animals for his own use—and he may oft exclaim,

> "Yet with my nobler reason, 'gainst my fury
> Do I take part."——

Phrenology here is in accordance with general experience, by showing that these higher or affective faculties, with their corresponding organs, are most constantly found, and are independent of the varied intensity of the animal propensities or activity of the intellectual faculties. That some are deficient in their means of judging, or have not the higher faculties active, cannot be denied; why it is so we know not.* In what happens against our will there is one kind of fatalism entering into the plans of the Creator. We belong to families rich or poor—A child may inherit the diseases of his father, and thus be punished for what his actions did not merit. Some persons are born blind, a fate they no doubt consider hard; so in the same way people are born with more or less feeling and intellectual power: there are born stu-

* There seems to be less of fatalism, after all, in this condition of things than that supposed by the school of Locke and Stewart, which gives man powers possessed by the brutes, and on which they are solely dependent for their moral and intellectual improvement and advancement, which is more or less perfect according to the education received, and the opportunities presented for association of ideas; circumstances over which the mass of mankind have as little control, as of the dispositions which they may be born with. It is needless to ask which is the doctrine most favourable to natural and revealed religion.

pid men and men of talents, so far there is fatalism. But we shall be told that these lower propensities will lead us away—The power being given, it does not follow that it should inevitably act. The dog is hungry, yet may be restrained from eating, and we punish it for the attempt. Experience shows of our internal powers, that they may exist without action; hence, a kind of liberty not universal indeed or unlimited, for all that is created is subject to certain laws. No man acts without motive. What are the bonds of friendship, the calls of religion, if motives do not regulate us. Three conditions appear necessary to make a being free. First: Several motives, if one only exist, there is no choice, so that we are accustomed to speak of the animals guided by only one motive, as acting by blind instinct. The greater the number of motives the greater the liberty. Second: There must be power to choose, that is, the understanding must have power; many confound pleasure with liberty: the mere liking any thing is not a sign of freedom. The tiger, pleased with destruction, follows his inclination in pursuing its prey. Legislators admit the necessity of the understanding's being developed before persons can come under the influence of laws; hence children and idiots, though possessed of very energetic desires, are exempt from their operation. Third: The will must have influence on actions, but never can it have on feelings—We cannot suffocate the latter, but we can refrain from gratifying them. Sometimes the will loses its power over its instruments; we call this state insanity. Moral freedom then consists in man's acting from motives peculiar to himself and not to animals. Now we see by phrenology, that he has organs and corresponding faculties which animals have not, consequently should say that he has moral freedom. We shall give in this place, an extract from Spurzheim's *Essai Philosophique sur la Nature Morale et Intellectuelle de l'Homme.* "It results

from this section, that the organization of man is not sufficient to explain the functions of animal life; that these latter are subject to certain laws; that consequently, man does not enjoy unlimited liberty, but liberty founded on three conditions; the plurality of motives, understanding to make choice of them, and the influence of the will over the instruments necessary to acting; that man alone has a *moral* liberty by means of certain faculties which are peculiar to him, and which constitute human nature; that every thing conformable to it is good, and the contrary bad; that evil in general results from the infraction of the social order; that natural morality consists in submission to the laws of the creation, and in the general happiness of the species; that the obedience of man to the order established by the Creator constitutes his merit; that natural and christian morality are but one; that the knowledge of human nature contributes to display the excellency of christianity; that the existence and necessity of moral laws are not simply founded on faith, but also on proofs palpable, visible and inherent in man; finally, that morality is simple, universal and invariable as the species, and that it ought to be the basis of every institution for the preservation of social order." p. 135. Hear what the celebrated Doctor Chalmers says in one of his sermons. "God has, for the well being of society, provided man *with certain feelings and constitutional principles of action*, which lead him to a conduct beneficial to those around him, to which conduct he may be carried by *the impulse of these principles*, with as little reference to the will of God as a mother among the inferior animals, when constrained by the sweet and powerful influence of natural affection to guard the safety and provide for the nourishment of her young."*

* For a continuation of this discourse, see the Appendix to Combe's Essays on Phrenology. In this work are found the opinions of other divines perfectly conformable to those here advanced.

Seeing also that no two persons are precisely alike in disposition or intellect—must we not renounce a little of our own will in intercourse with others, to preserve the necessary harmony: we shall then be more tolerant and indulgent. Christianity recommends it, and it is in nature.

Returning now from the moral and philosophical views which the new doctrine opens to us, to the consideration of the physiology of the brain, we find great stress laid upon the circumstance of persons having received injuries of the brain or having lost particular parts of it, without, as has been alleged, their dispositions or characters having undergone any change. But we must ever hold in mind, that this is only negative reasoning, destitute of precision and of that philosophical character which ought to sway our judgments. How difficult to determine, how impossible to be observed, unless a man's attention be directed exclusively to the subject—the varied shades of aberrations of intellect or modifications of feeling—from the trivial display of caprice to entire mental derangement and storm of ungovernable passion. It has been wisely ordained by the Deity, as well for the purpose of keeping our minds in constant action, as of making us feel our dependence and littleness, that in all our reasonings, in all our systems, when we flatter ourselves at having given them the greatest consistency, and formed them with the greatest harmony, we are met by some exceptions, something out of the usual order of things, which makes us exclaim, not—all is faulty—but, we know not all. Shall we reject the explanations of the natural philosopher and chemist, and deny the force of his experiments on the expansive powers of heat or caloric, because water, which is taken as a common, and in general a correct illustration, presents in some of its changes exceptions to his system. Is yonder meteor shooting across the heavens to make us renounce our be-

lief in the Newtonian doctrine of gravitation and repulsion, or lessen our admiration of the harmonious movements of revolving suns and worlds? What should we say to the flippant youth who, on hearing his professor explain the structure of the human frame, and the different parts of which it is composed, as all necessary to health and perfect life—starts up and exclaims, "Sir, you must be wrong; I have seen persons enjoy health who have not had all these parts you speak of."

But in place of negative reasoning and conjecture we can adduce positive facts, showing the constant correspondence between the development of an organ and the propensity; and other instances equally well attested by persons above suspicion, and who had no particular theory to support, of wounds of the organ being followed by the loss of the corresponding inclination, and paralysis of function.*

We find the organ of philoprogenitiveness, or love of children, is well marked in those persons, particularly mothers, whose tenderness for their offspring absorbs all other feelings and affections. We should of course expect to find it small or nearly wanting in those who neglect their children or barbarously destroy them, and such is the case. Spurzheim has seen thirty women guilty of infanticide; twenty-six had the organ very slightly developed—the others were carried away by the violence of particular circumstances, and destroyed their children.—One went immediately and told what she had done, urging her misery as the cause.†

Dr. Stack of Bristol, in England, formerly a pupil of Dr. Rush, was made a convert to phrenology by disco-

* In addition to facts of this description witnessed by Gall himself, we have others furnished by Larrey in France, Formey in Berlin, Hennen in England, on the consequences of wounds of the cerebellum or posterior part of the head.

† See Spurzheim's "Phrenology." If we look at the changes induced in the brain from alterations in structure in man and animals, we find additional confirmation.

vering this organ almost wanting in a woman who had committed infanticide; that is, it put him in the path of inquiry and observation, which resulted in entire conviction. It is not to be inferred, that the want of this inclination leads a woman to destroy her offspring, but if it be illegitimate, she has one motive less for avoiding crime.

The peculiar situation of the mother as the nurse of her child, does not satisfactorily account for her greater tenderness for it. At a very early period we find a marked difference in the amusements and likings of the two sexes, only to be explained by a difference in their cerebral organization; hence we see the head of the female generally longer than that of the man. How often do we find the mother treat her children with excessive indulgence, in spite of all remonstrances, and even of her own reason. In one case of a poor woman with several children, in whom the above organ was largely developed, on its being remarked that she must be fond of them, "Oh, sir," replied she, "what comfort would we poor people have but for our children." In different races and nations this feeling is different; the negro women have a great affection for their children.

A similar difference is found in the two sexes in the brute creation. Sportsmen know the females of many animals, such as wolves, deer, hares, and rabbits, by their long heads. We might go on multiplying examples, but must reserve farther illustrations for a future period.

Few men have been more exposed to obloquy and abuse than Doctors Gall and Spurzheim, and few have been able so successfully to oppose the knowledge of facts and inductive reasoning, to the vague and contradictory assertions of their antagonists. Avowedly the best demonstrators of the brain that have ever lived, they have thrown new light on its structure, and have eluci-

dated some points in its pathology hitherto deemed inexplicable.* They have shown themselves as profound and able reasoners as expert anatomists; and extending their observations from the prison of crime to the closet of genius, have accumulated such a mass of facts and illustrations, as to enable them to reply confidently to their opponents—examine yourself, look around on the world and be convinced.

The applications of the system are numerous and diversified. The subject on which it is peculiarly calculated to throw a powerful light, are Education, the Philosophy of Criticism, Criminal Legislation and Insanity.

That we may be enabled to avail ourselves of such lights, by acquiring the necessary knowledge of the science, as well by communicating our respective observations, as by opening a correspondence with Edinburgh and Paris to procure additional illustrations, has been the object of our union; and let me hope in conclusion, that the society will, without delay, proceed to so important a work, amusing and instructive to ourselves, as we may afterwards render it beneficial to others.

II.

Itaque minime mirum est, si scientiæ non crescunt cum a radicibus suis sint separatæ. *Nov. Organ.* And in another place, as a corollary from this, the author says, *vere scire, esse per causas scire.*

How can we pretend to study the operations of the mind, if we neglect the means through which it manifests itself. A sure proof of the imperfection of our knowledge on any subject, is our resorting to one general term to express a succession of phenomena, each of which would, of itself, demand a precise and distinct

* For a brief account of their mode of displaying the brain, and their views of the nervous system, see Combe's Essays, already cited, in which will be introduced a paper on the subject.

definition. Hence the terms understanding or reason, as applied to the actions of man, and instinct in reference to those of animals, have done much to retard our progress in the study of the philosophy of mind.

In opening the subject this evening, I shall quote from a writer who appears to have examined for himself, and who, were he now living, would be called a phrenologist. "Many theories," says he, "have been invented with a view to explain the instinctive actions of animals; but none of them have received the general approbation of philosophers. This want of success in the investigation of a subject so curious and so interesting, must be owing to the operation of some powerful causes. Two of these causes appear to be, *a want of attention to the general economy and manners of animals, and mistaken notions concerning the dignity of human nature.* From perusing the composition of most authors who have written upon animal instinct, it is evident that they have chiefly derived their ideas, not from the various mental qualities discoverable in different species of animals, but from the feelings and propensities of their own minds. Some of them, at the same time, are so averse to allow brutes a participation of that intellect which man possesses in such an eminent degree, that they consider every animal action to be the result of pure mechanism. But the great source of error on this subject, is the uniform attempt to distinguish instinctive from rational motives. I shall, however, endeavour to show that no such distinction exists, and that the reasoning faculty itself is a necessary result of instinct."

"The proper method of investigating subjects of this kind, is to collect and arrange the facts which have been discovered, and to consider whether these facts lead to any general conclusions. This method I have adopted, and shall therefore exhibit examples of pure instinct, of such instincts as can accommodate themselves to peculi-

ar circumstances and situations, and of instincts improveable by observation and experience. Instinct may be defined: "Every original quality of mind which produces particular feelings or actions when the proper objects are presented to it."* The brute creation affords innumerable examples of pure instincts. Insects invariably deposit their eggs in situations most favourable for hatching and affording nourishment to their future progeny. Butterflies and other insects whose offspring feed upon vegetables, uniformly fix their eggs upon such plants as are most agreeable to the palate and constitution of their young. Water insects never deposit their eggs upon dry ground. Some species of animals look not to future wants. Others, as the bee and the beaver, are endowed with an instinct which has the appearance of foresight. They construct magazines and fill them with provisions."

"*Of the Instincts which can accommodate themselves to peculiar circumstances and situations.*

"To this class many human instincts may be referred. But as these instinctive propensities are likewise highly improveable by experience and observation, examples of them will fall more naturally to be given under the third class. Those animals are most perfect whose sphere of knowledge extends to the greater number of objects. When interrupted in their operations, they know how to resume their labors and to accomplish their purposes by different means. Some animals have no other power but that of extending or contracting their bodies. But the falcon, the dog and the fox, pursue their prey with intelligence and address. The ostrich has been accused of unnaturalness, because she leaves her eggs to be hatched by the heat of the sun. In Senegal, where the heat is

* A definition which will apply to the innate faculties as recognized by phrenology.

great, she neglects her eggs during the day, but sits upon them in the night. At the Cape of Good Hope, however, where the degree of heat is less, the ostrich, like other birds, sits upon her eggs both day and night. I had a cat that frequented a closet, the door of which was fastened by a common iron latch. A window was situated near the door. When the door was shut, the cat gave herself no uneasiness. As soon as she tired of her confinement, she mounted on the sole of the window, and with her paw dexterously lifted the latch and came out. This practice she continued for years."

"The third class comprehends all those instincts which are improveable by experience and observation."

"The superiority of man over the other animals seems to depend chiefly on the greater number of instincts with which his mind is endowed. Traces of every instinct he possesses are discoverable in the brute creation. But no particular species enjoys the whole.—On the contrary, most animals are limited to a small number. This appears to be the reason why the instincts of brutes are stronger and more steady in their operation than those of man. A being actuated by a great variety of motives must necessarily reason, or in other words, hesitate in his choice. Its conduct therefore must often waver, and he will have the appearance of being inferior to another creature who is stimulated to action by a smaller number of motives. Man accordingly has been considered as the most vacillant and inconsistent of all animals. The remark is just, but instead of a censure it is an encomium on the species. The actions of a dog or a monkey, for the same reason, are more various, whimsical and uncertain, than those of a cow or sheep."

"Most human instincts receive improvement from observation and experience, and are capable of a thousand modifications. This is another source of man's superiority over the brutes. When we are stimulated by a

particular instinct, instead of instantly obeying the impulse, another instinct arises in opposition, creates hesitation, and often totally extinguishes the original motive to action. The instinct of fear is daily counteracted by ambition or resentment, and in some minds fear is too powerful for resentment or any other instinct we possess. The instinct of anger is often restrained by the apprehension of danger, by the sense of propriety, and even by compassion. Sympathy, which is one of our most amiable instincts, frequently yields to anger, ambition, and other motives. The instinct or sense of morality is too often thwarted by ambition, resentment, love, fear, and several of what I call modified or compounded instincts, such as avarice, envy, &c."

Though the writer be not entirely correct in his division of primitive instincts or innate faculties, yet he has gone far enough to show how naturally such opinions follow careful observation, and how astonishing that they have not been long ago more fully and clearly established. He then goes on to say: "The minds of brutes, as well as those of men, have original qualities destined for the preservation of the individual and the continuation of the species. The calling forth of these qualities is not instinct, but the exertion or energy of instinct. Instincts exist before they act. What man or brutes learn by experience, though this experience be founded on instinct, cannot with propriety be called instinctive knowledge, but knowledge derived from experience and observations. Instinct should be limited to such actions as every individual of a species exerts without the aid of either experience or imitation. These qualities and instincts vary in particular species; some are endowed with many and others with few; in some they are stronger, in others weaker; and their strength or weakness seems exactly proportioned to their number. *The difference of talents among men who have had the same culture, arises from a*

bluntness or absolute deprivation of some original or mental instincts. Taste, or love of particular objects, whether animated, inanimated, or artificial, is in some men so obtuse, that we often say it is entirely wanting."——

—— "There is, perhaps, a greater difference between the mental powers of some animals, than between those of man and the most sagacious brutes. *Instincts may be considered as so many internal senses, of which some animals have a greater and others a smaller number.* These senses, in different species, are likewise more or less ductile; and the animals possessing them are of course more or less susceptible of improving and of acquiring knowledge."

The author then devotes a few paragraphs in answer to the assertion of Buffon and some others, that animals are mere machines; a notion, "perhaps, too absurd to merit refutation," and concludes the chapter on instinct thus: "From the above facts and reasoning, it seems to be apparent, that instincts are original qualities of mind; that every animal is possessed of some of these qualities; that the intelligence and resources of animals are proportioned to the number of instincts with which their minds are endowed; that all animals are, in some measure, rational beings; and that the dignity and superiority of the human intellect are necessary results, not of the conformation of our bodies, but of the great variety of instincts which nature has been pleased to confer on the species."

Most of you, gentlemen, might imagine that I was giving you the language of Gall and Spurzheim, rather than that of the ingenuous Smellie, from whose Philosophy of Natural History, written at the suggestion of the celebrated Lord Kaimes, I have quoted the preceding remarks. Though authorities are but of secondary importance to those who have the means and the inclination to make their own observations, we shall

here give the sentiments of another celebrated writer, for the purpose of widening the field of inquiry, and out of indulgence to the indolently sceptical, who may think, and perchance persuade others, that the doctrines now taught are entirely new, unheard of, and not only contrary to the dogmas of philosophy, but unsupported by general reasoning and facts. Cabanis sets out with the principle that the connexion between the physical study of man, and that of the manifestations of his understanding, the relation of the systematic development of his organs to the analogous development of his sentiments and passions, show clearly that physiology, the analysis of ideas and morals, are only three branches of one and the same science, which may be most appropriately termed the *science of man*, or the anthropology of the Germans. In acknowledging with Locke and Condillac, that our ideas are the result of sensation or impressions made through the medium of the senses, he still, in conformity with the opinion of those philosophers who prefer observation to simple abstraction, shows that all the determinations of animals and of man in early age, cannot, as Condillac thought, be the result of a reasoning choice, and consequently the fruit of experience; but are the effect of certain inherent powers, designated by the term instinct. He cites familiar instances of instinct in the brute creation, establishing clearly his position. Animals born blind know where to find their nourishment. Haller has seen several species, such as the young of the sheep and goat, at the very moment after birth, go and seek the mother at a considerable distance, before any experience could have taught them to make use of their legs, or have given them the idea that their mother alone could furnish them their wants. The young chickens of the great family of the gallinaceæ walk immediately on issuing from the shell, and run diligently after grains and peck them, without committing any error in

optics. Kids and lambs butt each other in sport, before their horns have shot out. But of all the inclinations or propensities which it is impossible to refer to the lessons of judgment or habit, maternal instinct is assuredly the strongest, the most dominant; and the period which precedes maternity, displays to us, in animals, a series of actions which are still more inexplicable by the theory of Condillac. At this period, all the species are occupied with the sentiments and pleasures of love; still the birds, in the midst of their songs of gladness, and some quadrupeds, in their gambols, prepare already a cradle for their progeny. What connexion is there between the impressions which captivate them, and the cares of their future maternity?

Before he can combine the new impressions which assail him in such a crowd, the infant has already its tastes, inclinations and desires; it employs all the feeble means in its power to manifest and satisfy them.

One thing still more worthy of remark, though perhaps it is noticed the least, is, all those passions which succeed each other so rapidly, and are pourtrayed with so much nature on the variable countenances of children. While the feeble muscles of their arms and legs are scarcely capable of executing some irregular actions, the muscles of the face already express, by distinct movements, though the elements of them are much more complicated than the former, almost the whole series of general affections or feelings peculiar to human nature; and the attentive observer readily recognizes in this picture, the characteristic features of the future man.

Where seek the causes of so complicated an apprenticeship, of those habits composed of so many varied determinations? Where even find the principles of those passions which cannot be formed immediately; for they suppose the simultaneous and regular action of the whole sensitive organ? It cannot be surely in the impressions

yet so recent, so confused and discordant, of external objects.

It is then, we may affirm, in the internal impressions, in their simultaneous concourse, in their sympathetic combinations, in their continued repetition during the whole time of gestation, that we must seek at once, both the source of those propensities which display themselves at the moment of birth, and of this language of physiognomy by which the child knows already how to express them, as also of the determinations which they produce.

Though we may not entirely coincide with the author in his notion of the source of these inclinations and affections, he has shown that they depend on a primitive organization.

Thus, he continues in another place, in animals in general, and in man in particular, there are two very distinct kinds of impressions, which are the source of their ideas and of their moral determinations; and these two kinds are found but in different degrees in all species. For man, placed by some circumstances of his organization at the head of all animals, *participates in their instinctive faculties;* as in their turn, though deprived in a great part of the art of signs, which are the true means of comparing sensations, and of transforming them into thoughts, they participate to a certain extent in his intellectual faculties. And perhaps in looking a little more attentively, we shall find that the distance which separates him, under this last point of view, from certain species, is far less relatively to that which separates many of these same species one from another; and that the superiority of instinct which the greater number have over him, joined above all to their almost entire want of imagination, compensates in their real happiness for the advantages which have been lavished on him, and which

they do not enjoy. Cabanis, *Rapports du Physique et du Moral de l'Homme. Tome I. Memoire 2.*

We come now to apply these Phrenological views to the study of the brain and craniology, which you must be sensible by this time is but a branch of Phrenology. Assuming these differences in the propensities and actions of animals as acknowledged and established, we naturally inquire whence it proceeds. Is it from the varied conformation of a tooth, a claw, or a hand? assuredly not; these are instruments for the gratification, but not the causes of instincts, which exist before the former can be exerted, as well as after they are destroyed, by disease, accident, or age.* Let us now recur to the original proposition advanced at the last meeting: "That the brain is the material instrument of mind, and the essential organ of animal life," without which neither instinct in animals, nor reason in man, can be displayed. To show that the brain is allotted for the faculties of the mind, and that even without it, the rest of the body may have all its parts healthy and entire, we shall give another extract from the works of Cabanis, already cited.

In order that there be, says this writer, integrity of the functions, it must exist in all the organs. It is particularly necessary that the cerebral system, and all its dependencies, meet with no lesion, either in their primitive formation itself, or subsequently, and by the effect of diseases. For example; to think, the brain must be healthy. The hydrocephalic, or those with dropsy of the brain, in whom its substance is destroyed and gradually effaced, become stupid. Still the influence of the

* "Man, it has been said, owes his intelligence to his hands; but the monkey, the declared enemy of all industry, has hands too. To ascribe the intelligence of man to his hands, is to deduce the cause from the means, and talent from the tool, with which it works. It is just as if I were to say that Le Sueur is indebted for the happy native graces of his pictures, to a pencil of sable's hair; and that Virgil owes all the harmony of his verses, to the feather of the swan of Mantua."—St. Pierre's *Studies of Nature.*

spinal marrow is sufficient to give vitality to the viscera of the chest and abdomen; and even when this substance has undergone the fate of the brain, the large nervous trunks support for a long time the remains of life. Some children are born without head, (that is to say, without brain); they die some time after their birth, because nutrition, which was performed by the umbilical chord, can no longer take place in this manner, nor in any other sufficient for the support of life. But they are often in other respects large and plump; their limbs are well formed, and they have all the signs of strength.*

In other children, the state of the brain often entirely prevents thought. They do not live less healthy and vigorous; they digest well; all their other organs are well developed; and the instinctive determinations connected with human nature in general, are manifested by them very nearly at the usual epochs and according to the usual laws. It is not long since I had an opportunity of observing one of these automatons. Its stupidity proceeded from the extreme smallness and bad conformation of the head, which never had any sutures. It was deaf from birth. *Though its eyes were in a good state, and appeared to receive some impressions from the light, it had no idea of distances.* It was however very healthy and strong; it ate with avidity. When they did not give it one piece very speedily after another, it threw itself into violent agitations. It delighted to handle what was presented to it, particularly animated bodies, the mild heat of which, and I believe also their emanations, appeared to be very agreeable to it.

To form a just idea of the operations of which thought

* These facts receive additional elucidation by the observations of Professors Tiedeman and Gmelin, on the fœtus in the different periods of gestation; from which they are justified in asserting, that the spinal marrow, as necessary for the vitality and growth of the body, is first formed, and the brain, which is the organ for receiving external impressions and observing their relations, is of posterior formation.

is the result, we must consider the brain as a particular organ, specially destined to produce it; in the same manner as the stomach and intestines for operating digestion; the liver for secreting bile; the parotids, maxillary and sub-lingual glands, for preparing the salivary juices.—The impressions on arriving at the brain, make it enter into activity; as the aliments on passing into the stomach, excite it to the more abundant secretion of the gastric juice, and to the movements which accelerate their dissolution. The peculiar function of the one, is to perceive each particular impression, to attach signs to it, to combine the different impressions, to compare them together, to draw judgments from them and form determinations, as the function of the other is to act on the nutritive substances, the presence of which stimulates it to dissolve them, and to assimilate their juices to our nature.

From what precedes and from what we have already pointed out in the last memoir, continues the same author, we may readily conclude, that the nerves and the brain are not purely passive organs; that their functions suppose, on the contrary, a continual activity, which lasts as long as life. The nature of these functions, and the manner in which they are performed, would suffice to prove it. Besides the physiological knowledge of these organs, that is to say, the knowledge of their structure and of the movements by which they are nourished, and reproduce without ceasing the immediate cause of sensibility, demonstrates it with an evidence that the eye may seize.*

Our first proposition now more fully confirmed and illustrated, we should, on the principle that varied effects presume a variety of causes or complications of the one

* The fibrous structure of the brain as displayed by Gall and Spurzheim, explains the active state of this organ and its periods of repose, like every other vital part.

cause, infer *à priori*, that animals with different propensities would have brains differently modified or developed, and that in proportion as their instincts or innate propensities are more numerous and diversified, the structure of their brains would be more complex. Is this the case? It was first asserted and taught to be so by Gall and Spurzheim, and though denied by many as visionary and absurd, has now received the assent and entire concurrence of a Cuvier, a Blainville and a Geoffroy St. Hilaire, names distinguished and cherished, wherever science, natural history and comparative anatomy, are studied or appreciated. These gentlemen, with a frankness, the characteristic of great minds, have acknowledged the benefits which such a discovery and arrangement give them, in the classification of animals, and in fixing their distinctive characters. The two last named have avowed their conviction that the same method of observation may be extended to man, and that the situation of many of the cerebral or internal organs, with their corresponding manifestations, is proved beyond the possibility of doubt. But it is not in comparing different species of animals that we find such striking differences in the cerebral mass, but also in different individuals of the same species. Every one must be struck with the marked proportional difference in the size of the skull of a tiger and a dog, comparing only two similar regions or portions: but he will discover after a while, a great variety in the skulls of tigers, or dogs, or horses, and invariably will he find, on attentive and patient examination, that there is a corresponding variety of dispositions. "Some dogs, even of the same race, are surly, churlish and revengeful. Others are gay, frolicksome and friendly." It may be replied they all look alike; but put yourself in the path of observation and patient inquiry, and then note the result. If nature had not stamped on every individual bird, for example, a peculiar mark, it would

be impossible that the numerous multitudes who pair or join in matrimony, should be capable of distinguishing and adhering faithfully to one another. A shepherd who has been long accustomed to superintend a numerous flock, knows by the countenances and other natural or accidental marks, every individual.

If we extend the range of observation from the lower animals up to man, we shall not be less forcibly struck with the distinctions drawn from cranial configuration, in the varieties of the human race. This is a pursuit alike interesting to the philosopher and the legislator, who may thereby respectively study human nature with more success, and enact laws adapted to situation and circumstance, rather than draw them from his own feelings and peculiar mode of thinking. We hope soon to be enabled, in imitation of one of the distinguished members of the Edinburgh Society, to present you with a series of casts of the varieties of mankind, and compare their cerebral development with character.—You will then have before you the New Zealander, the Otaheitan, the Malay, the Gentoo, the Chinese, the Tartar, the Indian, the Carib, the Negro, and the Caucasian or European races; and have additional reason to be pleased with that study, which opens such a wide field of comparison, and leads us to an attentive observation of the whole human family. We shall then be gratified by much amusing speculation as well as practical application, in inquiring how far certain stocks are capable of improvement, and what benefit might result from education and good government. Basing our opinions on the physiology of the brain, and calling in the aid of history and actual observation, we shall, I am afraid, be compelled to dissent from the doctrine of Helvetius, and acknowledge the same inequalities in the different races, that are seen in the individuals of any particular nation.* Taking up the

* As we find avowed by Locke himself, who says, "There is, it is visible, a great variety in men's understandings, and their natural constitutions put so

head of a New Hollander, we must exclaim, in the language of Spurzheim, in vain may we expect a Locke or a Newton from millions such as these, even though they received all the lessons of the Academy, the lectures of an Aristotle, or the lights of modern science. In the rounded and narrow head of a Gentoo, we see the cause of their pertinacious adherence to superstitious forms, so frequently at variance with reason and justice, and of that timidity which makes them the slaves of every invader: and in the high conical head of the Carib, we read that pride and obstinacy for which they are so noted.

Would it be presumptuous to infer from differences like these, the cause of the inferiority of the ancient Egyptians to the Greeks in arts and sciences, notwithstanding their sixteen centuries of empire, and a crowded population, by which every stimulus was presented for useful invention or tasteful decoration. Compare the head of a Copt with a Greek, of an African with an European; look at the Sphinx, and the Apollo; and ascending from facts and causes, you will perhaps be induced to give your assent in part to the idea thus thrown out.

The two sexes present a difference in cerebral development, corresponding to that of their moral and intellectual manifestations. If man be more daring and intrepid, more inventive in expedients, and successful in higher combinations,—to woman, must be awarded greater circumspection and attachment; nor ought the former, proud of his stronger powers of reason, contemn as trivial that love of approbation so conspicuous in the latter, and which, when receiving a proper direction, and joined as it is in her to greater friendship and veneration, constitutes more than half the charm of life,—without which, "'twere all a wilderness, a dream." It is these,

wide a difference between some men in this respect, that art and industry would never be able to master, and their very natures seem to want a foundation to raise on, that which other men easily attain unto." *Conduct of the Understanding*.

which make her the ministering angel at the bed of pain, and feel rewarded by one smile of gratitude for days of anxious watching and deep sorrow. By her circumspection she eludes the shock, which, he proudly braving, too often sinks under; or if misfortune come, she draws consolation from above, and finds her happiness in soothing the partner of her grief, and winning a grateful look by her tender assiduities. This is not the dream of youth, but the realization of old age, which is only miserable when bemoaning

> ——————" The loss of her,
> That, like a jewel, has hung twenty years
> About his neck, yet never lost her lustre;
> Of her that *loved* him with that excellence
> That angels love good men with:"—

and proud ought we to be of that philosophy which can find confirmation strong, of truths that ought to be engraven on our minds as they have ever been wound around our hearts.

If we extend our views from animated nature, to those of her brightest, happiest imitations by the chisel of the sculptor, and pencil of the painter; and observe the numerous coincidences in favour of our science, we shall have additional reason to be pleased with a study which embraces such extent and variety of prospect, embellishes minuteness of detail by grandeur of combination, and imparts to the mind a habit of observation and analytical reasoning, very different from the cloudy and benumbing influence of the common metaphysical atmosphere.

It is a fact, not a little curious, that the ancient artists gave very generally to their gods and heroes, conformation of head corresponding with the present notions of Phrenology: thus Jupiter, the father of gods and men, is represented with an uncommonly lofty forehead: Apollo and Hercules are made to differ from each other,

not more in their forms, than in the relative size of their heads and proportional development of these latter.—Every person must have noticed the contrast between the rectilinear forehead of the former, and the oxlike front of the latter; a longer observation would discover the posterior part of their heads proportionally different.—A similar difference is observed in the heads of gladiators and philosophers,—the former showing the animal, the latter the reflecting man.—Let any one compare the head of an athleta or a gladiator with that of Socrates, or even a Chrysippus, to be satisfied of this fact. We may indeed be told, that these gods and philosophers were represented according to the taste and fancy of the artist; but in conceding this we have only additional proofs in our favour; for whence would the latter derive his models but from those most distinguished for the qualities which he wished to represent: and as Zeuxis painted his Helen from the most beautiful and lovely females of Crotona, so would the sculptor form his Jupiter and Apollo, from men the most distinguished for the extent of their understandings, loftiness of sentiment, or purity of taste. A remarkable exception to this general rule, is however presented in the Venus de Medicis, where the head, and particularly the forehead, is so disproportionately small as to be incompatible with any thing like the possession of common intellect. Was it ignorance in the artist, or did he intend to diminish our admiration for beauty by showing, that it alone was not sufficient without the all-inspiring mind, the living fount of the beauteous and sublime? We leave this as a new subject of enquiry for the Antiquary and Connoisseur.

The youthful physiognomist, in strolling through the Florentine Gallery, or the museums of the Vatican or Capitol, has doubtless amused himself in contemplating the busts of a Demosthenes or Cicero, a Cæsar or a Pompey, and trying to read in their countenances fervid elo-

quence, or noble daring.—But yielding him all the pleasure which youthful enthusiasm may derive from such a study, we might direct his attention to their heads, and point out to him more obvious differences, more marked variety of feature here than even the face presents; he will see the ideality of Demosthenes, the causality, and strongly marked vanity of Cicero; or if he continue his views he will compare the head of a Nero and a Galba, with a Titus and an Antoninus, and see in the bust of the first when yet an infant, a sweet countenance truly, but that cerebral development which seemed to designate him for cruelty and tyranny, in dispute of the moral lessons of a Seneca.

The modern artists have been less attentive to the head, than the ancient, but have very generally given to the foreheads, a configuration corresponding with the peculiar character of the personage represented. All the paintings of our Saviour and the Apostles, of the Fathers of the Church, and the Saints, exhibit a full rounded forehead, and an elevation in the centre of the upper ridge, corresponding to the organs of benevolence and veneration. Amid the innumerable illustrations, we may refer to the Redeemer and St. Peter and St. Paul, in Bologna, by Coreggio, and the Transfiguration by Raphael, who has given to the epileptic, or the man seized with a devil, not simply a peculiar physiognomonical expression, but also a configuration of head, showing deficiency of intellect, and forming a strong contrast to the figures on either side of our Saviour.—The Saint Cecilia of Caracci, and Saint Bruno, by many artists might be mentioned; but it is needless to dwell on this point, so happily displayed by all those whose genius and taste made them the delineators of nature. So well established is this correspondence between cranial feature and affective quality, that an artist who should present us a personage as a saint, with a low, flat forehead and head,

however mild and expressive his physiognomy, appropriate his attitudes, or gracefully flowing his drapery, every spectator, from the unpractised peasant to the tutored connoiseur, would feel there was something wanting, and that the unction of manner which commands our respect and sympathy, was not to be found. We may *en passant* cite as a proof of the necessity of the painter's studying a certain harmony of proportion in the form and feature of the figures composing his group, as well as the rules of light and shade, attitude and drapery, that a neglect of this study has made some of the best artists give us children with heads entirely disproportioned to their bodies and age.

Seeing then what a wide field is thus opened to our observation of animated nature, its varieties, its harmonies, from the stupid sloth up to man himself—from the most degraded being of the human race up to a Bacon and a Leibnitz—and in the exertions of art, from the misshapen image of wood to the perfection of the *beau ideal* in the Apollo Belvedere and a Niobe,—is it right or rational to insult our understandings by calling the study of Phrenology ridiculous and absurd? This same science enables us to class such men, to see the motives for their illiberality or ignorance, and derives additional confirmation of its truth from the unavailing efforts of opposition itself. We shall be enabled to distinguish the man of detail, from the one of higher powers of combination, and show that even an Aristarchus might criticise with success the poems of Homer, but be a very bad judge of the works of Aristotle. Each man has his gifts, and he should be cautious how he attempt what neither nature or education give him the power to accomplish, lest a rigid analysis show, that what was mistaken for intrinsic weight and splendour, is nothing but dross and artificial polish. Wit and ridicule may excite our smiles, or intimidate us from expressing our opinions, but can

neither instruct nor convince ; they may put a mask on truth, but are seldom able to drive away error. If we apply this general proposition to our study, we cannot indeed complain much of its having been retarded, in inquiring minds, by attempts at wit or satire ; and the only criterion by which we should not wish the importance of the study to be measured, is the want of felicity with which these weapons have been wielded against us. When our science assumes more of the precision of the mathematics, and shall have the same rich and varied stores as abound in classic lore, we may then hope for Phrenology's occasionally affording subjects for unmixed amusement, similar to what we experience in the humorous essay on flying islands, or the account of the philosopher with wings, and the learned disquisitions of a Parson Adams, or a Dominie Sampson. Swift and Johnson's ignorance, and consequent ridicule of natural philosophy, have not prevented us from benefitting by the discovery of steam-boats and telegraphs ; nor will Fielding's and Scott's comic sketches render the classics less admired or instructive.

I shall not trespass on your patience any longer this evening, by a more particular notice of the organs as evidenced by the cranium ; my object having been principally to direct your attention to the wide field before us, and to satisfy you that our study is not simply skull-gaping or skull-gazing, craniology or cranioscopy, but truly and emphatically the study of mind, or Phrenology—in the prosecution of which, we follow the advice of Lord Bacon for studying natural history, which he divides into three parts : the species, or the kind ; the wonderful, or monsters ; the artificial, or that produced by man. In the species, we embrace the study of man and the various races ; in the monstrous, we include congenital deficiency of brain, and injury by accident or disease, producing idiotism, partial extinction of intellect,

and insanity; and in the artificial, we rank all the illustrations drawn from the fine arts and the sciences—ever holding in mind, that though genius may cast a meteor light over error, and a vivid imagination mislead for a while our better judgment, the truth must be finally determined by the maxim of the great man just quoted—*Quæ enim in Naturâ fundata sunt, crescunt et augentur: quæ autem in opinione variantur, non augentur. Nov. Organ. Lib. secund.* lxxiv.

INTRODUCTION.

THE following are the circumstances which have led to the publication of this volume of Essays.

My first information concerning the system of Drs. Gall and Spurzheim, was derived from No. 49, of the Edinburgh Review. Led away by the boldness of that piece of criticism, I regarded the system as contemptibly absurd, and the authors of it as the most disingenuous of men. After this, however, in 1816, I accepted an invitation from a friend to attend a private dissection of a recent brain, to be performed by Dr. Spurzheim. The subject was not altogether new, as I had previously attended a course of demonstrative lectures on anatomy by Dr. Barclay. The Brain and the Edinburgh Review were laid upon the table. The structure of the Brain was exhibited to the senses of all present, and contrasted with the bold averments of the reviewer. The appearances presented by the parts were distinctly perceptible, for the number of spectators did not exceed eight or ten, and every one was invited to make minute observations, and to mention such doubts as occurred to him.

The result of the dissection was a complete conviction in the minds of all present, and among them were several gentlemen of the medical profession, that the as-

sertions of the reviewer in regard to the appearances of the brain, were refuted by the facts presented to their senses. The faith previously placed in the Review being thus shaken, I attended the next course of Dr. Spurzheim's lectures, for the purpose of hearing an account of the whole system from himself. The lectures produced the conviction, that the doctrines were widely different from what they were generally represented to be, and that if they were true, they were of the highest importance in the philosophy of man. The lectures, however, did not give rise to an instantaneous perception of the truth of the doctrines. They shewed only that the system had the aspect of a science, and that patient examination and reflection would be necessary before it could be thoroughly understood, and the solidity of it ascertained.

Informed thus of the objects of investigation, and of the mode of conducting it, I resolved to put the system to the test of experience. To do so, it was necessary to attain a knowledge of the situations of the organs and the functions of the faculties, and to compare together mental manifestations and development of head. The difficulties in accomplishing this end at first were great. Unaccustomed to minute observations of form, I was scarcely able to perceive that one head differed from another in figure, and almost despaired of ever being able to discriminate those minute shades of difference in development, which indicated differences in the organs. Accustomed also to speculate on ideas and the laws of thought, rather than to observe actions and discriminate the sources in the mind from which they flowed, I found it difficult to comprehend precisely the functions assigned to the different faculties, and to recognise the influence of each in the actions which were the subjects of observation. But I resorted to the practice of selecting only decided characters as the objects of the earliest ob-

servations. I compared the forehead of one individual, who was remarkable for intellectual deficiency, with that of another who was remarkable for intellectual superiority. The difference was so great, and the correspondence betwixt talent and full development, and betwixt incapacity and imperfect development, so uniform, that it was impossible to mistake the characters, or doubt their connection with the forms. In the same way, with regard to Feelings, I compared the heads of persons who were remarkable for cautiousness and timidity, with the heads of others remarkable for precipitancy of conduct; and in these cases also the differences were so conspicuous, and the concomitance betwixt the sentiment and development so steady, that it was impossible to entertain a doubt upon the subject. The same course was followed with the faculties of benevolence, firmness, self-esteem, and others, the organs of which are large; and the same irresistible conviction invariably followed.

Practice in this science, as in every other, gave facility, and increased expertness. After some experience in observing, each individual appeared, on the most transient glance, to have a form of head as peculiarly his own, and as easily distinguishable as the features of his face. The practice of tracing actions to motives also, gave increased facility in discriminating dispositions and capacities; and human nature was found opening up under the eye by the most facinating, yet sure and instructive mode of philosophizing that could be devised. In the course of time, therefore, my observations were directed to the smaller organs, and many of them also I have verified, although regarding others I still suspend my belief, for want of facts to confirm it.

These studies were carried on at hours of professional relaxation, solely for the sake of instruction and amusement, without the most distant prospect of the results being laid before the public. The circumstances which

gave occasion to their publication, shall now be mentioned.

While engaged in putting the doctrines to the test of experience, the tide of ridicule and abuse against them continued to flow in an unabated stream. The only attention which I gave to these invectives, was to examine them carefully, to discover if their authors professed to have compared the system with nature, and to have found it refuted by facts. But in no case that fell under my notice, was there even an appearance of such an appeal to nature having been made. Every opponent appeared either to suppose the alleged facts too ridiculous to deserve a philosophical investigation, or to conceive himself capable of demonstrating *à priori*, by a speculative argument, that they could not be true. As, however, I had by observation ascertained the facts to be founded in nature, I could regard with no sentiment of respect the self-conceit of those who supposed them too ridiculous to deserve investigation. The presumption of those also who conceived themselves capable of refuting them by speculative arguments, appeared equally absurd: and, hence, all the attacks made on the system had no effect in shaking my belief in its general truth.

In this state of the discussion, a number of the "Literary and Statistical Magazine for Scotland" fell into my hands, in which the editor invited a free discussion of the merits of the system in his pages. This liberality appeared to me highly praiseworthy and philosophical; for at that time most of the periodical works teemed with abuse of the doctrines, and appeared hermetically sealed against the admission of any discussion in their defence. After waiting for some time, to see if an abler defender would avail himself of the invitation, and finding that none appeared, I offered the editor a paper, the careless production of a leisure hour. It was published, and another was requested. The periods of pub-

lication being quarterly, I easily found leisure to comply with this request, by contributing a second essay. The interest still continuing to increase, a third and a fourth followed in succession. I was thus an author imperceptibly and almost unintentionally, and had the satisfaction to learn, that the speculations had not been disagreeable to many readers of the Magazine.

By communicating information to others, I found my own knowledge of the subject increased. I had for some time perceived the system to be founded in facts; but two questions presented themselves to my attention: —How has it happened that these facts, which now appear obvious and indisputable, were so long undiscovered? and, What is the cause of the determined opposition with which the dissemination of a knowledge of them appears to be resisted? The answer to these questions did not at first occur to me, and not indeed till after two of the essays now mentioned had been published: At last, however, some views occurred which appeared to throw light upon the subject.

Gall and Spurzheim's philosophy may be summed up in two propositions. 1st, That the mind manifests a plurality of innate faculties,—meaning by the word faculty, a power or instrument of thought of a limited nature, having specific functions: And, 2dly, That each faculty manifests itself by means of distinct organs, and that these organs are different parts of the brain.

The metaphysicians had treated the first proposition with contempt and derision,—and the anatomists were equally decided in their rejection of the second. I accounted for the opposition of both these parties in the following manner.

1st, Consciousness is single, and, as the metaphysicians have studied the philosophy of the mind only by reflecting on the subjects of their own consciousness, it was impossible that they could discover the existence of

distinct innate faculties, although such faculties had a real existence. This proposition is proved and illustrated by the fact, that we could never, by mere reflection on the impressions received by means of the five senses, discover that the senses are distinct instruments, and that each has specific and limited functions.

In the second place, The mind has no consciousness of the existence of the organs by means of which it acts on the external world, and hence the cause why the metaphysicians have made no discoveries in regard to that part of our constitution.

In the third place, It is an indisputable fact, that dissection cannot reveal the functions of the organs of the body; and yet anatomists have contented themselves with merely dissecting the brain, and contemplating its structure, in order to discover its functions, or, at the most, have made some inconclusive observations with this view in comparative anatomy, and on the effects of mutilations of that organ on the mental faculties. They, therefore, remained, of necessity, ignorant of the fact, that different parts of the brain are the organs of different powers of the mind.

Gall and Spurzheim, on the other hand, were fortunately, but, as they admit, accidentally, led into a mode of philosophizing much better adapted than these, to make us acquainted with the true philosophy of the mind and the functions of the brain. They compared the power of manifesting the mind with the development of the brain, as indicated by the figure of the head, in sane and healthy individuals. They also engaged themselves, with animated industry, in ingenious, and, in some respects, original, dissections, to connect their physiology with anatomy, without which it would have been imperfect. Every reader must perceive that they might, by this mode of philosophizing, make discoveries which neither the metaphysicians nor the anatomists

could accomplish. It may be true, that the mind manifests a plurality of innate faculties, each distinct in its constitution and functions; and yet, as consciousness is single, the metaphysicians might not be able to discover this fact by their mode of philosophizing. In like manner, it may be true, that different parts of the brain are the organs of different faculties, and yet the anatomists could not, from dissection, make this discovery. But by comparing the power of manifesting the mind with the development of the brain, both discoveries might be simultaneously made by the same inquirers.

These principles are developed at full length in the first of the following essays, and they are mentioned here only for the sake of a little previous explanation. When I had discovered the application of them as philosophical principles, to direct us in the study of the human mind, I was forcibly struck with their importance. This application of them was new to myself; for, although it had been long known to the world that consciousness is single, and that dissection does not reveal functions, yet, to the best of my knowledge, the inferences from these facts had not been perceived. But as it appeared to me not improbable that the inferences might have been made by authors with whose works I was unacquainted, and not wishing to claim philosophical merit, to which my title might be questionable, I made use of the principles in the third essay in the Magazine, without holding up as new discoveries their importance and utility. The present volume also went through the press without such a claim being even hinted at; and in the correspondence with Dr. Roget, it will be seen that I mention their application as familiarly known; because I conceived it might be so, although I was not aware of this being the case. But a friend, to whom the volume was shewn when on the eve of publication, strongly represented, that it ought not to be presented to the world without a

more direct call on the public attention to the importance of the principles, and to the effects on the study of the philosophy of man likely to be produced by them. This circumstance has given occasion to this prefatory statement.

If it shall turn out that the application of the above-mentioned facts, as philosophical principles, has been made by other authors, I shall willingly resign every merit which may be supposed to belong to the discovery of their application.

If the reader should wish to form an estimate of their utility, he has only, after reading the first essay, to turn up any work on the philosophy of the mind, or the functions of the brain, and apply them to the speculations contained in them. If the work be on the philosophy of the mind, let him inquire whether the author professes to treat only of the laws which are supposed to regulate ideas, or of the faculties of the mind; and if of the latter, what he means by faculties, and whence he derives his information regarding them. If the subject of the work be the physiology of the brain, let the reader inquire whence the author has derived the information which he communicates. The defects of our present systems will appear by this examination, in a light which will forcibly attract the attention of every philosophical mind. Drs. Gall and Spurzheim appear to have been aware of the facts which constitute these principles, but they have not made that formal and explicit use of them of which they are susceptible.

The explanation now given enables me also to complete the history of the present publication, in a more satisfactory manner than I could otherwise have done. From the first moment in which I was convinced of the truth of the system, all hesitation about avowing my belief in it disappeared. I saw, that the facts on which it was founded were part of the order of creation, and to

apprehend danger from a knowledge of them, or to be ashamed of avowing acquaintance with them, appeared inexpressibly ridiculous and absurd. In the society of my friends, therefore, I fearlessly avowed my belief in, and admiration of, the facts which Gall and Spurzheim had brought to light, from the first moment in which I perceived them to be true. But it was out of the course of my habits and profession to appear as a public defender of them, and no such intention ever suggested itself, till, by the periodical contributions to the Magazine, I found myself in possession of a mass of materials nearly equal to the formation of an octavo volume, and which had been pronounced to possess some interest, by persons not incapable of judging. I perceived also, that by the proper application of the principles now mentioned, to the philosophy of Gall and Spurzheim, and to that of the metaphysicians, and by contrasting them with each other, the true merits of both might be more precisely estimated, and a general view given of the present state of the philosophy of the mind, which could scarcely fail to be interesting. These considerations, therefore, led me to collect the essays, and model them anew. The work has thus been the employment of some leisure hours; and, if it contribute either to the instruction or amusement of the reader, I shall be abundantly recompensed for the trouble it has cost me.

The names usually given to the system are *Craniology* and *Cranioscopy:* but these are improper; for the functions connected with the manifestation of the mind are in it never attributed to the cranium, but to the brain only; and, even in regard to the brain, its structure and functions are not the ultimate objects of investigation, for it is considered only in so far as it is the instrument by means of which the innate faculties of the mind manifest themselves in the external world. The real sub-

ject of the system is the human mind. I have, therefore, adopted the term *Phrenology*, (from φρην mind, and λογος discourse,) as the most appropriate, and that which Dr. Spurzheim has for some years employed.

GEO. COMBE.

EDINBURGH,
September 1819.

ESSAY I.

ON THE

PRINCIPLES OF THE SYSTEM OF GALL AND SPURZHEIM; AND THE OBJECTIONS MADE AGAINST IT.

SECT. I.

OF THE PRINCIPLES OF THE PHILOSOPHY OF GALL AND SPURZHEIM.

"Till Metaphysics and Physiology are studied more in connection with each other, it seems impossible that the former should ever rise to the dignity of a Science."

Article "DREAMS," in the Edin. Encyc.

THE system of Drs. Gall and Spurzheim is generally conceived to be merely an empirical theory; the utmost utility of which is, to enable us to gratify an idle curiosity, by guessing at the propensities of others. This is a great mistake. It is a system of the philosophy of man, embracing the consideration of his moral and intellectual faculties, and the apparent connection of these faculties with his organic constitution. It never pretends to enable us to predict actions; but it treats only of powers and capacities in general.

Gall and Spurzheim make no inquiry into the nature, substance, or essence of the mind itself. Their only object is to ascertain the circumstances under which it ma-

nifests its powers ; and they do so, by observing facts submitted by the author of nature, to the cognizance of our faculties.

Mr. Stewart most justly observes, " That the metaphysical opinions which we may happen to have formed concerning the *nature* either of *body* or of *mind*, and the *efficient causes* by which their phenomena are produced, have no necessary connection with our inquiries concerning *the laws according to which the phenomena take place.*"—" Whether, for example," says he, " the cause of gravitation be material or immaterial, is a point about which two Newtonians may differ, while they agree perfectly in their physical opinions. It is sufficient, if both admit the general fact, that bodies tend to approach each other, with a force varying with their mutual distance, according to a certain law. *In like manner, in the study of the human mind, the conclusions to which we are led, by a careful examination of the phenomena it exhibits, have no necessary connection with our opinions concerning its nature and essence.*"—(Elements vol. i. Introd.)

Gall and Spurzheim, therefore, state only " the conclusions to which they are led, by a careful examination of the phenomena which the mind exhibits ;" and they avow themselves as ignorant as their opponents, concerning the *nature*, *essence*, or *substance* of the mind. Let us proceed, therefore, to give an account of the *principles* on which their system of philosophy is founded.

There are three facts in the constitution of man, of great importance to be attended to, in commencing the study of the philosophy of his nature, which have not hitherto met with the consideration they deserve. Indeed they form three fundamental principles, to be kept in view in all our inquiries ; and we solicit an earnest attention to a few remarks upon them.

First, *Consciousness* is *single*, although there is a plu-

rality of *instruments*, by means of which the mind manifests itself. For example, we have *five* senses, by means of which we receive impressions from external nature ; and yet consciousness partakes of the unity of the mind, and not of the plurality of the instruments. Hence it follows, that we could never, by reflection on the subjects of our own consciousness alone, discover that we possess distinct senses.

In the second place : 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 consciousness in the mind either of their existence or their operations. 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 conscious 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.

The case is the same in regard to the organs of the five senses. When the table is struck in my presence, and I attend to the subject of my own consciousness, all that I discover is the existence of an impression on my mind, which I call a sound, and from which, by the constitution of my nature, I immediately infer the existence of something external causing it ; but, by this reflection, I cannot discover that the impression is excited by means of an ear. Indeed I have no consciousness that it is excited through the medium of any organ.

Hence it is an undeniable fact, that the organs used by the mind for manifesting its powers, perform their functions without the least consciousness in the mind either of their existence or their operations*.

In the third place: It is a fact which cannot be disputed, that the *functions* of the organs can never be discovered by dissection alone. An anatomist might dissect the olfactory nerves, till his eyes grow dim with age, and never discover that these nerves perform the functions of smell. He might dissect the optic nerve, in like manner, and his discoveries would, in this respect, be equally short of the truth. He might dissect every organ of the body, but could never, from the anatomical structure of any one of them, infer the functions it performs in the living body.

It will be asked, then, by what means do we discover that we possess organs, as the media of communication betwixt the mind and the external world? And by what means do we discover that there is a plurality of these media, and that each of them is distinct from the others? By experience and observation alone. For example, I discover, by experience and observation, that, in the presence of light, I see; that in the presence of odorous bodies, I receive the impressions called smells; and that when a hard body is struck, I receive the impressions called sounds. But, as already said, even after this experience, I may be still ignorant whether these impressions are produced by the operation of the external causes directly on the mind; or by the operation of the external causes, through the means of an intermedium; and whether there is only one general intermedium; or if there be several intermedia. But, suppose that, after I have learned, by experience, that the percussion of a hard bo-

* The utility of this constitution is obvious. It is with the object alone that we have any practical concern, and not with the apparatus destined by nature for producing the perception of it. The apparatus is under nature's care, and its functions depend on its constitution, not on the human will.

dy is followed by the perception of sound, I wish, on a particular occasion, to experience that perception, and desire that the table be struck ;—if I should find that I cannot perceive the impression of sound, and yet that in the presence of light I can see ;—here is indubitable evidence that the functions of seeing and hearing depend on different intermedia : for, while the ordinary means have been used to produce the impression of sound, no impression has been experienced ; while the ordinary means have produced the perceptions of sight, as before. It might have been possible for me, prior to this last experiment, to believe that all impressions from external objects were communicated directly to the mind, without the intervention of any intermedium, and that the differences perceptible in the character of the impressions, arose from differences in the external causes. But, after I have found that the external cause, which had hitherto produced in me the impression of sound, now produces that impression no more, while the external cause which had hitherto produced vision, still produces that effect, I am led clearly to infer, that the power of experiencing the impressions, depends on other causes besides the external objects, that there must be intermedia of communication betwixt the objects and the mind, and that these intermedia must be distinct from, and independent of each other. Otherwise, how could it happen, that the wonted impressions should be received from light, while the wonted impressions could not be received from sounds, when the external causes, and the percipient being remained, in both cases, the same ?

Thus, from experience and observation, we might infer the existence of some distinct intermedia of communication betwixt us and the external world ; while yet we had not discovered what these intermedia really were.

But, in the next place, how could we discover what these intermedia are? And the particular functions of each intermedium? Only by one mode of proceeding. Consciousness could never reveal one word of truth upon the subject: for we have seen, that we have no consciousness of the existence of the intermedia; and, of course, no consciousness of the functions performed by each of them. Anatomy could afford us as little light: for we might dissect the olfactory nerves,—the optic nerves,—the nerves of taste and touch, and the auditory apparatus, till the scapel fell from our hands with our last breath; and we could find no circumstances, in the structure of these nerves, which would indicate their functions in the living body. How, then, could the discovery be made? Only by comparing the power of experiencing impressions with the condition of the organization. After we have discovered, that percussion of a hard substance produces the impressions called sounds, it is only by comparing the power of experiencing these impressions with the state of the organization, that we can discover, that the ear is the special organ destined to act as the intermedium in producing the impression of sound. It is only by a course of observations, of the constant concomitance betwixt a certain state of that organ in particular, and the power of experiencing the impressions of sounds, that we discover which is the organ of hearing. It is only by observing, that when the ear is sound and unobstructed we can hear, and that, when wanting, or in a diseased or obstructed state, we cannot hear, that we come to the conclusion that the auditory apparatus is the organ of hearing.*

* [Nothing unfavourable to the doctrine can be inferred, from there not being a more marked difference of structure in the different cerebral organs; when we reflect, that those of the five senses present a variety of conforma-

After we have made the discovery, in this simple way, dissection may throw light upon the structure of the apparatus, or upon the apparent or nonapparent adaptation of the structure to the functions, according to our imperfect notions of adaptation; although it could never reveal to us the functions, by the mere unfolding of the structure. Indeed, so indubitable is this proposition, that every anatomist will at once admit, that except in the case of the eye, and perhaps of the ear, there is no apparent correspondence whatever betwixt the functions and the structure of the organs of sense; and he will admit, that even as to these, the apparent correspondence stops when we come to the optic and auditory nerves.

But what does even the apparent correspondence in these senses amount to? Only to this; that we perceive some analogy to exist betwixt the apparatus constituting the eye and the ear, and certain sets of apparatus which we find to modify light and sound in external nature. This, however, does not explain how either apparatus produces its effects. The cause of the refraction of light, and consequent convergence produced by a convex lens, is equally mysterious as the function of vision in an optic nerve. It is no real explanation of the functions of the eye, to say that it modifies light like a lens; it is only an illustration of its mode of acting; because it is as great a mystery how a lens modifies light, as it is how the eye does so; and we might as well explain the

tion, in virtue of their having to be acted on by the external world, or by material agents; and that the sentient portions of these organs, as the retina of the eye, the *portio mollis* of the ear, the nerves spread over the Schneiderian membrane for smelling, and the tongue for taste, and under the skin for touch, —though they must possess peculiar modifying powers, distinct from any influence of the external apparatus, display as little, if not less, difference in their appearance and structure than the different parts of the brain allotted for various faculties, the activity of which is not to be exerted in altering material objects, but in combining impressions conveyed by the external senses.—Ed.]

properties of the lens by refering to the eye, as explain the functions of the eye by refering to the lens.

I make these observations to shew that, even in physics, properties can never be inferred, *à priori*, from structure, and hence much less can functions be so inferred, when we enter on the examination of organization destined to serve as a medium for the manifestation of thought. Indeed, the question of adaptation or non-adaptation of structure to properties possessed, or functions performed, by matter, appears to involve an inquiry placed beyond the reach of the faculties of the human mind. We neither know, nor do we possess faculties fitted to enable us to know, any thing of the *essence* of things. We can penetrate no deeper than the observation of the fact of concomitance betwixt structure and functions or properties; and, instead of vainly attempting to go farther into the secrets of nature, which our faculties are not fitted to comprehend, we ought rather to infer that the adaptation is exquisite and perfect, seeing the structure is created, and the functions are appointed, by an almighty and omniscient mind.

Let us now remark, in what manner Gall and Spurzheim proceed. They lay aside all preconceived theories and opinions, both regarding the faculties of the mind, and the connection of these faculties with organization, and they give themselves up entirely to the observation of nature. There was at the same school with Dr. Gall, a boy whom he had a strong desire to rival in the art of learning words, but to whom he found he could make no approaches in that art, by any effort he could make. This circumstance caused him to ask himself, Is there any thing in this boy's mind that is not in mine? I excel him in other acts of thought, yet he excels me in this. What can the fact arise from? If the mind, as the metaphysicians teach, manifest but one power, equally capable of feeling in every way, and of acting in every

way, how does it happen that I possess a power of acting in one way, superior to what this boy possesses; while he possesses a power, of acting in another way, superior to what I possess? I am certain that the difference, in so far as regards myself, *is natural;* for I ardently desire to rival this boy in the power of learning words, yet I cannot do so.

It was difficult to answer this question; but nature gave a key to solve it. Dr. Gall observed, by mere accident, that a particular portion of this boy's head was more developed than the corresponding portion of his own; while other portions of his own head were more developed than the corresponding portions of the boy's. Here then, were two facts, viz. a certain mental power, and a certain development of head in concomitance. They afforded no result of themselves, but they led to further observations. They led Dr. Gall to compare manifestations of mental power, with development of brain in other individuals; and he found, that in almost every case, in which a particular portion of the brain was fully developed, a particular power of manifesting the mind was possessed; and that in almost every case, where the development was wanting, the power was not displayed. He thus discovered, by observing facts, that the original power of manifesting the mind was not uniform, as to all modes of feeling or of thought, either in the same individual, or in different individuals. Hence, he drew the conclusion, that the mind manifested not a single power or faculty alone, equally applicable to every pursuit, but several distinct faculties, each of which appeared to possess limited and specific functions. From the observation, that the power of manifesting each of these faculties, was in proportion to the development of a special portion of the brain, he concluded, that each manifested itself by means of a special organ.

But, considering the present state of general opinions,

it may not be amiss to pause here, and examine the competency of this mode of philosophising, and the degree of credit which it may be safe to attach to the conclusions drawn from it. In short, let us try it by the principles which were formerly laid down.

In the first place, then, it may be true, that there is a plurality of internal faculties, and that the power of manifesting them is different, in different individuals, and yet that consciousness may give us no intimation of these facts; because, as we have already seen, consciousness partakes of the unity of the mind, and not of the plurality of the instruments of thought; and, because reflection on the subjects of our own consciousness, can give us no information regarding the faculties which other individuals either possess, or do not possess. A blind man would be incorrect in his conclusions, if he were to infer from his own case, that mankind in general cannot experience the perceptions of vision.

In the second place, If the same order of nature obtain in the internal faculties, as in the external senses, these faculties may manifest themselves by means of organs, and the organs may be distinct, and yet consciousness may give us no intimation of either the existence or the functions of the organs. Hence, consciousness appears to give no evidence, either for or against the principles of the philosophy of Gall and Spurzheim.

In the third place, Dissection gives us no idea of the functions of the organs; and hence it may be perfectly true, that the brain is the organ of the mind; and that distinct parts of it are the organs of distinct faculties, although the brain has been dissected for two thousand years, and these facts have never been discovered.

Hence, consciousness and dissection must remain for ever silent upon the subject.

What other mode, then, remains of arriving at the conclusions? None, but that by which the discoveries

are said to have been made,—by observing manifestations, and by comparing manifestations and development together. If our three principles be correct, no ingenuity on earth is capable of pointing out a different mode of making the discoveries. We request the metaphysicians and the anatomists to attend to this state of the question, which they have never yet done; and, if they can, to point out *how* the discoveries could possibly have been made in any other way.

But, it will be said, that this exclusion of all other modes, does not show that Gall and Spurzheim's mode is itself competent. The end may be altogether unattainable by human ingenuity; and then Gall and Spurzheim may be wrong, equally with their opponents. For example, we shall be told, that two preliminary positions must be established, before the competency of their mode of philosophising, and the accuracy of their conclusions, can be admitted: First, That mankind, in their actions, generally manifest their true faculties; secondly, That the true development of their brains can generally be discovered, by observing the shape of the head. It is only by comparing manifestations with development, that the conclusions are obtained; and hence, if it be impossible to discover, either the natural faculties which inspire men to act, by observing their actions, or the real development of their brains, by observing the form of their heads, then the mode of philosophising above stated is altogether incompetent, to attain the result sought for; and the conclusions drawn must, of course, be fallacious.

Perhaps as *actual* manifestations, whether of real faculties or not, can be compared with *actual* figure of the head, whether that figure indicate the true development of the brain or not, we might say, that it is of no importance whether the manifestations be of real faculties or of feigned, or whether the figure be of the brain or of the

head; if, *de facto, certain actual manifestations*, go in concomitance with *certain actual peculiarities of form*; because the *fact*, in nature, is always the thing of chief importance; and, if we assure ourselves of the fact, we may afterwards find a way of solving the difficulties which apparently attend it.

But we shall not take such high ground, although it would be strictly philosophical to do so. We prefer, on the contrary, endeavouring to shew, first, That it is possible to discover the real faculties which inspire men to act, by observing their actions; and, secondly, That it is possible to discover the true development of the brain, by observing the figure of the head.

Let us observe, however, in passing, that on our success in establishing these positions, may depend, not the fate of the philosophy of Gall and Spurzheim alone, but the question of the possibility of our ever discovering the true organs of the mind, and the true functions of the brain. We have already seen, that consciousness cannot reveal any thing in regard to the organs of the mind; and that dissection can reveal nothing in regard to the functions of the brain. If, then, actions indicate no permanent and uniform natural faculties, from which they flow; if every man's character exhibits, through life, a series merely of isolated, inconsistent, and inscrutable acts, flowing from no sentiment, and referable to no principle, then no rational ground remains for comparing manifestations with development, either before or after death, even although the development were as patent as the sun at noon day; and, of course, no mode appears to remain of ascertaining the true functions of the brain, if it really be the organ of the mind, or of discovering what are the organs of the mind, if it really manifest itself by means of organs at all. This is a fact to which the anatomists, who have raised a clamour against this system, have not sufficiently attended.

Is it possible, then, to discover the true sources from which actions flow, by observing the conduct of men, or is it not? The metaphysician reflects on the subjects of his own consciousness, and talks mystically of the "tortuous windings of the human heart." But we go into society for an answer to the question.

In the first place, then, let us observe, that the opinion that men, in their actions, generally manifest their true faculties, and that these faculties are permanent and uniform natural powers, has been in all ages, and in all nations, familiar to the "vulgar," and that they have acted upon that opinion. While the metaphysicians have been erring for two thousand years, in their speculations regarding the mind, the "vulgar" have, in all ages, had a correct practical knowledge of the philosophy which we are now teaching. They discovered, for instance, by merely observing the conduct of individuals, that one has a natural, permanent, and powerful disposition or capacity of a particular kind, which another has not. One, for example, is, permanently and strongly, addicted to sensual indulgence,—another to covetousness,—another to cruelty,—another to benevolence,—another to pride,—another to vanity; one has a great talent for music,—another for mechanics,—another for painting,—another for poetry,—another for abstract philosophy. Now, the "vulgar," always regarded these dispositions and capacities, as something natural, uniform and permanent. Nay, they even regarded them as independent of one another, and separable; for they often found that the possession of one was not accompanied with the possession of the whole. Hence, in addressing any individual, the vulgar have all along been, and still are, in the custom of modifying their conduct, according to their previous knowledge of his dispositions or genius, obtained by observing his actions. To the covetous man they address one motive; to the benevolent man another; to

the proud man a third; and to the vain man a fourth. When they went to move such individuals to act, they speak to the first of *his personal interest;* to the second, *of the pleasure of doing good;* to the third, *of the necessity of preserving his own dignity;* and to the fourth, of *the great praise* that will attend the performance of such an action.

In the second place, The "vulgar" have always had the most complete persuasion, that these dispositions of mind were *natural;* because they have perceived them to be uniform, permanent and steady, to grow with our growth, and to strengthen with our strength. They have never believed, that a man, by an effort of the will, can totally change his nature, or that the true character is so little manifested, that they may find a man prone to benevolence to-day, who yesterday was prone to avarice; that they may find a man sinking in the lowest abasement of self humiliation in his own eyes to-day, who yesterday was conceited, confident and proud; or that to-day the individual may be deaf to the voice of censure or of fame, who yesterday was tremblingly alive to every breath that was blown upon his character. As to intellectual endowments, the "vulgar" never designed for the orchestra the man whom they found incapable of distinguishing betwixt a rude noise and a melodious sound, on the notion, that "a genius for *music*" might be "acquired by habits of study or of business." They never placed in difficult situations, requiring great penetration and much sagacity, individuals who could not trace consequences beyond the stretch of three ideas: nor did they ever conceive, that a man, who has no intellectual capacity to-day, may be a genius to-morrow, or in ten years hence, by an effort of the will.

They, no doubt, have always observed, that the faculties follow a succession in their development; that the child is not in possession of the powers of the full grown

man; and that, hence, a boy may be dull at ten, who may turn out a genius at twenty years of age, when his full powers are unfolded by time. But they never took up the conceit that *every* boy may be made a genius, by habits of study or of business; and they never believed, that, after the faculties are fully developed, any individual may, by exertions of the will, become great in a department of philosophy or science, for which he had previously no natural capacity. They have observed, that cultivation may strengthen powers already bestowed by nature; but they have never found that education could confer either dispositions or capacities which had no previous existence; while they have found, on the other hand, that where nature has bestowed a powerful disposition or capacity of any particular kind, that disposition or capacity will hold the predominant sway in the character during life, notwithstanding every effort to eradicate or subdue it. They have observed, too, that where nature has bestowed in an eminent degree, the faculties which constitute genius, the individual will manifest his native superiority, in spite of every obstacle arising from circumstances or situation. The lives of poets, painters and artists, in every age, have displayed examples of the truth of this observation.

Hence, in the opinion of the "vulgar," the "tortuous windings" of the human mind, are neither so numerous nor so intricate, as the metaphysician would persuade us. Man, no doubt, may do individual actions, or even for a time follow a course of action, the same in external appearance, from different internal motives; so that, from isolated actions no safe conclusions, as to motives, can generally be drawn. But no man can pass his whole life in disguise; and no man can acquire the art of *acting* in the business and enjoyments of life, so habitually and so skilfully, as not to allow his true character to shine out, clear and undisguised, to those who are placed

in a situation to observe it. But, farther, let it be observed, that it is only in so far as the *propensities* and *sentiments* of our nature are concerned, that disguise is practicable, even in a single case. In every act that depends on the knowing and reflecting faculties, disguise is absolutely impracticable. For example, no man can write logical discourses, or trace profoundly an abstract principle, who has *not* powerful reflecting faculties. No man can compose exquisite music, who has *not* the faculty of tune. No man can write exquisite poetry, who has *not* the faculty of ideality. When, therefore, we perceive, even with the most transient glance, such acts to be performed, we have evidence insuperable and irresistible, of the existence of the faculties which produce them.

The "vulgar," let it be observed, in the third place, formed these opinions, not in consequence of logical deduction or metaphysical investigations, but from the observation of plain facts, submitted to the cognizance of their understandings. They perceived the manifestations of the dispositions, or of the intellectual faculties; and from these manifestations they inferred the existence and the nature of the faculties which produced them. If the metaphysicians are disposed to dispute *the competency* of the "vulgar," to observe the facts, or the sufficiency of the facts to infer the conclusions, let them bring forward their arguments against the one or the other; but till we see that these arguments are entitled to weight, we mast be allowed to take for granted both the competency and the sufficiency as self-evident truths, which admit neither of proof nor illustration.

Thus fortified, we may almost venture to assert, that the first point is established in favour of Gall and Spurzheim, viz. that it is possible, by accurate, patient, and continued observation of actions, to discover the true dispositions and capacities which individuals possess.

Now, their philosophy is founded on a comparison betwixt the manifestations of these faculties, and the development of the brain. The next point to be ascertained, therefore, is, whether it be possible, in general, to discover the true form of the brain, by observing the figure of the head.

On this point, I begin by mentioning the cases in which it is *not* always possible to make this discovery. These are cases of disease and old age. In disease, the skull may be enlarged or diminished in volume, by causes other than the development of the brain; and in old age, the inner table of the skull sometimes sinks, while the outer table preserves its original volume; so that the true development of the brain, in such individuals, cannot be accurately inferred from the development of the head. But in all healthy individuals, from infancy to the decline of life, the external shape of the head, in general, indicates exactly the development of the brain. The skull is composed of two plates or tables, with a diploë between; but these tables are so nearly parallel in all the great bearings of the head, that the inner and outer surface may be safely said to correspond. The skull, besides, is not an adamantine barrier, confining the brain within specific boundaries; but a strong, yet yielding, covering, shielding the brain, while in the progress of its growth, it accommodates itself to its size. It resembles, in this respect, the shell of a crab or of a snail. At birth it is small; it increases as the brain increases; and it stops in development when the brain has attained its full size. A process of absorption and deposition goes continually on in its substance; so that if the brain presses from within, the renovating particles arrange themselves according to this pressure, and thus, the figure of the skull and of the brain in general correspond. The integuments which cover the skull on the outside, indisputably lie close upon its surface, and are

so completely parallel, as to exhibit its true figure. Thus, then, there is no obstacle in general, to the discovery of the figure of the brain, by observations on the form of the skull.

But it will be said, perhaps, that these are mere assertions, destitute of proof. I answer, that I do not know *how* to prove a fact in philosophy, except by requesting those who are inclined to doubt it, to observe the fact for themselves. Those who have observed the appearance of the skull after death, and compared it with the development of the brain, are able to form their opinion of the truth of the facts now asserted. Those who have not made such observations, ought to make them, or to make inquiries of those who have made them, and ascertain the truth by the best means in their power. I do not ask any one to believe a statement on my assertion. All that I request is, that the reader will not reject my assertion as untrue, without inquiry, and without evidence.

It is proper to notice, however, in the next place, that the anatomists erect a strong argument against the system of Gall and Spurzheim, upon the existence of the frontel sinus. To those who are unacquainted with anatomy, I may explain, that at the top of the nose, the two tables of the skull are, in *some individuals*, a little separated; and that the canal or hollow, formed by this separation, is called the frontal sinus. Anatomists have said much about the impossibility of discovering the size of the brain, by observing the form of the skull, in consequence of the opening betwixt the tables at this particular spot: but this argument is just about as fair and as strong, as if, on my affirming, as a general proposition, that the development of the skin indicates the figure of the body, an anatomist were to object to my assertion, because, in blacksmiths and bricklayers, the skin is much thickened on the palms of the hands, on which account

the development of the skin does not, in such individuals, indicate the true figure of the body. This is an illustration of the exact amount of that argument; for, in the first place, the frontal sinus does not exist in every individual. In the second place, where it does exist, it is confined to a narrow region of the skull, at the top of the nose; and in no healthy individual is it found extending to any considerable distance over the cranium.*

To obtain the best information upon this subject that I could, I requested a gentleman of the medical profession, who had finished his studies at Edinburgh, and gone, in October 1817, to Paris, to make particular observations in the course of his dissections, and to report to me on the frequency and extent of the frontal sinus. In a letter, dated Paris, 8th March 1819, after frequent dissections for seventeen months, he writes as follows: "As to the frontal sinus, it is largest at No. 22., and extends to part of locality. In disease, sometimes as high as the parietal bones, or more. Since attending to them, I have not seen the *frontal sinus on a single head, except a mad woman.* Spurzheim thinks they may be distinguished from enlargement caused by developement of the brain; but I cannot say that I could. I think he says, that it is only in old age, and disease that you find them. I have seen nothing to contradict that. There are no occipital sinuses in healthy subjects that I know

* Dr. Spurzheim says, on this subject: "The only reasonable difficulty started against the possibility of distinguishing the organs at the lower part of the forehead, and behind the orbits, originates from the frontal sinus, and from the circumstance, that the brain, situated behind the orbits, and behind both hemispheres, does not reach the surface of the skull. I always shew to my auditors the difference between the external bony crest, often erroneously called frontal sinus, and the elevation, which we consider as a greater development of the organ of locality. They will also recollect my demonstrating, that children, and young and adult persons, have no holes between the two tables of the skull, at the forehead, and that the real frontal sinus occur only in old persons, or after chronic insanity, in general, when the brain is diminished in size."—*Examination of Objections to the Doctrines of Gall and Spurzheim, by J. G. Spurzheim, p.* 78, 79.

of. There is the usual diploë, but no more, at least that I have seen or even heard of, unless it be the depression made in the inside of the occipital bone, by the transverse sinus of the *dura mater;* but this is no objection to the system, as that sinus is merely a groove in, and not an opening betwixt the tables of the skull."

Even, however, admitting the frontal sinus to be found in every individual, no anatomist will venture to assert that there are, in sound heads, any sinuses in the parietal bones, the occipital bone, the higher part of the frontal bone, or in the temporal bones; and no anatomist will deny, that these bones form *nineteen twentieths* at least of the skull. Hence, the public will be able to judge of the degree of importance of the arguments founded on the existence of the frontal sinus.

But, in point of fact, as we shall afterwards see*, the best anatomists do not dispute the assertion, that the shape of the skull in general cases, and in healthy individuals, indicates the development of the brain. It is unnecessary, therefore, to add another argument upon the subject.

Thus, we hope, that we have succeeded in shewing, first, That men in general, manifest their true and natural sentiments and capacities in their actions; and secondly, That the form of the brain, in general, and in healthy individuals, may be discovered, by observing the figure of the head. Hence we draw the conclusion, that the true faculties and the true development may be compared together in living subjects; and, on these grounds, we establish the proposition, That Gall and Spurzheim's mode of philosophising is competent to enable us to attain the results sought for.

If any one, after what has been said, still find the idea ridiculous, that a certain development of brain should go in concomitance with a certain disposition or capacity

* See section 3d of this Essay.

of mind, I can only say, that the ridicule, if there is any, must attach to Nature, and not to Gall and Spurzheim. According to our notions of philosophy, no FACT IN NATURE *can be ridiculous*. If the propositions now laid down be *true*, they are part of the order of creation; and that individual has a weak head and a cold heart, who can find subjects of merriment in any appointment of thing which owes its origin to GOD. And I should be glad to be informed, on what principle any one can venture to scoff, who has never made observations on the subject? Is he a judge of what the order of Nature ought to be? It has been too much the case to try this system by comparing it with preconceived opinions, instead of trying it by a reference to Nature. The doctrines are new, and differ extremely from the current opinions of the world; but these circumstances do not prove them to be fallacious. The theory of Gravitation, and the Circulation of the Blood, were equally at variance with the current opinions of the age in which these discoveries were made; and, tried by the standard of these opinions, they appeared ridiculous in the extreme; yet these discoveries were true, and the current opinions erroneous. It will prove the same with this system, if it be founded in Nature; and no one can know, whether this is the case or not, who has never compared it with nature. He who has merely compared it with his previous opinions, has not put it to the test by which it must stand or fall. When its supporters say that it is so founded, they place themselves on a basis from which they cannot be shaken, but by shewing that their observations or conclusions are erroneous; and this can be done only by an appeal to facts by the opponents themselves. And yet, what opponent has ever disputed the doctrines of Gall and Spurzheim, on the ground that he had made observations, and found the result at variance with their statements? Who, then, we beg leave to ask, is entitled

to call the conclusions of Gall and Spurzheim in question? Is it the Metaphysician, who has never studied the mind, except by reflecting on the subjects of his own consciousness? Is it the Anatomist, who has never compared the developement of the brain with the manifestations of the mind? Or, is it the mere talker, ignorant equally of metaphysics and of anatomy? Every one is certainly entitled to state his objections in his own way; and, undertaking to support the system, we are bound to hear them, and to answer them. We shall, therefore, take them up, each in his turn, at least such as have assumed a literary or a tangible shape.

SECT. II.

OBJECTIONS OF THE METAPHYSICIANS CONSIDERED.

"Pour moi, j'ai cru que mon unique objet étoit de démontrer que Spinosa n'a nulle idée des choses qu'il avance, que ses definitions sont vagues, ses axiomes peu exacts, et que ses propositions ne sont que l'ouvrage de son imagination, et ne renferment rien qui puisse conduire á la connaissance des choses. Cela fait, je me suis arrété."—CONDILLAC.

ONE great cause of the opposition made to the system of Drs. Gall and Spurzheim, is the great difference betwixt it and all the metaphysical systems of the philosophy of the mind. I shall endeavour to point out the extent of this difference, and to contrast the leading doctrines of these gentlemen in regard to the faculties, with those of the metaphysicians, that every reader may have an opportunity of forming a judgment for himself.

The speculations of the ancient metaphysicians, were confined wholly to *ideas*, and the means by which ideas get access to the mind, and how they are reproduced, separated and compounded, after they have once penetrated into the sensorium. These philosophers appear evidently to have considered the mind as a single general power, equally capable of feeling in every way, and of forming ideas of every kind.

Passing over the jarring doctrines of these philosophers concerning the *manner* in which ideas were formed, which chiefly occupied their attention, we shall come at once to the modern philosophers. Mr. Locke compares the mind to a *tabula rasa* or blank, and in one place, indeed, to a dark closet, and conceives it to be replenished

with ideas admitted through the medium of the external senses.

Now, I request the reader to observe, that neither in the writings of the ancients, nor of Mr. Locke, is there a single word said about innate faculties of the mind, having specific natural functions; or, if they are mentioned, it is to deny their existence. If we keep out of view the doctrines of these philosophers about Ideas, the manner of their formation, association and reproduction, we have nothing whatever left. The Mind is regarded by all of them as a single general power, without determinate functions, or constitution of any kind.

Every one knows the state to which the theories about ideas were brought by Bishop Berkeley and Mr. Hume. The one demonstrated that we have no evidence of the existence of matter; the other that we have no evidence of the existence either of matter or of mind.

The whole of the ideal theories, and the superstructures raised upon them, fell before Dr. Reid. He called the attention of mankind to the fact, That there is no evidence of ideas being images or transcripts of external things, introduced into the mind through the medium of the senses; and he shewed that, our ideas of external objects are formed, on the presentation of the object to the senses, in virtue of an inexplicable law of our constitution, and that the impression made on the senses has no more resemblance to the thing perceived than a word has to the thing signified.

But here Dr. Reid's discoveries stopped. He is as silent as his predecessors about any innate faculties, or natural constitution belonging to the mind itself. With him, as with them, the mind is considered as a single general power; and the ideas which it forms, and the laws of their association and reproduction, are the only points which are investigated.

Following in the same path, Mr. Stewart next appears.

If great ingenuity, unwearied perseverance, and deep reflection, could have perfected the Philosophy of the Mind, this author would have done so; for no one ever entered on the study with a more sincere desire to find the truth, than he. But let us enquire what he has accomplished. He has written beautiful speculations upon ideas, and habits of associating and recalling ideas; but not a word upon the natural constitution of the mind itself. The Mind, as formed by the hand of Nature, is, with Mr. Stewart, as well as his predecessors, a mere blank, or single general power. If we open his philosophical works, and seek to know whether every individual has equal natural power of feeling in every way, and of forming ideas of every kind, we receive only the evasive reply, that "in whatever way we choose to account for it, whether by original organization, or by the operation of moral causes, in very early infancy; no fact can be more undeniable, than that there are important differences discernible in the minds of children, previous to that period at which, in general, their intellectual education commences;" (Elements, Introduction, part 1.) If we lay aside his speculations about ideas, habits and associations, we have nothing left. He begins and ends without telling us any thing about the *natural* faculties of the mind; faculties which are as distinct from each other, as the ear is from the eye, and as distinct from the ideas which are formed by means of them as the ear is from each impression of sound.

Now, if, in point of fact, the mind manifest a plurality of innate faculties, and if the functions of these faculties, like the functions of the five senses, be distinct, then the Metaphysical Systems of Philosophy are of little or no utility; for in them no account of such faculties is to be found. If there be innate faculties, and if they be as distinct from each other as the eye is from the ear, then the philosophy of the mind consists in a knowledge

of them and of their functions, and the doctrine of ideas will be of subordinate importance. If there be a faculty which gives the power of perceiving melody, that faculty will possess a uniform and specific constitution, and be subject to uniform laws, whether the music produced be that of the Ashantees or of the Italians, of the English or of the Irish; just as the sense of smell is the same in its nature, whether operated on by the effluvia of a Scottish heath, or of an Indian plain. In like manner, if there be a faculty which traces the relation of necessary consequence, that faculty will perform its functions in the same manner, whether it be employed in Japan or in England; and the general acts produced by it will partake of its constitutional character, whatever the variety of individual ideas may be which are formed by it in different countries.

Now, the whole question betwixt Gall and Spurzheim and the metaphysicians, is this: Are there such innate faculties possessing specific functions, or are there not? If the metaphysicians say that there are not, then they maintain that the mind manifests but one general power, and hence that each individual has naturally an equal power of feeling in every way, and of forming ideas of every kind; and they deny entirely the existence of limited natural capacities, qualifying men for one mode of action rather than another. If, on the other hand, they admit that such natural faculties exist, I must observe that, to the best of my knowledge, no account of them is to be found in their writings. I am acquainted with no metaphysical work which even professes to give an account of the innate faculties and functions of the mind, such as is given of the five senses.

The system of Gall and Spurzheim, on the other hand, treats of such faculties and of their apparent connection with our organization; and their account of them is

founded on observation of manifestations, and not on fanciful speculation.

But the reason why such faculties are never mentioned by the metaphysicians is, that their mode of philosophising made it impossible for them to discover them. They confined themselves to reflections on the subjects of their own consciousness, and, as consciousness is single, it was impossible for them, by such means, to discover the plurality of the faculties or their functions. By reflection, we discover only the kinds of feelings we experience, and the kinds of ideas we form; but in this way, or from this source, we learn nothing of the plurality or distinct functions of the faculties themselves. Every man's mind appears to himself, to be a single power, capable of feeling in various ways, and of forming ideas of various kinds; but if we add observation to reflection, we shall find the most irrefragable evidence, that the mind really manifests a plurality of powers, and that each power is in some degree separable, and has specific functions.

Hence, when such faculties are discovered, and their functions ascertained, we are really at the bottom of the Philosophy of the Mind. If we are told that an individual possesses the sense of hearing, we know precisely how he is liable to be affected by external objects, and what extent of natural power of perception he in consequence enjoys, whatever the sounds may be which he hears, or the modes in which he associates them. In the same way, when we are told what natural faculty or faculties any individual eminently possesses or wants, if we know the functions of these faculties, we know in consequence what he has the natural power of doing, and what he has not the natural power of doing; no matter what particular ideas these faculties have previously formed or associated.

It is unnecessary to enlarge on these views. Those

who are conversant with the Philosophy of the Mind will perceive at once that the question betwixt the metaphysicians and the followers of Gall and Spurzheim is the most important that has ever been agitated in this branch of science. If Gall and Spurzheim are correct in their mode of studying the faculties, and if reflection on the subjects of our own consciousness is incapable of revealing any thing regarding the plurality and separate functions of these faculties, then the whole speculations of metaphysical writers regarding the mind, fall to the ground, like the fanciful disquisitions of the alchymists, except in so far as particular truths may be picked out from among their erroneous theories.

These observations will perhaps be better elucidated by entering a little more deeply into the doctrines of the metaphysicians themselves.

In the first place, then, Mr. Stewart, that most able metaphysician, seems not to have formed to himself any very accurate conception of what a Faculty is. In his Elements, he nowhere specifies what he understands by this term, whether a power of a limited nature, or only a specific mode of action of one general power. Speaking of the faculties and principles of the mind, he says, "These faculties and principles are the *general laws* of our constitution, and hold the same place in the Philosophy of the Mind, that the general laws we investigate in physics hold in that branch of science." (Elements, Introduction.)

Now, it appears to me that a *faculty* means simply a power or capacity which has innate functions and activity: a *principle* of our constitution, on the other hand, is an ultimate fact; and has no functions and no activity; as, for example, it is a principle of our constitution that, on opening our eyes in the presence of light, we see the objects around us, and believe in their existence. It is a principle of our constitution, that we can recal the ideas

formed by the reflecting faculties at our pleasure, while we cannot recal the feelings experienced by the faculty of amativeness, by a mere effort of the will. And, lastly, a *law* of our constitution is merely a rule which appears to characterise a number of phenomena, which are to us ultimate facts. It has no functions, and it is independent of the will: for example, we cannot see a rod with the end immersed in water, straight, for it is a law of our constitution, that we must see according to the refraction of light, and the refraction of light makes the rod appear crooked.

Hence, faculties are the powers or capacities of our constitution, and they have their distinct functions, principles and laws; but it is not correct to omit functions entirely, and to confound faculties, principles and laws of our constitution together, as if they were one and the same thing. Individuals may differ from each other in regard to the energy of their faculties, and even in regard to the number of faculties which they are able to manifest; but the principles and laws of our constitution must be the same in every individual of the human race.

In the second place, The faculties of the metaphysicians are really not specific and distinct powers, having separate functions; but they are mere *affections or acts* of a single general power. For example, in their systems, we have no account of specific faculties for feeling DESIRES. Desires and emotions are supposed by them to be merely particular affections of the general power; and, of course, every individual who can feel strongly in one way, is supposed naturally capable of feeling with equal intensity in every other way, if certain exciting circumstances are present. And, in regard to the intellectual faculties, they are merely modes of action of the single power; and the functions of all of them are implied in each.

SENSATION appears to be considered by the metaphysicians, as the first faculty of the mind; and yet, sensation is obviously only an *affection* of the faculties which feel, and of the nervous system in general. No philosopher has pointed out the functions of sensation, as a faculty distinct and independent like the eye or the ear, or shewn how it can be exercised without perception. This leads me to observe, that PERCEPTION is an act of all the faculties which form ideas, but is obviously no faculty itself. We cannot experience a sensation, caused by an external object, without having a perception; and we cannot perceive without having a conception of the thing perceived. Thus, the functions of sensation, perception and conception, are inseparable instead of being distinct. CONCEPTION, indeed, is defined to be the act of forming ideas of absent external objects formerly perceived; but this is a mere gratuitous limitation of the word; for we conceive equally when we perceive, when we remember, and when we imagine, or language has no meaning. Mr. Stewart treats of ATTENTION as a faculty of the mind; a mode of viewing the subject, which affords a clear proof, that he never formed to himself a definite conception of what a faculty is. Attention signifies merely the steady application of the faculties which perceive to any object. It is no separate faculty. It would be as philosophical to call relaxation or contraction muscles, or to call digestion an organ of the abdomen, as to call attention a faculty of the mind. The same remarks may be applied to ASSOCIATION. This term signifies the connection supposed to subsist betwixt different ideas; but as the ideas are not faculties, it is evidently absurd to call any set of bonds of connection betwixt them a faculty of the mind. ABSTRACTION signifies the act of the mind in separating and classing ideas; but the act is not a faculty. IMAGINATION signifies the act of forming new combinations of ideas; but we can scarcely

conceive it to be a faculty itself, otherwise ideas would pass through a range of faculties, and be first perceived by one faculty, then conceived by another, then abstracted by a third, and last of all, imagined by a fourth, before imagination could perform its functions. In the same way MEMORY is styled a faculty, and is called the power of recalling ideas ; but how can ideas be recalled before they are formed ; and what principle have we for attributing the formation to one faculty, the conception to another, and the recollection to a third ?

But the best evidence that these names designate merely acts of the faculties in general, and not faculties themselves, is to be found in the circumstance, that *each* of them implies the functions of almost all the others. For example, we cannot *remember* a train of circumstances, without *conceiving* them, and *associating* them. Hence, memory implies conception and association. We cannot *imagine* a landscape, or a piece of mechanism, without *conceiving* ideas of objects previously formed, without *separating* and *classing* them anew, without *remembering* them to be natural or fictitious, and without *associating* them, so as to form new combinations. Hence, imagination implies conception, abstraction, memory, and association. We cannot separate and classify ideas by *abstraction*, without *conceiving* them, without *remembering* them, without *associating* them, and without *imagining* them ; and hence, abstraction implies all these other faculties also. Perception, as has been already remarked, cannot be exercised without implying conception. Hence, the only original faculty of the mind appears to be conception, and the functions of it appear to be universal.

It is very different with the KNOWING and REFLECTING FACULTIES in the system of Gall and Spurzheim. According to that system, no one faculty can perform the functions of another. If an individual be deficient

in the power of manifesting a particular faculty, we know specifically the effect of this want on his mental powers; and if he has a great power of manifesting one or more faculties, we know the precise scope of his capacities. In their system, the same faculty forms a particular class of ideas, and recals and combines that class; and ideas do not pass through a suite of different powers as they do in the systems of the metaphysicians. If we could conceive the external senses endowed with the power of reproducing their sensations at the command of the will, we should then have an illustration of the powers of the faculties, according to the system of Gall and Spurzheim. The ear would first receive impressions of sounds, and it would recal them and combine them; the olfactory nerves would receive impressions of smells, and would recal and combine them; and thus, each class of ideas would be formed, recalled, and combined by one specific instrument or faculty, at the command of the will. There would not be one instrument for receiving the impressions, another for conceiving them, a third for associating them, a fourth for abstracting them, a fifth for imagining them, and a sixth for remembering them. And hence the power of forming each class of ideas, of recalling them, and of combining them, would be in proportion to the energy and activity of one specific faculty, and to the command of the will over that faculty, and not in proportion to association, or any other fanciful power of the mind.

Accordingly, if we go into society, we shall find the fact to correspond completely with these principles. He who has the faculty of tune in a powerful degree, can perceive, remember, and imagine notes of melody with great power and effect, and his capacity of doing so is not in proportion to any other faculty of the mind, but in proportion to this faculty alone. He who possesses, in a powerful degree, the faculty which traces necessary

consequences, is able with great facility to perceive, remember and imagine, the steps of a logical argument, while, perhaps, he is extremely deficient in the natural power of perceiving forms, colour, or melody, or performing any mental act whatever with regard to this class of objects.

Hence in the system of Gall and Spurzheim, ideas are of subordinate importance, because each faculty is entirely distinct from the ideas which it forms. The ideas depend upon the circumstances in which the individual is placed, while the faculty itself, and its constitution or functions, depend upon nature.

In the metaphysical systems, a great deal is attributed to attention and habits of association. But, unless the faculty be possessed, the function of which is to attend to certain objects, these objects cannot be attended to: and as ideas of the objects cannot be formed, of course they cannot be associated. Hence, he who wants the faculty of tune cannot attend to music; and he who wants the reflecting faculties cannot attend to an abstract discourse.

It is of no utility to indulge speculations about the effects of habit and association, until we are made acquainted with the number and functions of the natural faculties, which acquire the habits, and form the ideas associated. Such kind of information resembles in value that of a dissertation which should treat of particular tastes and particular smells, instead of the functions of the senses of taste and smell themselves. If the mind receives no specific constitution from nature, we can perceive no reason why the genius and character might not be entirely formed by habit and association.

It is evident that every metaphysician who possesses a philosophical understanding has felt exceedingly the want of a basis for his philosophy. Mr. Stewart repeats, almost in every chapter, that *there must be original prin-*

ciples in human nature ; but, in his whole works, we never find them *specified.* The causes of the difficulty which he finds in specifying these principles, appear to be the following : first, he very properly denies the existence of *innate ideas ;* and, therefore, could not call any kinds of ideas original principles of the mind : Secondly, Faculties, in his application of the word, have no *specific constitution or natural functions*, but are merely modes of action of a single and universal power, the mind ; and, therefore, he could not refer original principles to the constitution of the faculties : and, thirdly, he never speaks of *determinate relations* betwixt the mind and any objects in nature ; and, therefore, he could not found original principles on these relations. His notion of an original principle of our constitution appears to be, that it is a mere ultimate fact of our nature, of which we can give no account. He had no other way of discovering these ultimate facts, except by going over the whole modes of human thought, and by analyzing them. Hence, he could not, at the commencement of his work, specify these original principles ; and although he had been able to do so, he could have made no use of them, for they are not powers or capacities, but mere isolated facts. But this appears to shew, beyond the possibility of doubt, that even Mr. Stewart had no idea that a faculty is a specific natural power ; that it has a certain natural constitution ; and that it stands in a determinate relation to its objects.

I make these observations, not from any hostility to this author, whose great ingenuity, love of truth, and erudition, must secure to him respect from every intelligent and virtuous mind ; but to shew that if the present mode of philosophising, even in the hands of so great a master, produce so few useful results, we ought not to adhere to it with prejudiced partiality, nor view, with

sentiments of aversion, the communication of any system, which professes to be in opposition to its principles.

I shall, no doubt, be asked, Do you admit *all* Spurzheim's faculties? The answer I make is this: The division of these faculties is founded, not on a logical analysis of the acts of the mind, as a single power, nor on any logical classification of the *objects* on which the mind may be employed, supposing it to manifest but a single power, but upon observation of manifestations alone. I can say, that I have myself verified many of the faculties, by comparing manifestations and development; and I am certain that the functions of those faculties, and the seats of their organs, are correctly indicated. Other faculties I have not so ascertained. But as to these I have found nothing adverse to them. My observations have not been sufficiently extensive, or made with sufficient accuracy, to enable me to say that I have evidence for them from my own observations. But, as Dr. Spurzheim says that he has evidence for them in his practical observations, and as I have found his statements correct in so far as my own experience goes, I think it more philosophical to adopt his enumeration, founded on his experience, than to affect to make a new division, founded on my own more limited knowledge. Besides, it would be abandoning the principles of the science, to attempt to generalize the faculties, without observations to warrant such a proceeding; because I have already attempted to shew that, except by observing manifestations, there is no way of discovering either the plurality or the functions of the faculties. According to this system, whoever possesses a faculty, ought to possess the power of performing all the functions attributed to it. Hence, if we were to reduce several of Dr. Spurzheim's faculties, by generalization, into one, and to find, on going into society, an individual excelling in the power of performing some of

the functions of this generalized faculty, and destitute of the natural power of performing others, we should be refuted on our own principles.

Neither Gall and Spurzheim, nor their followers, however, pretend that their division of the faculties and their specification of the functions are perfect. On the contrary, every one, who knows any thing of the system, perceives the existence of a great difficulty in ascertaining the number of the faculties, and in specifying their functions; and he knows, that none state this difficulty more forcibly than these authors. Every believer in the system, therefore, is aware that it is far from perfection; and he wishes to see it amended, as experience increases. He knows, in short, that no two individuals, and even no one generation of inquirers, can bring a system of philosophy to perfection. But, knowing as he does, the basis on which the system is founded, he must reject all enumerations of faculties founded on mere metaphysical disquisition. He will readily accept of the contributions of every accurate observer, to increase the stock of knowledge which the system contains; but he will decline the aid of the mere metaphysician, who analyses ideas alone, and neglects the study of nature.

But here, it will, no doubt, be objected, that according to Gall and Spurzheim, each faculty appears to be a distinct mind, endowed with its own constitution, relations and laws; and hence that, as the faculties are several, it is inconceivable how consciousness can be single. The mind, we shall be told, appears, according to this account, to be merely a bundle of separate, distinct, and independent capacities; whereas every one has the testimony of consciousness that he possesses a single thinking principle alone. In reply, we repeat that Gall and Spurzheim make no inquiry into the nature of the Mind, and that they state only "the conclusions to which they are led,

by a careful examination of the phenomena which the mind exhibits." They avow themselves, therefore, utterly unable to give any satisfactory explanation of the difficulty how consciousness comes to be single, while the instruments of thought are numerous. But they say that they have stated the principles upon which they have drawn their conclusions. If it can be shewn that the principles are unsound, or the conclusions incorrect, they will give up both; but until this be done, they must be allowed to hold by what appear to them to be undeniable facts, although some unexplained anomalies attend them. If any one objects both to principles and conclusions, for no reason except that a difficulty exists, let him show how consciousness of the impressions received by means of the senses comes to be single, while, in that case, the instruments are indubitably five in number, and the apparatus of each instrument is double.

In the last place, The metaphysicians, in their systems of philosophy, leave entirely out of view the consideration of the organization. I cannot perceive a reason for their doing so, except the single one, that the mind has no consciousness of the existence and functions of the organs, while the organs are in a state of health. But, is it not equally true, that we have no consciousness of the existence and functions of the organs of sense? And yet, who would ever propose, on that account, to study the philosoply of the senses, independent of the organization? Conceive, for a moment, in what state the philosophy of the senses would now have been, if it had been studied by reflecting on the subjects of our own consciousness alone. Could we, by such reflection, have discovered either the existence or the functions of the senses? Impossible. We should, on such a supposition, have had the *impressions* received by means of the senses, divided into classes, according to the fancy of each metaphysician who studied them; but they would not have

been divided and classed exactly as nature has divided them. As formerly stated, it is only by comparisons made of the power of receiving impressions, with the state of the organization, that the number and functions of the senses have been discovered.

Although, therefore, we have no consciousness of the existence or functions of the organs of the internal faculties, when the organs are in a state of health, yet we have distinct intimations, from other sources, both of the existence of these organs, and of the importance of them to the manifestations of the mind. Has not the metaphysician himself consciousness, that, at times, he cannot put forth the mighty energies of his mind, and cannot rouse up his faculties, to reflect, with deep attention, on the subjects of his own consciousness ?

"Laugh ye, who boast your more mercurial powers,
"That never feel a stupor, know no pause,
"Nor need one; I am conscious, and confess
"Fearless, a soul that does not always think."

COWPER.

Has not the metaphysician consciousness that, for some hours out of every day, he must lay himself down to seek repose, and rest his faculties from their activity? Has he not been conscious, if ever he was sick, that the power of manifesting his faculties, rose and fell with the increase or abatement of disease? And do not these facts indicate that the faculties manifest themselves by means of organs, although, in sound health, he has no consciousness of the instrumentality of the organs, in the performance of each act of thought? Could the metaphysician, for a moment, suppose that it was the immaterial, the immortal principle of the mind, which thus varied in its powers, as the body varied in its state of health or disease, which was thus exhausted by fatigue, and laid itself down to seek refreshment in sleep; or which was thus recruited and restored to its wonted

vigour, by the lancet and purgative roots? Impossible. Nature clearly told him that it was the organs which were thus affected; but, merely because, in his moments of health, and when he was in his study, nature did not give him consciousness of the operations of the organs, he altogether disregarded their existence, and their functions.

Again, did it never occur to the metaphysician, that the explanation of the successive development of the power of manifesting the faculties, as the human being advances from childhood to maturity, might be found in the successive development of the organs; and that an explanation of the difference in the power of manifesting the faculties, which is perceptible in different individuals, might be found in the same fact? He certainly knows that the effect results from the joint action of all the operating causes; and, if disease, fatigue, or exhaustion of the organs, thus affects the power of manifesting the faculties, are we not entitled to conclude, that, even in the soundest health, the power of manifestation may be in close connection with the state of the organs? It never can be believed, that their influence on the power of manifesting the mind, begins to exist only when the organs become diseased. And if it has an existence independent of disease, there appears no reason for shutting our eyes to that influence, and studying the mind as if it were already a disembodied spirit.

But the greatest advantage to be gained by studying the faculties in conjunction with the development of the organs is to be found in this circumstance, that the distinct and successive development of the organs leads us to a knowledge of the existence and separate functions of the faculties themselves more directly than any other means. When we perceive uniformly that those individuals who have a certain part of the head fully developed, possess a certain mental faculty in an eminent degree;

and that, when the development is small, the power is weak, this fact indicates the distinct functions of the different faculties more forcibly than a hundred arguments. In short, by this mode of studying the Philosophy of the Mind, a greater progress will be made in ten years, than by any other in a thousand.

So much for the objections of the Metaphysicians. We proceed now to consider those of the Anatomists.

SECT. III.

OBJECTIONS OF THE ANATOMISTS CONSIDERED.

"These men value themselves upon a perpetual scepticism,—upon believing nothing but their own senses,—upon calling for demonstration, where it cannot possibly be obtained,—and sometimes upon holding out against it, when it is laid before them,—upon inventing arguments against the success of any new undertaking,—and, where arguments cannot be found, upon treating it with contempt and ridicule."

DR. JOHNSON.

WE come now to another class of opponents, the Anatomists. As the present work may fall into the hands of readers who are not aware of the true state of the Physiology of the Brain, I beg leave to mention that, although that organ has been dissected for several thousand years, yet, up to the present day, no rational theory, except that of Gall and Spurzheim, has been formed of its functions. The most celebrated Anatomists of the present day declare, in their Demonstrative Lectures, that the functions of the brain, although it is apparently the most important organ of human system, form an enigma in physiology which no sagacity has yet been able to solve.

If the three principles laid down in the First Section of this Essay be correct, the cause of this ignorance is to be found in the imperfection of the mode of examination hitherto pursued, by dissection alone. No Anatomist has yet studied the functions of the brain, by comparing the manifestations of the Mind with the development of that organ; and no one has ever pointed out any

other way, by which a knowledge of its functions may be attained.

But the anatomists, instead of meeting the question with Gall and Spurzheim, on the fair and broad principle, take a more summary method of settling the dispute. When Gall and Spurzheim say that they have compared manifestations and development, and have found certain results, the Edinburgh Reviewer, who is regarded as their champion, makes this formidable answer :—" We look upon the whole doctrines taught by these two modern Peripatetics, anatomical, physiological, and physiognomical, as a piece of *thorough quackery* from beginning to end."—Edin. Review, June 1815.

When we ask *why* the Anatomist thinks so, he adds, " To enter on a *particular refutation* of them, *would be to insult the understanding of our readers.* Indeed we will flatter the authors so far as to say, that their observations are of a nature to set criticism entirely at defiance. They are a collection of mere absurdities, without truth, connection, or consistency ;—an incoherent rhapsody, which nothing could have induced any man to have presented to the public, under a pretence of instructing them, but absolute insanity, gross ignorance, or the most matchless assurance."—Ib. page 239.

Cicero says, " Etsi satis clemens sum in disputando, tamen *interdum* soleo subirasci." Such was wont to be the feeling with which I read the article now quoted. But I hope, that my regard for truth will not prompt me to overstep the bounds of delicacy dictated by subsequent events. The writer of that article, is now in the grave ; and his ear is closed equally to the voice of censure, and of praise ; and he died, in the midst of his days, a sacrifice to the most excellent feelings of our nature. He died in carrying relief to the miserable and the helpless. Cold, then, would that heart be, and malignant that spirit, which could stir up his ashes, to insult them. Let us

draw rather a veil over his errors, and let the good he did live after him, while his mistakes are buried in the grave.

But regard to the interests of truth makes it impossible to pass over the review entirely. Though contained in a periodical publication, it may be said still to live. *Litera scripta manet.* The motive for silence regarding it, might be mistaken. I must be excused, therefore, for making it the subject of a few observations.

When Gall and Spurzheim, then, said that, by comparing manifestations and development together, they had discovered that the number of faculties is thirty-three, and that each faculty manifests itself by means of a special organ, the reply made, in this article, was, "Perhaps we might content ourselves with saying, that the whole doctrine of the *Thirty-three faculties* to which the argument relates, is downright nonsense; and so put an end to the discussion at once. But we see sufficient reason for declining this summary method on the present occasion; and, therefore, we shall take the liberty of substituting for the names of the *Thirty-three* faculties, two very simple and intelligible terms, viz. *Intellect* and *Inclinations*; and proceed." The author proceeds accordingly, and adds, "We deny that there is the *slightest* approach to uniform proportion or connection between the vigour of intellect, or the strength or peculiarity of inclination in man, and the size of the brain," (p. 245.)

Perhaps the least offensive mode of replying to this assertion, and the one which will best give the public an idea of the degree of *weight* to be attached to the opinions expressed, will be to give the opinion, on the same subject, of another anatomist and physiologist, highly celebrated for his knowledge and sound philosophical views. We refer to MAGENDIE, whose name stands so high both in France and Britain. He says, "*Le cerveau est l'organe materiel de la pensée*; UNE FOULE DE FAITS

ET D'EXPERIENCES LE PROUVENT." (Précis Elementaire de Physiologie, par F. Magendie, à Paris 1816, tom. i. p. 115.) "De tous les animaux, l'homme est celui dont le cerveau proprement dit est proportionellement le plus volumineux. *Les dimensions de cet organe sont proportionées à celles de la téte.* A cet égard, les hommes different beaucoup entre eux. *En genéral, le volume du cerveau est en relation* DIRECTE AVEC LA CAPACITE' DE L'ESPRIT. On aurait tort, cependant, de croire que tout homme ayant une grosse tête a nécessairement une intelligence supérieure, car plusieurs causes independantes du volume du cerveau peuvent augmenter le volume de la tête ; *mais il est rare qu'un homme distingué par ses facultés mentales,* N'AIT PAS UNE TETE VOLUMINEUX. Le seul moyen d'apprécier le volume du cerveau dans un homme vivant, est de mesurer les dimensions de son crâne ; tout autre moyen, même celui qui a été proposé par Camper, est infidèle." Tome i. p. 163.

To this authority I may add, for the sake of the popular reader, the following quotations from two celebrated authors of the Edinburgh School of Medicine, illustrative of their opinions upon the general question, that the brain is the organ of the mind. Dr. Cullen says, "The part of our body more immediately connected with the mind, and therefore more especially concerned in every affection of the intellectual functions, is the common origin of the nerves; which I shall, in what follows, speak of under the appellation of the brain.

"Here, however, in assuming this last proposition, a very great difficulty immediately presents itself. *Although we cannot doubt that the operations of our intellect always depend upon certain motions taking place in the brain;* yet these motions have never been the objects of our senses, nor have we been able to perceive that any particular part of the brain has more concern in the operations of our intellect than any other. Neither have we

attained any knowledge of what share the several parts of the brain have in that operation; and, therefore, in this situation of our science, it must be a very difficult matter to discover those states of the brain that may give occasion to the various states of our intellectual functions*". Practice of Physic, vol. ii. § 1538–9.

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 quicquam corporei iis inesse videatur: docent tamen morbi qui eas impediunt, certum cerebri statum, ut bene exerceantur, requiri: *idque sensuum internorum primarium esse organum.*" Conspectus, cap. x. § 289.

Those who never think for themselves, but take up the opinion of the greatest authority, may here adopt the sentiments of the reviewer, the French physiologist, or the other authors, as they think one or other of them entitled to most respect. But, for the sake of those who prefer forming an opinion for themselves, we must go a little deeper into the objections stated.

In the first place, then, we observe, That the denial in the review is obviously not founded on observation, but is merely a bold venturous assertion. If the writer of it had made observations himself, he must have found *some kind of development* in concomitance *with some kind of manifestations*, and he was bound to have stated, honestly and fairly, the result. If the same kind of development was found uniformly in concomitance with the same kind of manifestations, is it not obvious that, in stating his results, he would have established a system of his own, if he overthrew that of Gall and Spurzheim? or, if he had found that the most opposite kinds of develop-

* The reader will easily perceive, that Dr. Cullen's "very great difficulty," arose, necessarily, from the mode in which the subject was studied in his time, and which is still generally followed.

ment were in concomitance with the same kind of manifestations, he would have overturned the system in the most effectual manner, by shewing that there was no connection whatever between the brain and the mind. He would have placed his observations in the opposite scale to those of Gall and Spurzheim ; the two parties would have been at issue on a fact ; and the public would soon have determined betwixt them. But he clearly evinces, that he never made a philosophical observation on the subject; for he divides the faculties into INTELLECT and INCLINATIONS, and his whole objections are grounded on the assertion that " there is not the slightest approach to uniform proportion or connection between the vigour of intellect, or the strength or peculiarity of inclination in man, and the size of the brain." Now, in point of fact, Gall and Spurzheim never made the assertion here imputed to them. Their assertion is, that there is an uniform proportion betwixt the development and activity of *particular* portions of the brain and the manifestations of *particular* powers ; and not that there is an uniform proportion betwixt the development of the brain in *general*, and *intellect or inclinations in general.* They say, that they have found certain particular appearances of development, joined *by nature* with certain particular powers of mind. It was incumbent on the Reviewer, in order to meet their assertions, to have kept to the very points which they had advanced, and to have replied that such appearances of development, and such powers of mind, were *not* conjoined by nature. Instead of this, he fabricates two faculties for himself, intellect and inclinations, and asserting that " *these* are not conjoined by nature with any uniform development of brain," instantly draws the inference that the system of Gall and Spurzheim is absurd.

Every one, however, must see, that on this occasion he entirely missed his aim. He did not think proper to

notice, that if any one say,—"I have divided the faculties according to my own fancy, and have not found the power of manifesting these faculties, to correspond with any uniform development of brain,"—such a person does not meet Gall and Spurzheim at all; because Gall and Spurzheim did not first divide the faculties according to their fancies, and then seek organs for them, by the help of their imaginations. They found faculties and organs together, made and joined by Nature, and they only observed them. If, then, any one were to divide the faculties differently from them, and to find a certain development corresponding uniformly with his division, he would certainly overturn their system; because he would shew, that they had observed erroneously. But, when he says merely, I have found that *my* division *does not correspond* uniformly with any precise development, he affords a certain degree of indirect testimony to the correctness of their observations; because, if their division of the faculties and their account of the development be correct, then, *every other* must *necessarily* be erroneous.

This is the true state of the question betwixt Gall and Spurzheim, and their opponent; for, let it be again recollected, no anatomist has ever pretended to say, that he has compared *actual* development with *actual* manifestations, and found the result to differ from their statements; but every one of them has made his attack either without making any comparison at all, or, after having compared only assumed faculties with preconceived notions of development, founded in his own imagination.

We shall take notice only of one other sentence in the review. It is the last paragraph of the article. "We must needs," says the Reviewer, indulge ourselves with a summary paragraph too. The writings of Drs. Gall and Spurzheim, have not added one fact to the stock of our knowledge, respecting either the structure or the functions of man; but consist of such a mixture of gross

errors, extravagant absurdities, downright misstatements, and unmeaning quotations from Scripture, as can leave no doubt, we apprehend, in the minds of honest and intelligent men, as to the real ignorance, the real hypocrisy, and the real empiricism of the authors."—Review, p. 268.

Now Magendie, whom we have just mentioned, speaking of the anatomy of the brain, says, "Tout recemment, cette matière vient d'être éclaircie de nouveau par la publication de l'ouvrage de MM. Gall et Spurzheim, et par les travaux auxquels elle a donné lieu." (p. 156.) And this author, well acquainted with the true rules of philosophising in the science of physiology, concludes his observations on the brain and its functions, with the following judicious and philosphical note. "Ce serait ici le lieu de traiter *de l'usage des diverses parties du cerveau dans l'intelligence et dans les facultés instinctives;* mais ce sujet est encore trop conjectural, ou trop peu connu, pour entrer dans un livre élémentaire. Nous nous occupons depuis quelques temps d'éxperiences directes sur ce point; nous nous empresserons d'en faire connaitre les resultats aussitôt que nous les jugerons dignes d'etre rendu publique." (Tome i. p. 186.) This is ingenuous and philosophical procedure. The author saw that Gall and Spurzheim's method of philosophising was correct, and the only one that could lead to a knowledge of the functions of the brain; but he had not made the observations himself, which, they say, every man must make, who wishes to have direct evidence on the subject. But, then, Magendie, merely because his own observations were deficient, does not presume to stigmatise Gall and Spurzheim by the application of opprobrious names. He says, I shall make observations myself; and till I have done so, I offer no opinion on the subject.

We have still another formidable medical opponent in Dr. P. M. Roget, F. R. S. and author of the article entitled CRANIOSCOPY, in the Supplement to the En-

cyclopædia Britannica; and we must now, therefore, dedicate a few pages to the consideration of his observations.

We observe, *in limine*, that the titles which Gall and Spurzheim give to their science are PHRENOLOGY, when the philosophy of the mind is chiefly considered; and PHYSIOGNOMY, when the outward development of the organs is principally in view. They attribute functions connected with the manifestation of the mind, to the *brain*, but none to the *skull*.

Their science consists in comparing the development of the brain with the manifestations of the mind. The name Cranioscopy, therefore, is gratuitous on the part of this author, and incorrect in itself. This circumstance would not be worth noticing, were it not the practice of some opponents to shew an ignorant contempt of the doctrines, by fabricating names which do not indicate the true nature of the subject.

This author, like every other anatomist, industriously keeps out of view the *principles* on which the true merits of the system must be decided, and which have been so often repeated. He collects only such superficial objections as have a tendency to delude without enlightening. He does not advance one idea of his own upon the subject; but sets himself to throw all manner of suspicion upon those of Gall and Spurzheim. In short, he is one of the "philosophers who darken, and put out—eternal truth by everlasting doubt." He says, "Let us, however, for the sake of argument, suppose, that the form of each organ within the skull, could really be ascertained by external examination of the head, shall we allow it to be an *easy* task to determine the *real* character of the individual who is the subject of observation? Are we *always* able to discriminate between real and affected sentiment; or to mark with certainty, the operation of all the various motives which constitute the springs of action?"

No, certainly; Gall and Spurzheim no where maintain that we are "*always*" able to discriminate between true and affected sentiment; but they say that, if we observe long enough and close enough, it will be in our power to discriminate; and hence, that in every case where we *can* discriminate the true character, the comparison betwixt manifestations and development ought to be made, and the result stated, before the conclusion is drawn, that the manifestations observed by them were not those of the real character. Gall and Spurzheim say, that *it is possible, by close and accurate observation*, to discover the true character; and it is so especially in children, who cannot effectually disguise their true feelings, and never conceal their talents. The author of Cranioscopy replies, It is not "*always* EASY" to discover the true character; and hence, as *it is possible* to observe erroneously, he wishes his readers to draw the conclusion, that Gall and Spurzheim *did* observe erroneously, and that their conclusions are entitled to no credit. This reasoning cannot be praised as logical. The true conclusion appears to be, that if it be possible, by patient and enlightened observation, to discover the true character, the presumption is, that the true character was discovered by Gall and Spurzheim, till the contrary be shewn. If we are never to receive a statement as true, where there is a danger of its being incorrect, farewel science and philosophy; for both are founded upon statements which we must receive upon the credit of the philosophers who make them, and which it is impossible for each ordinary individual to verify to the extent of a thousandth part, by his own observations.

The author, however, proceeds thus: "*Is the transient glance of a passing observer*, sufficient for unravelling the complex web of our affections, or unveiling the secret and tortuous recesses of the human heart, so as to assign to each principle its precise sphere of agency?"

No certainly ; Gall and Spurzheim no where affirm that " the transient glance of a passing observer," is sufficient for such a task. Then, to what purpose does this observation tend ? To throw a suspicion over their statements by a side wind, when the author did not choose to attack them manfully in front. It will be observed, besides, that the above sentence speaks of " the complex web of our *affections*" alone. Now, as formerly stated, it may be possible for men occasionally to disguise the *motives* of a single action, because nature has given them the power of doing the same act from various motives ; for example, a person may give charity to a public hospital from ostentation, as well as from benevolence : but it is impossible, permanently, to disguise *dispositions*. The person who gives charity to an hospital merely from ostentation will not habitually do private acts of benevolence ; and it is by observing the general tenor of a person's conduct that his true character can be known. Let it be observed, however, that it is impossible to *disguise* CAPACITIES, if the individual manifest them at all. He who has heard, *for the most fleeting moment*, the prodigious bursts of melody which flow from the throat of Catalani, cannot be deceived as to the fact of her possessing a great endowment of the faculty of tune. Or, he who has heard, but for five minutes, the splendid eloquence which flows from the lips of Chalmers, can have no doubt that he possesses the faculty of ideality. These, then, are cases in which even " the transient glance of the passing observer," may compare manifestations and development together ; and from such comparison just conclusions may be drawn.

The author, however, goes on to ask, " Can the most profound moralist, or acute metaphysician, pronounce *with confidence*, what are the *natural* dispositions of *any* human being, when these dispositions have been CHANGED or modified, exalted or subdued, perverted

or refined, by the force of habit, education, example, and *a multitude of other powerful causes*, which, in the course of life, have moulded his intellectual and moral constitution? Can he trace them through the guise of falsehood, artifice and dissimulation, which *so commonly* hide his *real* character from the word, and which *occasionally* deceive the eye of the closest and most vigilant observer?"

Yes; I humbly maintain, that the man of plain common sense, and still more, "the most profound moralist and acute metaphysician *can* pronounce *with confidence*, what are the *natural* dispositions of *any human being*," provided he observe with moderate patience and intelligence. The Scripture says, "Can the Ethiopian change his skin, or the leopard his spots?" We say, Can any human being CHANGE his nature? And can education do more than exalt powers? Can it *create* them? But as we have already shewn, mankind act every day on the belief, that they *can discover* the *true* characters of men, by observing their actions.

"Is it (proceeds our author,) to the behaviour of a person who knows that he is watched; is it to the partial report of his friends; is it to the testimony of the individual himself, the most fallible of all, that the cranioscopist is to trust for his knowledge of human character? *Such, however, is the* KIND *of* EXPERIENCE *from which it appears, that all the doctrines relative to the functions of the different parts of the brain have been derived; and it is in this experience, as in an impregnable fortress, that the adherents of the system make their last and most resolute stand.*"

It is difficult to say, with what sentiments such unfounded assertions ought to be regarded. One is almost tempted, on reading them, to use some of the courtly epithets of the Edinburgh Review; but let us rather observe, that as Gall and Spurzheim's mode of philosophising is the only one capable of leading to any rational results in this branch of science, their observations, how-

ever imperfect and inaccurate, are entitled to more respect, from the very circumstance of their being made in the right way, than any opinions which the author now quoted can be possessed of, if he never followed their mode of philosophising. He must, necessarily, be in a state of profound ignorance on the subject on which he writes.

Dr. Spurzheim has said, "I again repeat, that I could here speak only of the results of the immense number of facts which we have collected. Several may complain of my not mentioning a greater number of these facts; but in reply, I need only answer, that were I to write as many books of cases as there are special organs, still no one could, on this subject, attain personal or individual conviction, before he had practically made the same observations. I may farther remark, that the detailed narrative of a thousand cases would not improve the science, more than that of a few characteristic ones, which state our meaning, and show what is to be observed, and how we are to observe. SELF-CONVICTION CAN BE FOUNDED ONLY ON SELF-OBSERVATION; and this cannot be supplied by continually reading similar descriptions of configuration. Such a proceeding may produce confidence, but not conviction. This requires the actual observation of nature." (Outlines, p. 222.)

Now, the author of Cranioscopy, with this passage in view, goes on to say, "Quitting the airy region of Theory, they, that is Gall and Spurzheim, fancy themselves posted on a rock, secure against the insidious minings of scepticism, and bidding defiance to the rude assaults of argument. The appeal to the evidence of induction, as the supreme authority in the court of philosophy, is made with confidence; and ALL THE WILD EFFUSIONS OF A BEWILDERED FANCY, ARE PRESUMED TO BE SANCTIONED BY A SUPPOSED CONFORMITY WITH EXPERIENCE.

You may speculate, or reason, they exclaim, as you please; *observation shews, that such and such forms of the head, are the invariable concomitants of such and such predominant dispositions and faculties.*"

But the author does not meet the observations of Dr. Spurzheim by counter observations of his own. It is difficult, then, to perceive, how he knows that their doctrines are the "wild effusion of a bewildered fancy." I regret much that he has not discussed the principles upon which the system is founded; for I should be glad to be informed by him, if it be possible to discover the functions of the brain, supposing it to be the organ of the mind, by any way except by comparing manifestation and development together; and whether a person, who has not made the comparison, can know any thing whatever on the subject. The author does not say, "I have compared manifestations with development, and found the results to be different from those which you state;" for, "this would have been taking *a broad and liberal ground,* stating it fairly, allowing what there is of truth, or an appearance of truth, and then asserting his own judgment by exposing what is deficient, and giving a more masterly view of the subject." But this would not have suited the author of Cranioscopy. He, therefore, finds an easier way of getting over the assertion of Gall and Spurzheim, that certain manifestations and a certain development go together.

He says, "Who will dare to set up his *opinion* in opposition to ascertained facts? We certainly pretend not to such boldness." What, than, DOES he pretend to do? "We shall venture only," says he, "TO EXPRESS DOUBTS as to the REALITY of these facts, on which so much is made to depend; and to suggest the expediency, previously to any admission of their truth, of *inquiry* not only *into the manner* in which the knowledge of these PRETENDED FACTS has been obtained, and in which in-

ductions from them have been made, but ALSO INTO THE TALENTS AND QUALIFICATIONS OF THE OBSERVERS, on whose testimony we received them."

Such inquiries may, no doubt, appear exceedingly proper, to persons ignorant of the first rules of philosophising. But, why not inquire at once into the *facts themselves*, when they are submitted to our own observation, as a more direct mode of coming at the truth, than an inquiry into the TALENTS AND QUALIFICATIONS of the persons who say they have discovered them? Is this like a philosopher? Gall and Spurzheim do not affirm, that the facts were observed in the Moon, or in the interior of Africa, or in some place, or in some way, to which no person has access but themselves. If they had done so, then it would have been exceedingly proper to enquire into their talents and capacity for observing, before believing their statements; because, on the result of such preliminary inquiries, would have depended the character of the only evidence that could be obtained, and, of course, the credibility of their assertions. But, when they affirm, that the subjects of observation are open and patent to the whole world, who have eyes to see and understandings to comprehend, and when they say, Compare manifestations with development, and you are at the bottom of the problem yourself; what need for inquiry into *their talents and qualification to observe?* Surely the author of Cranioscopy, who thought himself qualified to *refute* their doctrines, could never doubt of his own qualifications to make the observations on which the system is founded. If so, why did he not make them? If he thought himself *not qualified* to observe the facts, that is to say, to become acquainted with the basis of the system, why did he attempt to refute it?

When Gay Lussac hears that Sir Humphry Davy has made a discovery in chemistry, and reads Sir Humphry's

statement of the way in which it was made, does he begin by inquiring first, whether *it be possible* to make the discovery at all, seeing natural substances are, "so changed and modified, exalted and subdued," by "a multitude of powerful causes?" And, after settling this point, does he, in the second place, begin to inquire into Sir Humphry Davy's *talents* and *qualifications* as a chemist, and into his *capacity* to make the discovery, and then believe in it, or not, according to the result of this inquiry? No man who knows the very first rudiments of philosophy would follow so absurd and preposterous a course. Gay Lussac would make the experiment forthwith himself, *in the mode directed by the discoverer;* and he would state the result honestly and candidly. If he found the discovery real, he would say so, and give Sir Humphry his merited fame. If he found that he could not produce the result, he would repeat frequently his experiments; and if he could not at all succeed, he would then publish an account of his experiments, and of the results, and submit to correction if he had erred in his method; or, if he had followed the right course, and always obtained a different result, he would overthrow the alleged discovery, What should we think of Gay Lussac's refutation of Sir Humphry's discovery, founded on a metaphysical inquiry into the *possibility* of making it, and into the "talents and qualifications" of the discoverer? We should pity him for his ignorance of the rudiments of philosophy.

Now, I beg of the author of Cranioscopy, to tell me if the mode of verifying conclusions, said to be drawn from facts, be not the same *in every* science? Why, then, not in the science of Phrenology, alleged to be discovered by Gall and Spurzheim? Who would listen for a moment to a person pretending to refute a result in Chemistry, by inquiring into the character of the discoverer? Who would hear any man argue against a result said to

be obtained by observing facts, if that person admitted that he had never even attempted to observe them? And, more especially, What would we think of his objections, if, at the very time he made them, he concealed, but did not dispute, *that there was no way on earth of making the discovery*, but the one which was said to have been followed; but which, he nevertheless refused to follow himself? Should we not require him at least to *demonstrate*, beyond all possibility of doubt, that observation of the facts was *impossible?* And has the author of Cranioscopy done so? Will any man rest satisfied that he has demonstrated that the *real* character *cannot* be discovered by observing actions; or that the *development cannot* be observed?

But even allowing him to have proved, by demonstration, that the true character cannot be discovered by observing actions, Could he not have compared *actual* manifestations with *actual* development, and stated the result? Let us even allow to him, that men *never* manifest their *true* faculties, and that the *true form* of their brains *cannot* be discovered by observing their heads; yet surely they manifest *some* faculties, and their heads have *some* development. Now, if certain dispositions and capacities *actually* manifested, correspond uniformly with a *certain* actual development, it may be of little consequence whether the dispositions manifested be true or false, or whether the development be of the brain or of the skull. The *fact* is the only thing of importance; and may not the fact be as Gall and Spurzheim state, for any thing he knows to the contrary? In the whole of his article, he does not say that he has made a single observation; and yet he comes forward to refute the facts, by an inquiry into the "talents and qualifications" of those who observed them! If he has made observations, and found no concomitance betwixt specific powers and specific development, the statement of this fact would have been worth

a thousand arguments ; for it would have proved that the brain and the mind are not connected in the way that Gall and Spurzheim suppose ; and, of course, that their observations are absurd. But he never ventures thus far.

It appears impossible to dispute, that Gall and Spurzheim proceed in the right road to attain the end they profess to have in view. Unless, therefore, that end be in itself trifling and ridiculous, their success, however small in degree, must be a valuable addition to science ; and their errors, however numerous, cannot be detected but by following in the very course in which they have proceeded. No absurdity, therefore, can equal that of attacking their observations and conclusions, by an attempt to shew by argument, that Gall and Spurzheim themselves possess stupid and unphilosophical understandings ; when, by following the steps of a rational philosophy, their doctrines might at once be either refuted or confirmed by an appeal to facts.

The author of Cranioscopy, indeed, complains, like many other persons who do not attend to the nature of the subject, that Gall and Spurzheim do not specify sufficient premises from which their conclusions can be deduced by the rules of a rational logic. But the nature of the subject precluded the specification of all the cases which they have seen, and from which their conclusions are drawn. They would have swelled volumes had they attempted to specify the hundreds of instances on the evidence of which, each organ is admitted ; and such a specification would have done no good, because we see that their observations are doubted, as well as their conclusions. The object of their writings is to point out the manner in which observations ought to be made, and to specify the conclusions which they have drawn from innumerable cases. Every one, therefore, who complains that Gall and Spurzheim's works produce no conviction

on his mind, and that their conclusions appear to want premises, mistakes the nature and the object of their works. The premises, are found in nature, and the conclusions only in the books. If the reader will go patiently, and without bias, to interrogate Nature, she will afford him premises; and the conclusions of Gall and Spurzheim will then be found to be drawn with a degree of accuracy of which those who shut their eyes against observation have no conception.

After these observations, we may hear how the author of Cranioscopy completes his paragraph, already so auspiciously begun, and completes, at the same time, his *inquiry*, the result of which is to establish or overthrow the system under his consideration. He continues:— "We should know in what spirit he conducted the inquiry; with what previous dispositions he examined the objects of his contemplation; what motives led him to these researches; and what interest he may have in the event. Experience, we should recollect, leads to very different results, according to the sagacity and good faith of the person who acquires it. Minds already prejudiced, collect from it only a confirmation of their errors, and become, by its means, only the more obstinately wedded to their opinions. The sailor, stedfast in his belief that his whistling to the sea will raise a wind, or conjure up a storm, instead of being undeceived by experience, is only the more strengthened in his faith, by the observations which it furnishes to him. In what a multitude of instances do we not find men deceiving themselves as grossly, when they draw inferences from what they see, if prepossessed with the expectation of meeting with a certain coincidence, or succession of events! How disposed are we all to disregard the exceptions to a preconceived rule, and to allow undue weight to every example that conforms to it. How willingly we repel the evidence that opposes, and how eagerly we catch at what-

ever corroborates our previous notions, especially when these notions have originated with ourselves, and are viewed as the darling offsprings of our own lucubrations."

These observations are exceedingly judicious in themselves, taken in disjunction from the conclusion which the author plainly intends us to draw from them. He means us to dismiss the whole doctrines as a delusion, without farther inquiry, because Gall and Spurzheim were liable to be deceived in their investigations. If he had meant otherwise, he ought to have expressed himself so. If he intended only to recommend more accurate observation, he ought to have stated, in justice to the founders of this philosophy, that they have at least the merit of pointing out the proper way in which the inquiry should be conducted. He no doubt was at liberty to state, if he pleased, that, in his opinion, they had followed that mode to so little purpose, that not one of their conclusions could be trusted; yet justice required that they should get the merit of discovering a mode of philosophising, the want of which has been the cause of the long unacquaintance of physiologists with the functions of the brain.

Magendie says, "La physiologie, toute brillante qu'elle paraisse dans les traités écrites de nos jours, est encore une science à son berceau. Il faut absolument qu'elle sorte de cet état affligeant d'imperfection. Pour obtenir ce résultat, le premier pas à faire doit être de changer la forme et par conséquent la marche qu'elle a suivie jusqu'ici; elle doit prendre la marche analytique et la forme théorique: alors seulement elle pourra se perfectionner et se mettre au niveau des sciences naturelles les plus avancées."—(Precis Elementaire de Physiologie.—Préface.)

Whatever imperfections may be chargeable against the observations of Gall and Spurzheim, it cannot be denied that they have the merit of pursuing the mode

of philosophising here so strongly recommended. Their antagonists, on the other hand, who *argue* against their observations, instead of bringing them to the test of their own experience, still cling to the hypothetical mode of philosophising, and seem incapable of considering the statements of Gall and Spurzheim, as facts, and not as speculations; so inveterate are the habits of speculating, instead of observing, in those who generally cultivate the science of physiology.

The objections now combated, are not brought forward the first in point of order in the article Cranioscopy; but they ought to have been so, as they touch the *principles* on which the system is founded; and, on that account, they have been here considered first. I proceed now to notice some other objections, which relate more to the substance than the principles of the system.

"The truth is," says the author, "that there is not a single part of the Encephalon, which has not, in one case or other, been impaired, destroyed, or found defective, without any apparent change in the sensitive, intellectual, or moral faculties. Haller has given a copious collection of cases which bear upon this point; and a similar catalogue has been made by Dr. Ferriar, who, in a paper in the fourth volume of the Manchester Transactions, has selected many of Haller's cases, with considerable additions from other authors. The evidence afforded from this mass of facts, taken conjointly, is quite sufficient to overturn their fundamental proposition. This evidence is not impeached, by the feeble attempts of Dr. Spurzheim to evade its force, by a general and vague imputation of inaccuracy against the observers, or by having recourse to the principle of the duplicity of each of the cerebral organs;—a principle of very dubious application, on a subject of so much uncertainty as the physiology of the brain!"

If the cases here alluded to, be true,—if the mind has

really been manifested with complete effect, when the whole, or the greater part of the brain has been wanting, then the brain is not, and cannot be, the organ of the mind. The conclusion, therefore, which the author ought to have drawn, and which he ought boldly to have advanced, is, that the brain is not the organ of the mind; and that all theories which are founded on such a supposition, are absurd. But amid the innumerable and incontrovertible facts, obvious to the common observer, which render the affirmative of this question probable, and seeing that all enlightened medical writers maintain it, such a denial would have been hazardous; and this author, therefore, like many others, chose rather to embarrass the discussion with difficulties, than to strike out light himself.

But, in answer to the objection contained in the foregoing cases, I remark, that when we find the report of such cases in books, we must always inquire what notions the authors had regarding the meaning of the word "faculties," when they used it. It is an undeniable fact, that hitherto the most obscure and undefined notions have been entertained regarding what a faculty really is; and that no opinions whatever have been entertained regarding the functions of any faculties implanted in the mind by nature. No philosopher has hitherto conceived the lower propensities of our nature, or even the higher sentiments, to be manifested by means of distinct faculties. These propensities and sentiments have been considered merely as modes of affection of the single power, the Mind; and the term Faculties was held to refer to the intellectual powers alone. Such being the case, it is not difficult to conceive that a person who entertained such notions might for months attend a patient who could not manifest the faculties of the lower propensities, or even those of the higher sentiments, and might not discover these wants. He might believe that the patient was able

to manifest *all* his faculties unimpaired, seeing he meant by the word Faculties, only the intellectual powers; while, in point of fact, he was nevertheless unable to manifest several of the propensities or sentiments. In such a case, if the patient's brain was dissected after death, and those parts of it found diseased which served as the organs of the faculties which he really could not manifest, the medical attendant might, from mere ignorance of this system, be led to conclude that the brain was not the organ of the mind, and yet err egregiously in doing so.

In the next place, we may observe, that the anomalies recorded in books are easily accounted for by the fact, that the brain, and consequently the organs of each faculty, are double, like the organs of the external senses; and that the faculty may have been manifested by the one organ, although the other was diseased.

But it is of importance also to observe, that these cases are recorded by authors, who could not have had the philosophy in question in view when they reported them; and that, as human nature is the same in the present day, that it was ten, twenty, or a hundred years ago, it is much better to resort at once to Nature for evidence to refute the system, than to appeal to inaccurate observations contained in old volumes. No person would resort to the books of the Alchymists for evidence to overthrow a modern discovery in chemistry; and there appears no good reason for resorting to books for evidence to overthrow the opinions of Gall and Spurzheim, when, in their case also, Nature herself can be appealed to. The discrepancy betwixt the observations of Gall and Spurzheim, and those of the authors cited by Dr. Roget, may arise from the ignorance of the latter as probably as from the incapacity of the former. After what has already been said, the presumption is much stronger that these authors were deceived, than that Gall and Spurzheim were mistaken. The authors were unacquainted

with the true mode of discovering the functions of the brain. Gall and Spurzheim discovered it, and they say that they followed it in their investigations.

We may even allow, however, to the Anatomists, for the sake of argument, that many anomalies and apparent exceptions actually exist in regard to the system ; and we may ask, whether there may not, nevertheless, be such a great body of well ascertained facts in support of the general conclusions, that no doubt of them can remain ; and if so, whether we ought to reject the general conclusions entirely, because difficulties exist, or to hold by the conclusions as certain, and regard the anomalies as points which time and farther observation may enable us to explain. No science was ever founded, that was, in the first instance, free of difficulties ; and they are only shallow minds, who seize on the difficulties and stifle the rising truth, rather than assist in removing them. The author of Cranioscopy says, " The anatomy of the brain is so complex, and *so void of apparent adaptation to any purpose we can understand*, that it will suit any physiological system, nearly equally well." Why, then, would he wish such a state of ignorance to continue, and why does he not admit that Gall and Spurzheim deserve at least the merit of attempting to remove it, in the only way in which it can be removed ?

The author of Cranioscopy proceeds also to refute what he is pleased to call Dr. Spurzheim's " arguments" in favour of the system founded on *analogy*. But if we have been successful in shewing, that " the arguments" on which the system is founded are direct facts, we need to trouble ourselves very little about the additional evidence which it derives from analogy. Analogy can afford only illustrations or cumulative proofs. While the fundamental truths remain, the arguments founded on analogy may be sound or unsound. It was only because the author of Cranioscopy overlooked the fundamental

principles on which the system is founded, that the analogies appeared to him so imperfect; but if the facts bear out the doctrines, the analogies will appear in another light; and hence, as the strength of the analogies depends on the truth of the previous propositions, it appears to me unnecessary to waste a word upon the subject.

Before leaving this branch of the discussion, it may be proper to notice, that several anatomical gentlemen have stated as an objection to the system, that certain appearances in the brain, mentioned by Dr. Spurzheim in his account of the anatomy of that organ, arise from optical illusion, and, of course, that they are not founded in fact. I am not able to say, whether the illusion is on the part of Dr. Spurzheim or of his opponents, being unacquainted with the minute anatomy of the brain myself; but it is of great importance to observe that however great Dr. Spurzheim's mistakes as to the anatomy of the brain may be, such mistakes do not necessarily invalidate his account of the functions of that organ. Dr. Spurzheim does not say, that he has discovered the structure of the brain to be so and so, and inferred from that structure, that the brain is the organ of the mind, and that different parts of it are the organs of different faculties. If he had done so, it is clear, that an opponent, by shewing, that his notions of the structure are erroneous, would have overturned the whole system. But Dr. Spurzheim, on the contrary, observes, "that the deepest perspicacity would not, *a priori*, have attributed the smell to the pituitary membrane of the nose; the taste to the nervous papillæ of the tongue; the sensation of light to the optic nerve, &c. Who, says he, in seeing the structure of the stomach, could conjecture its digestive power? Who, from the structure of the *viscera*, could decide, that the liver secretes bile, the kidneys urine? Who, from the structure and form of the nerves, can determine, what

kind of impressions they propagate? It is the same with the brain. Let the directions of its fibres be known, and let anatomists distinguish their greater or less consistence; their more or less white colour; their different size, length, &c. What conclusion as to the functions, can they draw from these circumstances? NONE. Thus, it is certain, that the anatomical knowledge of any part does not indicate its function; and it is, therefore, necessary, to have recourse to OTHER MEANS in order to discover it. On this account, the physiology of any part often precedes its anatomy. Thus, it was generally known, that we see by means of the eyes, before anatomists were acquainted with their structure." Hence, "many organs of the brain were discovered, before its structure was demonstrated; and these discoveries might have subsisted for many centuries, without the structure of the brain being known." (Spurzheim, p. 205.) When, therefore, an anatomist shews that Dr. Spurzheim is mistaken in his ideas of the structure of the brain, he proves only that Dr. Spurzheim is not yet perfectly master of the anatomy of that organ, but he does not prove that he is mistaken in his notions of its functions.

The author of Cranioscopy goes on to say, "The *possibility* of discovering the size and shape of the different parts of the brain from the external examination of the head, is also *discountenanced* by anatomy." It is amusing to see *Doctors*, who, without making a single observation on the subject, agree perfectly in pronouncing Gall and Spurzheim's system to be absurd, differing among themselves *toto cælo*, regarding the truth of the fundamental principles on which it rests. The Edinburgh Reviewer, in direct opposition to the author of Cranioscopy, says, "But we will acquiesce implicitly for the present in the proposition, (FAMILIAR TO PHYSIOLOGISTS LONG BEFORE THE AGE OF GALL AND SPURZHEIM,) that there is *in most instances, a general correspondence* be-

tween the size of the cranium and the quantity of cerebrum." (Page 246.) Of course, if the general size of the skull correspond to the general quantity of brain, it will be difficult to persuade us, that the figure of the skull in particular parts, does not correspond with the development of the brain also in particular parts. We have, moreover, the testimony of Magendie already quoted, (p. 56.) concurring with the Reviewer in favour of Dr. Spurzheim, and in direct opposition to the assertion of the present author.

This author likewise objects to what he calls Dr. Spurzheim's "arguments," in support of the system, founded on Pathognomical indications, such as gestures, looks and voice; but what he supposes to be arguments are not given as such. Dr. Spurzheim found by observation that in an individual who manifests great self-esteem, a certain part of the brain is fully developed; and likewise, that the individual carries his head high, and reclining backwards. But these two facts are independent; and the one was never stated as an evidence establishing the other. It may appear fanciful to those who have not observed nature, that such a concomitance of sentiment, development of brain, and carriage of the body, should exist; but, as we have already repeatedly observed, any supposed absurdity of this kind is no evidence that the allegation is not true; and if it be true, it ceases to be ridiculous. We are in great danger of erring, when we slight an account of a fact in nature, because the fact appears to us ridiculous. The appearance of absurdity may arise from our own ignorance, as probably as from the errors of the observer. We know so little of the constitution of nature, that we ought more frequently to examine, and more rarely to scoff, than we generally do. For my own part, I have verified many of Dr. Spurzheim's pathognomical signs by observations; and it appears to me that he is correct in saying that

they indicate certain propensities and sentiments. But it would be absurd to argue from the nature of these signs to the existence of the organs ; and Dr. Spurzheim never does so. In some cases, where he has perceived strong indications of the existence of an unascertained faculty by manifestations, which could not be referred to any one already ascertained, he has suggested the probable situation of the organ of the unascertained faculty, from observing the pathognomical signs attending the manifestations which he conceived to belong to it ; but he never proceeds farther. And such conjectures, *a priori*, were legitimately made, if Dr. Spurzheim had found, which he says he had, a general coincidence between the character of the signs and the situation of the organs, in regard to the faculties which he had ascertained. Again, therefore, the supporters of this system have reason to complain of its opponents, for mistaking the outworks of it for the citadel, and for representing one conclusion as unsound, merely because they themselves have misapprehended another.

The author of Cranioscopy appears to me to have employed the authority of his name, and the force of his talents, in propagating prejudices, instead of removing them. He appears clearly not to have perceived the basis of the system, or the importance of the questions involved in it ; and hence he seems, carelessly perhaps, to have taken for granted that it was absurd, and then to have set about proving it to be so. "Such," says he, "is the body of doctrines, and such the reasonings in their support, which have emanated from the school of Gall and Spurzheim, and which they have dignified with the appellation of a new science !"—"We shall refrain," continues he, "from employing the weapons of ridicule against a system so vulnerable to its attacks, and which would have been so capable of affording Swift a new incident for the history of the Philosophy of Laputa. The

simple explanation of the sandy foundation on which it has been built; of the flimsy materials of which it has been compounded; and the loose mode in which they have been put together, will suffice to enable our readers to form their own conclusions as to the soundness and solidity of the edifice."

No person who had viewed this question with a philosophic eye could have made such observations as these. The author of Cranioscopy could not be unacquainted with the imperfect state of knowledge in the medical profession, in regard to the functions of the brain, and the organs of the mind; and he would take it as no compliment, if we were to suppose him ignorant of the causes of this imperfect state of information. Yet, if he saw the deficiency, and the causes of it, he must have perceived the peculiar fitness of Gall and Spurzheim's mode of philosophising to remove both, and to wipe the darkest stain of imperfection from the science of physiology, with which it is at present blotted. It is inconceivable, therefore, how he could, without once appealing to nature, stigmatize their system as one "so capable of affording Swift a new incident for the history of the Philosophy of Laputa!" If the followers of Gall and Spurzheim were disposed to employ "the weapons of ridicule" against opponents "so vulnerable to its attacks," they have materials enough afforded them for an amusing picture of the absurdity of men coming forward to instruct others, who are necessarily ignorant themselves. They could, perhaps, without much difficulty, excite a strong feeling of "just indignation," against their "confident nonsense;" but we shall at present only use the words of Dr. Johnson, part of which form the motto to this section; and which appear completely applicable to the present case. "There are (says he), some men of narrow views, and grovelling conceptions, who, without the instigation of personal malice, treat every new attempt as

wild and chimerical, and look upon every endeavour to depart from the beaten track, as the rash effort of a warm imagination, or the glittering speculation of an exalted mind, that may please and dazzle for a time, but can produce no real or lasting advantage.

"These men value themselves upon a perpetual scepticism,—upon believing nothing but their own senses,—upon calling for demonstration, where it cannot possibly be obtained,—and sometimes upon holding out against it, when it is laid before them,—upon inventing arguments against the success of any new undertaking,—and, where arguments cannot be found, upon treating it with contempt and ridicule.

"Such have been the most formidable enemies of the great benefactors to mankind, and to these we can hardly doubt, but that much of the opposition which "*Gall and Spurzheim*" have met with, is to be attributed; for their notions and discourse are so agreeable to the lazy, the envious, and the timorous, that they seldom fail of becoming popular, and directing the opinions of mankind."—Johnson's Life of Drake.

The true merits of Gall and Spurzheim, on the contrary, are correctly expressed in the following passage, quoted from Dr. Reid, and applied by him to certain Philosophers on the Mind, who had struck out at least some important views in that interesting branch of science, although they had not been so fortunate as to bring it to perfection.

"Instead of despising," says he, "the dawn of light, we ought rather to hope for its increase: instead of blaming the philosophers I have mentioned, for the defects and blemishes of their system, we ought rather to honour their names, as the first discoverers of a region in philosophy formerly unknown; and, however lame and imperfect the system may be, they have opened the way to future discoveries, and are justly entitled to a great share

in the merit of them. They have removed an infinite deal of rust and rubbish, collected in the ages of scholastic sophistry, which had obstructed the way. They have put us in the right road, that of experience, and accurate reflection. They have taught us to avoid the snares of ambiguous and ill-defined words. They have made many openings that may lead to the discovery of truths which they did not reach, or to the detection of errors in which they were involuntarily entangled."—Reid's Inquiry, chap. i. § 4.

Here, then, I conclude the discussion with the anatomists; and, in the close, I request the reader to attend only to one striking circumstance, which probable has by this time occurred to his own mind. We have seen, on the one hand, the metaphysicians, and indeed all attentive observers of human nature, acknowledging that no fact can be more indisputable, than that "there are important differences discernible in the minds of children, previous to that period at which, in general, their intellectual education commences;" while, at the same time, they acknowledge that they cannot give any reasonable theory on the subject. We have seen, on the other hand, the most skilful physicians and physiologists admitting that, although the brain appears, from numerous facts, to be indisputably the organ of the mind, yet "a very great difficulty" exists, in perceiving "that any particular part of it has more concern in the operations of our intellect than any other." And, lastly, we have seen, that if, in point of fact, difference of natural power of manifesting the faculties, depends on difference of development of brain, this is a discovery which the metaphysicians could not possibly make by their mode of philosophising; and if particular parts of the brain be the organs of particular faculties, this is a discovery which the anatomists could not possibly make by their mode of philosophising; while the mode pursued by Gall and

Spurzheim, is peculiarly fitted to make both discoveries, and is free from the insuperable objections applicable to both of the other two. The inference in favour of these gentlemen is too obvious to require to be stated. Every reader will perceive it himself.

I add only, that I hope medical opponents who may in future write against this system, will keep in view, more than those who have hitherto written against it have done, the true interests of science. The merits or demerits of Gall and Spurzheim, as individual philosophers, are of subordinate importance. If their system is to be opposed, let the real principles of it be attacked, and let their observations be met by contrary observations. Let the opponents also state the extent of their own knowledge, in regard to the natural faculties of the mind, and the organs by means of which they are manifested, and the sources whence they have derived their information. Those who are necessarily ignorant themselves, are little qualified to instruct others; and it appears to me that every one who has not followed the mode of philosophising pursued by Gall and Spurzheim must necessarily be unacquainted, both with the faculties manifested by the mind, and the functions performed by the brain. Besides, it is unbecoming in persons attached to a liberal profession to increase prejudices by arguments against alleged facts in nature, when they might diffuse truth by simple observations of nature themselves. Such a mode of proceeding, too, is little calculated to attain the end they have in view, if their object be to put down the system. It is too strong to be overturned by such means*. "Huic si paucos putatis affines esse, vehementer erratis. Latius opinione disseminatum est hoc malum: manavit non solum per Italiam, verum etiam transcendit Alpes, et obscurè serpens multas jam provincias occupavit."—*Cicero in Catilinam.*

* See Correspondence with the Author of Cranioscopy, in Appendix, No. I.

SECT. IV.

POPULAR OBJECTIONS CONSIDERED.

"Oh that ye would altogether hold your peace, and it should be your wis-
"dom."—Job xiii, 5.

In the future history of Philosophy, no circumstance will create more amusement than the recital of the astonishment and contempt with which the philosophers and the public of the nineteenth century received the discovery, That the human mind is endowed with a plurality of innate faculties having specific functions, and that particular parts of the brain are the organs of particular faculties. In a few years, when the facts have become familiar, it will scarcely appear credible, that reviewers, verse makers, and novelists, could have vied so ardently with each other, which of them should display most wit against the doctrines on their first promulgation.

But in justice to the public of this age, it is proper to observe, that their knowledge of the doctrines has been derived chiefly from the writings of opponents, and that these opponents have concealed the real principles on which the system is founded, and the important questions in Physiology and the Philosophy of the Mind which it embraced. The public, therefore, were not so much to blame for their mirth. Indeed, in so far as ridicule merely was concerned, it is perhaps difficult to say whether there was most on the side of the public against the doctrines, or on the side of the supporters of

the system against the public, who absurdly found a subject of merriment in the constitution of their own nature. Those who saw that the public mirth was founded entirely on the circumstance of the mind not having consciousness of the existence and functions of the organs, were highly amused with the scenes which frequently occurred in promiscuous conversation, when the doctrines were first generally talked of. The deeper the brain was ingulphed in alcohol, and the more the system was proved to be true, by the manifestations becoming in consequence disturbed, the more obstinate became the denial of the functions of the brain, and the louder the laugh against the supposition of its being the organ of the mind. Such scenes must have occurred in the presence of every reader, and certainly, on calm reflection, no aberration of the human intellect appears more truly ludicrous, although it is easily accounted for.

In tracing the causes which so far misled the public opinion, I am sorry to say, that the efforts of the medical profession appear always the most prominent. The first written attacks against the system, in which every rule of philosophy and decorum was abandoned, were made by persons of that profession; and in private society, I have found the contempt of every one who had formed an opinion hostile to the system, founded on the authority of some medical practitioner. The public conceived that medical men, from their professional pursuits, must necessarily be well acquainted with the functions of the brain; and hence, when the family physician or surgeon pronounced the doctrines to be nonsense, they thought that there could be no doubt that this was the case; and this conclusion uniformly prevented further inquiry. In endeavouring to shew, therefore, that medical practitioners in general, are as little qualified to decide on the merits of the system as the rest of the public, my object has been, not to throw any general discredit on that pro-

fession, but to remove, in the present instance, a great obstacle to the progress of truth. If the public had been convinced at an earlier period of the discussion, that they themselves were as competent to judge of the merits of the system as medical practitioners, there can be little doubt, that ere this time, the subject would have been investigated by men of philosophic minds, and a much greater progress made towards the final settlement of the dispute.

But we leave the public and the medical profession to settle their respective claims to the merit of the ridicule thrown upon the system,—or we leave them even to scoff a little longer, if they please, at the functions of the brain, —and proceed to observe, that the other objections generally stated by popular inquirers are two; namely, that the system leads to Materialism and Fatalism. These objections are entirely popular, and not at all of a philosophical nature; because the philosopher inquires only what is *true;* for he knows well, that if the truth of a fact in nature be ascertained, it *is part of the order of creation;* and that a knowledge of that order can never lead to any evil result. The answers, therefore, which we make, must also partake of the popular character.

We observe, therefore, as to the charge of Materialism, that, in this system, no inquiry is made into the *nature* either of the soul or of the body. The phenomena only of the mind are observed. The expression *organ*, designates an *instrument*, by means of which a faculty manifests itself. The muscles, for example, are the organs of voluntary motion, but the muscles are not the being which moves; the eyes are the organs of sight, but the eyes are not the being which sees; and, in like manner, the brain is the organ by which the mind manifests itself, but the brain is not the mind. Who has not observed, that delirium accompanies fever in the brain; that first exhilaration, then a gradually increasing insen-

sibility, follow the different stages of intoxication; that insensibility is the effect of a blow on the head, or an attack of apoplexy; that in infancy the manifestations of the faculties are weak; in middle age vigorous; and that in old age they are feeble again? And yet, who has ever, from such observations, had his belief in the immortality of the soul weakened? Our perceptions must have been dull, indeed, if such facts have not been observed; and if they have been observed, what conclusions have been drawn from them? One or other of the two following must be drawn; either that the mind itself is affected by disease, and that its faculties are suspended, perverted, or extinguished; or, that the organs alone, by means of which the mind manifests itself, are affected, and thus produce the apparent changes upon the former. If any one wishes to assume the first opinion, we beg leave to ask him, Whether, if the mind itself be liable to suspension, perversion and change, we may not have equal reason to question its perpetual existence? While, on the other hand, if we hold, that delirium from fever and insanity, are diseases entirely of the brain or organ of the mind, then we may hold, as Dr. Spurzheim does, that the soul

> ——"shall flourish in immortal youth,
> Unhurt amidst the war of elements,
> *The wreck of matter*, and the crash of worlds."

It has been stated as an objection to this doctrine, that it is inconceivable how an immaterial principle can be excited or incumbered in its manifestations, by a material substance.

But this is to agitate a question, which Nature has placed beyond the reach of the human faculties; namely, in *what particular manner* the mind and body are connected. No philosopher of our times, who knows the limits set to human inquiries, would attempt to answer this question, or to investigate the subject. Dr. Spurz-

heim makes no pretensions to explain such a mystery. He states only the opinion, that the mind is influenced in its manifestations by the state of the organs of the body; and he states the facts on which his opinion is founded. If any person think the conclusion not warranted by the facts, then the Doctor does not ask him to believe. But if any one admit, that the facts warrant the conclusion, but refuses his belief, because he cannot conceive *how* the influence takes place, then he must be left to himself, or sent to learn the very first principles of philosophy, which treat of the limits set to the exertions of the human understanding.

But, perhaps, the most satisfactory answer which we can give to the charge of Materialism, is the one very justly given by the author of Cranioscopy. If a gentleman, who has exerted himself so much to pick every possible flaw in the system, has exculpated it from this charge, the public have pretty good security that the charge itself has very little foundation. I feel, on this account, much pleasure in quoting the following passage from that article. "It seems hardly necessary (says he) to expose the absurdity of the accusation, that these doctrines tend particularly to Materialism, although the dread of such a consequence has been sanctioned by royal edicts. There are two opinions only, which, in respect to this question, stand opposed to each other; namely, that which asserts perception to take place by the intervention of a material organ, and that which asserts it to take place immediately by the energies of the mind itself, or at least without the intervention of the body. The doctrines of Gall are unquestionably incompatible with this last opinion; that is, with pure immaterialism, which may in fact be regarded as denying the existence of matter altogether. This sceptical spiritualism can be avoided only by the admission of the necessity of a material organ; and if this be admitted, any modification of such

opinion, that does not exclude the mind as the ultimate precipient, must be equally remote from absolute materialism. The immaterialist believes, that it is the soul which sees and the soul which hears, as much as that it is the soul which judges and the soul which imagines; and since he does not condemn as impious the allotment of different organs of sight and hearing, what greater heresy is there in the allotment of different parts of the sensorium, as the organs of judgment and imagination? If, indeed, any one were to say, that the affections of these parts are themselves judgment and imagination, he would be a materialist; but he would be as much a materialist, if he should say, that the affections of the organs of sight and hearing are themselves the ideas of colour and sound."

The charge of Materialism being thus disposed of, we proceed now to offer a few observations on the other charge of FATALISM. This system no doubt teaches that various propensities and sentiments are implanted in us by Nature; and that some propensities and sentiments are naturally more powerful in one individual than in another; so that one may be disposed to virtuous actions from mere inclination, and another to vicious actions from inclination also. And does not every day's experience confirm these facts? Man does not act from reason alone; he is impelled by *inclination* and *desire*. This system, therefore, teaches only, that the inclinations and desires, which stimulate to action, are implanted by Nature, and are not factitious. And, as to the difference of natural endowment in different individuals, are not some individuals found practising virtue and maintaining virtuous conduct in the midst of "a world lying in wickedness," while others are found engulphed in every kind of iniquity, although bred in the sanctuary itself? But it is no part of the system, to teach that strong inclination and necessity are the same thing. It does not

teach that actions are irresistible. On the contrary, we have never ceased to repeat, that every faculty may be restrained or indulged in outward manifestations at the command of the will. The setter dog has a strong inclination to eat the game which he assists in killing, and it is on this propensity that his whole usefulness in hunting is founded; but does not every day's experience prove, that even his propensity can be restrained? Again, although the system teaches, that every faculty being active, must produce feelings and perceptions conformable to its nature, it does not teach that all faculties are equal in the authority of their dictates. On the contrary, while it teaches that we must feel sensual desire, or a desire for property, when certain faculties are possessed, and certain objects presented, it teaches also, that there is also a faculty of justice, the authority of which is perceived to be entitled to predominance, as the mind feels this one to be destined to regulate and control the manifestations of these lower propensities. Accordingly, does not every person often feel a strong propensity to eat, to indulge in sexual intercourse, to obtain fortune? But does he not feel a perfect capability of resisting every one of these impulses, from the dictates of reason, the sentiments of religion, or the feelings of duty?

Many well-meaning persons have stated a further objection to this system, That it virtually charges Nature with the guilt of Man, in respect that it charges her with having implanted the faculties which impel him to action. But of what system may not the same thing be said? There *are* such acts as thefts, murders, frauds, done by men. From what do these acts proceed? Do they proceed from *reason*, from *corrupted desires*, from any source in the mind itself; or do they proceed directly, or, *de plano*, from the *instigation of the devil?* Let each person choose, but choose he must, to which of these

sources he will attribute them. Such actions *are* manifested, and they *must* flow from *some source*. If they flow from perverted reason, then nature gave reason; if from corrupted desires, then nature gave desires; if, from the instigation of the devil, then nature made us liable to be thus instigated. Still, Nature is as much to blame in one case as in another. Those who think to overwhelm this system with ridicule, by making it throw all the burden of man's trangression on Nature, are not aware, that every possible system of philosophy must do the same thing to an equal extent. Man did not make himself; and to *some principles* in nature, therefore, as a legitimate use, or as an abuse of them, all his actions *must* be attributed. According to this system, nature implanted faculties, giving a desire to destroy, to acquire property, or to fight; but nature gave a power to restrain or indulge these in outward acts at pleasure, and implanted an innate faculty which perceives the qualities of right and wrong, to direct these propensities in their outward manifestations. Thus, we may destroy for subsistence, acquire property by industry, and fight in defence; and the faculty which perceives right and wrong, will approve of each one of these acts. But if we murder, steal, or attack every person we meet, it is evident that, although such acts result from the same faculties as the others above mentioned, yet these faculties are not now under the guidance of the faculty by which right and wrong are appreciated. Such acts are abuses of the faculties. If nature, therefore, has given us the power to restrain the external manifestations of all our faculties; and if she has given us a faculty which distinguishes right and wrong, all which this system proves that she has done, then nature is not responsible for vice, but man is responsible himself, in proportion to the *quantum* of restraining power, and of the distinguishing faculty which he possesses.

These observations, we have said, are entirely of a popular nature. Those who wish to understand the application of the system to the doctrine of moral liberty, will find the subject ably discussed in Dr. Spurzheim's larger work. A few observations will also be found on the same subject in a future part of these essays.

OF THE BRAIN,

AS DISPLAYED BY GALL AND SPURZHEIM.

SECT. I.

ON THE MODE OF EXAMINING THE NERVOUS SYSTEM, AND THE BRAIN IN PARTICULAR.

ALMOST all anatomists have commenced the demonstration of the brain at its superior part. It has been considered as giving origin to the nerves of the senses, and as the beginning of the *medulla oblongata* and *medulla spinalis*. But there is no proportion between the brain and the spinal marrow and nerves in animals: thus, the spinal marrow in man is no larger than that of a calf, yet the brain is three or four times as large, and notwithstanding the olfactory nerve of the latter is five or six times as large as that of man. In a dog again, the auditory nerve is large and the optic small.

We have instances of fœtuses with imperfect brains, and even *acephali*, where the nerves and the spinal marrow were entire. Morgagni indeed, and some others, have thought that the brain must have been originally formed and afterwards absorbed, but this is going rather too far to support an hypothesis.

Bichat has done much to show that the sympathetic nerve cannot take its origin from the brain or spinal mar-

row, but is formed of an union of ganglions. It would not certainly be correct language to say, that the veins arise from the heart, or that the branches of the tree spring from the root.

To show that the brain is rather the complement than the beginning of the nervous system, we have but to look around and see, that as a more extended intercourse is kept up with the external world, by apparatus multiplied in the same ratio as the relations of the species, so, by the successive additions of new organs, Nature marches from scale to scale, and arrives at the most complicated being, MAN, by the superposition of cerebral productions, and it is only by additions of this nature that the brain of any animal whatever can become that of one more perfect, or that by the subtraction of the same substance the intelligence of man may be abased to the simple faculties of brutes.

The great evil from commencing the dissection of the brain by slices of the superior part of the hemispheres is, that in culling them successively, we can form no exact notions of them. In fact, it is not a very happy expedient to arrive at the knowledge of a machine, to begin by the destruction of the parts which compose it; for then the examination can only be made from defective fragments and without any mutual relation.

SECT. II.

OF THE NERVOUS SYSTEM IN GENERAL.

The nervous system presents two substances entirely different, nervous or medullary fibrillæ, and a pulpy or gelatinous substance of variable colour, more or less greyish, reddish, yellowish, dark or pale, and commonly but very improperly called *cortical* or *cineritious*. This last covers not only all the circumference of the cerebrum and cerebellum, but is found also in great quantity in the different cerebral masses, for example, in the annular protuberance (*tuber annulare*), the peduncles of the optic beds, the *corpora striata*, the *tubercula quadrigemina;* also in the roof of the fourth ventricle, in the *medulla oblongata*, in the whole length of the spinal marrow; it is also met with at the origins of all the nerves, sometimes accompanying them in a very perceptible manner in their course; it covers, in fine, all the nervous expansions, as under the skin, where it is called the *rete mucosum* of Malpighi; it forms the almost liquid pulp of the labyrinth, a part of the mucous membranes in the cornets of the nose, the surface of the retina, &c.

The texture of this substance is unknown; it receives a great number of bloodvessels, and it is much more abundant in young animals than in old. It is by no means isolated, but always inseparable from the medullary or nervous substance. In worms, insects, and the molluscæ, it forms ganglions, whence spring nervous filaments; it produces as many particular systems as it forms ganglions, and there is never found a nervous filament which does not derive its origin from a proportional collection of this substance. If in the more perfect animals there exist independent or interrupted systems, their functions

are always realised and supported by particular ganglions, as often happens in the different systems of the great sympathetic. In the most simple animals then, as in man, the nerves derive their origin from this gelatinous substance which accompanies them, as in the olfactory nerve, &c. Having reached a new collection of this matter, they penetrate it intimately, and form an enlargement of a very variable figure and more or less interlaced, in a word a *ganglion*.

These ganglions not only serve to reinforce the nerves, but also to modify their functions. Each ganglion is in fact as Bichat has said, a centre or particular focus of a nervous system independent of the others in its action, and which has nothing in common with the analogical organs but communicating branches.

Here then is the utility of the pulpy substance, as also the definition and destination of the ganglions. All that anatomists have hitherto said of them, has been vague or contradictory, except what Bichat has very properly told us of the ganglions of organic life. Sœmmering and Cuvier have also observed in part, some of their conditions in reference to the cerebral system. "The nerves of the encephalon, says the latter, do not present the same arrangement as the nerves of the spinal marrow; the different tubercles which form the encephalon seem themselves to serve as ganglions at least for several nerves which are given off from them." (*Anatom. Comp.* tome II. p. 123.)

SECT. III.

OF THE SPINAL MARROW.

The spinal marrow (*medulla spinalis* or *abdominalis*) of a caterpillar, presents, at first, a nervous chord extended from one extremity to the other; but we must have particular nervous systems for different functions, consequently particular ganglions. And, in fact, we remark different accumulations of gelatinous substance which form at intervals small prominences, whence are given out nervous filaments more or less strictly united in small chords, and more or less multiplied, but always in proportion to the size of the prominence, and always uniformly symmetrical. Here we have then as many nervous systems as there are different prominences, which all communicate with each other by a common chord, itself probably formed of the nervous filaments of the ganglions.

We find the same organization in the spinal marrow of fishes, birds and mammiferæ. In these last the different prominences are so near together, that they seem to form a chord of nearly an uniform size. Anatomists commonly divide the chord of the spinal marrow into four others. In the interior, there exist collections of pulpy substance, under the form of enlargements, which are the length of each vertebra.

It is from these ganglions that all the nerves of the spinal marrow take their origin. In animals whose posture is horizontal, for example, in the calf, sheep, &c. each of these enlargements of the neck and back furnish two orders of nervous filaments, of which some come from the anterior, and the others from the posterior part.

The two orders of filaments incline to each other in

converging, and form on each side the spine nervous fasciculi proportioned in their volume to the respective prominences which have furnished them.

All these fasciculi thus formed by the convergence of the anterior and posterior filaments, which we should call superior and inferior if the posture of the animal were vertical as in man, issue from the spinal marrow by the intervertebral foramina.

All that we have said, takes place at the superior as at the inferior surface in animals and in the posterior as at the anterior surface in man.

It is sufficient to have observed that the enlargements are always proportioned to the nerves which are given off from them, to be enabled to explain why the spinal marrow forms an elongated point in the lumbar extremity; why it enlarges from the superior part of the first lumbar vertebra to the tenth dorsal, to give origin to the great lumbar nerves; why it afterwards becomes gradually smaller to the first dorsal vertebra, and is enlarged anew to the third vertebra of the neck to produce the brachial nerves.

The enlargements then of the spinal marrow must be regarded as so many distinct nervous systems, which have branches of communication to unite them together, and thus establish a reciprocal influence.

SECT. IV.

OF THE MEDULLA OBLONGATA.

The natural order leads us at present to the examination of the medulla oblongata. It is united by communicating branches with the medulla spinalis. Exclusive of considering the *medulla oblongata* as a prolongation of the cerebrum and cerebellum, nothing else was observed except the known nerves, the pyramidal eminences anterior and posterior, the corpora olivaria, the *crura* (*pedunculi*) of the cerebellum, and the medullary striæ in the fourth ventricle. It is however an assemblage of several masses of pulpy substance, which form so many centres of new nervous systems. These systems take their origin in their respective ganglions by a quantity of filaments which are combined in visible or concealed fasciculi according as they are more or less external or internal. These fasciculi rest attached or contiguous one to the other in a longer or shorter course, and are at last entirely detached, to go to the apparatus of their respective functions.

Of these different systems some are more readily demonstrated in man and others in brutes. Nature however never deviates from her first type.

In most animals the nerves of the senses and some others are larger than in man, even in their first rudiments. Hence we readily distinguish in them, the different fasciculi at the inferior or anterior surface of the medulla oblongata, which for the same reason is proportionally much larger and fuller than in man. We distinguish for example at the side of the pyramidal eminences a fasciculus which is commonly given out behind the *tuber annulare*, under the name of the sixth pair. As this fascicu-

lus is quite contiguous to the pyramidal bodies, and is sometimes separated from the common mass in the posterior part of the *tuber annulare*. Vicq d'Azyr and others make it spring chiefly from the pyramidal bodies and sometimes also from the *tuber annulare*.

By the side of this fasciculus is another which passes under a transversal band of the tuber annulare to go to the posterior *tubercula quadrigemina*, which are a true ganglion, where this fasciculus is reinforced and goes out really larger under the aspect of a marked fibrous band, directed forwards and outwards, to be once more reinforced in what is called *corpus geniculatum internum*; thence the same fasciculus glides under the optic nerve, beyond which it has hitherto been impossible for us to trace it, but the direction it takes is analagous to that of the optic nerve, and would induce us to presume, if comparative anatomy be not in opposition, that it passes on to the external and lateral part of the crura of the *cerebrum*, where in man and still more in animals, it meets with a great quantity of greyish pulpy matter, extended like a large layer, which in part accompanies it in its course, and whence it derives a considerable reinforcement of nervous fibrillæ; these latter united with the forementioned pre-existing ones compose the olfactory nerve.

Agreeable to these views it is not difficult to conceive why in some animals, the turtle for example, the olfactory nerve appears to derive its origin solely from the anterior part of the hemispheres.

The great hypoglossal, the glosso-pharyngeal, the facial, the *par vagum*, and spinal or accessary nerve, are detached, as all anatomists know, from the common mass behind the tuber annulare. It is also known that the *spinal* comes from several threads of the cervical medulla.

The roof of the fourth ventricle is covered with a grey substance in man and other animals. In man we see

come out from the median line white or medullary striæ, varying in number and sometimes forming small fillets. The superior dive into the cerebellum, the middle go to the anterior lobes ; the inferior aid in forming the auditory nerve.—This distribution is not always distinct nor perhaps constant.—In other animals these striæ are not visible, but the grey substance which belongs to the auditory nerve being very abundant in them, forms an elevated ganglion which in man presents an oblong elevation.

At the external border of the inferior surface of the medulla oblongata, we see very perceptibly in the mammiferous animals a fasciculus which passes under the transversal band already mentioned, and is detached from between it and the tuber annulare under the name of the trigemini nerve or the fifth pair. In the fish it is not united with the whole of the medulla oblongata, but takes its origin at the same place, from a particular ganglion. In man this nerve is covered by the posterior part of the tuber annulare; but on raising the transversal filaments of this protuberance (*tuber*), it is easy to pursue it in its whole course unto between the *corpora olivaria* and the inferior crura of the cerebellum. Santorini was better acquainted with this nerve than the modern anatomists.

We cannot venture to determine the first rudiments of the optic nerves, but it is presumed they arise from the anterior *tubercula quadrigemina.* In the horse, the calf, and the sheep, the anterior pair of the *tubercula quadrigemina*give rise to a band of large nervous fibres which curves and winds round the exterior parts of the optic beds, and seems to receive a small reinforcement from the external articulated body (*corpus geniculatum externum**), where it ceases to be adherent except at its anterior border ; thence it is directed forwards, and is strongly at-

* "Two small masses of grey substance in the interior of the brain beneath the optic beds."

tached to a layer of pulpy substance (*tuber cinereum* of some), whence new fibrillæ arise ; then this band or nervous chord meets its companion and forms with it a crossing, according to the opinion of the best anatomists, though others deny it.

We have seen atrophy of the optic nerve several times the result of a long blindness, perceptible to the point of contact beyond the two optic nerves, and extending beyond it. The optic bed corresponding to the wasted nerve seems in this case more flattened, whence Ackermann and others have concluded that the optic nerves were in communication with these beds.—We have never seen any other diminution in them than what is referable to the atrophy of the optic nerve, and nobody has ever found the two optic beds entirely disappear after the loss of both eyes, whatever M. Ackermann may say to the contrary ; but we have always observed a sensible diminution in the tubercle of the anterior *quadrigemina* corresponding to the atrophied nerve.

We have recently dissected the brain of an insane woman, in which an ulcer of considerable extent had almost entirely destroyed one of the thalami, and produced a marked atrophy of the *corpus striatum* and hemisphere of the same side ; yet none of the optic nerves had suffered.

Besides, there exists no proportion between the optic nerves and the optic beds ; these latter are much smaller in the horse, the ox, and the stag, than in man, though the optic nerves are greater : but the proportion is preserved between the optic nerves and the anterior *tubercula quadrigemina*. These tubercles have always a size proportioned to that of the optic nerves in birds. We know not why anatomists have always confounded these tubercles in birds and fishes with what they call the *optic beds* in the mammiferæ, since in the hemispheres of

birds and fish we see the same parts as in those of other animals.

Almost all the discoveries of Drs. Gall and Spurzheim relative to the medulla oblongata have been admitted by the Committee. It is indubitable, say the former, that this part is composed of as many masses of grey substance as there are nervous fasciculi which go out from it. The olfactory nerve is ordinarily more developed in the herbiverous than carniverous animals. But its size is always proportionate to the power of smelling in the different species. The varied grandeur of the *tubercula quadrigemina*, whether anterior or posterior, bears no proportion to the manner in which animals obtain their subsistence.

The examination of the olfactory nerve becomes the more difficult, because its principal reinforcement only comes to it in its progress by the fillets or chords which arise in the cortical substance of the anterior and inferior portion of the brain, which renders it probable that at its first origin it is very small.

The transversal band situated behind the Pons forms a semicular figure, nor, as the Committee of the Institute say, does it begin precisely at the external border of the abductor: what renders it so easy to fall into this error is that the pyramids in surmounting it in their prolongation seem to interrupt its continuity. When the pyramids are separate from each other, as sometimes happens, this band is seen in the interstices without any perforation. We do not believe then with the Committee that this transversal band is in part the origin of the facial nerve, nor that the *motor oculi* receives some fillets from the perforated cortical space, included between the two pedunculi and the two *tubercula mammalia*.

As respects the optic nerves we have said expressly that they only cease to be adherent to the thalami beyond

the *corpus geniculatum externum*, and that even then they remain attached by their anterior border, to the pedunculi or crura of the hemispheres.

The first and most important discovery even in a point of view purely mechanical, that without which all the others would be imperfect, is of the structure constantly fibrous of the white or medullary substance of the brain wherever it is found. Since Vieussens and Lœwenhœck, many anatomists have, it is true, acknowledged that this substance is in general fibrous; we have not, however, found one who was convinced of its being fibrous in all its forms and in all its regions; we, on the contrary, find many even among the moderns, who deny in the most positive manner that the substance is any where fibrous.

The brothers Wenzel, skilful anatomists, published a memoir in opposition to us in 1806, in which they say, that as Scarpa has showed that the bones are composed of laminæ and fibres, so have they by very exact examinations, satisfied themselves that the same is the case with the brain.

Bichat, in speaking of the transversal *striæ* of the *corpus callosum*, doubts entirely whether the disposition be fibrous, and considers fibres of the brain as a metaphysical chimera: in another place he says, it (the cerebral structure) ought rather to be ranked among the fluids than the solids.

Professor Ackermann, a violent opponent of the idea that the white substance of the brain is fibrous, finding himself constrained before a numerous auditory to admit it, extricated himself by saying, "*that the brain is truly pulpy during life, and that it is only after death that it coagulates into fibres.*"

Professor Walter only speaks of the brain as a boiled mass. Chaussier defines the *encephalon* as an organ soft

and pulpy, contained in the cavity of the cranium. Haller could not make up his mind on the subject. The Committee do not themselves seem entirely convinced of the fibrous structure of the brain, and in speaking of the medullary matter of the convolutions, represent it as a soft and pulpy matter like jelly or marmalade.

Soemmering seems convinced of the fibrous structure of the medullary mass, basing his opinion on the appearance presented in dropsy of the brain, or when it is macerated with spirits of wine or vinegar, or boiled with oil. In tearing the brain in a direction transverse to the fibres, their direction is unchanged, though a little turned out by the violence thus offered.

Whence this uniformity of results obtained by such different agents as *hydrocephalus*, spirits of wine, vinegar, mineral acids, the liquor of Monro, freezing, decoction in oil, &c.? Why does the medullary substance, if it coagulate in the convolutions, present fibres perpendicular to the base of these latter? Why, in the pretended coagulation of the other parts, do the fibres become oblique, horizontal, circular, radiated and interlaced without any agent or circumstance ever making them vary their direction in similar regions, or make them take in one subject a direction which they have not in all the others.

It was by scraping that Vieussens got ideas of the *pons cerebelli* very different from other anatomists and much more conformable to truth. We have also shewn that he had more correct views of the *corpora striata* than Vicq d'Azyr, M. Portal, M. Cuvier, and so many others who only see in them white and grey *striæ* alternately. To what are we to attribute the retrograde march of the anatomy of the brain in many respects, since Santorini and Vieussens, in spite of the assidious efforts of so many skilful anatomists, if it be not principally due to the too general practice of making slices?

SECT. V.

OF THE CEREBELLUM.

At the external and lateral part of the medulla oblongata is found a large nervous chord, known to anatomists under the name of *corpora restiformia*, *crus cerebelli ad medullam oblongatam*, or *inferior leg of the cerebellum*. As soon as we remove it from the auditory nerve with its ganglion, which cover it quite close to the annular protuberance, we can, in making an incision rather near the median line, follow it in an uninterrupted prolongation to the corresponding hemisphere of the cerebellum, in which it sinks posteriorly and meets there immediately with a portion of grey substance with which it forms a ganglion tolerably firm, of an oblong and uneven figure called *corpus dentatum*, *fimbriatum*, *ciliare* or *rhomboideum*. The primitive fasciculus being already very considerable, has but this single ganglion, which is sufficient to reinforce it and give origin to ten or eleven nervous branches. One of these principal branches goes towards the median line to form the vermicular eminence, which alone constitutes the cerebellum of fishes, reptiles and birds. It is divided at first into many other branches, which are also about ten in number. These are divided in their turn into minor ramifications, which are again subdivided into several lamellæ or lateral and symmetrical leaflets.

All these divisions and subdivisions are formed by a duplicature of two nervous layers covered alternately with a grey substance.

It is the same with each of the other branches of the hemispheres of the cerebellum sprung from the same

ganglion, relatively with the manner in which it is divided and subdivided.

The totality of all these ramifications always presents the arbor vitæ in the vertical section, whether this latter be made in the vermicular eminence, or in one of the hemispheres of the cerebellum. The section made in the direction of the duplicatures of the nervous lamellæ only presents to view white striæ bordered in their whole course by grey substance.

A single perpendicular section through a hemisphere of the cerebellum, from the bridge where its fasciculus is detached from the medulla oblongata, represents perfectly this fasciculus in all its course with its diverse ramifications ; but for this purpose it must be made in such a manner, that the internal part of the division be one third, and the external portion two thirds of the whole hemisphere.

SECT. VI.

OF THE CEREBRUM.

The *corpora pyramidalia* have at all times been regarded as a continuation or prolongation of the brain, (*cerebrum.*) It must be readily seen that agreeable to our preceding observations, we ought to recognise in them the first distinct rudiments of the hemispheres in place of making these latter terminate in them. We say the *distinct rudiments* because the reciprocal influence which exists between the spinal marrow and the brain, proves evidently a mutual communication if not a real continuation.

Immediately at the spot where the enlargement of the

inferior part of the medulla oblongata begins, at about an inch and some lines below the *tuber annulare*, we must raise with precaution the arachnoid and vascular membranes, after having divided them by a small and rather superficial incision, so as not to affect the subjacent parts. We then separate by slight pressure without tearing the two bodies of the median line. It is then that we discover a kind of tress formed of three to five chords, interlaced with each other, which are directed obliquely from below upwards and occupy a space of about three to four lines in length. The nervous fibrillæ which take their origin in the greyish substance of each side, unite at first into little chords which pass over each other and go to the opposite side and produce the crossing or decussation of the pyramids.

Anatomical inspection and pathological phenomena will not permit our attributing this interlacing or decussation to other fasciculi than those which compose the pyramids. It consequently does not take place in any other part of the medulla oblongata, nor in any part of its posterior surface.

This decussation has been long known; it was described by the most ancient anatomists, for example, by Aretæus and Cassius. It seems to have been afterwards neglected; but pathological phenomena excited anew the attention of Fabricius Hildanus in 1581. Francis Pourfour du Petit gives a description of it, as also Santorini. Notwithstanding these faithful descriptions, the correctness of which has been confirmed by Sœmmering, Portal, and others, the greater number of modern authors deny positively this decussation, or have but a vague idea of it; and their accounts are rather calculated to make us reject than admit it: among these is Vicq d'Azyr. Dumas and Boyer assert that paralysis of the opposite side is not explained by anatomy, because the decussation of the fillets of the medulla oblongata cannot in any manner be de-

monstrated, and is not at all proved by anatomy. Sabatier also doubts it. Chaussier attributes this appearance to the traction or pulling exercised on the tissue of the part which before laceration is elongated and assumes the fibrous appearance.

We flatter ourselves with having put an end to this discussion for ever.

After this decussation, the chords pass in part to the inferior surface, and being enlarged, rise towards the *tuber annulare* under the name of pyramidal eminences. Sometimes we see filaments which are detached and wind round the corpora olivaria. Besides these chords and those of which we have spoken in the second section, there comes here also other fasciculi from the superior or posterior part of the *medulla oblongata* and the corpora olivaria, the immediate continuation of which may be shewn.

All these parts having reached the tuber annulare, penetrate into its interior, and are covered at the inferior surface with a thick layer of the anterior crura of the cerebellum ; there they divide into several fasciculi, interlaced with the other transversal ones which come from the cerebellum, plunge into a mass of pulpy substance, and are reinforced and multiplied to that degree that on issuing out they form the *pedunculi* or *crura* of the brain. We observe that in man it is the inferior *fasciculi* which receiving the greatest increase in their passage form two thirds of the *crura*.

To see well this passage, known to the greater number of anatomists, we make an incision of about a line's depth in the direction of the median line, from one peduncle or *crus* on one side of the tuber annulare, to the pyramidal body of the same side. There results an incision the convexity of which is towards the median line of the *tuber annulare*. We then rest on the blade of the scalpel, pushing the transversal layer towards the cerebellum or

the median line. By this means we see plainly the medullary fasciculi of the transversal layer, and when all these fibrillæ are removed, the longitudinal fasciculi become equally visible.

We attain the same end by insinuating the flattened handle of a scalpel between the pyramidal body and the transversal layer, in order to turn over this last by raising the instrument.

The peduncles themselves contain in all their course, much pulpy matter, by which they acquire a successive increase ; but this increase is then made principally in the inferior beds or layers.

These latter sink anew into a large mass of grey substance, and form a tolerably dense prominence, well raised and of an uneven form, towards the sides of the ventricles.

In these ganglions, very improperly termed optic beds, the fasciculi are reinforced by an accession of small filaments which render them stronger ; they then go out in a radiated and diverging direction.

The posterior fasciculi pass on in extending themselves out, to form the posterior lobes.

At the inferior lateral surface of the pedunculi, and at the border of the optic nerve, fasciculi are detached to form the middle lobes.

All the other fasciculi traverse a great collection of gelatinous substance, known by the name of the *corpora striata* of Willis ; some are buried in it immediately, and the others after having traversed a part of the optic beds. It is there that a number of nervous filaments are also engendered. Those of the mass situated in the ventricles pass to the fasciculi already formed to reinforce them and form with them, in being lengthened and spread out, the anterior lobes and the middle superior convolutions.

It is then a great error to take the optic beds (*thalami nervorum opticorum*) for the origin of the optic nerves,

the more especially as their size is never in proportion to that of the nerves but always proportioned to the parts of the hemispheres which are a production of them.

We may see also the error of those who, like Chaussier, have taken the *corpora striata*, (*corps cannelés*) for the origin of the olfactory nerves, though Sœmmering had already observed that these nerves have no proportion to the tubercles.

All the fasciculi of the external border of the *corpora striata* and the optic beds are then directed in all senses that is to say towards the sides, backwards and upwards, in enlarging themselves always more to the external borders of the great cavities ; it is there that they appear to form a tissue, whence they are disengaged in many filaments to form duplicatures under the name of convolutions. The base of these convolutions and their interstices rest on the external border of this tissue. The duplicatures are formed then in the cerebrum after the same laws as in the cerebellum, except that in the former they are rarely subdivided into lateral ramifications, and are besides larger and deeper. Beyond the tissue just mentioned, each duplicature is readily extended in form of a pouch or sac, and as this takes place in regard to all, it follows that if the tissue be torn by rough manupilation or distended by a gradual action as in hydrocephalus, all these duplicatures are transformed into a kind of membranous expansion covered externally by grey substance.

It is then with the cerebral membrane as with the expansion of all the nerves, beginning with the retina on to the teguments of the body, and the same laws are observed in the formation of the cerebrum and cerebellum as in the other nervous systems ; every where origin and successive increase by the medium of the gelatinous substance, then a final expansion covered with the same substance. As in animals many parts are wanting which

constitute the human brain, there results hemispheres less complicated and in appearance symmetrical, which in animals of a very simple formation are only a single expansion hollow in the interior.

It is proper to indicate here an apparatus quite peculiar in the successive increase of this nervous system. Several considerable enlargements in their whole contour or tissue, which is produced by a transversal band. We see one of these in the crura of the cerebrum of brutes, for instance in the sheep ; another on the external border of the tubercula quadrigemina ; a third between the optic beds and the corpora striata ; a fourth on the anterior border of the grey substance in the great cavities ; by turning over the optic nerve there is at first presented a fifth, and in raising a part of the grey substance, we see a sixth and a seventh. The three last are at the distance of two lines from each other. All these little bands form a kind of seam, as well in their internal as external surface.

SECT VII.

OF THE RETURNING OR CONVERGING NERVOUS SYSTEM.

THOUGH we, with Bichat, look upon all the nerves, not only those of organic life, but also those of animal life, as so many independent systems, there are however many communications between them. The systems of organic life are really sometimes presented in a state of absolute isolation; however by the effect of ordinary laws they are linked together by anostomoses. In the same way the whole organic life is in a reciprocal union with the animal life by means of the communicating branches of the spinal marrow, and of the parvagum and glosso pharyngeal, and of the fifth and sixth pairs which go to the intercostal nerve. The union of the various organs of animal life, for instance, those of the senses and the other parts of the brain in each of the hemispheres, by means of anostomoses, establishes between these organs so many connexions that we cannot always assign their exact limits, and that anatomy which would circumscribe with precision all the organs of the brain is impossible.

But these connexions do not establish the correspondence of one organ of animal life with its counterpart of the opposite hemisphere, which has made it presumed for a long time, that nature must have established means of reciprocal communication and influence. Hence anatomists have at all times demonstrated under the name of commissures, connexions of the medullary substance of one side with that of the other; they have indicated the anterior and posterior commissure, as also the grand commissure of the hemispheres, or the *corpus callosum*. Thus the mechanical form of these points of mutual alliance was known, but as it was soon perceived

that the use of these commissures was to make the two hemispheres communicate with each other, ought it not to have been conjectured that they must have an union with, and relation to the constituent parts of the brain, and in consequence of this idea trace them to a more remote origin.

We proceed to examine these formations, beginning with the cerebellum.

We have said that the two fasciculi known by the name of inferior pedunculi of the cerebellum (*corpora restiformia*), take a direction posteriorly on their entrance into each hemisphere, to form the system of diverging nerves. Besides this system, we observe another ; for we see at the external and internal border that nervous filaments coming from all the lamellæ meet in a large chord which passes in an acute angle above the constituting fasciculus of each side, is enlarged, and forms with its counterpart the commissure of the cerebellum, or the annular protuberance (*tuber annulare*).

The cerebellum, its chord, ganglion and commissure, are always in reciprocal proportion. In the mammiferous tribe, these parts are smaller, which explains why the fifth pair is given off immediately behind the commissure, and why we see a transversal band from one auditory nerve to the other, surmounted by the pyramids.

Fish, reptiles, and birds, having no hemispheres of the cerebellum, are without this commissure.

The hemispheres of the brain, present to us the same phenomena as the cerebellum, relative to the two orders of nervous fibres. The fibrillæ which come from the pedunculi, on being expanded to form duplicatures, end as we have seen, with their points in the grey substance. But it is certain, that we can shew, besides these, in all the periphery of the hemispheres, beyond the tissue on which bears or rests the base of the duplicatures or convolutions, a peculiar nervous substance, which appears, at first, ex-

panded in layers, and which unites afterwards in filaments, and finally, in distinct fasciculi, which are, while converging, directed towards the interior, to form with the similar substance of the opposite side, a commissure between the two hemispheres. In some convolutions of the part folded under the posterior lobe, we can pursue this returning mass, in an uninterrupted layer, or bed, until it forms distinct filaments. Hence we presume, that this white and soft substance, which we meet in all the duplicatures, is continued every where in the same manner, on to the commissures, though the tissue of which we have spoken, will not permit of our making a distinct demonstration of it.

As these fibres are converging, and as they affect in each region not only a different, but in some places even an opposite direction to that of the fibres which come from the peduncles, principally in the anterior and posterior parts, and as besides they are separated from these last, and are much softer and whiter, we think ourselves authorized to regard them as a particular nervous system.

Finally, as many commissures, for example, the great and the anterior, are situated out of the hemispheres, and in their interstices, and as their origin cannot be derived from their points of reunion, where there is little or no grey substance, we think this a sufficient reason for considering them as a converging mass of the convolutions, whether it be a continuation of the diverging filaments, or be newly formed in the cortical substance.

This refutes the opinion of Vicq d'Azyr, who thought that the grey substance which covers the extremity of the nerves, serves only to receive and moderate the first impressions. This explains at the same time, why the hemispheres which some have regarded as the appendices of the *corpora striata*, infinitely surpass these latter in volume.

As the commissure of the anterior circumvolutions of the middle lobes (*commissura anterior*), is known

since the time of Vieussens, and well described by Sabatier, Sœmmering, Vicq d'Azyr, &c. we shall only observe the difference it presents in man, and in the mammiferæ, destitute of the greater portion of the middle lobes, as in the horse, the ox, the hog, the dog, the sheep, &c. This commissure issuing in these animals from the anterior and inferior convolutions, forms in them an arch, the direction of which is the opposite to that of a similar arch in man. But these fibrillæ are not blended, either in man or animals, with the great commissure, or with the peduncles of the brain, as M. Chaussier imagines.

The anterior and posterior lobes, are disposed in such a manner that the converging nerves do not unite every where in a transversal direction, consequently the great commissure does not occupy the whole length of the hemispheres, but only the middle portion.

The converging filaments of the anterior and posterior part, are then directed obliquely towards the respective borders of the great commissure, and form there necessarily the anterior and posterior folds. The festooned band near the cornu ammoni, the posterior crura of the fornix, and the lyre, *corpus psalloides*, must agreeable to these views, be considered as the result of the converging filaments of the different convolutions. There are only the filaments of the middle parts of each hemisphere, which return in a transversal direction. It is thus that the great commissure forms as many points of reunion, as there are fibrillæ which compose it.

It is very probable that the same laws hold good in respect to the commissures, in all the systems of the animal life; at least we see many unions of other nervous systems. Thus all along the spinal marrow and medulla oblongata, when we separate their borders, transversal fibres like those of the great commissure are seen, which have been confounded with the decussation at the pyra-

mids. The transversal band which is seen behind the commissure of the cerebellum in the mammiferous animals, the double union of the tubercula quadrigemina, and the transversal band placed at the origin of the fourth pair, are similar reunions.

It is difficult, however, to affirm that in these commissures there is a real union, that is to say, that the converging part of the two hemispheres, are really lost in each other; for in making a perpendicular incision in the median line of the great commissure of the hemispheres, of that of the cerebellum, and in the middle of the medulla oblongata, we see on the internal border of each side, perpendicular striæ, accompanied by blood vessels, as Vicq d'Azyr has shown very distinctly. It is possible that these two vertical laminæ approximate in form of a seam; but it is more probable that the fibres, which constitute the commissures, are continued through the perpendicular striæ.

The *septum lucidum* seems to be an analogous structure. At the anterior border of the most internal convolutions of each of the middle lobes, there comes out a fibrous fasciculus, which sometimes forms a tolerably strong band. This latter rises above the junction of the optic nerves, immediately before the anterior commissure, expands into a fine membrane, and forms with that of the opposite side the *septum lucidum*. The interval between these two membranes is known under the name of the fifth ventricle, and their prolongations in the median line of the great commissure help to form the raphe, that is to say, that they give each a layer of perpendicular fibrillæ, the direction of which is diverging towards the convex or upper part of the great commissure.

SECT. VIII.

FORMATION OF THE VENTRICLES AND UNFOLDING OF THE CONVOLUTIONS.

As the diverging mass is extended in all directions before forming a more complete expansion in the duplicatures of the convolutions, and as the converging or returning nerves, form large layers coming from all parts of the two hemispheres, that is to say, from above before and behind, to be directed in the superior region towards the median line, and there unite, there necessarily results cavities which are called ventricles. The detailed description of these cavities which has been given by other anatomists appears to us the more unnecessary to be repeated in this memoir, as we regard them simply as a means of organic mechanism, and as we do not seek the particular functions of the brain in a vacuum but in the organs themselves.

These cavities are the seat of hydrocephalus which when considerable unfolds the convolutions and expands them in form of a bladder, without however the intellectual functions being always deranged in a manner proportionate to the presumed alteration in this disease, which does not consist as has been hitherto thought in a dissolution or disorganization of the cerebral mass.

Though these phenomena led us to make ulterior and more exact researches into the structure of the brain, their detailed application belongs rather to physiology than anatomy. We only avail ourselves of this occasion to say something of the artificial unfolding of the hemispheres.

At first we raise simultaneously the arachnoid and pia mater, though this latter dives in folds into the anfrac-

tuosities, because the operation would be longer and more difficult, if we stopped at cutting or raising the first part only ; we then introduce the fingers between the pedunculus and festooned band (*corpus fimbriatum*), to penetrate into the posterior and lateral cavity ; in extending then and moving gently the fingers we find a slight resistance in the whole extent of the cavity, on account of the tissue which is found beneath the base of the duplicatures.

By the prompt and violent unfolding, the points are torn, perhaps because we do not yet know their mechanical structure ; but after that, the duplicatures are separated easily and without laceration into two parts, and present a membranous expansion of about the thickness of a line and a half. The interior partition presents a layer of white and fibrous substance which has its external surface covered with a greyish substance.

We see precisely the same process in resting a part of the hemispheres on the hand in such a manner that the surface of the convolutions be turned downwards. So soon as the points of adherence between the duplicatures are destroyed we may separate the two laminæ placed in apposition. We see even a little furrow which indicates the line of separation and the sanguineous vessels extended like nervous filaments.

When we cut the convolutions of the hemispheres in their length at the point of attachment we may also unfold them into a membrane without any other laceration.

Hence one may conceive that among the animals the unfolding of the convolutions is the less possible as they are less profound.

As it is not our object to give a detailed description of all the cerebral parts, we shall say nothing of the prolongations of the cerebellum, towards the tubercula quadrigemina, the pineal and pituitary gland, nor of the mammillary bodies *corpora albicantia*, and their connexions, nor of all that regards the vessels, membranes, and envelopes.

This is not the suitable place either to speak of the constituent parts of the hemispheres in the different kinds of animals, of their modifications and of their relations according to varieties, sexes and individuals, of the changes produced by age, nutrition and diseases, or of the impossibility of calculating the functions from the connexions of their different organs whether in the brain or the rest of the body, because all these questions come within the domain of physiology.

RECAPITULATION.

It results then from all these researches, 1st. That the gelatinous substance is truly the matrix of the nervous system, whether we consider it as their first origin or as an apparatus for reinforcement and new modifications.

2. That all the nervous systems produce a final expansion terminated by a pulpy substance.

3. That there are as many individual systems as there are different functions, but that all communicate together by means of anastomoses.

4. That each system of animal life is double.

5. That these double systems are united and brought to unity by means of the commissures.

6. That in virtue of all this, there does not and there cannot exist any common centre of all sensations, of all thought and will.

7. That finally, the *unity of me*, will always remain a mystery.

To return to the unfolding of the convolutions of the brain.

Until now, it was generally imagined, that they were formed by the vascular membrane, diving into the brain to give a freer passage to the blood in it. Hence we learn, why the cortical or grey matter, was always supposed to be of unequal thickness, from one to six lines.

But things are not found in this mechanical and accidental way in the brain. The convolutions are the result of a more important, and better calculated arrangement.

As soon as the diverging nervous fasciculi decussate at the external border of the ventricles, with converging or returning fasciculi, forming the tissue or band above mentioned, they separate from each other, are prolonged, and finally form, in being extended out, like all the other systems of nerves, a fibrous expansion. The fibres of these fasciculi thus expanded, have not all the same length; the shortest terminating immediately beyond the sides of the ventricles; the longest continue on farther, the one beside the others. It is thus that the various prolongations, and fossæ, are formed according to the greater, or less length of the fibres. All the medullary fibres of the brain, are covered at their extremity, with a grey substance, as well as all the other nervous expansions, and thus each layer of grey substance is found corresponding to the layer of medullary fibres subjacent. The fibres of these fasciculi are not simply prolonged in one layer, but two, so that each convolution forms a true duplicature, composed of two fibrous layers, and covered externally with about an equal thickness of grey or cortical matter. The internal part of the envelope formed by the grey substance, being visibly penetrated by medullary fibres, presents a tissue paler and more firm than at its exterior part.

The simple convolutions (fig. I. a), are always wider at their base, and always become narrower at their summit 3, in proportion as they lose nervous fibres from each side of their layers, in the grey substance. In place of being absolutely vertical, they have declinations or curvatures, which carry them to one side or the other. They have also a sinking or flattening, by which their summit is slightly depressed inwards, which gives them nearly the same form that a fold would have with the upper

part turned on itself, (fig. I. b.) But that is not the only apparatus of which the convolutions are composed. We have before said, that the diverging nervous fasciculi interlace, in the greatest circuit of the ventricles, with the converging fasciculi. But whence must we begin to derive the nervous converging fibres? Are they the diverging fibres themselves, which refolded in the convolutions, return in converging, or are they fibres of a new creation, furnished by the grey substance.

One thing is certain, that there enters into the two surfaces of each convolution, nervous fibres, more minute and softer, than the diverging ones; on account of their extreme delicacy, they cannot be distinctly perceived in all the convolutions, but only in the posterior lobes. These fibres accumulate, some at their decussation, and others immediately after, into considerable fasciculi, which converge more and more in being directed conjointly towards the interior, where they form, at first the internal layer of the ventricles, then finally the commissures.

When we cut perpendicularly through a convolution, the eye can only discover internally a white substance, without any intermediate division. It does not even divide when we draw slightly the two lateral borders in opposite directions. The two internal surfaces are however only agglutinated to each other, perhaps by means of a cellular tissue, rather weak, and offering little resistance, without there existing between them a real union, or an intimate adherence by reciprocal communication, or transmission one to the other.

Hence the reason when in hydrocephalus, the fluid acts with a certain force against the sides of the ventricles, these latter enlarge, the decussated or nervous tissue already indicated seems to be gradually forced outwards, the fibrous layers of the convolutions are found divided, and more and more separated in their middle, so that

their situation becomes absolutely horizontal, in place of the vertical position, which they had from the base to the summit.

In hydrocephalus to any extent, almost all the convolutions are found distended in this manner, into a membranous expansion, that is to say, that almost all the convolutions or duplicatures are effaced, (fig. V. 4——4), and the hemispheres present only the appearance of a paunch, in form of a bladder, the interior of which is nothing but white nervous substance, (fig. V. 6——6), and the exterior grey pulpy matter, (fig. V. 5). In slighter cases of hydrocephalus, there are convolutions which are but partially unfolded, (fig. V. 2——3), and others not at all, (fig. V. 1.)

When it is required to unfold artificially the convolutions, we are obliged to tear the tissue at the place of decussation; then the duplicatures may be easily separated one from the other. The division always takes place in the median line, and constantly presents a furrow at the bottom, when the effort for the separation is properly directed. Consequently, there is not an intimate adherence, but simply a juxta-position or apposition of the two layers or laminæ, which are only kept in contact by means of a very slight cellular tissue.

The ventricles of the brain are circumscribed in their entire circumference, and the convolutions bear perpendicularly on the external periphery of their sides. If there were only simple extension of the walls of the ventricles, the convolutions would always be found more and more separated from each other by the elongation of the intermediate fibres, but no unfolding or effacing.

As the white matter of the convolutions is, according to some objectors, very soft, and as the cortical substance is incontestibly more so, the ulterior extension of the ventricles would be impossible as soon as it reached a convolution, because all the face of the liquid bearing then

on the softest and thinnest parts would necessarily produce a rupture, before a pouch was formed capable of containing thirteen to fifteen pounds of water. But what are we to say of those cases of hydrocephalus, in which almost all the convolutions have completely disappeared. How in this case can the *white matter*, which we are told is so soft, and the grey matter still softer, oppose for a moment the rupture. There are however frequent examples of persons who, with from four to thirteen pints of fluid in their head, have lived for fifteen, to fifty and even sixty years. In these *hydrocephali* we see that the nervous substance forms throughout on its inside, a layer of almost equal thickness, as is shown in fig. V. b, b, and in each artificial unfolding. Here then the physical phenomena of hydrocephalus are in perfect accordance with the facts in anatomy, physiology and pathology.

Spurzheim repeated before the Committee of the French Institute the new experiments on the artificial unfolding of the convolutions and separation of the duplicatures. Vertical sections of the convolutions macerated in nitric acid with alcohol, became hardened, and were divided readily in the median line: the same thing occurred when they were boiled in oil for ten or twelve minutes, and when the operator blows on such a section or directs a little *jet d'eau* by means of a syringe, the separation takes place at the middle and not at the sides. "*In the latter case particularly the two surfaces which are thus separated remain smooth and the vessels which traverse them are intact without leaving any traces of fibres passing from one side to the other*," (Report of the Committee.) There seems to be then in the duplicatures adherence in the sense of *agglutination* (*Anklebung*), but not in the sense of *concretion* (*Verwachsung*).

In all the above mentioned preparations, and especially when we boil the convolutions in oil, we see in the most striking manner that innumerable nervous fibres go per-

pendicular and parallel to the summit of the convolutions, as is represented by the fig. III, 1, 1, 2, 2. It has already been proved that this fibrous structure is not a phenomenon produced by death.

If we cut a convolution into slips and direct by means of a tube our breath on one of these slips, the division is always made in the median line of the two laminæ, fig. II, a, and is prolonged from the base 1 to the summit 3. The efforts made to operate the same division on other points result in laceration into irregular pieces, and the disorganization of the white and grey substances. In blowing in the same manner upon a convolution, the summit of which is depressed, fig. II, b, there is at the base I, a simple division made, which towards the summit becomes double 2, 2. A more irrefragable proof of the duplicature of the convolutions cannot be afforded.

When a jet of water is directed on the middle of one of these slips, precisely the same result is obtained, that is to say, an equal division from the base to the summit in the median line ; but if the jet be directed on other points of the same substance, disorganization of parts ensues. The separation of the two layers is so easily made in the median line that the injection of some jets of water extends it several inches into the interior of the convolutions. Nay more, when a convolution has lateral partitions and sinuosities, the jet of water goes meandering in the tortuous direction of the median line of the convolution in place of piercing in the direction of the impulse which was given to it by the syringe.

When we cut longitudinally a convolution, thus divided by small jets, whether in cleaving the summit with a scalpel or in removing it with scissars, we find the convolution divided into two equal laminæ and we see that the nervous fibrillæ of the base, fig. III, 1, 1, are directed in part on the sides and in part on the summit 2, 2, to be lost in the grey substance.

But what happens when we direct transversely the jet of water on the inner side of a convolution, through a small hole made for the purpose as far as the median line, fig. IV, 1, or if without any previous opening we force the jet a little more so as to traverse the entire thickness of the convolution? In this case if the white substance were so soft as has been asserted, ought it not to be disorganized, washed and carried away by the water? Would it be possible for the whole convolution not to be dissolved, or at least pierced through and through? But nothing of this kind happens; on the contrary, the water, in place of following the impulse first given to it, turns and passes to the right and left in the median line 4, and produces the division of the two laminæ to the extent of one or two inches, exactly as in the foregoing experiment: one may be convinced of this by cutting after the injection, the summit of the convolution in its length 2, 2.—The white substance which being opposite to the opening through which was directed the jet of water, received the impulse and was no wise affected by it; it was found as regular and smooth as in all the other experiments.

GENERAL RECAPITULATION.

As the summing up the contents of our (Gall and Spurzheim's) memoir, into ten articles, in the Report of the Committee of the Institute, is far from embracing all the objects treated of in it, we have thought proper to close our answer, by presenting our opinions and discoveries, under four different points of view ; some have been attributed to older authors, others have been regarded as doubtful, many have been recognized as new and well founded, and a fourth part has been passed over in entire silence.

A.

Of what is attributed to older anatomists.

1. Their method of dissection for examining the nerves and brain.

We have proved that all our predecessors have done, is reduced to processes entirely mechanical, and that from Varolius and Vieussens, who were supposed to have anticipated us, down to Vicq d'Azyr, they have made all the nerves come from the upper part of the brain, and we have again brought forward the second, third, sixth and seventh proofs of our memoir, to show that our method had not been adopted even in its mechanical bearing, far less was it conformably to the principles of comparative anatomy and physiology.

2. Our doctrine on the use of the grey or cortical substance, whence we derive the origin of the nerves.

It is by the testimony of the greatest physiologists and anatomists, among others of Haller and Sœmmering, we have proved that our principles cannot, and never will be found in the contradictory hypotheses advanced in favour of our predecessors.

3. The comparison of the whole nervous system to a net work.

Here more is attributed to us than we are entitled to. We consider the nervous systems as differing from each other, according to the accumulation of grey substance, which gives birth to them, and we cannot admit the comparison of a net work, especially if it suppose their homogeneity, and that the difference of their functions is dependent simply on the difference of their external apparatus, or other accessory circumstances.

4. The knowledge of the prolongation of the pyramids through the tuber annulare, the pretended *thalami nervorum opticorum* (optic beds), and *corpora striata* on to the convolutions.

What was known before our time, was only a *mechanical* linking, but not a prolongation or successive preparation for the formation of the convolutions or the complement of the real organs of the intellectual faculties.

5. The explanation of the true formation of the commissures.

It is sufficient to recal to mind that anterior to us, there was absolutely no idea of the system of converging and diverging fibres, which come from both hemispheres, to form the commissures, which latter had indeed been perceived in a manner more or less distinct, but no idea had been formed of their true relation and structure.

B.

Of what is regarded as doubtful by the Committee.

1. The analogy which prevails between the different ganglions of the nervous systems of organic life, and the enlargements of the spinal marrow.

2. The analogy which the mucous tissue of the skin,

and the other layers of grey substance visible in all the nervous expansions, has to the grey substance of the cerebrum and cerebellum.

Unless by analogy we are to understand identity or homogeneity, it is impossible that any doubt should remain on the subject, after the proofs alleged from page 74 to 88, of this work, (*Recherches*, &c).

3. The parity of laws, by which the nerves and the germ of plants are developed, formed, and reinforced.

4. The more or less evident enlargement of the spinal marrow, as well in man, as in animals, at the origin of each pair of nerves.

This has been demonstrated by facts, easily verified in all animals.

5. The origin of the cerebral nerves in man, in the mammiferæ, and in birds, in accumulations of grey matter in the *medulla oblongata*.

One has but to look to be convinced of the grey substance in the medulla oblongata, and we have shown that this truth was known before our time.

The detachment which takes place in carnivorous animals, behind the pons of the sixth and eighth pair of nerves, and even of the fifth, among many of them.

In rectifying the error of the Committee, on this subject, we have proved that the monkey alone, under this point of view, resembles man.

7. The use of the *corpus ciliare* or *fimbriatum*, for reinforcing the pedunculi cerebelli, or *crura* of the medulla oblongata (*corpora restiformia*), for the production of the two lobes.

We have demonstrated in a very circumstantial manner, from page 125 to 128 (*Recherches*, &c.), that the lobes of the cerebellum, are formed absolutely after the same laws as the hemispheres of the *cerebrum*.

8. The demonstration not simply analogical, but real, and intuitive of the existence of a converging nervous mass in the cerebellum—p. 44.

We have shown that the fact is precisely the reverse of the opinion of the Committee, and that we discovered the two orders of nerves in the cerebellum, first, where they meet the sight more evidently than in the brain.

9. The natural and artificial unfolding of the convolutions, founded on a real duplicature of their fibrous layers, which are in contact either by immediate apposition, or intermediate cellular tissue.

We believe we have rendered this point of our doctrine indubitable, by the multiplicity of our means of demonstration.

10. The non-existence of a single centre for all the nerves.

11. The plurality of the organs of the intellectual faculties.

Here then are eleven points of our anatomical doctrine of the brain, and nerves in general, the fifth and sixth of which have been confirmed by us.

C.

Of what is avowed and recognized by the Committee.

The committee have agreed, 1st. That our method of dissection is preferable to all others which are known, as well for arriving at the exact knowledge of the structure of the brain, as of that of its functions.

2. That the grey matter is the origin and aliment of all the nervous fibres, and that it is by means of it that they are reinforced and multiplied.

3. That we were the first to demonstrate the prominences which, in the spinal marrow of the calf, correspond to each pair of nerves.

4. That there is an analogy between the grey substance which covers the hemispheres of the cerebrum and cerebellum, and that which is found in the *tubercula quadrigemina*, the pretended optic beds, and the *corpora striata*.

5. That the cerebral nerves come from the pretended *medulla oblongata*, and that the brain can no longer be considered as the origin of the divers nervous systems.

6. That the band, or enlagement of grey substance visible at the root of the auditory nerve, is the true ganglion of this latter, and is always in proportion to its size.

7. That we were the first to demonstrate by comparative anatomy, the true origin of the facial nerve, and of the sixth pair.

8. That before us, the true origin of the fifth pair of nerves was unknown, and that to us are anatomists indebted for the knowledge of a means of displaying its direction in an infallible manner.

9. That the optic nerve does not receive a fibre from the interior of its pretended optic beds, (*thalami*, &c.), though the contrary opinion was always held before.

10. That the anterior pair (*nates*) of the tubercula quadrigemina and the *corpus geniculatum externum*, are true ganglions of the optic nerve, that they are found in connection and waste away with it.

11. That before us, the anterior tubercula quadrigemina of birds, were confounded with the pretended optic beds of the mammiferæ.

12. That the optic nerves are larger before than after their junction.

13. That the corpus ciliare or fimbriatum exists also in the cerebellum of the mammiferæ, and that it is only smaller in them than in man, because it is proportioned to the volume of the cerebellum.

14. That we have determined better than had been done before and have placed beyond doubt, the decussation of the pyramids.

15. That the pyramids (*corpora pyramidalia*) in their course through the tuber annulare, the beds called optic, and the corpora striata are reinforced by fresh nervous filaments formed in the grey substance, and are then ex-

panded into convolutions of the brain, and that it is only *in this way* that their prolongation takes place.

16. That to us is owing the section by means of which one may follow with the eye, the prolongation and successive reinforcements of the pyramids, on to the convolutions of the brain.

17. That we were the first to make known the two orders of the nervous fibres of the brain.

18. That we were the first to establish the course of the greater number of the commissures, and their relation to the nerves found in connexion with them.

Of the eighteen points of our doctrine admitted by the Committee, there are but two or three, the discovery of which we must share with ancient anatomists ; still insisting that we have administered the most irrefragable proofs of them, and made the most complete demonstration. All the others are admitted as new and well founded.

D.

Of what is absolutely passed over in silence. The Committee have entirely omitted saying,

1. That we were the first to describe the transversal band behind the *pons* in animals, and to indicate at the same time the cause why it is not remarked in man.

2. That before us nobody had spoken of the divers nervous fasciculi, visible in the medulla oblongata of the larger animals, nor thought of designating them as the origin of the cerebral nerves so called.

3. That to us are they indebted for the knowledge of the prolongation through the *pons* of a particular nervous chord, coming from the corpora olivaria, and of several others situated more deeply, as well as that of the relation of their reinforcement compared to that of the pyramids.

4. That we were the first to point out the formation of

the convolutions of the hemispheres, by the different fasciculi of nerves issuing from many points, as from the optic beds, and the *corpora striata;* a very important object in reference to the progressive augmentation of the hemispheres in the different species of animals, since, in losing sight, of it the comparative anatomy of the cerebral parts cannot be studied in reference to their respective relations with the faculties of animals.

5. That excepting the two transversal bands, of which a mutilated view is given in a drawing of Vicq d'Azyr, we have discovered several others entirely unknown.

6. That it is only since our time, that the difference of the anterior commissure in man and animals, as well as the cause of this difference is known.

7. That it is only on our data that we can explain the extraordinary increase of the olfactory nerve of several animals, in the grey substance which is found at the base of the anterior convolutions.

8. That the commissures always bear a proportion to their respective nerves, and it is on this account that the pons is much narrower in animals than in man.

9. That the *appendix vermiformis*, or worm of the cerebellum of the mammiferæ, is formed by a fasciculus of the ciliary body.

10. That we have explained why the amphibii, fish and birds have no pons.

11. That we have made observations upon the perpendicular nervous laminæ, as well as upon the origin and increase of the *septum lucidum*, and on its connexion with the great commissure.—EDITOR.

Fig. I.

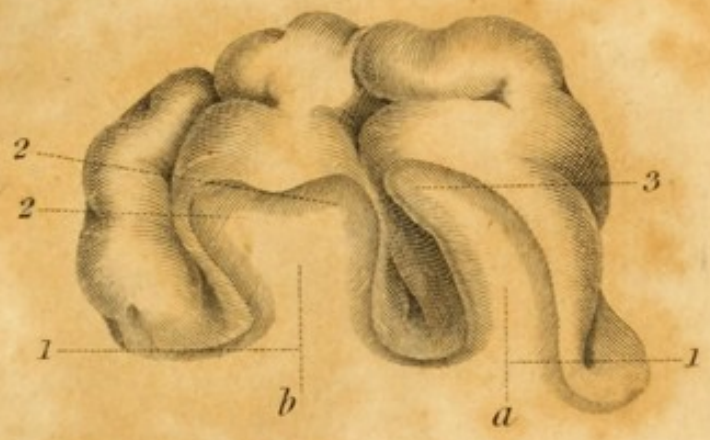


Fig. II.

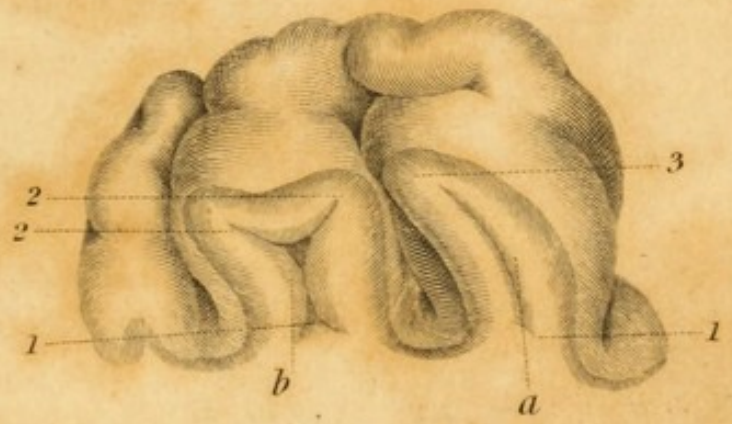
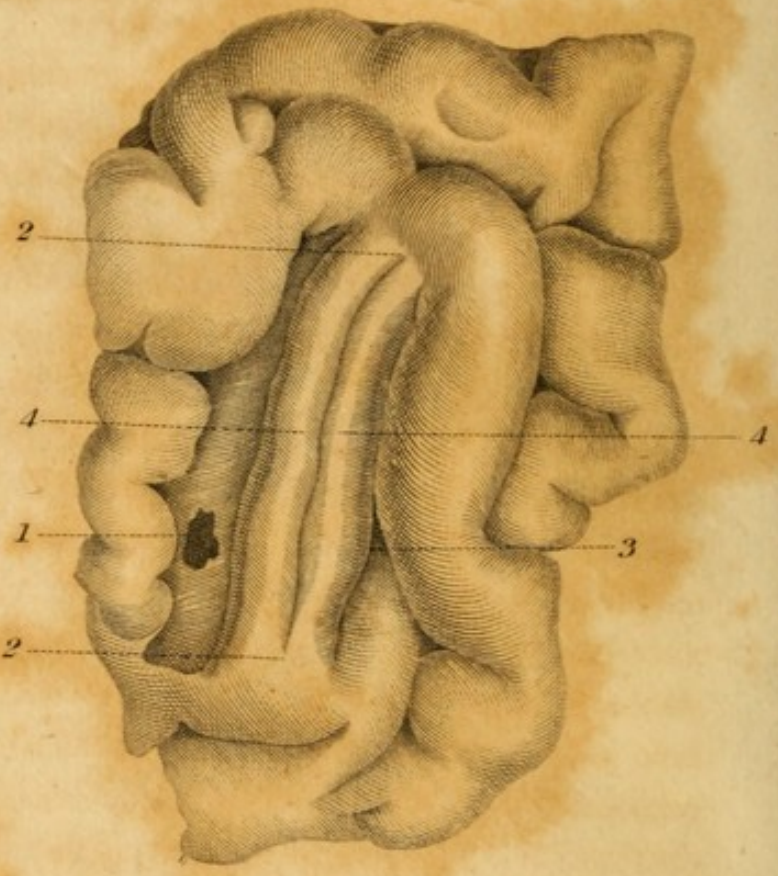


Fig. III.



Fig. IV.



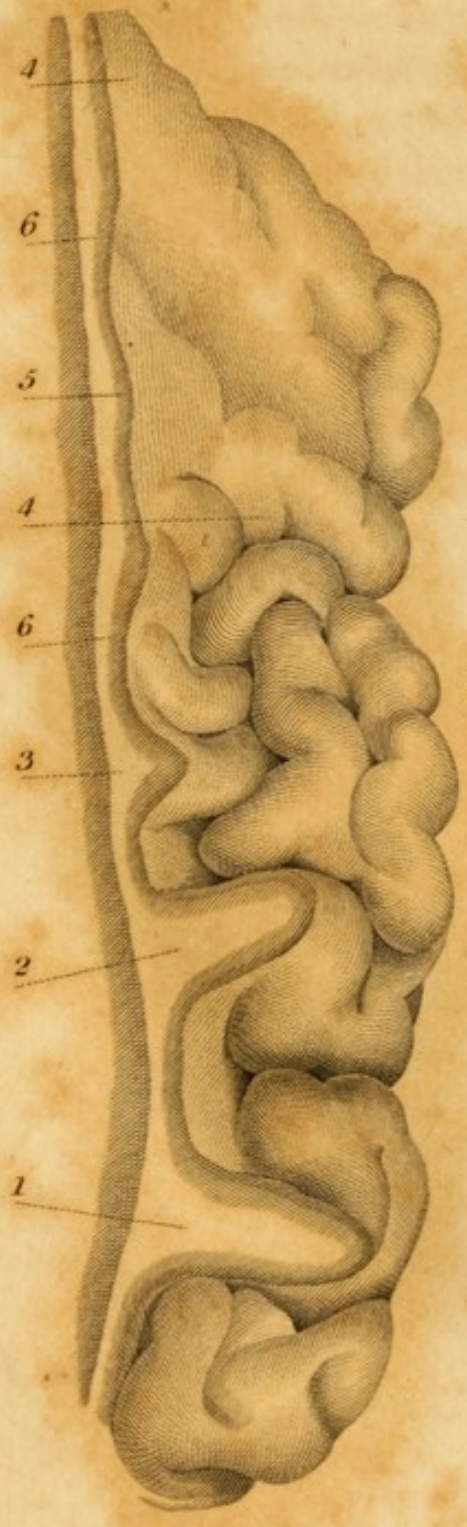


Fig. V.

ESSAY II.

ON THE FACULTIES OF THE HUMAN MIND, AND THE ORGANS BY MEANS OF WHICH THEY MANIFEST THEMSELVES.

SECT. I.

FUNCTIONS OF THE FIVE EXTERNAL SENSES.

HAVING endeavoured to remove some of the objections which have hitherto precluded inquiry into this system, we proceed to give a short account of the system itself. And, in the first place, let us take some notice of Dr. Spurzheim's observations on the functions of the senses.

The opinions entered by philosophers, in regard to the functions of the senses, have been whimsical, extravagant, and contradictory. Since the times of Bacon and Locke, the greater number of philosophical systems rest on the axiom of Aristotle, That all ideas come into the Mind, by means of the External Senses. According to this notion, he who has the external senses in the highest state of perfection is able to manifest most powerfully the faculties of the mind; or, in other words, the faculties,

both of man and animals, ought to be proportionate to the perfection of the five senses, and to the education bestowed upon them. And, accordingly, such opinions appear actually to be entertained, even in the present day, by an ingenious author, who has written the article Logic, in the Edinburgh Encyclopedia. It will be found, that he attributes natural differences, in point of genius, to difference in the perfection of the five external senses. Daily experience, however, contradicts the hypothesis.

Philosophers of another class maintain that the mind acts independently of all organization, and that the senses, instead of being instruments of action, are rather impediments to it. They complain much of the illusions of the five senses; and they despise all testimony, and all conclusions grounded upon sensation. Such notions are unworthy of being refuted.

A great many philosophers have also attributed to the external senses many acts which are performed by the internal faculties alone. For instance, Helvetius has said, that man owes his arts to the structure of his hands; and that, if the hoof of the horse had been joined to the human arm, man would have been still wandering wild in the woods. But many animals have instruments equally curious and perfect in their structure as those to which peculiar capacities of mind are attributed in man; and yet these instruments do not produce in them the correspondent functions. Monkeys have hands almost as nicely formed as those which are attached to the human arm; but do monkeys put wood upon the fire to support combustion? Or do they construct works of art? According to this opinion, moreover, insects, crawfish, lobsters, and still more the cuttle-fish, also, ought to have exact ideas of extension, of size, and of the theorems of geometry, in consequence of their numerous and perfect organs of touch.

In point of fact, however, the external instruments are

often similar, while the functions performed by them are quite different. The hare and rabbit have similar feet; yet the hare lies on the surface of the fields, while the rabbit burrows under ground. We have also examples of similar functions observed in animals which have instruments quite different. The proboscis is to the elephant what the hand is to man and to the monkey. The hands of monkeys, and the feet of parrots and squirrels are certainly different; yet, by means of these instruments, they all move their food to their mouths in eating. In order to dig up truffles, the hog ploughs the earth with his snout, and the dog scratches it with his feet.

Other philosophers, again, have taught, that the functions of the senses are not ordained by Nature, but acquired by Experience. For example, the metaphysicians have written much about the *rectification* of the sense of sight, by means of touch; and about what they call the *acquired perceptions* of sight.

According to Dr. Spurzheim, however, each sense performs its functions in consequence of its own innate constitution alone, and the relations of every sense to external impressions are determinate, and subjected to positive laws. If an odour make an impression upon the olfactory nerve, the impression is immediately found to be agreeable or disagreeable; and this feeling arises from the constitution of the sense, and the relation established betwixt it and the odorous particles which excite it to activity. The functions of every sense depend only on its peculiar organization: and hence no preceding exercise or habit is necessary in order to acquire the special power of any sense. If the organization be perfect, the functions are perfect also; and if the organization be diseased, the functions are deranged, notwithstanding all preceding exercise. If the optic apparatus be perfect in newly hatched birds, their sight is perfect. Such is the case with chickens, ducks, partridges, and quails. If,

on the contrary, at the first entrance into life, the organization of the eyes or the ears be imperfect, the power of the animal to see or hear is proportionally deficient. In adult persons, vision is deranged if the eyes be diseased. In old persons, the functions of the five senses lose their energy, because the vital power of the organs is diminished.

It is indeed ridiculous to suppose that nature should have produced any sense which could not perform its functions without being supported by another and a different sense :—that, for example, we should not be able to see without feeling ; or to hear without seeing. Hence the propositions appear self-evident,—that no sense acquires its functions by means of any other sense, and that any *one* sense cannot be the instrument of producing the sensations experienced by means of *all* the senses collectively. But we must observe, that different senses may enable us to perceive the same object ; and that one sense is more fitted than another to make us acquainted with different objects, and their qualities. For example, we may obtain a conception of the figure of a book, by means of the sense of touch, and also by means of the sense of sight.

Each sense, as already observed, is subject to its own positive laws. For example, we see, according to the laws of the refraction of light ; and hence a straight rod half plunged in water appears crooked, although touch proves that, in this situation, the rod continues straight.

This is a kind of rectification ; but it must not be confounded with the doctrine which maintains that one sense acquires its functions by means of the rectification of another sense. Touch may shew that a rod which is plunged in water, and looks crooked, is straight ; but the eyes will see it crooked, as before. The rectifications, thus effected by the senses, are mutual, and not the prerogative of one sense. In this view, the eyes may rec-

tify the sense of touch. If, without our knowledge, a piece of thin paper be placed betwixt one of our fingers and the thumb, we may not *feel*, but we may *see* it. Even smell and taste may rectify the senses of seeing and of touch. Thus, many fluids *look* like water ; and it would be impossible to discover them to be different substances by the sense of touch ; but it is easy to do so by smell and taste. Thus each sense has its peculiar and independent functions ; and each is subject to positive laws. But every sense also perceives impressions of which another is not susceptible ; and it is in consequence of this circumstance that the external senses rectify one another ; or rather produce, by their co-operation, an extent of accurate conceptions, which, in an unconnected state, they would have been incapable of producing.

It is a task of considerable difficulty to point out accurately the precise limits of the functions of the senses, because in every act of perception, their instrumentality is combined with that of the internal faculties of the mind ; and it is not easy to discriminate to what extent the act depends upon the one, and to what extent upon the other. For the elucidation of this point, I submit the following considerations to the attention of the reader.

The senses themselves do not *form ideas*. For example, when an impression is made upon the hand, it is not the organs of touch which form the conception of the object making the impression : but the nerves of feeling in the hand receive the impression, and a *faculty of the mind* perceives the object. Without the nerves of feeling, the internal faculty could not experience the perception ; because the medium of communication betwixt it and the object, would be wanting. But neither could the hand experience the perception without the instrumentality of the internal faculty, because the nerves of *feeling* do not perform the function of perception.

Hence, previously to every perception, there must be an antecedent impression on the organs of sense ; and the whole functions of these organs consist in receiving and transmitting this impression to the internal faculties. The nature of the impression depends on the constitution of the senses, and on the established relation betwixt them and external objects ; and as it is absolutely impossible for the human will to change either the constitution of the senses, or the relation betwixt them and the external world, it is clearly absurd to speak of acquired impressions.

But, as the senses are constituted with a determinate relation to external objects, so the internal faculties are constituted with a determinate relation to the organs of sense. In virtue of the first relation, a certain object makes a certain impression ; and, in virtue of the second, a certain impression gives rise to a certain perception ; and both depend on Nature, and not on the will, nor on exercise or habit. Before we could "acquire perceptions" of any kind artificially, we must be able either to constitute, by a series of voluntary acts, a relation betwixt the senses and the mind which nature had not constituted, or to alter a relation which she had appointed. Both appear to me impossible.

But we must distinguish betwixt the perceptions we experience of external objects, and the inferences concerning their qualities which we draw from these perceptions. All those ideas which are pure perceptions are formed intuitively, on the presentation of objects fitted to excite them. Inferences from these perceptions, on the other hand, are the result of our reasoning powers. Now, it appears to me that the visible and tangible appearances of bodies are simple perceptions, because, after the amplest experience of some of these appearances being deceitful, we cannot in the slightest degree alter our perceptions of them. For example, a rod half immersed

in water appears crooked, in defiance of every endeavour to see it straight. When we stand three or four yards distant from a mirror, and perceive our image in it, we cannot, by any efforts, succeed in perceiving the image as if formed on the surface of the mirror, although we know perfectly that it is so. It appears always at the same distance behind the surface as we are before it. If a picture is painted according to the rules of perspective and the laws of optics, so as to represent a vista in the country, or a long street in a city, we are altogether incapable, when in the proper position for viewing it, of perceiving the surface to be plain. The picture appears to us to represent objects at different distances, and the most determined resolution to see them all equally near, is of no avail, although we know that, in point of fact, they are so.

Now, if we learned at first to perceive distance only by experience, I cannot see a reason why we might not learn also by experience to see a picture as a plain surface, which it really is. If, previous to experience, all objects seen by the eye appear only as of different colours and shades, and all equally near, although really at different distances; and if we learn by experience only that this natural appearance is deceitful, and that, in point of fact, one object is near and another distant, I cannot perceive a reason, why we might not learn by experience also, to perceive pictures as plain surfaces, and images as formed on the surfaces of mirrors; and, in short, to get quit altogether of the illusions of optics. If it be easy to acquire, by habit, the power of perceiving objects as at different distances, which naturally appear to the eye as all equally near, it ought to be no difficult matter to learn by experience to perceive a surface to be plain which really is so, after we are certain of the fact; and yet, I have never heard of an instance of a person who had made such an acquisition. Colour, Form, Mag-

nitude and Distance, appear to me to be objects of intuitive perception ; and, accordingly, I contend, that no experience, and no repetition of acts of volition, can alter such apppearances, if the refraction of light, state of the eye, and the internal faculties, remain the same.

The following appears to me a correct mode of ascertaining the limits of the functions of the senses. Whatever perceptions, or impressions received from external objects, *can be recalled* by an act of volition, cannot depend 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.

On the other hand, whatever impressions we are unable to recal by an act of volition, must, for the same reason, depend on the senses alone.

These principles will be best elucidated by examples. For instance, when a bell has been rung in my presence, and the impressions have ceased, I cannot recal these impressions themselves by an effort of the will ; because their existence depended on the apparatus of the ear being in a certain state of excitation, which cannot be reproduced by an act of volition. Hence I conclude, that the function of giving these impressions belongs to the ear alone. But if I am endowed with the internal faculty of tune, and if a piece of music be played over in my presence, I find that, after the sound of the instrument has ceased, although I cannot recal that sound, I can with facility reproduce the internal impressions which the notes made upon my mind ; in short, I can enjoy the tune internally anew by an act of volition. Hence I conclude that the power of experiencing the perception of melody, and of enjoying the impressions which it makes, depends on the internal faculty of tune, while the sound alone depends upon the ear. Hence, also, the perfection of the power of perceiving melody in any individual, is not in pro-

portion to the perfection of the external ear alone, but in joint proportion to the perfection of that organ, and the internal faculty. Without the external ear, the internal faculty could not receive the impressions; but the external ear could never of itself produce the perceptions of melody. Accordingly, we see every day that many individuals enjoy the sense of hearing unimpaired, who have no perception of melody whatever. The same principles applied to the other senses will point out distinctly the precise limit of their functions. We may likewise take an example from the sense of touch. If I embrace a square body with my hands, certain impressions are made on my nerves of touch, called Sensations, in consequence of which my mind forms an idea of the figure of the body. Now, I can recal the conception of the figure by an act of volition; but I cannot, by such an act, recal the sensation which excited it. The conception, therefore, depends on an internal faculty; the sensation on the nerves of touch. The whole functions of the nerves of touch are to produce the sensation; but the power of conceiving is not in invariable proportion to the power of feeling, but in proportion to the perfection of the internal faculty, and the external senses jointly. The perception, however, depends as completely on nature as the sensation; and the power of perceiving the form of the body, is not acquired by experience.

Dr. Spurzheim observes on this head, that where the *same ideas* are acquired by the instrumentality of *two* or more senses, the ideas cannot possibly be formed by *the senses*, because nature, so far as man has discovered, never endows *different instruments* with the *same functions*, in the same individual. For example, we can acquire ideas of form by the instrumentality of the sense of sight, and likewise by means of touch. Now from this circumstance alone it is evident that the conception of figure is formed, not by the eyes, or by the nerves of feel-

ing, because this would be an instance of two separate senses performing the same functions; but by an internal faculty, which perceives figure, in consequence of impressions made on either of these two different senses. The impressions made upon the eye, are totally different from those made upon the nerves of touch, but the internal faculty is adapted by nature to both; and hence the same perceptions are experienced by means of the same faculty, although through the instrumentality of different media; but the same function is not performed by distinct senses.

These views of the functions of the senses are illustrated and confirmed by the phenomena which take place when the organs of sense are diseased. For example, when the ear becomes inflamed, it often happens that spontaneous sensations of sound are experienced; when too much blood flows into the eye, impressions like those of light, are felt; when the nerves of taste become diseased, disagreeable savours are experienced; when the nerves of touch are excited by internal causes, a tickling or disagreeable sensation is felt; when the muscular system is relaxed by nervous diseases, and flying spasms occur over the body, impressions occasionally arise from these spasmodic affections, so precisely resembling those of touch, that the individual is at a loss to distinguish them.

Every one is acquainted with the ridiculous theories which have been framed by philosophers, to account for the phenomena of perception. Aristotle taught, says Dr. Reid, "That, as our senses cannot receive external material objects themselves, they receive their species; that is, their images or forms without the matter, as wax receives the form of the seal, without any of the matter of it." (Essays on Intellectual Powers, p. 25.) The Platonists differed from Aristotle in maintaining, "That there exist *eternal and immutable ideas*, which were prior to the

objects of sense, and about which all science was employed." They agreed with him, however, as to the manner in which these ideas are perceived. Two thousand years after Plato, Mr. Locke represents our manner of perceiving external objects, by comparing the understanding "to a closet, wholly shut from light, with only some little opening left, to let in external visible resemblances or ideas of things without." The notion of all these philosophers was, that from the existence of these images or ideas, the mind inferred by a process of reasoning the existence of the external objects themselves.

I have already adverted to the results to which these doctrines were brought by Bishop Berkely and by Hume, and how the doctrines were overthrown by Dr. Reid, by a very simple process of demonstration. He pointed out merely the fact, that the mind is so formed, that certain impressions, produced by external objects, on our organs of sense, are followed by certain sensations; and that these sensations are followed by perception of the existence and qualities of the bodies by which the impressions are made; and that all the steps of this process are equally incomprehensible.

It will at once be perceived, that the doctrine which we have laid down regarding the functions of the senses corresponds precisely with the philosophy of Dr. Reid.

The organs of each sense are double; and yet the consciousness of all impressions experienced by the mind is single. No satisfactory explanation of this fact has yet been given.

The mind has no consciousness either of the existence of the organs of sense, or of the functions performed by them. When the table is struck, and I attend to the subject of my own consciousness, I perceive the impression of a sound; but by this attention I do not discover that the impression has been experienced by the instrumentality of any organ whatever. Hence the perceptions

of the mind are always directed to the objects which make the impressions, and not to the instruments by means of which the impressions are experienced. The instruments perform their functions under nature's care; and, as has been already observed, are not subject to the will. We should have been distracted, not benefited, by a consciousness of their internal action when they perform their functions. It is when they become diseased that we become conscious of their actions, and then the consciousness is painful. Every one must be sensible of this fact whose eyes or ears have been diseased.

After these general considerations, which apply to all the external senses, we shall now state in a few words the specific functions of each sense in particular.

FEELING OR TOUCH.

DR. SPURZHEIM considers the nerves of motion to be distinct from the nerves of feeling. The sense of feeling is continued, not only over the whole external surface of the body, but even over the intestinal canal. This sense gives rise to the sensations of pain and pleasure; of the variations of temperature; and of dryness and moisture. These sensations cannot be recalled by the will; and therefore we consider them as depending on the sense alone. The impressions made upon this sense, serve as the means of exciting in the mind perceptions of figure, of roughness and smoothness, and numerous other classes of ideas; but the power of experiencing these perceptions, is in proportion to the perfection of the internal faculties, and of the sense of touch jointly, and not in proportion to the perfection of this sense alone.

TASTE.

The functions of this sense are, to produce sensations of taste alone; and these cannot be recalled by the will. We may judge of the qualities of external bodies by means of the impressions made on this sense; but to form ideas of such qualities is the province of the internal faculties.

SMELL.

By means of smell, the external world acts upon man and animals from a distance. Odorous particles are conveyed from bodies, and inform sentient beings of the existence of the bodies to which they belong. The functions of smell are confined to the producing of agreeable or disagreeable sensations, when the sense is affected by the impressions of external bodies. These cannot be reproduced by an effort of the will. Various ideas are formed of the qualities of external bodies, by the impressions which they make upon this sense; but these ideas are formed by the internal faculties of the mind.

HEARING.

In new born children this sense is not yet active; but it improves by degrees, and in proportion as the vigour of the organ increases. It is a very common opinion, that music, and the faculty of speech, are the result of the sense of hearing. But neither the one nor the other is produced by that sense.

As we have already mentioned, the auditory apparatus being excited to activity by an external cause, produces only the impression of sound : and here its functions terminate. If, besides, the faculty of tune is possessed by any individual, melody in sounds is perceived by that faculty. If the faculty is not possessed, such perceptions cannot exist. Hence, among birds, the female hears as well as the male ; and yet the song of the male is very much superior to that of the female. Among mankind, also, many individuals hear, and yet are insensible to melody. Thus, both in man and other animals, there is no proportion betwixt the perfection of hearing and the perfection of the power of perceiving melody. If it were part of the functions of the auditory apparatus to give the perception of melody, how does it happen that, in one individual, the apparatus can perform only one-half of its functions, while in others it performs the whole ? This is not like Nature's work. Finally, hearing cannot produce music ; because the auditory apparatus is excited only by sounds which are already produced. The first musician began to produce music before he had heard it ; and he did so from an internal impulse given by a faculty of the mind. Singing birds, moreover, which have been hatched by strange females, sing naturally, and without any instruction, the song of their species, as soon as their internal organization is active. Hence the males of every species preserve their natural song, though they have been brought up in the society of individuals of a different kind. Hence also musicians, who have lost their hearing, continue to compose. They possess the internal faculty ; and it, being independent of the auditory apparatus, conceives the impressions which different sounds naturally produce, long after the ear has ceased to be capable of allowing these sounds to be experienced anew. Hence, likewise, deaf and dumb persons have an innate sentiment of measure and cadence.

Though, however, hearing does not produce music, yet, without an auditory apparatus, fitted to receive the impressions made by tones, melody could not be perceived; and, unless that apparatus had once been possessed, neither could melody be produced, because the individual could not judge of the impressions which the sounds he made were fitted to make upon those who hear.

It is a very common opinion also, that hearing alone, or hearing and voice jointly, produce the faculty of speech. This error will be refuted by considering in what any language consists, and how every language is produced. Language has been divided into two kinds, natural and artificial. In both kinds, a certain sign is used to indicate to others certain feelings or ideas of the mind. Various motions of the body, and expressions of the countenance, indicate, the moment they are beheld, certain emotions and sentiments. In this case, the expression of the countenance, or the motion of the body, is a sign fitted by Nature to excite in us the perception of the feeling. It is obvious, that the power of the sign, in this case, to excite the perception does not depend either upon hearing or voice; for neither is employed in producing it: but that the effect is an ultimate fact of our constitution, which must be referred to the will of our Creator. Besides these signs, however, we make use of many others to communicate our thoughts, which have no original connection with the things signified. For example, the word TABLE has no necessary connection with the thing upon which I now write. How, then, does the word come to indicate the thing? The internal faculties first conceive the object: having done so, they wish to fix upon a sign by which that conception shall be always indicated again. They, therefore, *employ the voice* o make the sound which we express when we utter the word Table. The thing itself being pointed out, and the sound being uttered at the same time, the meaning of

the sound comes to be understood ; and hence every time this sound is pronounced, the idea of the thing is suggested. But we are not to suppose that the auditory apparatus conceived the idea of the table, or that the organs of voice conceived it. This was done by the internal faculties alone ; and these merely made use of the organs of voice as instruments for producing a sign. Hence, the reason why monkeys do not speak is, not because they want the sense of hearing, and organs of voice, but because they have not reflecting faculties which can fix upon signs to indicate the conceptions which they form.

The proper function, then, of the sense of hearing, is confined to the production of the impressions which we call sounds ; yet it assists a great number of internal faculties.

The auditory nerve has a more intimate connection with the organs of the moral sentiments, than with those of the intellectual faculties.

SIGHT.

This fifth and last of the senses, is the second of those which inform man and animals of remote objects, by means of an intermedium ; and the intermedium, in this instance, is Light.

This sense has been said to acquire its functions by touch or by habit. Dr. Reid and many other philosophers have written ingenious disquisitions, to shew that our perceptions of distance, figure, and motion, are acquired. These speculations have proceeded on the principle, that Nature has done little for man, and that he does a great deal for himself, in endowing himself with perceptive powers. But vision depends on the organization of the eye ; and is weak or energetic, as the or-

ganization is imperfect or perfect. Some animals come into the world with perfect eyes; and these animals see perfectly from the first. The butterfly and honey-bee fly at the first attempt, through fields and flowery meadows; and the young partridge and chicken, run through stubble and corn-fields. The sparrow, on taking its first flight from the nest, does not strike its head against a wall, or mistake the root of a tree for its branches; and yet, previously to its first attempt at flight, it can have no *experience* of distance.

On the other hand, animals which come into the world with eyes in an imperfect state, distinguish size, shape, and distance, only by degrees. This last is the case with new-born children. During the first six weeks after birth, their eyes are almost insensible to light; and it is only by degrees that they become fit to perform their natural functions. When the organs are so far matured, however, the children see, without habit or education, as well and as accurately as the greatest philosopher.

Indeed, as has been formerly mentioned, the kind of perception which we enjoy by means of the eyes, is dependent solely on the constitution of the eyes, and the relation established betwixt them and the refraction of light. So little power has experience to alter the nature of our perceptions, that even in some cases where we discover, by other senses, that the visible appearance of objects is illusive, we still continue to see that appearance the same as before. For example, the greatest philosopher standing at one end of a long alley of trees, cannot see the opposite rows equally distant from one another at the farthest end, as they are at the end nearest to him, even after experience has satisfied him that the fact really is so. He must see, according to the laws of perspective, which make the receding rows appear to approach; and there is no difference, in this respect, betwixt his perceptions, and those of the most

untutored infant. In like manner, the greatest philosopher, on looking into a concave spoon, cannot see his right hand upon the right side, and his left hand upon the left side, even after he has learned, by the study of the laws of optics, that the image of himself, which he sees in the spoon, is reversed.

It is very true, that nature does not give us intuitive perceptions of the number of feet or inches at which any object is distant from us; because feet and inches are artificial measures, with which nature has nothing to do. But when two objects of the same size, are presented to the eye, the one double in point of distance to the other, the mind has always an intuitive perception that they are not equally near.

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.

In conformity with this limitation of the functions of the eye, it will be found that we can recal conceptions of the colour, figure, distance, and other qualities of bodies, which we perceive by means of vision, while we cannot recal the impressions experienced from the presence of light. And, when the eye is inflamed, we experience perceptions of the impression of light alone, and do not form ideas of figure, motion, or distance.

The senses may be exercised, and their powers greatly improved by exercise. The taste of the gourmand is more acute than that of the peasant; and the touch of the artisan, than that of the ploughman.

Such nearly is the account of the functions of the senses, which the Edinburgh Reviewer has been pleased to stigmatize "as incredibly nonsensical, and disgraceful to any one who has studied even the common elementary works on the animal economy." It appears to me in a different light. The public will judge whether the Reviewer has shewn most presumption or philosophy in his criticism.

SECT. II.

OF THE INTERNAL FACULTIES OF THE MIND, AND OF THE ORGANS BY MEANS OF WHICH THEY MANIFEST THEMSELVES.

We have already mentioned the principles upon which this system is founded. It is founded on observations of facts. When, therefore, it is asked, Why we admit a particular organ of this, and not of another function? the answer is, Experience proves the existence of those we admit. In speaking of actions alone, it is certainly difficult to conceive the necessity either for particular faculties or for particular organs. The metaphysicians have endeavoured, by analyzing ideas, to generalize faculties. But unfortunately nature does not accompany them in doing so. It might have appeared to them more beautiful and more scientific if nature had endowed us with a single faculty for perceiving all qualities of external objects, instead of endowing us with five senses, as at present, each limited in its functions, and each different in its powers. But it has not pleased nature to do so; and what can man do, but study nature as he finds her? In like manner, it would perhaps have pleased the metaphysicians better, if all acts of thought could have been referred to one or two original powers; but nature, unfortunately, appears to have constituted us otherwise; and we seek to know man as he is made. We noticed before that, if we were to generalize the faculties, of ORDER, FORM, COLOURING, LOCALITY, and TUNE, and to say that all the kinds of acts falling under these separate faculties belong to a single power of the mind, it might look more simple and more philosophical. But what would become of us, when, on going into society,

we found one man who had a great natural power of perceiving and conceiving FORM, who was deficient in the natural power of perceiving and conceiving COLOUR? and so on with the rest of the faculties now mentioned: In short, when we found one individual excelling in the power of performing some of the functions of this generalised faculty, and utterly destitute of the natural power of performing others? We should be refuted on our own principles. We must admit as many faculties, therefore, as we find differences in the natural capacities of men to experience different kinds of feelings, and to form different classes of ideas.

Dr. Spurzheim considers man by himself, and also compares him with other animals. When he finds the animals manifesting the same feelings and propensities as those manifested by man, he conceives the faculties which produce these feelings and propensities to be common to both. In order to determine what faculties are primitive, he proceeds according to the following rules. He admits such a faculty as primitive, only as he finds, as follows:

1. To exist in one kind of animals, and not in another:
2. Which varies in the two sexes of the same species:
3. Which is not proportionate to the other faculties of the same individual:
4. Which does not manifest itself simultaneously with the other faculties; that is, which appears or disappears earlier or later in life than other faculties:
5. Which may act or rest singly:
6. Which is propagated in a distinct manner from parets to children: And,
7. Which may singly preserve its proper state of health or disease.

After ascertaining, according to these rules, a faculty to be innate or primitive, the next point was to ascertain its functions. He accomplished this end by the follow-

ing mode of proceeding: When he had ascertained a faculty to be innate, he observed the actions of a number of individuals in all of whom it was manifested powerfully. Whatever acts all of these individuals could do with superior facility and excellence, indicated the sphere of the functions of the special faculty which each of them possessed in an eminent degree. For example: He observed the actions of a number of persons who manifested a strong faculty for music, and found a peculiarly eminent power of perceiving melody common to them all, while in all their other powers, propensities, and sentiments, they differed extremely. One, for example, was capable of reasoning well, another not. One was prone to sensual love, another was not. One was vividly alive to the sentiments of benevolence, another was not. All which facts, he conceived, indicated that the faculty of music was separate and distinct from the faculties of reasoning, of sensual love, of benevolence; and that the perceiving of melody was the special function of that faculty, since all the individuals possessing it, resembled each other in being eminent musicians, although their characters corresponded in nothing else. In this way he ascertained the functions of every faculty, or the special desires and powers of feeling, perceiving, or acting, which it conferred; so that, on knowing what faculties any individual possesses most powerfully, we are able to tell to what kinds of feelings, perceptions, and actions, he is naturally most disposed.

And besides, he investigated, in regard to each faculty, what effect the size and activity, health and disease of the organs, produced upon the power of manifesting it.

On these principles, Gall and Spurzheim had discriminated thirty-three primitive or innate faculties of the mind, and have pointed out the functions of each, and the effect which the state of the organs has upon the power of manifesting it. In the case of many of the fa-

culties, their observations have been so numerous that they hold their conclusions as *certain:* In regard to others, where the observations have been fewer, they state their conclusions as probable; and, in every case where reasonable evidence is wanting, they state them as *conjectural.*—Conjectural, however, must be distinguished from *imaginary.* They have stated a faculty as probable and conjectural, only in consequence of having found *actions* which could not be referred to any of the other ascertained faculties as their fountain; and which, of course, must have proceeded from some undetermined faculty, the special functions of which were not ascertained, for want of a sufficient number of observations.

Dr. Spurzheim divides the faculties into two orders: FEELINGS and INTELLECT. The feelings are subdivided into two genera; PROPENSITIES and SENTIMENTS. The second order, consisting of Intellectual Faculties, is subdivided also into two genera, KNOWING Faculties and REFLECTING Faculties.

The chief points which are to be kept in view in studying the Faculties of the Mind, are, *First*, That each faculty is a specific power of feeling in a certain way, or of forming ideas of a certain kind, and that each is distinct from the feelings which it produces, and the ideas which it forms. *Secondly*, That each faculty has received its constitution from Nature, and that its functions depend on that constitution alone, and not on the human will. *Thirdly*, That the same functions cannot be performed by different faculties. For example, the faculty of tune is a specific power to perceive melody, and it is distinct from the impressions of melody which it perceives. This faculty perceives melody in virtue of its constitution, and not in consequence of the will: And it does not trace the relation of cause and effect, feel benevolence, or perform any other functions beside that of perceiving melody. *Fourthly*, The faculties stand in a

determinate relation in regard to the objects of external nature; which relation cannot be changed by the will. For example, the faculty of Amativeness cannot be excited by the perception of an object in distress; nor are feelings of compassion readily excited by the perception of an object indelicate and obscene. *Fifthly*, Each faculty may be excited to activity, by presentation of the objects naturally related to it; and it may become active also from internal excitement. In every case, the functions performed are conformable to the constitution of the faculty, by whatever cause it is excited. And, *Sixthly*, The intensity of the power of feeling in any way, or of forming ideas of any kind, is always in proportion to the energy and activity of the special faculty, whose function it is to produce such feelings, or to form such kinds of ideas.

The situations of the organs are represented on the plate annexed, and upon casts of the human head, which are now sold by statuaries. The organs are double, and are situated in the opposite corresponding parts of the brain. No "argument" can be offered to prove why one organ should be situated in one place, and another in another: Or why there should be several faculties, and also several organs: We can only say, that such is the case. Those who take the trouble to compare the manifestations of the mind with the developement of the head, will find evidence of the facts for themselves; and those who do not choose to do so must either believe upon the testimony of others, or remain for ever unconvinced. No person is requested to believe upon testimony; but all are invited to make observations; and the only favour which the followers of the system request is, that those who have not made observations, will not condemn what they do not understand. Dr. Spurzheim has observed, that "SELF-CONVICTION MUST BE FOUNDED ON SELF-OBSERVATION;" and, as I am convinced of the justice of this remark by

experience, I do not intend to offer a single case or a single argument, for the purpose of inducing any reader to believe. I shall point out what is to be observed, and the mode of observation, and leave every one to satisfy his own mind by his own experience. I shall, indeed, for the sake of the popular reader, add, in a separate section, a few cases or examples illustrative of the doctrines; but these cases neither form all the evidence on which my own conviction is founded, nor are they given as evidence sufficient to produce belief in the reader. They are intended merely as illustrations.

The *names* given by Dr. Spurzheim to the faculties, have been much ridiculed. No doubt smoother appellations might have been wished for; but a person who turns away from a study, only because he finds an appellation new or uncouth, cares little about things. His motto ought to be, *Verba non res quæso.* If a name indicate the thing signified, and if the thing signified be important in itself, the name is of subordinate importance. Now, Dr. Spurzheim's names indicate most forcibly the things signified; and they have assumed their present lengthened, and sometimes cumbrous appearance, from no circumstance but his desire to give a name, expressing in itself, as far as language would admit, the thing which he meant to communicate. Instead, therefore, of altering his terms, it will be better to adopt them, and accompany them with his explanation.

"The English language," says Dr. Spurzheim, "presents very few single words which express my conceptions of the peculiar faculties of the mind. Hence I was, in some cases, compelled either to speak by circumlocutions, or to make names entirely new. Now, I do think with Mr. Locke, that, in this respect, we have the same right as our predecessors; and I therefore propose new single names, which I have formed, as much as possible, in agreement with the spirit of the language. Having

established different propensities as peculiar faculties of the mind, in order to designate propensity, I have employed the termination *ive*, as indicating *the quality of producing*, and *ness*, as indicating *the abstract state*. I have, therefore, joined IVENESS to different roots or fundamental words; and, in choosing these roots, I have always given the preference to English words generally admitted. When I could not find any such, I choose Latin participles, which, in English, are so commonly used, even in expressions of meaning, similar to those which I look for,—as destructiveness, productiveness, &c."

"The termination *ous*, indicates a sentiment, as anxious, cautious, pious, conscientious, &c.; and I should have been very glad to find similar adjectives for every primitive sentiment of the mind. When that has been the case, I have only added *ness*, in order to express the abstract state, as consciousness, conscientiousness, &c."

"The names of the INTELLECTUAL FACULTIES are easily understood, and do not require any particular explanation."

"If, under any head of this nomenclature, there be any better name, or one which may indicate more exactly any determinate faculty, but no determinate action or effect of that faculty, I shall be anxious to make use of it: for I am always disposed to acknowledge truth, and every real improvement."—(Spurz. Pref. to Octavo Work.)

We proceed now to the consideration of the faculties themselves; and we follow the order of arrangement adopted by Dr. Spurzheim.

ORDER 1.—Feelings.

Genus 1.—Propensities.

The faculties falling under this genus do not form ideas; their sole function is to produce a propensity of a specific kind. These faculties are common to man with animals.

1*st*, AMATIVENESS.

The function of this faculty is to produce the feeling of sensual desire. The cerrebellum is the organ of it. The intensity of the desire is in proportion to the energy and activity of the faculty. The power of manifesting this faculty is not in general possessed before puberty; and, it is a fact, that the developement of the cerebellum is not complete till that period of life.

There is no uniform proportion between the brain and the cerebellum; many individuals having large brains and small cerebella, and *vice versa*. The vigour of the propensity is never in proportion to the size of the brain; but, *cæteris paribus*, always to that of the cerebellum. Men and male animals in general, have a larger cerebellum than women and female animals. It is not, however, a universal law, that the cerebella of males are uniformly larger than those of females. There are exceptions; and of these, there are more among mankind than among animals.

This particular organ is situated at the top of the neck behind: discover the mastoid process behind the ear,

and the protuberance of the occipital spine above the middle of the neck; the space between these two elevations, indicates the extent of this organ in man. This faculty, and the organ of it, are ascertained.

2*d*, PHILOPROGENITIVENESS.—(*Love of Progeny.*)

The function of this faculty is, to produce the instinctive feeling of attachment to offspring. It is too much the custom of superficial thinkers to conclude that all the feelings of human nature arise from reason. The philosopher, however, knows well that no feeling arises from reason. Reason only investigates causes and effects, and decides after comparison. The mother, while she beholds her tender offspring with ineffable delight, expe-riences the glow of nature in her bosom. She does not produce the feeling by reasoning with herself, that it is her duty to experience it. The excitement is instantaneous. The object requires only to be presented to her eye or her imagination, and the whole impetus of parental love is felt.

The intensity of the feeling is in proportion to the energy and activity of the faculty, and the interest felt in children is in proportion to the intensity of the feeling.

The faculty is, in general, stronger in women than in men. There are, however, exceptions. Even among women, certain individuals consider children as a heavy burden; while certain males regard them with the most exquisite delight. This is not the case only among wretched persons, but indiscriminately among rich and poor, and among persons of good and of indifferent breeding. When too energetic, the faculty prompts the individual to do harm to children, by spoiling them; when it is weak, they are regarded with indifference.

The weakness of this faculty does not excite a mother

to destroy her child; but a mother destitute of this propensity, is less able to resist those external circumstances of temptation which provoke her to commit this crime. Such a mother will not resist so strongly as she would have done, if her mind had been influenced in a greater degree by the powerful energy of philoprogenitiveness. Dr. Spurzheim mentions, that he and Dr. Gall had examined the shape of the head in twenty-nine women who were infanticides; and that twenty-five of them had the organ of philoprogenitiveness very small.

Negroes manifest this propensity in an eminent degree; and this organ is, in them, greatly developed.

The cerebral part which is situated immediately above that of amativeness, and which corresponds with the general protuberance of the occiput, is the organ of philoprogentiveness. Its development coincides with the energy of the propensity. By means of this and the preceding organ, it is easy to distinguish the skulls of males and females of the same species; and, consequently, also those of men and women. Throughout all animals, a striking similarity is preserved in the skulls of both sexes; but the skulls of men and other males are generally shorter and wider, while those of women and other females are longer and narrower. This faculty and the organ of it are considered as ascertained.

3d, INHABITIVENESS.

In examining the habits and modes of living of various animals it is obvious, that different species are attached to different regions and countries. Nature, which intended that all regions and countries should be inhabited, assigned to all animals their dwelling, and gave to every species its distinct propensity to some particular region. If we place any animal in another region, it

leaves it, and returns to its natural dwelling. For example, some animals seek the water from the first moment of their existence, while others stay upon dry land. Some animals are partial to high regions, some to low countries and plains, and others to marshes.

It appears to Dr. Spurzheim, that there is a particular instinct in each class of animals, which determines the place of its dwelling; and that that instinct, like all others, must manifest itself by means of a special organ.

It appears to him probable, that a faculty, whose functions are similar, exists also in man. His plate indicates the supposed situation of the organ; but the positive evidence of the existence of the faculty being insufficient, it is stated only as *conjectural.*

4th, ADHESIVENESS.

Dr. Spurzheim remarks the fact, that there are certain animals which live always in a state of society; such as elephants, sheep, goats, crows, pigeons, while others are always found living in a state of separation; such as tigers, foxes, hares, wolves, and many others. It is clear that the cause of these dissimilar habits among animals is not chance, and that the habits cannot be the result of reflection. In them, therefore, we readily admit a natural and internal instinct peculiar to each kind, which gives it the propensity to live in a specific way.

Among mankind, there are strong indications of a faculty conferring a propensity of a similar kind. Dr. Spurzheim has observed something like an involuntary manifestation of the sentiment of attachment in mankind. The function of the faculty seems to be to give attachment in general. And the permanence and strength of attachment in certain individuals whom he and Dr. Gall have seen, have been found not to be in proportion to the endowment of any other faculty or faculties of the mind,

but to constitute a peculiar feature of the character. They, therefore, are disposed to regard the feeling as primitive. The number of observations, however, is not sufficiently copious to enable them to speak positively as to the faculty and the situation of the organ; yet they have been sufficiently numerous to render both more than probable. When too strong, excessive regret at the loss of a friend, or excessive uneasiness at leaving our country, or the disease called Nostalgia, is the result. When too feeble, men become anchorites and hermits. The situation of the organ is pointed out on the plate.

5th, COMBATIVENESS.

This faculty has afforded much scope for ridicule, to persons who are little acquainted with human nature; but, for my own part, I am satisfied, by numerous observations, of its existence, and of the correctness of the indication of the organ. The function of the faculty is to give the propensity to fight in general.

In consequence of this faculty pleasure may be felt in fighting. Hence, we see men who are amateurs of combats, and who are with difficulty restrained by a sense of their own dignity, and of the respect they owe to the sentiments of their own class in society, from entering the lists as combatants themselves. Allow me to request every peaceable citizen who may read this speculation, to examine his own feelings, and say, if any prospect of emolument would induce him to follow the calling of a prize-fighter on a public stage. Let me ask him, whether his own feelings do not restrain him from such practices as effectually, as if there were a law inflicting death upon him for engaged in them. If, on the other hand, there are other men who enter into such exhibitions, not only

without reluctance, but with avidity and delight, is it not clear that there is some modification of feeling in their minds which is not in his? The difference is, that in him this propensity is feeble, while in them it is strong.

Individuals in whom this propensity is naturally strong, but who, when sober, restrain it by the higher faculties, often become unable to do so, when the activity of the organ is excited by strong liquors; and hence, such individuals then become pugnacious in the extreme. This illustration will be ridiculed by those who are unable to perceive the relation of cause and effect. But to philosophic minds, I need scarcely observe, that intoxication, although it may EXCITE *pre-existing propensities*, can never *create* faculties of the mind, nor endow with desires; and that the mere *suppression* of one power, for example, the power of reasoning, can never *inspire* with other powers, of a tendency totally distinct. The evidence of the existence of the faculty, however, is to be found in observation: [illegible] on the evidence obtained by observation alone, it is admitted.

The situation of the organs is indicated on the plate. Their existence and situation are ascertained. Courageous animals in general, have the head between and behind the ears very large. This is also an unfailing sign to distinguish or recognise, if a horse be shy and timid, or bold and sure; and it has been long familiar to horse-dealers as such.

6*th*, DESTRUCTIVENESS.

The function of this faculty, is to produce the desire to destroy in general. A difference in the skulls of carnivorous and herbivorous animals, gave the first idea of the existence of an organ. If we place a skull of any carnivorous animal horizontally, and trace a vertical line

through the external meatus auditorius, a great portion of the cerebral mass is situated behind that line ; and the more completely an animal is carnivorous, the more considerable is the mass situated there.

In man, this propensity produces different degrees of feeling, according to its activity, from a mere indifference to the pain suffered by animals, to a positive pleasure in killing them, or seeing them killed. When the energy of the faculty is moderate, indifference at suffering and destruction is the result. When too weak and inactive, positive pain and poignant distress are felt at the sight of death, and destruction of every kind. We are surrounded every day by death in all its forms, and by destruction in every shape ; and nature, by means of this faculty, steels our minds so far as is requisite to fit us for our situation, and to render scenes which our situation constrains us to witness not insupportable. A certain degree of obduracy of feeling, regardlessness of suffering, and indifference to the calamities of our race, is absolutely necessary, to render existence tolerable in this world of trouble. We often see individuals miserable from too feeble an energy of this faculty. Every object in a state of suffering, harrows up their feelings and lacerates their hearts, and produces a degree of continued suffering, scarcely conceivable by those of more flinty natures.

A great difference is perceptible in children, in regard to their sensibility to the pain suffered by other creatures. Some feel a pleasure in torturing animals, and in seeing them tortured or killed : others sicken at the sight of misery, and loath, with a deep abhorrence, the ferocious sports of such companions. The same difference is perceptible in men.

The view of public executions is insupportable to some individuals, and delightful to others. In the field of battle, there is a great difference in the actions, according

to the energy of this propensity. One soldier is overjoyed at the sight of the blood which he sheds, while another, moved by gentler feelings, gives uncertain blows, or delights to spare the vanquished, and stops the massacre of his own accord, when victory is secured. There are highway-men, who, not content with robbing, manifest the most sanguinary inclination to torment and kill without necessity. Others never injure the persons of the plundered.

When this faculty is excited to excess from diseased sensibility in the organ, the propensity to destroy becomes irresistible. Patients are sometimes insane in this propensity alone, and feel a frightful and involuntary impulse to kill, at which they themselves shudder, but which they are unable to restrain.

When this faculty is strong in an individual, and the faculty of benevolence, which gives feelings of compassion, is also strong, the former will be generally gratified with destruction of inanimate objects. I have observed this to be the case in children. This faculty and the preceding, give the tendency to rage. I have observed their peculiar organs, fully developed in some individuals prone to outrageous bursts of violence and passion. When properly directed, this faculty produces actions necessary and proper in themselves. When not properly directed, abuses are the result.

I have observed this faculty manifest itself in fearful acts of wanton destruction, when the organ was stimulated, and the reasoning powers suspended by intoxication. I have some reason to suspect also, although my observations are not so numerous as to authorise me to draw a positive conclusion, that the enthusiasm of the accomplished sportsman, is inspired by this faculty in no small degree. Other feelings also, no doubt, are gratified by the sports of the field; but the individual who is inspired by a fell and intense enthusiasm to kill the game

which he pursues, and who enters with his whole soul into the chase, appears to derive no inconsiderable portion of his pleasure from the gratification of destructiveness. And of this I am certain, that an individual, in whom this faculty is feeble, will never relish the sports of the field ; for the writhing agonies of the victims will penetrate his soul with an emotion of compassion which will destroy at once the pleasure of having succeeded in his aim.

7th, CONSTRUCTIVENESS.

The function of this faculty is, to produce the desire or impulse to construct in general. It does not form ideas of the objects to be constructed. The skulls of animals which build, and those of others which do not build, present a remarkable difference at the place where the organ of this faculty is situated. In man, the energy of the propensity to construct, is found not to be in proportion to the endowment of the faculties which reason, or of any other faculties of the mind, but to be only in proportion to the intensity of a peculiar and specific impulse to construct. Those on whom the propensity is strong have the head about the temples much developed, as marked in the plate. Those who have no such desire have, in that situation, a small development of brain. When two energetic, the faculty produces abuses, or too strong a propensity to construct without adequate views of utility. Dr. Spurzheim conceives this faculty and the organ of it to be ascertained.

8*th*, ACQUISITIVENESS.*

The metaphysicians have never admitted a faculty in the mind, the function of which is to produce the propensity to acquire, and which is gratified by the mere act of acquisition, without any ulterior object. Dr. Hutcheson says, "Thus as soon as we come to apprehend the use of wealth or power to gratify any of our original desires, we must also desire them; and hence arises the universality of these desires of wealth and power, *since they are the means of gratifying all other desires.*" In like manner, we are told by Mr. Stewart, that "Whatever conduces to the gratification of any natural appetite, or of any natural desire, *is itself desired, on account of the end to which it is subservient;* and by being thus habitually *associated* in our apprehension with agreeable objects, it frequently comes in process of time, to be regarded as valuable in itself, independently of its utility. It is thus that wealth becomes with many, an ultimate object of pursuit; though, at first, it is undoubtedly valued, merely on account of its subserviency to the attainment of other objects." (Elements, page 388.)

Now, Gall and Spurzheim would never think of setting up arguments to refute the opinion of so great authorities; but they have gone into society and observed facts, and these facts are as follows: First, Those who manifest the most intense desire for acquiring property, are not, in general, those who appear ever to have felt other natural desires in a very powerful degree. On the contrary, the thorough miser is a being who, from the cradle to the grave, scarcely manifests any natural desire for wife or child, fame or power, but who appears to have

* It has been thought proper to substitute this name of the faculty for that of Covetiveness, used by the author. Ed.

had all his propensities absorbed in the single and unextinguishable thirst of acquisition. In the second place The votaries of sensual pleasure, fame or power, rarely exhibit a regard for property, bearing any proportion to their desires for these other objects of pursuit. In the third place, It is not conformable to nature to say, that any sane individual mistakes the means for the end ; and from a mere error in judgment, experiences the same intense desire for the means, with which nature has inspired mankind in general for the end. For example, we never find the vain individual attach himself to the decorations and trappings which excite the vulgar gaze, after he has ceased to value popular applause ; we never find the glutton and the drunkard setting their hearts upon the delicacies of cookery and the excellent products of the vineyard, after their appetites are palled with satiety, and their constitutions broken down with excess. And, in the fourth place, Gall and Spurzheim found, that the intensity of the desire to acquire, is always in proportion to the development and activity of a certain portion of the brain, and not in proportion to the development of the organs of any of the other faculties of the mind. On this last account, therefore, they state the faculty as an original principle of our nature.

The existence of the faculty and its functions are facts. When they are ascertained to be so, we may offer an opinion upon the utility of them ; and although that opinion should be erroneous, the facts will be neither the more nor the less real. It appears to me, therefore, that the intention of nature in giving this faculty, is to inspire us with the desire of acquiring ; so that, in consequence of its activity, we may possess when the day of want comes ; and not be left to the uncertain provision which would be made from the mere dictates of reason, after tracing a long chain of consequences. There are long periods in the life of every individual ; namely, those of

childhood, sickness, and old age, when labour is impossible. Unless, therefore, nature had implanted in us a desire to acquire more than is necessary for the wants of the moment, perhaps we would not lay up stores for the day of adversity, from the mere perception that that day might come, with so much earnestness and zeal as we do, when the act of acquiring is made pleasing in itself. This speculation, however, as already said, may be correct or erroneous ; but the fact, that the faculty exists, and that the function of it is to produce the propensity to acquire in general, is proved by observations ; and therefore, is independent of speculation.

This faculty, when too energetic, and not controlled by superior powers, produces theft. The organs are ascertained.

9*th*, SECRETIVENESS.

There are some individuals who are never able to see the affairs of life, or the conduct of others, in a plain and simple point of view, who rarely manifest their real opinions, but who are fond of throwing a dense covering of secrecy over all their sentiments and actions, even the most trifling and unimportant ; and conceive, that the eye of the world is always looking into their breasts, to read the purposes and designs which are there hatched ; but which discovery they are solicitous to prevent. In such persons there is a particular part of the brain largely developed ; and the degree of the propensity is in proportion to the development and to the activity of the organs.

The function of this faculty appears to be, to conceal in general without determining the object and the manner of concealing. Cunning persons conceal their opinions and intentions, and sometimes maintain in conversation,

in writing, or in public, an opinion opposite to their own. The faculty gives the propensity, in poets, to construct interesting plots for romances and dramatic pieces ; and it appears to inspire that compound of dissimulation and intrigue, which is designated *savoir faire*. In animals it produces slyness.

Dr. Spurzheim considers the organs of this faculty as ascertained. I have seen some instances of the manifestations described, in concomitance with a full developement of the organ.

When the faculty is very powerful, it produces a slyness of look ; a peculiar side-long, rolling cast of the eyes; and a stiffened approach of the shoulders to the head.

Genus II.—Sentiments.

After mere propensities, follow another kind of faculties, which Dr. Spurzheim calls *Sentiments*. Several of them are common to man and animals : others are peculiar to man. We shall first consider the former. *These faculties*, like those which we have already considered, *do not perform specific ideas*, but produce merely a Sentiment ; that is, a propensity, joined with an emotion or manner of feeling, of a specific kind. When the faculty is powerful, great natural power of experiencing the senment which it produces, is possessed : when weak, the natural power is weak.

10*th* SELF-ESTEEM.

This is one of the faculties which are generally attributed to external circumstances ; and philosophers have not thought of an organ on which its manifestations might be supposed to depend. Dr. Gall first found the organ of it in a beggar. In examining the head of this person, he observed, in the midst of the upper posterior part of the head, an elevation which he had not before observed in so high a degree. He asked him the cause of his mendicity ; and the beggar accused his pride as the cause of his present state, he having considered himself as too important to follow any business : he had therefore only spent his money, and did not think of earning a livelihood.

The function of this faculty is to give the sentiment of self-esteem in general ; and the intensity of the feeling of pride is in proportion to the energy and activity of the faculty. I have often heard it observed, that musicians are exceedingly apt to become conceited of their art, scholars of their learning, philosophers of their philosophy, and the nobly born, of their rank. But upon the most accurate observation of human nature, I am persuaded that the sentiment of pride is not in uniform proportion either to the possession or the want of these extraneous qualifications, but in proportion to the intensity of the special faculty of self-esteem. If a musician is eminently proud, he is so, not because he is eminent in his art as a musician, but because he is endowed with a sentiment of self-esteem naturally powerful. Had he been a shoemaker he would have been equally proud ; but his pride would have been otherwise directed. Every faculty, as has been often said, must perform all the functions attributed to it ; and hence, if the faculty of tune produce,

besides music, the sentiment of pride, then every individual ought to be proud in exact proportion to the energy of that faculty; and, in the same way, if the reflecting faculties, besides forming ideas, produce the sentiment of pride, then the intensity of that sentiment ought to be always in proportion to the perfection of these faculties also. But this is well known not to be the case. Hence the sentiment of pride must be experienced by means of other powers. Many attribute pride to want of sense; but, although want of sense may permit outward manifestations of pride, which sense, if possessed, would suppress, yet *the want* of reflecting faculties, or sense, can never *confer a positive endowment* of a FEELING, such as self-esteem undoubtedly is.

Thus the feeling itself depends upon the special faculty alone, and the direction of it depends upon other circumstances. He who possesses powerful knowing and reflecting faculties, in conjunction with this faculty, in a powerful degree, will be proud of his knowledge and of his genius. He who possessed the faculty of tune with the same conjunction, will be proud of his talents as a musician. He who possesses the faculty of veneration, eminently powerful with the same conjunction, will be proud of his piety. He who possesses the faculty of Amativeness or Combativeness, powerful with the same conjunction, will value himseif inordinately for sensuality or pugnacity.

This faculty, when active and energetic in excess, produces great abuses. It gives the desire of power, and disposes to tyranny. In private life, it produces arrogance and superciliousness of deportment. I have seen individuals mistake the impulses of it for the inspirations of genius; and, under its influence, say stupid things with the airs which they supposed naturally to belong to genius. I have heard the musician, when under its excessive influence, embellish the tune with decorations of his own

inventing, till its character was changed, and the melody destroyed.

An individual is predisposed to humility, when the faculty is too feeble. In such a case, too, a want of confidence, and of a due sense of one's own importance, are felt. Inferior talents, joined with a strong endowment of self-esteem, are often crowned with far higher success than more splendid talents, with this endowment in a feebler degree. Dr. Adam Smith, in his Theory of Moral Sentiments, most justly remarks, That it is better, upon the whole, for an individual to have too much, than too little of this sentiment; because, if we pretend to more than we are entitled to, the world will give us credit at least for what we possess; whereas, if we pretend to less, the world will take us at our word, and rarely have the justice to raise us to the true point in the scale of dignity at which we are entitled to be rated.

This sentiment, when predominantly powerful, makes the individual carry his head high, and reclining backwards. The expression which it gives to the tone and manners, is cold and repulsive, and is, in a special degree, offensive to other individuals largely endowed with the same faculty. This faculty, when not regulated by Benevolence and Conscientiousness, disposes to Envy and Jealousy.

The organ of the faculty is perfectly ascertained, and is situated at the crown, or that part of the head where the hair diverges in different directions. When the organ becomes diseased, the individual has sometimes believed himself to be a King, Emperor, a Transcendent Genius, or even the Supreme Being.

11*th*, LOVE OF APPROBATION.

The function of this faculty is to make us attentive to the opinions which others entertain of us. The object of its desire is Approbation in general, without determining the means, or the manner of acquiring it. It may be directed to things of the highest importance, to useful, to indifferent, or even to hurtful things, as the means of its gratification. A coachman, endowed with this faculty, is pleased if his manner of managing his horses be approved of; and a general is elated if he be applauded by his nation for leading an army to victory. In short, the object which this faculty seeks to attain, is Approbation; but it does not determine how that object is to be obtained.

The intensity of the feeling is in proportion to the endowment and activity of the faculty. We do not possess the capacity of being delighted with applause, and grieved with censure, because we wish to have that capacity, but because Nature has bestowed on us the faculty in that manner. Indeed, so little is the power of feeling, or of not feeling, dependent on the human will, that we often feel pain at meeting with censure, or pleasure at meeting with applause, where we are satisfied that neither is deserved. Hence the opinion of our fellow men appears to be the object to which this faculty is naturally related.

There is a great difference in regard to the degree of endowment of this faculty, in different individuals. Some watch, with the most animated anxiety, every motion, and every look, and intuitively feel whether others approve or disapprove. When we approve, the eye sparkles, the countenance opens, and the individual approaches us with a pleasing courtesy, expressive at once of the

pleasure he has received from our approbation, and of his desire to secure it. He, on the other hand, in whom the faculty is natually feeble, shews, by the undisturbed fixity of his countenance, that our censure and applause are alike unimportant to him. When we censure, he stares us in the face with absolute indifference, or gapes in stupid wonder.

When powerful, and directed by superior sentiments, and the reflecting faculties, this faculty gives the love of fame, or of popularity, and it stimulates the possessor to make exertions for the benefit of others, with a promptitude and an ardour which those who have not the faculty powerful can with difficulty conceive. Those who ask, What is the worth of fame? are answered, That it gratifies a feeling which those only can conceive who possess, in an energetic degree, the faculty which inspires it. This faculty is a powerful engine in the hands of a skilful parent, or perceptor, for the governing of youth. The child who has it strong, will suffer more from a frown, than from the pain of a blow. He will derive more pleasure from a smile of approbation, than from delicacies addressed to the palate. Such a one ought never, therefore, to be beaten; and if the teacher know his constitution, he will never find this necessary.

When this faculty is ill directed, it leads to vanity. Vanity is the love of approbation for trifling accomplishments. When this faculty is strong, and the endowment of conscientiousness weak, the love of praise, without regard to praiseworthiness, is the result. Every resource is brought forward for display, to attract the gazer's eye. He, on the other hand, in whom conscientiousness is powerful, receives as much pain from obtaining unmerited consideration, as he would feel at not meeting with the applause which he justly deserved.

This faculty is more active in women than in men, and even in certain nations more than in others. There

is, accordingly, a greater number of women than of men alienated in mind by the influence of vanity. Dr. Spurzheim met with only one madman, to whom insanity from this cause had occurred. The organs are ascertained.

12*th*, CAUTIOUSNESS.

We have already stated, that the want of one faculty never gives another. Every feeling which we experience is something positive in itself, and does not consist in the want of another feeling. Now, fear is a positive emotion, and not a mere negative quality, or the want of courage. We cannot create the power of feeling any emotion, by an act of the will: As, therefore, we have the power of feeling the emotion of fear, that power must have been given us by Nature. Accordingly, it is found by observation, that the faculty of experiencing this emotion is always in proportion to the development of a particular part of the brain, which appears to be the organ by which the faculty manifests itself. Dr. Spurzheim names the faculty "Cautiousness," and considers the function of it as producing the instinctive impulse to "take care." Its existence, like that of every other ascertained faculty, was discovered by observation, and not inferred by reasoning.

It appears to me that the faculty gives an emotion in general, and that this emotion is Fear. In giving it this name, I believe that I differ from Dr. Spurzheim in words, but not in substance. The tendency of it is to make the individual in whom it is strong, hesitate before he acts, and, from apprehending danger, to lead him to trace consequences, that he may be assured of his safety. Hence, when too powerful, it produces doubts, irresolution, and wavering. When deficient in energy and activity, the individual is never apprehensive about the re-

sults of his conduct, and often proceeds to act without mature consideration.

The internal and involuntary activity of this faculty, in those in whom it is too powerful, produces internal sensations of dread and apprehension, without an adequate external cause. Such feelings are often exceedingly distressing to the individual, and ridiculous in the eyes of common spectators, who believe that the feelings of the mind depend on the dictates of the understanding, or the resolutions of the will, and that the individual, if he would allow himself to be convinced of the groundlessness of his apprehensions, might, by an act of volition, lay aside the feelings which appear to them so absurd. Such notions argue great ignorance of human nature. As easily could we remove a pain from our leg by resolving to be quit of it, as the unhappy sufferer under diseased feelings, could remove these feelings by an act of the will. A great and involuntary activity of this faculty appears to produce a *panic*,—or a state of the mind, in which it is hurried away by an irresistible emotion of fear, for which no adequate external cause exists.

Too great an endowment, and too great activity of this faculty, predispose to self-destruction. The faculty does not produce suicide as a specific act; but when excited to excess by disease of the organs, it gives birth to feelings which produce a sense of internal misery, and thus indirectly predisposes to suicide. Hence the fact, that often the best of men, and those in whose external circumstances no adequate motive is to be found, are led to that fatal deed. Let no one suppose such an act done from mere error in judgment. It proceeds always from internal and involuntary feelings of a diseased nature; of the misery and torments of which, no man, who has never felt any thing similar, can form an adequate conception. The great ignorance of mankind regarding the state of mind which predisposes to self-destruction, has

arisen from philosophers never having studied the *natural constitution* of the faculties, and the kind of feelings which they produce when the organs are in a state of health ; and, in consequence, from their not attending to the circumstance, that the disease of the organs deranges the character of the sane feelings, and often renders it independent of the will.

The organs of this faculty are perfectly ascertained.

13*th*, BENEVOLENCE.

Gall and Spurzheim, on going into society, found that the emotion of benevolence, and the desire to do good, are not manifested in proportion to the activity of any of the other faculties of the mind, but that the energy of that desire is in uniform proportion to the development and activity of a specific portion of the brain. They therefore admit a special faculty, the function of which is to produce the feeling of benevolence in general, and of which the particular part of the brain indicated on the plate, is the organ.

There is a great difference betwixt individuals in regard to their natural powers of feeling benevolence. Some have the sentiment so weak as scarcely to know what a generous emotion is ; others have it so strong, as to have their minds constantly overflowing with kindness.

We easily distinguish kindness flowing from this feeling, from acts of attention dictated by the love of approbation, or more interested motives. There is a simplicity of manner, and a directness of purpose, in this faculty, that touch the mind at once. We feel its character, and we call it true, genuine, and unalloyed goodness, flowing from no source but the impulse communicated by the faculty, and centering on no end but the good of

the subject. While, on the other hand, there is generally an air of constraint and force attending acts of kindness done from interested motives, betraying the source from which the actions flow. We see the secret spring, and the ulterior object, notwithstanding the efforts made to conceal them. St. Paul gives a beautiful description of the genuine character of this faculty in his account of Christian charity, "Charity suffereth long, and is kind; charity envieth not; charity vaunteth not itself, is not puffed up." The good Samaritan, mentioned in Scripture, is a most delightful representation of the sort of character formed by the genuine inspiration of this faculty.

A deficiency of energy in this faculty does not produce cruelty, or any positively bad sentiment. It only produces indifference to the welfare of others, and leaves the selfish faculties to operate with less restraint. When this faculty is too vigorous, and not properly restrained, it produces profusion. This kind of facility is not the effect of mere weakness of reasoning power, or of intellect. The want of one faculty never produces positive feelings or positive powers of another kind; and the defect in such persons is, an over-ready disposition to give, without an adequate motive or consideration, except the pleasure of giving. Such a disposition appears to arise from too great an endowment of benevolence, joined with weakness in the reflecting faculties, which ought to controul it.

I have mentioned before, that stimulating liquors, by exciting the organs, give energy to the feelings or propensities which depend on these organs for the means of manifesting themselves. Now, some individuals become excessively profuse when intoxicated. They would then give the world away; or, if they had the power, they would create a new one, in which every individual should have a world of happiness to himself. On the princi-

ple, that intoxication can never *create* any feeling, I am inclined to think that such persons have naturally a large endowment of benevolence, the organ of which faculty is thus stimulated to excessive activity by strong potations. This, however, is only a conjecture.

This faculty does not form ideas of the proper mode in which it ought to be gratified, or of the objects on whom its influence ought to be exerted. It is the business of the reflecting faculties, and other sentiments to direct it. Indulged without consideration, it produces the worst consequences. Witness the effects of indiscriminate donations of charity to beggars in the streets, and at our doors. Witness also the results of the compulsory assessments for the support of the poor. It can never be sufficiently inculcated, that the functions of the different faculties of the mind are distinct, and that the faculties which feel, give merely an impulse in general, and that nature has intended that the direction of them should be placed under the faculties which reason. Hence, the individual who instinctively feels a vivid compassion for every object in distress, ought to be aware that this impulse is not the voice of inspiration directing him *to the mode* in which it ought to be indulged. On the contrary, the stronger the emotion is, the power of direction is not unfrequently so much the weaker; because the emotion is in itself of so excellent a character, and so delightful in sensation, that the man who is inspired by it is the last to suspect the necessity of much consideration to direct it properly. On the other hand, however, it must also be remembered, that the faculties which reason, do not feel benevolence, and that, hence, that individual is most fitted to mature wise plans of benevolence, to whom nature has given most of the faculty which feels this emotion, with most of the faculties which trace consequences, and direct it.

This faculty exists in animals; and in them it appears

to produce docility and meekness. The mild and good natured animals have the place of their forehead corresponding to the organ of benevolence in man, elevated and prominent, while the ill-natured present a hollow*.

The organs are ascertained.

* The place of the organ is not only depressed in the more ferocious animals, but in the Anthropophagi, as the Caribs; whilst in the Hindoos this part of the brain is very elevated, and the organ of destruction very little developed.—It is curious to observe that, among the antique busts, the forehead of Seneca is much higher than that of Nero. Ed.

ON THE SENTIMENTS WHICH ARE PROPER TO MANKIND.

Dr. Spurzheim says, "Hitherto we have considered Man so far as he is animal. All the organs and special faculties I have spoken of, are common to man, quadrupeds, birds, &c.; and in this respect man is even the most perfect of them all: he possesses all those faculties which are more sparingly distributed among different kinds of animals. Besides this prerogative, every faculty is susceptible of many more modifications; and its energy is greater in man than in animals. Moreover, man is endowed with sentiments which constitute the human character, and of which animals are entirely destitute. Till the present time, no system of philosophy has thus clearly indicated the line of demarcation between man and animals. It was for a long time believed, that man differs from animals by being endowed with memory, judgment and imagination; but a great number of facts prove, that animals possess all these faculties. Others again, consider reasoning as a particular attribute of human nature. I shall here treat only of the sentiments proper to man; and in speaking of the intellectual faculties, I shall also point out which of them are common to animals and man, and which are peculiar to mankind."

These faculties produce only a manner of feeling or sentiment, in general, and do not form ideas.

14*th*, VENERATION.

The sentiment of piety, devotion, or veneration, is not an act of the understanding, but an *emotion* of the mind. The natural capacity of feeling this emotion, is not in proportion to the perfection of the understanding; nor is the perfection of the understanding in proportion to the natural tendency to piety. But the natural vivacity of the sentiment of piety, is in proportion to the development and activity of a particular portion of the brain; and no other sentiment or faculty is in the same uniform proportion to the development and activity of that particular part. Gall and Spurzheim, therefore, admit a faculty, the function of which is to inspire the sentiment of veneration in general; and they point out the special organ by which the faculty manifests itself. If the sentiment of veneration depended on the faculties which reason, then the more energetically these faculties were employed, the stronger ought to be the emotion of piety. But the fact is otherwise. When we are deeply engaged in reasoning, even on the sublimest attributes of the Deity, we feel no emotion either of one kind or another, but perceive the relation of necessary consequence alone. It is when we cease to reason, and merely contemplate the objects, that the emotion arises.

This faculty, as already mentioned, gives only the tendency to venerate in general, and does not judge what ought to be venerated. The vivacity of the sentiment of veneration is in proportion to the energy and activity of the faculty; but the propriety of the selection of the object to which it is directed, is in proportion to the enlightened state of the understanding: for example, Brahma, Mahomet, the Virgin Mary, the True God, or any

other object, would be worshipped with a degree of fervour corresponding to the activity of the sentiment; but the selection of one of them in preference to the others, as the object of veneration, will depend on the correctness of information, together with the enlargement of the reasoning powers. Hence it ought to be kept in view, that, in cultivating the sentiment of piety, we do not necessarily cultivate the reasoning powers; and that in cultivating the understanding, we do not necessarily increase the activity of the sentiment of veneration.

The organ of this faculty is perfectly ascertained.

15*th*, HOPE*.

Hope is a positive sentiment *sui generis*, and manifests itself by means of a special organ. Dr. Spurzheim has found, that the power of experiencing this sentiment is in proportion to the development and activity of a special part of the brain, and that no other sentiment or faculty is in uniform proportion to the energy of this faculty. It gives the sentiment of hope in general, and does not form specific ideas of its objects.

There are great differences among individuals in their power of experiencing the fascinating influence of this sentiment. It gives feelings the reverse of cautiousness. It inspires with gay, fascinating, and delightful emotions, painting futurity fair and smiling as the regions of primeval bliss. It gilds and adorns every prospect with shades of enchanting excellence; while cautiousness hangs clouds and mists over distant objects, seen by the mind's eye. Hence, he who has HOPE more powerful than CAUTIOUSNESS, lives in the enjoyment of brilliant anticipations, which are never realised: He who has CAUTIOUSNESS more

* This is the number of Firmness in the last arrangement of Dr. Spurzheim. Ed.

powerful than HOPE, lives under the painful apprehension of evils, which rarely exist but in his own internal feelings. The reflecting faculties ought to regulate both.

In religion, this faculty cherishes faith. Too great an endowment of it gives the individual a tendency to be credulous.

Dr. Spurzheim says, "The organ of hope seems to be situated on the side of that of veneration; but it requires future examinations before it can be admitted, though I have many observations which support this organ." I have made several observations myself, which tend to support Dr. Spurzheim's opinion as to the existence of the faculty, and the situation of the organs.*

16*th*, IDEALITY.

This is a sentiment also; it gives only a manner of feeling, and does not form ideas. It produces the feeling of exquisiteness or perfectibility, and is delighted with what the French call "Le beau Ideal." It is this faculty which gives what is called *inspiration* to the poet. The knowing and reflecting faculties perceive qualities as they exist in nature; but this faculty desires for its gratification something more exquisitely perfect than the scenes of reality. It desires to elevate, and to endow with a splendid excellence every object presented to the mind. It stimulates the faculties which form ideas to

* Dr. Spurzheim, in his lectures and last work, thinks there is in many a predisposition to believe in supernatural things, and that he has observed, with the manifestation of this faculty, a development of the brain just before the organ of Hope, and above and rather anterior to Ideality, between it and Imitation. Its activity gives rise to mysticism, visions, second sight, &c.; and contributes to religious faith, by a belief in miracles and mysteries. This organ is well marked in the head of Socrates, who always imagined he had his familiar demon with him: it is also seen in Evans, a famous Welsh Astrologer, and in Sir Walter Scott. ED.

create scenes, in which every object is invested with the qualities which it delights to contemplate, rather than with the degree of excellence which nature usually bestows. It is this faculty which inspires exaggeration and enthusiasm, which prompts to embellishment and splendid conceptions. It gives a manner of feeling and of thinking, befitting the regions of fancy more than the abodes of men. Hence, those only on whom it is powerfully bestowed, can possibly be poets, and hence the proverb, "*Poeta nascitur, non fit.*"

Individuals differ exceedingly in regard to the endowment of this faculty which they possess. According to the energy and activity of it, poetry is prized or rellished. I have met individuals who declared that they could perceive no excellence in poetical compositions, and could derive no gratification from them; and yet such individuals were endowed with every degree of understanding and penetration, according as they possessed the other faculties, strongly or weakly, and were not uniformly deficient, either in moral sentiments or judgment in proportion to their want of poetic fire.

This faculty gives a peculiar tinge to all the other faculties. It makes them, in every thing, aspire to ideality. In common life we may easily distinguish those who have, from those who have not, a considerable endowment of it. The former speak in general in an elevated strain of language, and when animated, shew a splendour of eloquence, and of poetical feeling, which the latter are never able to command. It gives to conversation a fascinating sprightliness and buoyancy, the very opposite of the qualities expressed by the epithets dryness and dullness.

The organ of this faculty is ascertained, and I am satisfied in regard to it myself, by many observations. It is not without a degree of scrupulous delicacy, that I mention such a fact on such an occasion; but I may

state, that from the strong manifestations of this faculty in his works, I described what the configuration of the head of a celebrated pulpit orator ought to be, before I had seen him; and that the gentleman to whom the description was given, found it to coincide remarkably with the fact.

17*th*, CONSCIENTIOUSNESS.

This faculty gives a sentiment also, that of justice; but does not form ideas of what is just. For example, when any action is presented to the mind, the motives and the object of which are distinctly perceived by the understanding, an involuntary sentiment arises, that the action is just or unjust; but the degree of the sentiment is not in proportion to the acuteness of the understanding, but in proportion to this in connexion with the energy of the special faculty which we are now considering. Dr. Spurzheim found, that the manifestations of this particular sentiment is in proportion to the development and activity of a certain part of the brain; and, on this account, he states it as a special faculty. In his work, he states it as only probable; but I am convinced, by numerous observations that it exists, and that Dr. Spurzheim's indications of its functions and organ are correct.

There are great differences among individuals in respect to the endowment of this faculty. When it is powerful, the individual appears to regulate his conduct by the nicest sentiments of justice; and there is a degree of integrity, honesty and truth in his manner, which gives us the most perfect confidence in his actions. Such an individual is disposed to act justly from the love of justice, unbiassed by fear, interest or inclination. He is delighted with the observance of right, and disgusted with the doing of wrong. Nor is the activity of this senti-

ment indicated only by a respect to the property and legal rights of others. Those individuals in whom it is strong, have a natural disposition to do justice to others, in the judgment which they form of their motives, their conduct and capacity; and, in short, to regulate every sentiment by conscientiousness. They are scrupulous, and as ready to condemn themselves as to find fault with others.

When the faculty, on the other hand, is weak, the power of experiencing the sentiment of justice is feeble, and the individual will generally be ready to do an unprincipled action, if excited by inclination or interest. He experiences a difficulty both in perceiving the quality of justice itself, and in conceiving the imperious obligations of duty, arising from its dictates. When it is weak, the deficiency is shewn in the general sentiments of the individual, although the absence of temptation may prevent any actual infringement of the law. The conduct of others is apt to be unfairly judged of, their motives misinterpreted, and their talents falsely estimated, just as the pride, vanity, interest or affection of the individual who is deficient in conscientiousness, may lead him to regard them for the time. He is not scrupulous; and fears other evils much more than that of being himself in the wrong. He is, therefore, not much inclined to examine his own conduct and condemn it.

The faculty being independent in itself, is found with weak intellect and with strong intellect; with much benevolence, and little benevolence; with much piety, and little piety; with much covetiveness, and little covetiveness. It is here as in other cases of the greatest importance to attend to the independent existence and distinct functions of the several faculties of the mind. No mistake is more generally committed than that of supposing that by cultivating the faculty of veneration, we cultivate those of benevolence and justice. A man may be pious and

not just, or just and not pious, in the same manner as he may be blind and not deaf, or deaf and not blind. The want of veneration is not profanity; so that, although an individual will scarcely be found who is profane and at the same time just, yet many will be found who are just and not pious.

This faculty when powerful, is attended with a sentiment of its own paramount authority over every other; and it gives its impulses with a tone which appears like the voice of Heaven. It may appear unphilosophical, on the present occasion, to allude to a novel for the illustration of the functions of the faculties of the mind; but the faculties of the mind are known by their manifestations in actions; and when the action represented in a novel is true to nature, philosophy may be better illustrated by reference to that action, than to the mystic speculations of metaphysicians. It appears to me, therefore, that the scene in the Tales of my Landlord, in which Jeany Deans gives evidence on her sister's trial at the bar of the High Court of Justiciary, affords the best illustration of the functions and authority of this faculty, when supported by piety, that could be given. A strong sense of the imperious dictates of duty, and of the supreme obligation of truth, leads her to sacrifice every feeling of interest and affection, which could make the mind swerve from the paths of duty; and we perceive her holding by her integrity, at the expense of every other feeling dear to human nature. So much is the manner of feeling influenced by the different degress in which this faculty is possessed, that I venture to say, many individuals, on reading that passage, have thought within themselves, that this young woman might have sacrificed the truth without great imputation of blame; while other readers have approved of her conduct with the strongest internal delight, and regarded it as an example of every thing that is excellent and heroic. If the former individuals will examine their

heads, they will find the organ of this faculty not prominent in size, while the other will find it more so in them.

This faculty gives the sentiment of gratitude;* which is merely a sense of deeds done to us above the measure of justice, and above our deserts; and, of course, a sense that we owe an obligation. Repentance or remorse are consequences of this faculty.

Dr. Spurzheim divides our sentiments of duty into three kinds. First, Into *natural* or *absolute* sentiments, which arise from the dictates of this faculty, in unison with the dictates of all the other faculties proper to mankind; while all the faculties common to man and animals, are held in subordination, and not allowed to mingle their influence. Secondly, Individual, particular, or relative sentiments, which result from the dictates of the special faculty of justice which any individual possesses, modified by the influence of the other faculties which predominate in himself; for example, the faculty of justice, joined with an energetic faculty of benevolence,—will produce feelings of justice different from those which would be produced by the same faculty of justice, joined with a strong covetive propensity. Hence the reasons why mankind differ so much in their moral judgments are these: Because they have not all the same powerful faculty of conscientiousness; and because the judgment formed on any case in which the individual is concerned, is influenced by the disturbing force of his other faculties, whether propensities or sentiments. And, in the third place, Into positive sentiments, which are fixed by legislation, whether divine or civil, as by the commands, "Thou shalt not eat meat of Fridays or Saturdays,—Thou shalt go to church every Sunday."

* It is more than probable, as has been suggested by Sir G. S. Mackenzie, that Conscientiousness and Benevolence conjoined, and perhaps also Attachment, and all of them powerful, may give rise to the feelings which are ascribed to gratitude. Ed.

Dr. Spurzheim's account of the faculty of conscientiousness appears to me to coincide very closely with Dr. Hutcheson's doctrines as to a moral sense. The faculty now spoken of, however, must be admitted, not in consequence of metaphysical reasonings, but in consequence of the observation of actual facts. Dr. Gall has not yet admitted it.

18*th*, FIRMNESS.

Dr. Gall observed, that persons of a firm and constant character, have the top of the brain much developed. Lavater had distinguished the same configuration in concomitance with that kind of character. It is difficult to distinguish the special functions of this faculty. Its effects are often called Will ; but they are not strictly acts of volition. It appears to give constancy and perseverance ; and when too energetic, to produce obstinacy, stubbornness and infatuation.

Dr. Spurzheim specifies the organ as ascertained. I am satisfied myself also, in regard both to the general nature of the faculty, and the correctness of the indication of the organ. When eminently powerful, it gives a stiffness and uprightness to the gait, as if the person were transfixed with an iron rod ; and it gives a peculiar emphatic tone to the voice. When weak, the individual is prone to yield to the impulses of his predominating feelings, and with difficulty resists solicitation.

ORDER II.—UNDERSTANDING OR INTELLECTS.

GENUS 1.—KNOWING FACULTIES.

DR. SPURZHEIM observes, "The first genus of this order contains those faculties by means of which we know the existence of external bodies and their qualities. Strictly speaking, the five external senses belong, in some measure, to this genus of faculties. I have, however, already treated of the knowledge which men and animals acquire by their assistance; and I shall now examine the organs necessary to acquire certain kinds of knowledge, which the five external senses cannot produce. The first conception which our understanding must have of external beings, is, no doubt, that of their existence; and in order to acquire this conception, the external senses are not sufficient, although without an impression on them, this conception cannot be determinate. Thus, the organ which procures knowledge of external beings, must be considered as the first in respect to the order in which the faculties operate.

"The knowing faculties may farther be divided into two sections. Several make us acquainted with every individual object, and its physical qualities; and others consider the different relations of various objects."

The faculties now to be treated of, therefore, form ideas each of a certain kind. The activity of these faculties is attended with a sensation of pleasure; but the sensation (except in the case of the faculty of tune,) is weak, compared to the emotions produced by the faculties already treated of; and the higher the functions of the faculties rise, the less is the emotion attending

their activity. One great difference betwixt these faculties, and those already treated of, is, that the former are subject to the will; and whatever ideas are formed by means of them, may be recalled by an act of volition; while we cannot directly call a single one of the latter into activity, or recal a feeling which we have experienced by a mere act of volition.

19*th*, INDIVIDUALITY.*

Dr. Gall observed, in society, different persons who, though not always profound, were learned, had a superficial knowledge of all the arts and sciences, and knew enough to be capable of speaking on them with facility. He found, that in such men as are deemed brilliant in society, the middle of the lower part of the forehead was very prominent; and, consequently, that the anterior inferior part of the brain was much developed.

Persons endowed with this faculty in a high degree are attentive to all that happens around them, to every object, to every phenomenon, to every fact; and hence also to motions. The function of this faculty, therefore, appears to be, to know existence in general. It neither learns the qualities of objects nor the details of facts; these are known by the assistance of other faculties and organs. This faculty, moreover, has knowledge of all internal faculties, and acts upon them.

* This organ is located by Dr. Spurzheim above the junction of the nasal and frontal bones at the root of the nose, and is supposed to be destined for the faculty of knowing external objects and their individual existence,—while to another organ of *Phænomena*, occupying the place here given to Individuality, is allotted almost all that has been given to this latter,—such as history, knowledge of anecdotes and facts, and it appears to know all that takes place in us with consciousness. It is necessary to narrators of every kind and to historians, and only knows what *has been* done. Combined with the faculty of Individuality, it forms the practical spirit which ought to serve as a basis for philosophical reasoning. Ed.

The organ of this faculty is early and prominently developed in children. I have observed myself, that the degree in which a child is acute and attentive to what passes around him, is in proportion to the development of this organ.

This faculty exists in some measure in animals. Animals recollect what has happened to them. A dog resists its instinct to run after a hare ; because it recollects the beating which, on that account, it formerly received. Similar facts might be indefinitely multiplied ; and it is consequently evident, that the actions of animals are not subjected to an absolute necessity, but that they are, in a certain degree, susceptible of education, partly by the organ in question, and generally by the faculties situated in the whole of the forehead.

This is a faculty which a metaphysician would never admit ; but the authority for it is irresistible, when we are able to say, that experience demonstrates its existence and functions. As we have already observed, it would be wise to lay aside that pride of understanding, which prompts us to endow man with faculties upon speculation, and to seek rather to learn by observation, the faculties with which nature has endowed him. It is certainly as philosophical to study faculties and functions by observing manifestations, as it is to study the qualities of matter, by observing the properties they possess. A metaphysician endowing the mind with faculties upon speculation, is fully as likely to err as a chemist who should endeavour to demonstrate *a priori*, the simple substances which form a compound, without analyzing it. We can only say, therefore, that such and such faculties exist; and that the evidence of their existence is to be found in observation; and leave those to deride who have a higher opinion of their own capacity to endow the human understanding, than of our capacity to observe the endowments of nature.

20*th*, FORM.

It is an undeniable fact, that certain individuals have a natural capacity of perceiving and conceiving form, out of all proportion to their capacities of perceiving and conceiving the other qualities of bodies. In those in whom this power is eminently great, the development of the brain betwixt the eyes is proportionally great; and it is small in proportion as the faculty is weak.

The organ of form seems to be placed in the internal angle of the orbit; and if this part of the brain be much developed, it pushes the eye-ball toward the external angle; that is, a little outward and downward. The eyes derive from it a squinting look.

I have evidence of the existence of this faculty and of the organ, by observations. It appears to give a tendency to draw or cut figures in general. It appears also to enter as an important constituent, into the endowment of a mechanical genius. I have seen several persons known for their great taste and talent for mechanical inventions; and in every one of them, the organ of this faculty was largely developed. It is well known, that some children shew, at an early period, a great tendency to drawing; such individuals will be found to have this organ particularly large. The most obvious indication of it, is a great distance betwixt the eyes.

Dr. Spurzheim says, persons endowed with this faculty in a high degree, are fond of seeing pictures; and if they make collections, they collect portraits. Expertness in crystallography is the result of this faculty; and it seems to him, that the conception also of the smoothness and roughness of bodies belongs to it. It is certain, that vision and touch are not sufficient to make us ac-

quainted with these qualities of bodies; they furnish only the impressions, while an internal faculty forms these conceptions. There is also no proportion between this faculty and the perfection of these two external senses.

This is one of the faculties, the organs of which the opponents allege cannot be discovered, by observing the development of the skull, owing to the existence of the frontal sinus. The reader is referred to what is said on this subject, on page 25. In addition to what is there stated, it may be mentioned, that the medical gentleman there referred to, in a letter received since the former passed through the press, says, "I have found the frontal sinus in a man near sixty, extending exactly to the root of the nose. On dissecting his brain, I found the external elevations of the skull to correspond with the internal depressions; and most evidently the organ of *form*, of which I had some doubts." I may mention also, that in a skull in my own possession, the existence of this sinus does not prevent the true development of the organ of form from being perceived*.

21*st*, SIZE.

The faculty of distinguishing form differs from the faculty of size; because there is an essential difference between the idea of size and that of form. The form may be the same, and the size quite different; or the size the same and the form different. One of these kinds of knowledge may exist without the other; and there is no proportion between them. Besides, as formerly men-

* It has been remarked, that this organ of Configuration, as it is called by Dr. Spurzheim, and its accompanying power, are strong in the French, as is evinced in their furniture, toys, fashions: it is also well seen in the Chinese. Ed.

tioned, the nerves of touch and the organ of sight do not form ideas of any kind ; so that the power of conceiving size cannot be in proportion to the endowment of them. Dr. Spurzheim, therefore, *conjectures* that there may be a faculty, the function of which is to perceive size ; but the evidence is not such as to authorise him to state the faculty other-wise than as *conjectural.* The organ of it is presumed to be near to the organ of form ; but the fact not being ascertained, the situation of the organs is not marked on the plate.

A gentleman of this city lately informed me, that Dr. Spurzheim discovered the organ fully developed in his head ; and that, in point of fact, he has a great facility in perceiving and judging of size.

22d, WEIGHT AND MOMENTA.

Dr. Spurzheim says, "The ideas of weight and resistance of the momenta, of consistency, density, ductility, softness and hardness, cannot be attributed to the sense of feeling. Though previous impressions take place on the muscles, yet these peculiar conceptions are the results of an internal operation of the mind ; and we must, therefore, admit a particular faculty for these. Its organ also, must be situated in the neighbourhood of the organ of form and size. I grant that this is only conjectural ; but from the general proofs of the plurality of the organs, I am convinced, that these peculiar operations of the mind depend on a peculiar cerebral part, though I cannot yet absolutely determine it. The conceptions of form, size, weight, colour, are certainly as different as the various feelings of which I have spoken."

23*d*, COLOURING.*

We have already shewn, 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 that 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. This fact has been remarked by Mr. Stewart. He says, "In the power of conceiving colours, too, there are striking differences among individuals: and, indeed, I am inclined to suspect, that in the greater number of instances, the supposed defects of sight in this respect, ought to be ascribed rather to a defect in the power of conception. One thing, is certain, that we often see men who are perfectly sensible of the difference between two colours when they are presented to them, who cannot give names to these colours with confidence, when they see them apart; and are, perhaps, apt to confound the one with the other. Such men, it should seem, feel the sensation of colour like other men, when the object is present; but are incapable (*probably in consequence of some early habit of inattention*), to conceive the sensation distinctly, when the object is removed." Elements, ch. III.

In this quotation, we have a specimen of the usual mode of conducting metaphysical speculations. When

* "The organ of colouring often gives roundness to the arch of the eye-brows; but a more certain indication is, when the eye-brow is directed upwards, laterally, so as to form an angle." It has been often remarked that, good colourists have something gay in their looks, owing to this turning up of their eye-brows and the space between the latter and the eyes,—as we see in Titian, Salvator Rosa, Rembrandt, Hogarth, &c. Ed.

the most curious and striking phenomena of the mind are mentioned, and when we look anxiously for an explanation of them, *habit* or *association* is dragged in to solve the difficulty; and this often merely in a parenthesis, as if no difficulty existed. By this procedure, the wished-for information is thrown only the more into the shade. Have all the individuals here referred to, equal *natural* power of conceiving colour, or have they not? If they have, then shew us instances of those who have had great difficulties in recalling the conceptions of colour, becoming eminently capable of doing so by acquired habits of attention. If they do not all possess equal natural power, it is absurd to overlook the natural difference, and to conceal our ignorance, by recurring at once to habit, instead of acknowledging and seeking to remove it.

In point of fact, those in whom the power of perceiving colour is naturally great, have a great development of that part of the brain situated in the midst of the arch of the eye brows. In the Chinese, the development of the organ is conspicuous. The faculty is generally more active in women than in men. In this as in other faculties, it is necessary to discriminate between the nature of the general function and the degree of activity of the faculty. There are individuals and nations who are fond of colours, but who have no feeling of their harmony or discord, that is, have no judgment or taste regarding them.* This observation will be understood, when we come to speak of judgment in general.

It is probable that the lower animals may be possessed

* Generally speaking, says Dr. Spurzheim, females like colours more than men, as is shown in their dress; and some have taste in arranging them, as well as in mixing them, but have not yet displayed the same powers as men in painting, that is in adapting their colours to the objects. The number of female artists in Europe, has been, and is, sufficiently great to justify comparisons of this nature. Ed.

of this faculty, although they do not paint. The function of this faculty, is simply to perceive colours and their shades. In order to produce pictures by the application of colours, the faculties which trace the connexion betwixt the means and the end must be possessed; and of these faculties the lower animals are destitute.

Dr. Spurzheim states this faculty as *probable*.

24*th*, LOCALITY.

It happened, says Dr. Spurzheim, that, though Dr. Gall had always good eyes, he could not again discover places where he had been before. On the other hand, one of his fellow students, called Schiedlier, had a surprising facility of recollecting localities and particular places. Schiedlier had a large development of that part of the brain which is marked as the organ of this faculty, and Gall had not. Numerous observations confirmed the inference which was drawn from this first fact. The faculty seems to give the capacity of perceiving space, distance and localities; it inspires the traveller and practical geographer, and is an ingredient in the endowment of a genius for landscape-painting.

Those in whom this faculty is powerful, form vivid and distinct conceptions of situations and scenery which they have seen or heard described, and they have great power in recalling such conceptions. When the faculty is active from an internal excitement of the organ, such conceptions are presented to them involuntarily. It gives the desire for travelling.*

* This faculty is manifested very powerfully by the mysterious author of Waverly, and the Tales of my Landlord. Whoever he may be, if the organ is not largely developed in his head, this system is in danger. It is a fact worth noticing that, this author's descriptions of localities are tiresome and uninter-

The organ and general functions of this faculty are ascertained. An instinct similar in its nature to this faculty, appears to inspire animals with the propensity to migrate. This is another faculty, the organ of which the opponents say, cannot be discovered, owing to the frontal sinus. This point we have already sufficiently discussed. The faculty is considered as ascertained.

25*th*, ORDER.

It is a well known fact, that every arrangement of external objects is not equally agreeable to the mind. We might infer, that there is some power, the special function of which is to perceive order in general, and to be gratified with arrangement, and displeased with disorder; because it is an indisputable fact, that the capacity of being delighted with order, and distressed by disorder, is not in proportion to the endowment of any other faculty of the mind. There are individuals who are absolute martyrs to the impulses of this faculty, who are distressed beyond measure by the sight of confusion, and highly satisfied when every thing is well arranged. And such individuals have no other faculties in uniform proportion to the perfection of this one. Hence we might infer by reasoning, the existence of a faculty of order; but in this system no faculty is admitted on that basis; and it was only the observed fact of concomitance betwixt the power and a particular development in several

esting to some readers, while to others they afford a great source of delight. The former have a natural deficiency of the power of conceiving space, while the latter have that power in an eminent degree. I have observed a marked difference of the organs of locality in these different classes of persons. Those who have the organ large and active, are almost as much delighted by a perusal of the author's descriptions, as by a tour made by themselves amid highland scenery; while those in whom it is small and inactive are incapable of conceiving his scenes.

instances, that suggested its existence and functions as probable, and the faculty is stated only as such. The sort of arrangement, however, inspired by this faculty, is different from that philosophical method which is the result of the perception of the relation of things. The faculty of which we here speak, gives method and order in arranging objects, as they are physically related; but philosophical or logical inferences, the conception of systematizing or generalizing, and the idea of classifications, are formed by the reflecting faculties. The Sauvage de l'Aveyron at Paris, though an idiot in a very high degree, cannot bear to see a chair or any other object out of its place; and as soon as any thing is deranged, he, without being in any way excited to it, directly replaces it.

This faculty, and the organ of it, are stated by Dr. Spurzheim as probable. The organ is so small, that the observation of it is difficult.

26th, TIME.

The power of conceiving time, and of remembering circumstances connected by no link but the relation in which they stand to each other in chronology, is very different in different individuals. Dr. Spurzheim *conjectures*, therefore, that there is a special faculty on which this power depends. Observations, however, are wanting, and the faculty and organ are stated as conjectural. The situation of the organ is supposed to be between Nos. 19. 24, 25. 28. and 31.*

* Dr. Spurzheim places this organ above that of colouring. Ed.

27*th*, NUMBER.

Some individuals, remarkable for their great talent of calculating, excited the attention of Dr. Gall. He found even children who excelled in this faculty. Thus, a boy thirteen years of age, born at St. Poelton, not far from Vienna, excelled his school-fellows surprisingly in this respect. He learnt with facility a very long series of numbers, made the most complicated arithmetical operations from memory, and very soon found their true result. Mr. Mantelli, a counsellor of the Court of Appeals at Vienna, took a particular pleasure in the solution of arithmetical problems: and his son of five years of age, did nothing but calculate during the whole of the day. In such individuals, the arch of the eye-brow is either much pressed downward, or there is an elevation at the external angle of the orbit. This sign is the result of a greater development of the part of the brain situated behind this place.*

I have some evidence of the existence and functions of this faculty, from instances which have fallen under my own observation. I have met with individuals whose natural capacity for calculation was great; and the organ in them was largely developed. The special function of

* This organ is strongly marked in the portrait of Jedediah Buxton, a man without education, but who engaged general attention by his talent of calculation and numbers. Reasoning on the commonly received principle of the unity of mind, it was supposed by many then, as now, that a talent for mathematics supposed a power to accomplish every thing else; and accordingly, this man was taken to different public places for the purpose of watching the effect on his mind, and hearing his remarks.—On one occasion, after seeing Garrick perform, he was asked how he liked him: the reply was, that during the performance, he had spoken so many words.—At another time, being present at the opera, he began counting the steps; but, finding he could not succeed, he became uneasy, and desired to go away. Ed.

the faculty seems to be calculation in general. Dr. Spurzheim is of opinion, that arithmetic, algebra and logarithms belong to it; but the other branches of mathematics, as geometry, &c. are not the simple results of this faculty. The organs are ascertained.

28*th*, TUNE.

The organ of tune bears the same relation to the ears, as the organ of colour does to the eyes. The ear receives the impressions of sounds, and is agreeably or disagreeably affected by them; but the ear has no recollection of tones, nor does it judge of their relations: it does not perceive the harmonies of sound; and sounds, as well as colours, may be separately pleasing, though disagreeable in combination. In treating of the sense of hearing, we have already discussed this question.

Every one knows how very different the endowment of this faculty is in different individuals. A great development of the organ enlarges the lateral parts of the forehead; but its form varies according to the direction and form of the convolutions. Dr. Spurzheim observes, that "in Gluck, Haydn, and others, this organ had a pyramidal form; in Mozart, Viotti, Zumsteg, Dussek, Crescentini and others, the external corners of the forehead are enlarged, but rounded.

"The heads and skulls of birds which sing, and of those which do not sing, and the heads of the different individuals of the same kind, which have a greater or less disposition to sing, present a conspicuous difference at the place of this organ. The heads of males, for instance, and those of females of the same kind of singing birds, are easily distinguished by its different development. In short, we consider this organ as established,

by the immense number of observations which prove its existence.

"There is a striking analogy between colours and tones, and their respective organs; colours being perceived by the eyes, and sounds by the ears; there are primitive colours, and such also is the case with tones. There is an agreeable succession of colours, as there is of tones; that is, there are colours and tones which agree with one another, and others which do not. Colours may harmonize, and tones may be concordant. Lastly, the concordance both of colours and of tones, may be considered by the faculties of order and number. In this manner, indeed, colours and tones are calculated; and thus are the principles of painting and music established."

A way to discover the development of the organs of this faculty is, to place the head in a line betwixt us and the light, directing the eye along the brow immediately above the external angle of the eye. If the organ be well developed, there will be no hollow perceptible there, but sometimes an elevation. If the organ be small, a depression or deficiency of development will be perceptible*.

29*th*, LANGUAGE.

We have already mentioned, that Dr. Gall had, in his youth, great difficulty in fixing in his memory a moderate number of words, while several of his school-fellows learned by heart with great facility, a multitude of words,

* It must be remembered, however, that music is not the result of one power alone: two are essentially necessary. 1. Melody and harmony. 2. Tune or cadence. Some have lively perceptions of melody and little knowledge of time: in these, there is a little depression above the middle of the eye-brow and a projection above the external angle of the eye. The protuberance at the former or more anterior part indicates a knowledge of time. In comprehending the theory of music, or for successful composition, higher faculties are necessary. Ed.

which they even did not understand. Such individuals had a larger development of that part of the brain which lies above the upper half of the orbit of the eye, which is denoted by the prominence of the eyes, and their depression towards the lower part of the orbit.

Some persons learn easily the spirit of different languages, without having a great memory of words, while others easily acquire words without knowing the spirit of any language; yet it appears to Dr. Spurzheim, that the memory of particular words, and philology in general, are grounded upon the same special faculty. Before it is possible to understand the special function of this faculty, it is necessary to consider, that the faculties may be internally active, by the excitement of the organic apparatus; and that thus, a being may have an inclination, a sentiment, an idea, or reflection, vividly existing internally, without expressing them outwardly by any sign whatever. Now, a sentiment or idea being formed by the internal activity of the faculties, the superior intellectual faculties form conceptions of artificial signs, by means of which to indicate them. Therefore, the sensations, ideas and reflections, must exist, before arbitrary signs can be invented in order to indicate them; and, of course, signs will be multiplied and modified, according to the number of the sensations and conceptions of the mind, till there are artificial signs for all the operations of the faculties. Now, there is a particular faculty which learns these signs. The faculty which learns the arbitrary signs, is quite different from those which produce them; and also from those which produce the sensations and ideas. There is, indeed, no proportion between these different faculties. Animals do not produce arbitrary signs; yet they learn the significations of them, in as far as they are endowed with the faculties which produce the sensations and ideas signified. Hence, tame animals learn in every country, the arbitrary language of their masters; they may acquire even the significations of different sounds in

different languages. In passing the frontier from France into Germany, I heard the same conducteur speak to the horses of one stage in French, and to the horses of the next in German: and he said, in answer to an inquiry, that they would not have understood him otherwise. Some horses of the district, however, he said, understood both languages.

It is thus possible to have many ideas without possessing the faculty of hearing the arbitrary signs which express them, and to know many words without having many ideas. Thus, the function of this faculty is to make us acquainted with arbitrary signs, to give us the memory of them, to enable us to judge of their relations, and to produce a propensity to the employment of them.

This is Dr. Spurzheim's account of the functions of this faculty; but I confess, that there is a difficulty in conceiving, how the reflecting faculties should invent signs; and there should be a separate faculty, the one now treated of, for learning and remembering them after they are invented. Perhaps the same faculty may both invent, learn and remember them. Of the fact, however, there is no doubt, that many individuals have a great facility in learning and remembering words, who do not appear to possess a stock of ideas co-extensive with that of their vocables; and in such persons, the part of the brain which Dr. Spurzheim regards as the organ of the faculty of language, has been found to be largely developed. These two facts are of the chief importance in the philosophy of the mind; for minute distinctions regarding the functions of the faculties, must necessarily partake of the uncertainty of metaphysical speculation; because such distinctions are founded on suppositions of what must be, rather than on observations of what is.

This faculty is considered as established*.

* Not only the prominence, but the breadth of the eye is to be considered, —as also the size: thus, when the eye is small and not sunk deep in the socket, it indicates that this last is not deep, and consequently that the portions of brain above and behind it are well developed. Ed.

GENUS II.—Reflecting Faculties.

Dr. Spurzheim observes, "I propose to call *ideas*, the conceptions only of the *knowing* faculties, and to call *reflection* every function of those faculties which compare," and of which faculties we are now to treat. These faculties minister to the gratification of all the others; and distinguish man in an eminent degree from the lower animals.

30*th*, ORGAN of COMPARISON.

Dr. Gall observed various persons, who, in order to convince others, had, in every conversation, recourse to examples, similitudes and analogies; and seldom to reasoning and philosophical argument. In them he found, in the midst of the superior part of the forehead, an elevation which presented the form of a reversed pyramid; and he named this organ according to its fuctions, the organ of Analogy.

The activity of this faculty is very important. It compares the sensations and ideas of all the other faculties; and points out their difference, analogy, similitude or identity. It compares, for instance, the functions of the five external senses with the functions of the internal faculties: and hence it often happens, that the same vocal signs or expressions are applied to both kinds of functions; so that the same expressions are sometimes positive, and sometimes figurative. For this reason, the language of every nation proves, whether this organ is much or little developed in the greatest number of its individuals. If

they have this faculty in a high degree, their language is replete with figure.

This faculty attaches us to comparison without determining its kinds; for every one must choose his analogies from his knowledge, or from the sphere of activity of his other faculties. He who has the faculty of locality in a high degree, derives thence his examples; and another from figure, or from any other faculty in which he excells.

31*st*, CAUSALITY.

The function of this faculty is to trace the relation of cause and effect. It is the chief ingredient in a truly philosophical understanding. When powerful, it gives deep penetration, and a strong perception of logical consequence in argument, by which the speech and writings of the individual will be eminently distinguished. When weak, there is a difficulty in perceiving the connection betwixt premises and conclusions; an incapacity of thinking deeply; and a mental blindness to the merits of all abstract and philosophical disquisitions. In short, when it is weak, the authority, and consequently the importance and value of abstract and profound principles in philosophy, science, morals, politics, or religion, cannot be perceived. This faculty gives a genius for metaphysics and for deep reasoning of every kind. In short, it may be styled the faculty which penetrates both things and men.

The organ of it is completely ascertained; and I do not recollect of ever meeting with an instance in which it was largely developed, and the power wanting; or in which the organ was deficient, and the power eminently great.

32*d*, WIT*.

Wit is called by the metaphysicians a habit of association. But what gives the power of associating ideas, so as to produce in others the perception and pleasurable feeling of wit; or, after ideas are associated, what produces in us the power of experiencing the well known piquant emotion which arises from the exhibition of such associations? The metaphysicians leave us always in the dark at this point of philosophy. The natural power of forming such associations, and of experiencing that emotion, is not in uniform proportion to any other faculty of the mind; and yet, if the mind manifest but one power, or if wit be an act of the faculty which traces the relation of cause and effect, wit ought always to be in proportion to these other powers. Hence we might infer by reasoning, and what is more to the purpose, experience shews that there is a special faculty, the essence of which is to produce gaiety and laughter, and which perceives the qualities of objects, and the relations of ideas fitted by Nature to gratify it.

It is the possession of this special faculty, therefore, which constitutes a wit, and not any habit of loosely connecting ideas. Persons in whom the faculty is strong, are able to make wit out of every thing; and the point of their wit often consists as much in the appropriate tone and manner of delivering it, which the faculty inspires, as in the particular relation betwixt the ideas expressed.

* Dr. Spurzheim has ranged this faculty under the head of Sentiments, but, as Sir G. S. Mackenzie thinks, "it is impossible to be witty without reflection," it is perhaps more appropriately placed as at present. For some useful remarks on this faculty as also on Comparison, the reader is referred to the *Illustrations of Phrenology*, by the author just cited. Ed.

I have observed such a habitual tendency to wit in persons in whom the faculty is powerful, that it has been difficult to tell, even in the ordinary intercourse of life, when they were in jest, and when in earnest. Those individuals, on the other hand, in whom the faculty is weak, are deficient in the natural power of manifesting this mode of thought. They are unable to produce wit, as a person destitute of the faculty of tune, is to produce music; and it would be as easy to inspire the latter with a genius for music, as to make the former splendid in wit, by attempting to give them habits of association. Voltaire, Sterne, Piron, John Paul, &c. made wit of every thing, because they possessed the faculty in an eminent degree. The organ of this faculty is perfectly ascertained.

33*d*, IMITATION.

Dr. Spurzheim observes, that "there is in the brain, an organ of a faculty for which Gall never would have spontaneously thought of seeking. It seems to be a faculty *sui generis*. One of Gall's acquaintance, who possessed the faculty of imitating in a surprising degree, and was indeed a perfect actor, desired Gall to examine his head, because he had a transverse furrow in the midst of it. Gall accordingly found the hollow place; but he at the same time observed before it, at the superior part of the forehead, a considerable elevation, of a hemispherical form. Some time after, Gall observed also, in the institution for deaf and dumb persons, an individual, who, the first time he put on a mask at the carnival, imitated perfectly well all the persons who frequented the institution; and he found the configuration of the upper and fore part of his head, to be the same with that of his ac-

quaintance. In comparing many persons endowed with this faculty at Vienna, and during our travels, we have always found that the development of this organ coincides with the energy of the faculty of imitation. We therefore admit this organ as demonstrated."

"It seems to me, that this faculty has a great sphere of activity. This organ is in general more developed in children than in adult persons; and it is also known that children learn a great number of things by imitation. They do what they see done by others: they repeat what they hear told. Is it not the same with a great number of adults? Those who possess this organ much developed, do not only mention a fact, or an action, but they also imitate, as far as possible, the gestures and voice of the person and animals they describe. In constructive arts, it gives what is called expression, motion and life."

GENERAL OBSERVATIONS.

Having thus completed the numeration of the faculties, the specification of their functions, and the indication of the organs, by means of which they manifest themselves, I proceed to offer a few General Observations.

First, No "argument" can be offered to prove the existence of any faculty, or the organs of it. Every faculty and organ which are stated as ascertained, have been admitted only after an extensive series of observations of concomitance betwixt the manifestation and development described. I have endeavoured, in the First Essay, to shew that consciousness gives us no evidence of the existence of the organs; and that dissection is incapable of revealing their functions. Hence it follows that the profoundest philosopher, and the most skilful

anatomist, if they have not compared manifestations and development together, are perfectly unprepared to give an opinion, entitled to any serious consideration, regarding the truth or falsehood of the system. The profoundest philosopher is incapable of demonstrating, *a priori*, that the alleged facts are *impossible;* and he cannot shew that they are *untrue*, except by making observations himself. On self-observation, therefore, the conviction of every sensible person must rest; and if the system be tried by comparing it with Nature, it will be found to be completely supported by facts.

In the second place, If the system be true, the facts which it teaches are part of the order of creation; and a knowledge of the works of GOD can never lead to harm. Those who propagate a knowledge of it, must of course be responsible for every evil consequence which can be shewn to arise from it, if it be false; but the establishment of its truth is a sufficient answer to those who allege that it is dangerous; because, if the brain has really been made the organ of the mind by the Creator, the legitimate presumption is, that it has been well and wisely made such, and that those persons who see danger in a knowledge of what has been well and wisely done by the Creator, must be mistaken in their views. On the truth of the system, therefore, its supporters take their stand. If it be found untrue, I shall be the first to renounce it. But believing that it is true, and that its consequences will be highly beneficial in giving us enlightened views of human nature, I venture to recommend it to public attention.*

* Some persons suppose the doctrine, that the faculties are innate, and that their functions have been appointed by Nature, to be dangerous, because they conceive it to be inconsistent with the doctrine of human responsibility. But this idea is erroneous, as will afterwards be shewn; and, in point of fact, the doctrine is too obvious to every observer of Nature, to admit of dispute. Accordingly, no less an authority than that of Doctor Chalmers is to be found in

In the third place, let it be observed, that the great objects of investigation in this system, are the FACULTIES and their FUNCTIONS, and the ORGANS by means of which the faculties manifest themselves. The functions of the faculties depend upon their constitution, and the power of manifesting them depends upon the organs. The functions of the faculties cannot be changed by the human will. For example, the faculty of benevolence, will, when active, always give the specific emotion of compassion, in virtue of its constitution. The faculty of wit, when active, will always produce wit. The faculty which traces cause and effect, will penetrate into things, and seek to discover the relation of necessary consequence; and no differences in the faculties themselves arise, from differences in the particular objects to which each may be directed. Ideas, therefore, and the relations of ideas, are of subordinate importance in the philosophy of the mind. Faculties, and their functions, and the laws which they observe in their action, are of chief consequence; and it is when we know these thoroughly, that we shall be perfectly acquainted with this branch of philosophy. He who possesses any faculty which gives a propensity or sentiment, in a powerful degree, is able to feel that propensity or sentiment with great intensity, no matter in what country, or in what age he is born. He who possesses in a powerful degree a faculty which forms a particular class of ideas, or which traces the relation of cause and effect, is able to perform the functions of that faculty with eminent effect, whether fortune may have placed him at the plough, or at the helm of a State. Ideas depend on the circumstances in which the indivi-

support of it; and if it had been been either dangerous or untrue, it would not readily have found a place in his writings. In his Fourth Sermon preached in the Tron Church of Glasgow, (pp. 132, 3, 4, & 5,) the doctrine of innate dispositions is very beautifully and forcibly stated. To save the reader trouble, the passage is printed in the Appendix, No. II.

dual is placed, but the power of forming ideas depends upon nature alone.

The object of this system is to investigate the number and the functions of the primitive powers of the mind. It is a subject of high importance, and one of great difficulty; and there is more room for surprise, that Gall and Spurzheim have done so much, and done it so correctly, than that they have done no more, or have fallen into some errors. In ascertaining the number and functions of the faculties, a great difficulty undoubtedly arises from the following circumstances. We may find an individual eminently excelling in the capacity of performing certain acts of thought; and we may find a particular part of his brain largely developed; but the natural capacity which he possesses is not to do *specific acts*, like the instinct of bees to contruct cells, but *a general power*, specific only in its kind, but general in its application, to a great variety of pursuits. For example, the faculty of ideality gives us a specific power of feeling emotions of an elevating, enthusiastic, and sublime description; but this faculty may be variously manifested; as in composing sublime poetry, in executing sublime pictures, or in designing splendid palaces. Thus although the power is general in its application, each manifestation of it is of necessity confined to particular acts; and the difficulty is, to determine accurately the nature and extent of the *general power*, from observing it displayed in these particular acts. Besides, no action is the result of a single faculty alone; and hence the difficulty is increased, of determining, from actions flowing from various faculties, the precise sphere of activity of each faculty which inspires them. Every one who is acquainted with the philosophy of the mind, will see how much accurate observation and deep penetration are requisite to perfect the system in such a way; and every one will see what an interesting and important body of science the system must comprehend, when thus

completed. Great, however, as the difficulties are, they are by no means insuperable; and the mode of proceeding followed by Dr. Spurzheim, mentioned on page 133, seems fully adequate to surmount them.

In the *fourth* place, as to the organs. "It must be recollected, that the organs are not confined to the surface or convolutions of the brain; but that they extend from the surface to the basis, or medulla oblongata. The degree in which they are expanded at the surface, where they form the convolutions, will indicate, in general, the relative magnitude of the whole organ. Practice, with a certain natural delicacy of tact, is necessary to qualify a person to make observations with success. Our aim ought to be, to distinguish the size, and not the mere prominence of each organ. If one organ be much developed, and the neighbouring organ very little, the developed organ presents an elevation or protuberance; but if the neighbouring organs be developed in proportion, no protuberance can be perceived, and the surface is smooth." These are the directions of Gall and Spurzheim, expressed in the words of the author of Cranioscopy. The language is precise, and the ideas accurately transferred; and I avail myself of the passage with pleasure.

Allow me to add, that the eyes appear not to be always situated in the same position, relative to the external passage of the ear, in all individuals. When the orbits are high, an appearance of less brain in front will be produced, than there really is. The line connecting the two *meatus auditorii*, therefore, should be taken as an axis; and the proportion of brain lying in different directions around it, taken as the measure of the development of the different organs. If the mass of brain betwixt the ear and the forehead is large, the organs of the knowing and reflecting faculties are fully developed. If that which lies behind and immediately above the ears, is great, the organs of the propensities common to man and

animals are large. And a large quantity of brain in the upper and horizontal region of the skull, indicates, that the organs of those faculties which manifest the sentiments proper to man, are voluminous.

Let it be recollected also, that the *activity* of the organs exerts a powerful influence on the manifestations. A brain of moderate size, and great activity, will produce more vivid manifestations, than a large brain with little activity. Hence the fact, that hard labour, and exposure to bodily suffering, diminish the power of manifesting the faculties, while a sedentary employment, with moderate exercise, are favourable to the display of mental activity. Hence, too, the effects of education are accounted for. Organs never exercised perform their functions with difficulty; while those subjected to vigorous training act with energy and effect. It has been said by the enemies of the system, that Gall and Spurzheim state the effects of activity as a back-door to escape from the difficulty, when powerful faculties, with a small brain, are presented. But Gall and Spurzheim state only what they find in Nature: and the doctrines which they teach, are as independent of them, as the laws of gravitation were of Sir Isaac Newton. They, therefore, have no motive for providing any means of escape; for they have nothing to escape from. Accordingly, they state the effects of activity as matters of fact. If their opponents think this set of facts inconsistent with the other facts, they may reject both if they please. But it is with the brain, as with the bodily system in general; size is a general, but not an infallible indication of power. A grenadier company in a regiment displays more physical strength, as a body, than a company of light infantry, because the mass of organization in the one, is larger than in the other: yet one individual might be picked out of the light infantry company, who would excel in strength and activity, a particular individual who could be selected from the grenadiers.

If, therefore, the logical faculties of any one, lead him to draw the conclusion from this fact, that the size of the muscular organs is in general no criterion of strength, he is at perfect liberty to conclude also, that the size of the brain affords no general indication of the power of manifesting the faculties. Select a hundred men with large foreheads, and another hundred men with small foreheads from the same rank and profession in life and, the superiority of mental power will be as great in the former, in comparison to the latter, as the strength of the grenadiers is to that of the light infantry. But it is proper to notice also that, if in each individual the activity of all the organs be the same, the largest organs will still produce the most powerful manifestations.

An ingenious gentleman of this city, who has studied the system deeply, and made many observations, informs me, that he has found activity pretty generally indicated by the *prominence* of the organs. In some individuals, the development of the head is regular, and the surface smooth, like the portions of a regular sphere. In others, the development is irregular, and the surface rises into eminences, and sinks into depressions. The former, in the opinion of this gentleman, indicates inactivity, and the latter activity of the organization.

Every one possesses all the faculties; but the power of manifesting them, is different in different individuals.

In this account of the faculties, I have endeavoured to adhere as closely to the spirit of Dr. Spurzheim's observations as I could; and have, in many instances, adopted his language. I have, at the same time, endeavoured to render the functions of each faculty as intelligible to popular readers as possible. It has not been my intention to dissent from him in any important particular: for no one will be, for a long time, so able to teach the system as he; so that, in every instance where I may be found in opposition to him, I must be presumed to be in the

wrong. I cannot sufficiently recommend to those who wish to study the system, to consult Dr. Spurzheim's own works. They will find the doctrines there accurately laid down; and the more these works are studied, without prejudice, and with a philosophic purpose, the more will excellent sense be discovered in them. The object of the present publication is not to supersede them. Such an attempt would be absurb. It is only to make them better known, and more popular; and I have borrowed from them largely in this Essay, that I might furnish the reader with an outline of the system itself; without which he could not judge of the discussions relatives to its principles and merits.

It may be proper to mention here, that Dr. Gall and Dr. Spurzheim differ in some of their views. Both agree about the fundamental facts of the system; namely, that particular cerebral parts are organs for manifesting particular faculties of the mind. Their chief differences are respecting the functions and laws of the faculties; or, in short, regarding the Metaphysics of the system.

Dr. Gall speaks only of specific ACTIONS, as concomitant with particular kinds of development; and he never considers the nature of the GENERAL FACULTY, which produces the actions. For instance, he observed a particular part of the brain to be fully developed in thieves; and as he considered only the actions which he found in concomitance with this development, he called this part of the brain the Organ of theft. Dr. Spurzheim, on the other hand, considered actions as indicating mental powers, specific in their nature, but general in their application; and he named the faculties according to the general power, and not according to determinate actions. Thus, what Dr. Gall calls the Organ of Theft, Dr. Spurzheim denominates as the organ of the faculty of Covetiveness; because the desire to acquire is the general propensity, which, when abused, may lead to stealing; but he does

not conceive, that there is an organ for producing determinate acts of theft. In like manner, Dr. Gall speaks of the Organ of Poetry, because it is developed in poets; while Dr. Spurzheim considers the general sentiment manifested by this organ, without regard to the special modes in which it may be manifested, and names it Ideality.

Dr. Gall conceives that different actions are the result of modified states of the faculties; for instance, that justice is the effect of a modified state of the organ of benevolence. In short, what Dr. Spurzheim calls abuses of the general faculties, and often the effect of their mutual influence, Dr. Gall considers as the result of modified organs individually. For that reason, he names the organs by their most striking and determinate actions.

In like manner, Dr. Gall rejects the difference betwixt feelings and intellectual faculties; and he attributes memory and judgment to the feelings. He still continues to admit also negative faculties. Fear, for instance, as the result of the absence of courage.

These differences are distinctly mentioned by Dr. Spurzheim, in his work, entitled "Physiognomical System," pages 260 and 420, of the 2d edition.

Several opponents have represented these differences betwixt Dr. Gall and Dr. Spurzheim, as evidence that the system is not founded on facts as they represent, but the mere effusion of their imaginations. Those, however, who have studied the system, perceive, that such a representation is unfounded, and only calculated to mislead. On the leading facts of the system, as already mentioned, and on the substance of the doctrines, Gall and Spurzheim, and all their followers, are perfectly agreed; and it is chiefly as to metaphysical functions that they differ. On these points, it will probably be long before certainty is attained; and till then, differences of opinion regarding them is to be expected; but such differences,

when their true extent is known, do not derogate from the general certainty of the facts on which the system is founded.

So far is Dr. Spurzheim from wishing to impose on the world by any thing that can be called quackery, and so little is he desirous of representing the science as more advanced than it really is, that on learning that I meditated the present publication, he suggested the propriety of my noticing the differences betwixt Dr. Gall and himself. In a letter, dated *Paris, 10th June*, 1819, he says, "You are obliged to state how far Dr. Gall and I agree or not. He has declared against my additions since the publication of my work on Phrenology, where I mention the improvements I proposed, and which have been spoken of favourably in several journals. You cannot be mistaken, since the differences of our opinions are clearly stated in my work. I am not sorry for Dr. Gall's declaration with respect to myself; because he declares by his opposition what is not belonging to him. Examine and propagate what you think true. I never did depend on *verba magistri*, but give up every error and prejudice."

I need scarcely say, that Dr. Spurzheim's additions appear to me to be great improvements; and that the system in his hands has assumed a much more philosophical character than it had attained in the hands of Dr. Gall.

INTRODUCTORY REMARKS TO SECTION III.

[" It cannot be too often impressed on the student of Phrenology that it is *impossible* to know by external signs alone, the *character* of any individual. We can only ascertain what dispositions he possesses most strongly. By long observation of his actions and conversation, we may discover whether he has subdued the lower propensities, and given due exercise to the higher faculties. We may, after a little practice, observe the kind, and also the degree of talent possessed by an individual, but it is impossible to ascertain by simple inspection, whether he has or has not misapplied his talents, or even whether his feelings and propensities be active or otherwise. By observing proportions we may however judge to what conduct he is naturally prone, but we can never pretend to predict actions. We must also keep in mind, that the functions of the brain are affected by what medical men call Temperament. Should we meet with a person who appears to have the higher faculties well developed, but who nevertheless is dull and inactive ; or one who is active but in whom they are not so conspicuous, we may be certain that there is something in the general constitution that affects the organs, and this may sometimes be conjoined with neglected education. In short, let no one be in haste to become a physiognomist, lest he should betray ignorance and injure the system, of the truth of which he is satisfied. Let every student reflect, that no one is fond of acknowledging his defects ; and that few are so candid in their pursuit of truth, as to describe their failings, even to those who are best able to account for them in a philosophical manner. Let every one refuse to gratify mere idle curiosity, and beware of uttering opinions that may offend. A Phrenologist who de-

serves the name, will make his observations in silence and without impertinent gazing. If he sees any thing remarkable he will make inquiries in such a manner as to procure satisfaction without giving offence, or even allowing the objects of his questions to be known, and he will take care never to boast of his acuteness.

"The legitimate objects of Phrenological science after it has unfolded the true philosophy of the human mind, are improvements in criminal legislation, in education, and the treatment of insanity. These are noble objects and ought not to be pursued with levity, nor ought the studies which are requisite for attaining them to be treated with ridicule. The benefit which Prenology is likely ere long, to confer on the human race, appear to be incalculably great. We may be considered as too sanguine in our hopes, and we are willing that this should be our apology for attempting to assist in multiplying the numbers of those who can observe and judge for themselves. Natural Philosophy and Chemistry have added largely to the comforts of mankind, and, by rousing industry, have rendered nations wealthy. Phrenology will yet procure for man more splendid benefits: It will teach him to know himself; to reform the criminal; to relieve the unfortunate insane; to live in charity with all mankind; and to direct that great moral engine Education so as to make it produce its most beneficial effects. Of the innumerable systems of the philosophy of mind, which of them has attempted these great objects; or even put us in the way to discover the means of attempting them?" *Mackenzie's Illustrations, &c.*

The above remarks are so very pertinent, and so useful to the student of Phrenology, that we have thought they might be very properly introduced at the commencement of a chapter in which is treated the Modes of Activity of the faculties. Ed.

SECT. III

OF THE MODES OF ACTIVITY OF THE FACULTIES.

EVERY faculty when in action, from whatever cause, produces the kind of feeling, or forms the kind of ideas, which depends on its natural constitution; but some of the faculties may be excited to activity by an effort of the will, while others cannot.

The faculties which produce PROPENSITIES and SENTIMENTS, cannot be excited to activity by a mere act of volition; but the KNOWING and REFLECTING faculties, which form ideas, may be so excited. For example; we cannot conjure up the sensation of SENSUAL DESIRE, or the emotions of FEAR, COMPASSION or VENERATION, by merely willing to experience them; but we can recal an idea of a tree, or the notes of a tune, or the steps of logical argument, by a simple act of volition.

The faculties which produce PROPENSITIES and SENTIMENTS may enter into action from an internal incitement of the organs; and then the desire or emotion which each produces is experienced, whether we will to experience it or not. For example, the faculty of amativeness being internally active, produces the feeling of desire; and we cannot avoid the feeling if the faculty be active. We have it always in our power to permit or restrain the manifestation of it in actions; but we have no option, if the organs be excited, to experience or not to experience the feeling itself. The case is the same with the faculties of FEAR, HOPE, VENERATION, and the others. There are times when we feel involuntary emotions of fear or hope, or awe, arising in us, for which we cannot account;

and such feelings depend on the internal activity of the faculties of these sentiments.

In the second place, these faculties may be excited to activity, independently of the will, by the presentiment of the external objects fitted by nature to excite them. When an obscene object is presented, the faculty of amativeness starts into instantaneous activity, and produces the feeling dependent on its constitution. When an object in distress is presented, the faculty of benevolence starts into activity, and produces the feelings which depend upon it. When an object threatening danger is presented, cautiousness gives an instantaneous emotion of fear. And when stupendous objects in nature are presented, ideality gives an instantaneous emotion of sublimity. In all of these cases, the power of acting or of not acting, is completely dependent on the will; but the power of feeling or of not feeling, is not so, if the faculty be possessed.

In the third place, The faculties of which we are now speaking, may be excited to activity, or repressed, *indirectly*, by an effort of the will. For example: The knowing and reflecting faculties have the function of forming ideas. Now, if I employ these faculties to conceive internally the objects fitted by nature to excite the propensities and sentiments, the faculties of the propensities and sentiments will start into activity in the same manner, but not in so powerful a degree, as if their appropriate objects were externally present. The vivacity of the feeling, in such cases, will be in proportion to the vivacity of the conception, and to the energy of the faculties of the propensities and sentiments together. For example; if I conceive an obscene object, the faculty of amativeness will start into activity. If I conceive inwardly an object in distress, and benevolence be powerful, tears will sometimes flow from the emotion produced. In like manner, if I wish to repress the activity of amative-

hess, I cannot do so by merely willing that that propensity be quiet; but if I conceive objects fitted to excite veneration, fear, pride, or benevolence, these faculties will then be excited, and amativeness will sink into inactivity.

Hence, he who has any propensity or sentiment powerful in his mind, will have his intellect filled frequently with conceptions fitted to gratify it. If amativeness predominate, the inward thoughts will too often be polluted; if fear predominate, the inward thoughts will be directed to dismal objects; if benevolence predominate, the inward conceptions will be of plans for removing distress; if veneration, the thoughts will be of religion; if covetiveness predominate, the thoughts will be of plans for saving and accumulation; if ideality predominate, the thoughts will be of splendid scenes, superior to all known realities.

As the faculties of the Propensities and Sentiments do not form ideas, and as it is impossible to excite or recal the feelings or emotions produced by them, directly, by an act of the will, it follows, that these faculties have not the attributes of Perception, Conception, Memory, Imagination: They have the attribute of SENSATION alone; that is to say, when they are active, a sensation or emotion is experienced. Hence SENSATION is an accompaniment of the activity of all the faculties which feel, and of the nervous system in general, but sensation is no faculty in itself.

The laws of the KNOWING and REFLECTING FACULTIES are different: These faculties FORM IDEAS, and PERCEIVE RELATIONS; they are subject to the will; and they minister to the gratification of the other faculties which only feel.

1*st*, These faculties may be active from internal causes, as well as the former, and then the kinds of ideas which they are fitted to form, are presented involuntarily to the

mind. The musician feels the notes flowing on him uncalled for. A man in whom NUMBER is powerful and active, calculates by a natural impulse. He in whom FORM is powerful, conceives figures by internal inspiration. He in whom CAUSALITY is powerful and active, reasons, while he thinks, without an effort. He in whom WIT is powerful and active, feels witty conceptions flowing into his mind spontaneously, and even at times and places when he would wish them not to appear.

2dly, These faculties may be excited by the presentment of the external objects fitted to call them into activity: and,

3dly, They may be excited to activity by an act of volition.

When excited by the presentment of external objects, the objects are PERCEIVED, and this act is called PERCEPTION. Perception is the lowest degree of activity of these 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 perceive 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 the steps of an argument are logically and distinctly stated, he who cannot perceive the relation betwixt the steps, and the necessity of the conclusion, is destitute of the power of manifesting the faculty of causality: and so on. Thus perception is a mode of action of the faculties which form ideas, and implies the lowest degree of activity; but perception is no separate faculty.

When these faculties are excited by an act of the will, the ideas which they had previously formed are recalled: This act is named MEMORY, and it is the *second degree of activity* of each of these faculties; but is no faculty itself.

When the faculties are powerfully active, from internal excitement, whether by the will or from natural acti-

vity, the ideas they have previously formed are vividly and rapidly conceived, and the act of forming them is styled CONCEPTION or IMAGINATION. The train of ideas which is constantly flowing through the mind, depends on the internal activity of the faculties and not on bonds of association betwixt particular ideas themselves. When the faculties are vigorous and active, the succession is rapid; when weak and inactive, it is slow. During profound sleep, when the organs are entirely at rest, it ceases altogether. Conception and imagination, therefore, are not faculties themselves, but result from the *third degree of activity* of every faculty which forms ideas.

And lastly, JUDGMENT belongs to the REFLECTING faculties alone. The KNOWING faculties may be said, in one sense, to judge; as, for example, the faculty of tune may be agreeably or disagreeably affected, and in this way may be said to judge of sounds; but judgment, in the proper sense of the word, is a perception of relation, or of fitness, or of the connection betwixt means and an end, and it belongs to a class of faculties entirely separate, viz. the reflecting faculties. These faculties have perception, memory, and imagination also. He who possesses them powerfully, perceives and conceives, remembers and imagines, processes of deduction, or ideas of abstract relations, with great facility.

On these principles we are able to explain why individuals may manifest a great power of perception, memory or imagination, and little judgment. If an individual have the power of manifesting several *knowing* faculties vigorously, he will have those powers in an eminent degree, while if he be deficient in the power of manifesting the faculties which reason, he will be deficient in judgment. If philosophers would but examine mankind, they would find that a great memory or great imagination in any individual, is generally limited to particular classes of ideas, for, in general no individual has *all* the knowing

faculties powerfully bestowed. They would find, moreever, that each of these individuals has always great power of *forming* the classes or kinds of ideas which are the objects of his imagination or memory; and that in every case where an individual is deficient in judgment, he has extreme difficulty in perceiving, conceiving, and remembering ideas of abstract relations; or, in other words, that in respect of such classes of ideas, he is equally deficient in the powers of *conception* and *memory*, as he is in *judgment*. And, as the converse of this fact, they will find, that an individual who manifests much reasoning power, has always a great memory for abstract principles, and for the steps of a logical argument. In short, if they would observe mankind, they would learn that an individual has often great natural powers of conception, attention, association and memory, as to one particular class of ideas, while he is extremely deficient in those powers as to another. He may have the faculty, for instance, which perceives *form*, powerful, and be deficient in that which perceives *melody*. He may have the faculty which forms ideas of *number* powerful, and be deficient in that which perceives *colours;* and, in every case where the powers of perception is deficient, the power of imagination, memory and association, will be found to be so too. Such deficiencies or uncommon endowments are *natural*, and there are individuals on whom no cultivation or habits will confer the power of forming, imagining and remembering, certain ideas with facility, while they naturally possess these powers in great perfection with regard to other classes.

ATTENTION is not a faculty of the mind; but merely consists in a vivid application of the faculties which form ideas. Unless a faculty be possessed, the objects of which it take cognizance cannot be attended to by an effort of the will.

Here, again, let me be permitted to repeat, that these views are founded not on theories of imagination, but on

the observation of real facts. It was the fact, observed so completely as to be beyond the possibility of doubt, that there are *natural* differences in the power of individuals to form certain classes of ideas, or to perform certain mental acts, that first led Dr. Gall to think of the causes of them. It was after having found in actual life individuals possessing naturally the powers of conception, imagination and memory, as to one class of ideas, who were utterly destitute of these powers as to other classes, that he and Dr. Spurzheim formed the ideas of the faculties now detailed.

CONSCIOUSNESS means the knowledge which the mind has of its own operations, but of course it is not a separate faculty. Consciousness gives us no intimation of the distinct existence and separate functions of the faculties, and does not perceive the existence of the organs. It reveals only the kind of feelings, and the kind of ideas, which the faculties form, and it aids us in discovering their laws. It is a curious and important fact, in the human constitution, that from this blindness of consciousness to the distinct existence and functions of the faculties, arises a mental blindness to the effects which the faculties of the propensities and sentiments when active, produce upon our manner of perceiving and judging: For example: An individual under the influence of a strong covetive faculty, is not himself aware how forcibly that propensity influences his manner of perceiving and thinking. His own conduct appears to him natural and proper, while the influence continues, and it requires a great exertion of the superior faculties to discriminate the effects of the propensity, to make allowance for them, and to act from the dictates of the higher faculties in opposition to desire. But present to such an individual the spectacle of a counterpart of himself hoarding and griping, and plodding after wealth, which he never seeks to enjoy, and he immediately perceives in this individua

the absurdity of the same conduct which in himself appears perfectly proper. The reason is this: He judges of the conduct of others by the dictates of the higher faculties alone, and he makes no allowance for the influence of the covetive faculty in that individual's manner of thinking, because he does not feel the impulses which it gives, and because even in himself he is not aware of the effects of the influence which it actually exerts.

The case is similar with the proud man, the vain man, the passionate man, and every other who is under the domination of particular propensities or sentiments. The proud man is not aware that the special delight which he feels on contemplating himself, arises from the internal impulses of a powerful faculty of self-esteem, and that the splendid appearance of his actions in his own eyes, is not a little influenced by the feelings communicated by this sentiment. In like manner, the vain man is not aware that his anxiety to shine in our eyes is inspired by a powerful faculty of the love of approbation, nor does he perceive, that under the unguided influence of this inspiration, he is rendering himself absurd, when he thinks that he shines most conspicuously. Impartial spectators always see the delusion, because they judge by the reasoning faculties alone, not blinded or encumbered by the disturbing influence of the sentiments or propensities which inspire the person observed. Hence a person in love sees objects in a light in which none else can perceive them; because his intellectual faculties are fascinated in performing their functions, by the excessive activity and delightful impulses of the propensities and sentiments within himself; but these impulses not existing in the impartial spectator, the conduct of the lover is seen with other eyes. Thus, one important use of this system is to make us acquainted with ourselves, and to open our eyes to the true nature of the impulses which incite us to action.

Hence the glaring inadequacy of exclusive reflection on the subjects of our own consciousness, as a mode of studying the Philosophy of the Mind; for, as we have already seen, consciousness gives us no intimation of the independent existence and separate functions of the faculties, and, besides, when the faculties which *feel* are energetically active, reflection is impracticable; and when the faculties which reflect are in a state of intense activity, feeling is repressed.

PLEASURE and PAIN are affections of every faculty. Every faculty, when indulged in its natural action, feels pleasure; "when disagreeably affected, feels pain; consequently the kinds of pain and pleasure are as numerous as the faculties. Hence one individual delights in generously pardoning offences, and another in taking revenge. One is happy in the possession of riches, and another glories in disdaining the vanity of mankind." Thus, "pain and pleasure are the result, and not the cause of the particular faculties."—*Spurzheim's* New Physiog. Syst. p. 468.

PASSION is the highest degree of activity of any faculty, and the passions are as different as the faculties. Thus, a passion for glory is the result of a high activity of the faculty which produces the LOVE OF APPROBATION. A passion for money is the result of a high activity of COVETIVENESS. A passion for music is the result of a high activity of the faculty of TUNE. A passion for metaphysics, the result of a high activity of the faculty of CAUSALITY. Hence there can be no such thing as *factitious* passions, although such passions are spoken of in various books. Man cannot alter his nature, and every object that he can desire must be desired in consequence of its tending to gratify some natural faculty.

"Locke and many modern writers maintain, that children are destitute of passions; and it is true that there

is in adults one passion which is not observed in children, the passion of love. There have been, however, some individuals who, at three or four years of age, have felt passionately this propensity; and in general the greater number of inclinations manifest themselves with energetic activity in children. The opponents of our doctrine, for the most part, confound the subjects upon which the particular faculties act at different ages, with the inclinations themselves. Children, it is true, have no inclination to defraud the orphan of his inheritance, or to conquer kingdoms; but they sometimes deceive one another for a bird's nest; they fight for play-things, and they are proud to occupy the first place at school. Young boys are even more grieved by the loss of a bird, than when grown up they are by that of a horse. Some faculties are even more active in children than in adults, while other faculties are more energetic in adults than in children. Hence passion, in the signification of the highest degree of activity, in general takes place in children; and very few faculties are quite inactive in them. This is also the case with other faculties in adults. Thus, it is necessary to speak more precisely, and to indicate the faculties which do not act passionately at different ages; but it is false to say generally, that children have no passions. Children have also passions in the sense of affections; for who has not observed in them anger, jealousy, envy, shame, affliction, joy, &c. Hence children have passions as well as adults." *Spurzheim*, p. 470.

ASSOCIATION is not a facuty itself; it expresses only the mutual influence of the faculties. The metaphysicians, not keeping sufficiently in view the distinction betwixt the mind and the ideas which it forms, have overlooked *the association of* FACULTIES, while they have written volumes on the association of ideas. Now, the formation, and consequently the association of ideas, depend, in the first place, on the *natural faculties* which

form them, and, in the second place, on the casual circumstances which give occasion to these faculties to act. Without the faculties, the ideas cannot be formed, and of course cannot be associated ; but if the faculties be possessed, the formations, and consequently the combinations of individual ideas, may be as numerous and as various as the possible combinations of the sands of the sea. It is in vain, therefore, to expect to find any law or principle regulating the association of individual ideas. But the mutual influence of organs by association, is determinate, and a knowledge of these associations, and of the functions of the faculties manifested by the organs, gives us a full view into the philosophy of the association of ideas.

As already said, the organs of the knowing and reflecting faculties alone appear directly subjected to the will. Let us inquire, then, what other organs of our constitution in general, are placed at the command of these faculties, by association with those cerebral parts which are the organs of these faculties, and what not. In the first place, the nerves of voluntary motion are so ; while the nerves of the five senses are not. For example : I can at any instant reproduce, by an act of the will, any motion I have voluntarily made before ; but I cannot reproduce a single sensation or impression, experienced by means of the organs of sense, by merely willing to do so. The organs of sense may be employed by the will to examine external bodies ; but it appears to me, that in all such cases, it is the nerves of motion which obey the will, and which act as the instruments for applying the organs of sense. For example : The nerves of motion employ the fingers to feel, and the tongue to taste, open the nostrils to smell, prick up the ears to hear, carry forward the head to look ; but the organ applied is passive, and its action is not dependent on the will. When we wish not to see, we draw the eye-lid over the eye ; but we cannot

close up any of the other senses by similar means, nor indeed by any means at all. We rouse the internal faculties to attend earnestly and deeply to the impression made on the organ of sense, that we may judge more correctly ; but still, this effort does not take place in the organ of sense, but in the internal faculties. In these views, I may appear to differ a little from Dr. Spurzheim, who appears to think, that there is an active as well as passive state of the five senses. But, perhaps, the difference is more in words than in substance.

From the organs of sense being thus independent of the will, arises the circumstance of our being unable to recal a feeling of pain, a taste, a sound or a smell, formerly experienced ; and our inability to sympathise with such impressions when experienced by others, unless experienced also by ourselves.

In the second place, The organs of the propensities and sentiments, *are associated* with the organs of the knowing and reflecting faculties; and the respective organs, of course, exert a mutual influence. For example : By conceiving an object in distress, I can raise the emotion of pity in my mind ; by conceiving an obscene object, I can raise a feeling of another kind ; by conceiving a splendid scene in nature, I can excite the emotions produced by the faculty of ideality ; and so on with every one of the faculties which produce desire and emotion.

In the third place, The organs of the knowing and reflecting faculties are associated with each other, and assist each other in their action. For example, The faculty of tune is the only one which perceives the impressions of melody ; but, in reading music, this faculty makes use of the faculties of form and colour to perceive and distinguish the signs of the notes as written upon paper. I have no doubt, although I do not speak from observation, that there are great differences in the powers of different individuals to read music with facility, and to

play written music extempore, founded on differences in the facility of perceiving form. One, for instance, who has the less powerful faculty of tune, but the more powerful faculty of form, will read and play extemporaneously, with greater facility and correctness, then one who has a more powerful faculty of tune, but a weaker faculty of form. Or take another example: The REFLECTING faculties alone reason; but the KNOWING faculties perceive qualities, or furnish the data on which reasoning proceeds. Now, he who has powerful faculties of Form, Colour, and Ideality, and moderate Reflecting Faculties, will reason better on Painting as an art, than he who has powerful Reflecting Faculties, but limited Faculties of Form, Colour and Ideality; because with the data, moderate faculties may reason well; while, without a correct perception of the data, the most powerful reflecting faculties can never arrive at a sound conclusion.

What we have now stated, applies to the association of the organs of the *faculties* with one another. But we have yet to consider the associations which may be formed betwixt the faculties and *signs*. For example: *Nature* has formed an association betwixt the external appearance of misery and the faculty of benevolence; so that, on the presentation of the appearance, the faculty enters into activity, and generates the emotion of pity. Nature, in like manner, has connected the faculty of tune with the impressions called sounds, by a link of such a nature that a certain sound produces a certain feeling and perception. Nature has associated the faculty of wit with external objects; so that, on the presentation of certain circumstances, instantaneous laughter is excited. Now, in such cases, the association betwixt the faculty and the sign or external object, is natural; and on this association natural language is founded. The sign requires only to be presented, and it is understood in all countries, and by all nations.

But, as we have already seen, mankind possess the power of inventing and establishing arbitrary signs, to express particular inward feelings, or particular conceptions. For example: The words Love, Compassion and Justice, are mere conventional signs, by which we, in Britain, agree to express three different internal feelings or sentiments of the mind; but there is no natural connection whatever betwixt the signs and the things signified.

Now, the way in which we learn the signification of these signs, is this. Shew us a person in a rage, and express his state of mind by the word "Rage," and every time the word is used afterwards, we understand it to mean that state of excitement of the mind. In the same way, point out the object I now write upon, and call it a *Table*, and every time the word is mentioned, I conceive the thing signified by it. Hence, to be able to comprehend the meaning of a word, we must be able to feel the propensity or sentiment, or to form the conception, of which the word is the sign. For example: A child of three years old, is unable to conceive the meaning of the word Lust; because, at that age, the child has not the power of experiencing the propensity signified by it. But he can conceive the meaning of the word Table, because he is then quite able to form a conception of that piece of furniture when presented to him. A child of three years old cannot form a conception of what we mean by the words logic, syllogism, necessary consequence, abstract principle, and so on; because the reflecting faculties, which conceive the things signified, are in him not yet developed. Or a person who is destitute of the faculty of tune, can never conceive fully what we mean by the word melody.

Hence, the human mind is so constituted that any *indifferent* object may be selected and used as the arbitrary sign of any propensity, feeling or conception whatever. I say

indifferent object ; for if the object stands already in a natural relation to any faculty, it cannot be made the arbitrary sign of an emotion of any opposite faculty. For example : We might, by a mutual understanding, constitute a square figure, thus |⎕|, the artificial sign of the emotion termed Rage. After the agreement was understood, that figure would suggest the idea of rage to us, just as well as the letters R,a,g,e, which are mere marks placed in a certain order. But if we were whimsical enough to make the figure of a sweet and smiling countenance, which likewise is merely a species of form, the sign of the emotion Rage, we could never, by any efforts, come to associate the idea of rage with that figure, with facility ; for it stands already in the situation of the natural sign of emotions entirely opposite. In the same way, we might associate feelings of veneration, pity, affection or grief, with soft and slow notes of music ; because these notes, which produce emotions of a specific kind of themselves, may become arbitrary signs of any other emotions of *a homogeneous kind*, which we please to attach to them. But no association could ever be formed, by which soft, slow, and delicate tones, would become the artificial signs of violent rage, jealousy and fury ; because the *natural* character of such tones is directly opposite to the natural character of such feelings.

Hence, the circumstance of an object being already the natural sign of a propensity, sentiment or conception, of a certain kind, appears to be the only limit to our power of associating with its propensities, and conceptions of every other description, so as to make the artificial signs suggest the feeling or conception signified, to those who are acquainted with the convention.

The rapidity and vivacity with which a feeling or conception is excited on presentation of the sign, will be in proportion to the natural perfection of the faculties and

the degree in which they have been exercised, but not in proportion to *either* of these circumstances singly.

Let us apply these principles to explain the phenomena of actual life, and we shall understand them better. For example,

A person in whom Amativeness is powerful, will associate ideas of obscene objects, stories and circumstances, with great facility, and will recollect them long, because they gratify this propensity. Here, the only link of association betwixt the different ideas forming the group, is their common subserviency to produce the general effect. A person in whom Combativeness is powerful will associate the ideas connected with a battle, and he will recollect and detail them with the minutest accuracy. He in whom that faculty is weak will neither attend to the fight, associate the ideas, nor recollect them so well as the other. He in whom Veneration is powerful, will attend to the ideas of a pious exhortation, associate them, and recollect them, while he in whom veneration is weak will probably forget them all. He in whom Tune is powerful will with facility, associate, recollect and reproduce the impressions of musical notes, while he who has not the power of manifesting that faculty, will be utterly incapable of doing so. Farther, he who has tune, and also veneration, conscientiousness and cautiousness powerful, faculties which produce grave and sedate characters, will with delight, associate notes which, in their natural character, harmonize with these feelings, while he will with difficulty, associate such as are more adapted to wit, hope and ideality, if he does not possess these faculties as powerfully as the others. He who possesses constructiveness, form and causality powerful, will associate with facility ideas of mechanical contrivances, while he in whom these faculties are weak will be wholly unable to recollect them.

I have seen the strongest evidence of the correctness

of these principles, in the different effects produced by the same book on different minds. The particular scenes fitted to gratify the faculties which were most energetic in each individual, took hold of his memory, while the others were forgotten; and every one gave an opinion of the merits or demerits of the book, as the author had succeeded in gratifying his particular faculties or not. He in whom combativeness was powerful was charmed with the battles; he in whom cove iveness was powerful was delighted with the maxims of frugality; he in whom benevolence was powerful was delighted with the traits of generosity; he in whom locality was powerful was delighted with the descriptions of scenery, and so on; each having associated readily the kinds of ideas which were related to his own most active faculties.

Hence, the principles of association must be sought for in the constitution of the faculties, and not in the relations of particular ideas. In using association, therefore, as an instrument of artificial memory, we ought to keep always in view, that every individual will associate with greatest facility, ideas with things which he has the greatest natural facility in perceiving. For example: He who has Number most powerful, will associate words most easily with numbers. He who has Form most powerful, will associate words most easily with figures. He who has Locality most powerful, will associate words most easily with space. He who has Tune most powerful will associate words most easily with musical notes.

Hence, also, the influence of Associations on our Judgment is easily accounted for. He in whom Veneration is powerful, and to whom the image of a saint has been from infancy presented as an object to be venerated, experiences an instantaneous and involuntary emotion of veneration every time the image is presented to him, or a conception of it formed, because it is now a sign which excites in him that emotion, and which emotion excludes

the reflecting faculties from performing their functions. Hence, until we can break this association, and prevent the conception of the image from operating as a sign to excite the faculty of veneration into activity, we shall never succeed in bringing his understanding to examine the real attributes of the object itself, and to perceive its want of every quality that can justly be venerated. In the same way; when a person is in Love, the perception or conception of the object beloved stirs up the faculties which feel into such vivid emotion, and that emotion is so delightful, and the reflecting faculties have so little consciousness of the real source of the fascination being in the faculties which feel, that it is impossible to make the lover see the object with the eyes of a disinterested spectator. If we could once break the association betwixt the object and the faculties which feel, the reflecting faculties would then perform their functions faithfully, and the object would be seen in its true colours. But, while we are unable to break this link, and to prevent this fascination, we may reason *ad sempiternum*, and our conclusions will never appear to be sound, because the premises, that is, the appearance of the object, will never be the same to the party most interested in the argument, and to us.

Thus the associations which mislead the judgment, and perpetuate prejudices, are associations of words or things with *feelings* or *sentiments*, and not associations of conceptions with conceptions, or merely of ideas with ideas. The whole classes of ideas formed by the knowing and reflecting faculties, may be associated *ad infinitum*, if these ideas do not become linked with the propensities and sentiments, and no moral prejudices will arise. Ideas of form, colour, order, and impressions of melody, may be associated in ten thousand ways, and faults in taste may perhaps be the consequence ; but unless the association embrace feelings and sentiments also, what is called the heart, in common speech, is not misled.

Thus, in studying the Laws of Association, we must go beyond the ideas themselves, and consider the faculties which form them. If the faculties be kept in view, the whole phenomena of association will appear lucid and intelligible, and we shall find Nature confirming our principles, because they will be founded on Nature. We shall find the individual who has the REFLECTING FACULTIES most powerful, associating ideas according to the relation of necessary consequence. We shall find him who has the KNOWING FACULTIES most powerful, associating ideas according to the relations of time, place, and circumstances; and, in every case, we shall find each individual associating those ideas with most facility, and recollecting those ideas most perfectly, which minister to the gratification of his most powerful propensities or sentiments. If we seek only for relations among individual ideas themselves, or for general laws according to which ideas are associated in all individuals, our researches will never be crowned with success;—ideas being uniform only in kinds, but varying as to individuality, in every individual of the race. No stronger proof of this fact could be found, than in the circumstance that, although different individuals will use the same process of reasoning to produce the same conviction, yet no two will state their arguments in the same words, or make use of the same illustrations. The general identity of the reasoning process depends on the identity of the constitution of the faculties which reason; but the difference in words and illustration depends on the individual circumstances in which the reasoner has been placed, and which have afforded his faculties the particular materials which he uses. If we should suppose an architect to look for the cause of the figure of a Grecian temple, in the particular way in which each stone is placed upon another, instead of searching for it in the faculties of the designer, we should have an exact representation of a

philosopher who seeks to discover the principles of association, by examining the relations of particular ideas themselves. The individual stones forming the temple, might have been arranged in millions of different ways, and still the temple have been the same. In like manner, individual ideas may be associated in an endless variety of combinations, and still the general expression of sense be the same. The ideas which compose Milton's Paradise Lost, for instance, might have been arranged in numberless ways, besides the one which he has adopted; or the ideas themselves might even have been varied; and yet if the same breathing spirit of ideality and veneration, and the same energy of the faculties which conceive, had presided in the construction of the poem, it would have been in every respect as excellent as it is.

The vigour of one man's style, and the spiritlessness of another's, arise, not from the former stringing up ideas and words, by one rule, and the other by a different one; but from the former putting *mind* into his words, which the latter cannot do, because he does not possess the faculties so powerfully as the other. In the last place,

SYMPATHY is not a faculty, nor is it synonymous with moral approbation. The same notes sounded by ten instruments of the same kind harmonize with one another, and blend softly together to form one peal of melody. The cause of this is to be found in the similarity of the constitution and state of the strings. Each faculty of the human mind has a specific constitution; and, in virtue of that constitution, produces specific kinds of feelings, or forms specific kinds of ideas, just as much as a string produces specific tones in virtue of its constitution. I do not mean to say that the human mind is merely a passive instrument, like a violin; but whoever regards man with a philosophic eye must perceive that his constitution is, to a certain extent, determinate by Na-

ture, as well as the constitution of every other object on earth; and the knowledge of Man is nothing else than an acquaintance with this constitution, so far as it is fixed and determinate. The resemblance betwixt man and an instrument goes so far that, on the presentment of certain circumstances, certain feelings will arise, or certain conceptions will be formed, as invariably, and as independently of the will, as certain notes will issue from the strings of a violin on the strings being excited by the hand. Dr. Hutcheson says, most justly, "We cannot raise esteem, where no excellence appears in the object; neither fear, where no danger appears; nor pity, where no suffering; so neither can we raise good will by an effort of the mind."—(p. 44.) And the converse holds equally good, that where danger does appear, we cannot avoid feeling fear; or where suffering appears, we cannot avoid feeling pity, if the faculties which respectively give these emotions be possessed.

Now, wherever similar faculties are active in different individuals, similar feelings are experienced by each, and similarity of feeling is sympathy. Hence he who is under a strong feeling of Amativeness will sympathize with another individual in the same state. He who is under a strong feeling of Destructiveness will delight to join with others in schemes of devastation. He who is under a strong feeling of Veneration will join in adoration with the most glowing fervour. He who is under a strong feeling of Benevolence will join in schemes of charity with a melting soul. He who has powerful Reflecting Faculties will seek the society of those who reason and reflect. He who has Tune in an eminent degree will seek the company of those who will gratify it by producing pleasing sounds. He who has the Knowing Faculties most powerful will seek the company of those who converse, but exercise little reflection: and the reason of the sympathy in each case is to be found in the simi-

larity of the constitution of the faculties in the particular individuals who sympathize.

But, in the human mind, the faculties proper to man bear sway over those common to man and brutes: and hence, in treating of sympathy, we must keep in view that, if one of two individuals have covetiveness, for instance, strong, and conscientiousness weak, while the other of the two has covetiveness strong and conscientiousness strong also, these two individuals may not sympathize in their modes of gratifying the inferior propensity; for conscientiousness produces feelings of justice in the one, which the other, from the weakness of that faculty in him, does not experience.

We *approve* of the actions produced by the lower faculties of others, only when these faculties are guided by the faculties proper to man: For example, We never approve of lust in its naked deformity; nor of combativeness when indulged for the mere pleasure of fighting; nor of destructiveness when gratified for the mere delight of being ferocious; nor of covetiveness, when directed to the naked purpose of accumulating wealth. But we approve of the action of all these faculties when directed by justice and understanding. On the contrary, we approve of the action of the sentiments proper to man, even when unmingled with any other motive. For example, We approve of benevolence, from the mere glow of charity; of veneration, from the mere inward feeling of devotion; of justice, from the mere dictates of conscientiousness. And, indeed, actions done apparently from the impulses of these faculties lose their character of purity and excellence, in our estimation, in exact proportion to the alloy of the inferior faculties which we perceive to be mingled with them. Kindness, in which we perceive Interest, is always less valued than when pure and unadulterated. Activity in the service of the public loses its merit, in our eyes, in exact proportion as we perceive the motive to be

the love of approbation, unmingled with conscientiousness and true benevolence.

These facts prove the accuracy of Spurzheim's doctrine, that the higher faculties are made to govern the lower; and it proves the curious circumstance, that man is conscious of feelings, necessary, no doubt, in themselves, but of the gratification of which, when undirected by the superior powers, he himself disapproves. Even the higher sentiments, however, must act conformably to the understanding to be approved of; and excess of veneration, of benevolence, or of scrupulosity, is always regarded as weakness, just as excess of any lower propensity is regarded as vice.

There are some faculties also, which, from their constitution, do not sympathize in different individuals in whom they are equally active. We have seen that two individuals under vivid impulses of amativeness, combativeness, or covetiveness, may sympathize, even although the higher faculties do not controul or direct the actions so as to make each individual *approve* either of his own conduct or of his neighbour's: but two individuals under vivid impulses of Self-esteem or Love of Approbation do not sympathize in any case. Two proud men or two vain men repel each other, like the similar poles of a magnet. There is something so engrossing in these two faculties, that different individuals under the unrestrained influence of them are extremely offensive to each other. I speak this from observation, and have often been amused to see each perceiving the conceit and vanity of his counterpart, while he was utterly blind to his own.

SECT. IV.

MODIFICATIONS OF THE MANIFESTATIONS OF EVERY FACULTY.

It is of importance, in the next place, for those who mean to study the system philosophically, to attend to the mutual influence of the faculties. The manifestations which any faculty produces, will always partake of its specific character, but they will be considerably modified by the other faculties with which it may happen to be combined in the same individual. For instance, a powerful faculty of Covetiveness combined with a weak faculty of Conscientiousness, may produce theft, while the same faculty of covetiveness joined with a powerful faculty of conscientiousness, would produce keen efforts to acquire property, but directed according to the dictates of Justice. A strong faculty of destructiveness combined with a weak faculty of benevolence, would be apt to produce cruel and ferocious actions, while the same faculty of destructiveness, if combined with strong faculties of benevolence, firmness and justice, might be altogether restrained from producing outward manifestations. A powerful faculty of combativeness combined with weak faculties of justice and benevolence, might produce violent and unprovoked attacks on others; while the same faculty of combativeness combined with justice and benevolence, in a state of energy, would produce only great personal bravery and defensive prowess. A powerful faculty of love of approbation combined with weak reflecting faculties, will be apt to produce vanity, while the same love of approbation joined with justice, benevolence, and strong reflecting powers, will produce only honour-

able ambition and the love of fame. The faculty of self-esteem, when powerful, and combined with little justice and little benevolence, will produce intolerable pride and envy; while the same faculty combined with much justice and much benevolence, will produce a high-minded and noble deportment.

Some excellent observations on this subject will be found in Dr. Spurzheim's Physiognomical System, Section Second, of PRACTICAL CONSIDERATIONS. He there says, "I am convinced, that even different philosophical systems are the result of the different combinations of faculties. He who has more of the faculty of individuality will never neglect facts. He who possesses this faculty in a low degree, and those of comparison and causality in the highest, will begin to philosophize with cause, and construct the world, instead of observing its existence. He in whom, on the contrary, the faculty of causality is less active, will reject this kind of consideration, and think that it is unphilosophical to admit a primitive cause. If, in a philosopher, the superior sentiments be very energetic, his mind is directed principally toward moral principles. This circumstance explains the various systems of virtue and morality. One makes virtue consist in prudence, another in benevolence. One considers whatever is done, as being done from a love of praise or commendation, or from vanity; and another, as the effect of self-love. Hence philosophers, as well as all other persons, think differently; and every philosopher also considers his own manner of thinking and feeling as the best. It seems to him to be right, because his consciousness tells him so; but I think he is wrong in considering himself as the measure of the absolute nature of man. I am of opinion that, in examining the nature of man, we ought to make an abstraction of our manner of feeling and thinking. We never ought to admit in man a feeling as the strongest, or a manner of thinking as the best, solely because they

are conformable to ours ; nor ought we ever to deny in others what we do not possess : We ought only to observe the operations of the human mind, in the conviction that all essential kinds of manifestations of the mind, that is, all particular faculties, are adherent in its nature by creation, and to observe how every faculty acts and can act, and under what circumstances it does act. In this manner, I think it possible to determine the absolute nature of man, and the infinite modification of individuals."

SECT. V.

PATHOGNOMY, OR NATURAL LANGUAGE.

THIS subject is treated of at some length by Dr. Spurzheim, in Chap. III. of his octavo work. I introduce it here, for the sake of connection, and I select only a few of his observations, recommending a study of his chapter to those who wish to enter into the subject.

Pathognomy consists in the motions of the soft and mobile parts of the body, and these motions indicate the activity of the dispositions of the mind. We have already seen, that the nerves of voluntary motion are placed at the command of the will, and hence it follows, that when any feeling which we wish to communicate, is powerful within, we make use of the nerves of motion to express it, and these nerves produce not only sounds of the voice, but looks, attitudes and gestures. There is room to believe, that the natural external expressions of every faculty are as determinate as the special faculty itself. Dr. Spurzheim lays down the principles on which Pathognomy is founded. On the present occasion, I only notice a few of the individual instances, which will show the importance of the study. In general, the motions are in the direction of the organs of the faculties.

Self-esteem draws the head and the whole body upward and backward, and keeps them stiff. The eyes are open and staring; all the motions are measured; and the voice is slow and brief. The inactivity of this faculty, or humility, is indicated by quite opposite signs. The head and body are then bowed forward; and its highest degree is marked by prostration of the body. In love of approbation, all the expressions of the face, voice and

motions, are pleasant; the face is smiling; the lips are softly closed; sometimes the mouth is a little pointed; the voice is engaging; and the motions light, agile and caressing. This faculty gives the wish to be looked at, and hence all its decorative signs. Cautiousness lifts the head up and a little backward, puts every sense into activity, and commands attention. We listen and look around us.

In benevolence, all the expressions are lively, quiet, soft, free, peaceful, and without constraint. Adoration directs the head upward and forward, in the direction of the organ; the eyes and arms take the same direction; and the fingers are opened as if to receive a certain influence from above. If we need the assistance of GOD, we call on him, stretch out our hands, close them together, as if we would keep the Divinity, and say, Do not leave us, we hang on thee.

If we hear music, or play on any musical instrument, we listen and make various motions forward and sideward, according to the cadence. If we reckon internally, we look downward and sideward, still in the direction of the organ. In deep reflection, we put all the external senses in activity, and we keep the hands before the forehead, the seat of the organ.

SECT. VI.

MORAL LIBERTY.

On this subject I must refer to Dr. Spurzheim's larger work, under the head of "Moral Considerations," for an excellent elucidation of Moral Liberty, and an account of the source of moral evil. To understand his observations, it is necessary to be acquainted with the functions of the faculties, and to be satisfied that these functions are real. This, as often said, can only be the case after the system has been studied, and observations made; but when the mind is so prepared, no account of the above difficult and intricate subjects, will be found more interesting and more satisfactory than that of Dr. Spurzheim. I shall here merely sketch the general principles, for the sake of readers not familiar with such inquiries, which will enable them to see the nature of his data and his conclusions. He approaches very near the general principles of Dr. Hutcheson and those of Bishop Butler, in his Analogy of Natural and Revealed Religion.

Dr. Hutcheson says, that "we prosecute ends by an immediate disposition, or determination of the soul, which is prior to all action." (p. 38). "There are kind affections ultimately terminating on the good of others; and these constitute by nature, the immediate cause of moral approbation." (p. 43). "We cannot raise esteem by an act of the will, where no excellence appears in the object, neither fear, where no danger appears, nor pity, where no suffering; so neither can we raise good will by an effort of the mind. The natural cause must be presented." (p. 44). "The *moral faculty*

is an original determination or sense in our nature, not capable of being referred to other powers of perception." (p. 53). "Reason is only a subservient power to our ultimate determinations, either of perception or will. Reason can only direct to the means, or compare two ends previously constituted by some other immediate powers." (p. 58). "To each of our powers we seem to have a corresponding taste or sense, recommending the proper use of it to the agent, and making him relish or value the like exercise of it by another. This we see as to the powers of voice, of imitation, designing or machinery, motion, reasoning; there is a sense discerning and recommending the proper use of them." (p. 59). This moral sense, from its nature, appears to be designed for regulating and controlling all our powers." (p. 61).

Now, according to Dr. Spurzheim, moral liberty is accounted for as follows.

Each faculty produces a specific internal impulse or capacity of a certain kind; and it is a steady and permanent operating influence in the constitution. Being free, is the opposite of being forced; and hence, the first requisite of liberty, is having the power to permit or restrain the manifestations of these impulses in actions by the will. Accordingly, no one will deny that, although he feels desire, he may refrain from indulging it; although he may wish to make music, he may abstain from doing so; and so on with all the other impulses of our nature. Hence we possess the first requisite of liberty, the power of restraint.

The next ingredient in freedom, is *will*. Mere *desire* is not will; because, as we have just seen, we often desire to enjoy certain gratifications, and yet *will* not. We must enquire, therefore, in what will consists.

In order to have *will* to decide *for* or *against*, we must have the power of *comparing* actions with results.

For example: If I desire my neighbour's horse, and have no faculty of comparing the consequences of taking it with those of not taking it, I can have no will; I must just yield to the strongest impulse. But, if I can compare, and see death or transportation as the consequences of taking, and a mere suppression of desire as the consequence of not taking, then I have the power of *willing* not to take, or the power of choosing betwixt motives; and I may refrain from indulging my desire by an act of the will. Hence, *will* begins with the knowing and reflecting faculties, or with the understanding; and, therefore, the will of every animal is proportionate to its understanding. Man has the greatest freedom, because his will has the greatest extent; and this is the case, because he has the greatest understanding.

Thus, *will* is the decision of the understanding upon the *motives*. But we must now inquire whence the motives arise. The motives are furnished by the faculties; for every faculty gives an impulse to act in conformity to its own nature: and hence, the motives are as numerous as the faculties.

Thus, liberty requires will, motives, and the influence of the will upon the actions. This is, indeed, the only true idea of liberty; but this liberty is not yet moral liberty; and it consequently remains to be examined, where the morality of our actions begins.

If the impulses given by the different faculties appeared all equally elevated, excellent and authoritative in themselves, then there would be no difference of actions in point of morality; because every action would be merely a gratification of one faculty or another. But, if nature has made the faculties appear to the understanding not all to possess equal intrinsic dignity and authority, but has made some appear clearly and decidedly inferior and subservient in their nature to others, then it is clear that morality begins with these faculties of superior

authority. Now, the faculties which produce the propensities common to man and animals, appear to the understanding of every rational being inferior in their nature to the faculties which produce the sentiments proper to man, as conscientiousness, veneration, hope. Hence, all the motives which result from faculties common to man and animals present no morality, they suppose no idea of conscience or duty, nor any idea of sin; for no animal is susceptible of these feelings, and conscience begins with the sentiments proper to man. An indulgence of covetiveness in opposition to the dictates of conscientiousness implies guilt; for here, the lower propensity acts in defiance of the dictates of a higher sentiment. But the fox, when it preys in the poultry yard, has no consciousness of guilt; for it does not possess a faculty which produces the sentiment of justice or of duty; and hence, it cannot compare the action with the dictates of such a faculty, and of course, cannot perceive the opposition betwixt them. Hence, as liberty begins with understanding, so morality begins with the faculty of duty or justice. Absolute conscience thus results from the motives produced by the faculties proper to man; and moral liberty is will, applied to absolute conscience. Absolutely good or moral actions, therefore, result, when the will acts according to the motives proper to man; and whatever, is not conformable to will, applied to the motive of absolute conscience, is absolute evil. Man, then, has not only the greatest liberty, for he has the greatest will and the greatest number of motives; but he alone possesses moral liberty.

Thus, we may easily conceive, how moral evil has come into the world, or what is its origin. It consists in actions which are not conformable to the whole faculties proper to man. As soon as any faculty acts without being directed by all the faculties proper to man, these declare that the actions are abuses, or are morally evil.

Thus, moral good is any action conformable to the faculties proper to man, which are the directing faculties; and moral evil is any action which is not conformable to them. Now, the cause is clear, why moral evil has always existed, and probably will always exist. For the inferior faculties exist, and are inherent in human nature: their use is necessary to the preservation of man; but their energy easily goes farther than the faculties proper to man permit; and then it produces abuses. Hunger and thirst will always exist; therefore, at all times, man may eat and drink more than the preservation of his body requires, and gluttony and drunkenness may easily take place. But hunger and thirst are not bad in themselves; they only lead to evil consequences when satisfied in an improper manner. In the same way, the faculties which produce the lower propensities are not bad in themselves; but, as they may act with greater energy than the faculties proper to man approve of, abuses or moral evil may result from their disproportionate activity.

Those who have charged this system with leading to Fatalism, because it teaches that the faculties are innate, must have done so in extreme ignorance of the doctrines of our best divines on the subject of moral liberty. In Bishop Butler's "Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature," we meet with the following, among many other similar observations. "Together with the general principle of moral understanding, we have in our inward frame various affections towards particular external objects. These affections are naturally, and of right, subject to the government of the moral principle, as to the occasions upon which they may be gratified; as to the times, degrees, and manner, in which the objects of them may be pursued: but then, the principle of virtue can neither excite them, nor prevent their being excited. On the contrary, they are naturally felt, when the objects of them are pre-

sent to the mind; not only before all consideration, whether they can be obtained by lawful means, but after it is found they cannot. For the natural objects of affection continue so: the necessaries, conveniences, and pleasures of life, remain naturally desirable; though they cannot be obtained innocently: nay, though they cannot possibly be obtained at all. And when the objects of any affection whatever cannot be obtained without unlawful means; but may be obtained by them: such affection, though its being excited, and its continuing some time in the mind, be as innocent as it is natural and necessary; yet cannot but be conceived to have a tendency to incline persons to venture upon such unlawful means; and, therefore, must be conceived as putting them in some danger of it. Now, what is the general security against this danger, against their actually deviating from right? As the danger is, so also must the security be, from within; from the practical principle of virtue. And the strengthening or improving this principle, considered as practical, or as a principle of action, will lessen the danger, or increase the security against it. And this moral principle is capable of improvement, by proper discipline and exercise." (Analogy, Part I. ch. v. pp. 112,-13. Edition printed at Edinburg, 1804.)

"Let the assertion be despised, or let it be ridiculed, it is undeniably true, that moral obligations would remain certain, though it were not certain what would, upon the whole, be the consequences of observing or violating them. For these obligations arise immediately and necessarily from the judgment of our own mind unless perverted, which we cannot violate without being self-condemned." Part I. c. vii. p. 164.

"One cannot proceed one step in reasoning upon natural religion, any more than upon Christianity, without laying it down as a first principle, that the dispensations of Providence are not to be judged of by their perver-

sions, but by their genuine tendencies: not by what they actually do seem to effect, but what they would effect, if mankind did their part; that part which is justly put and left upon them. It is altogether as much the language of one as of the other, *He that is unjust, let him be unjust still; and he that is holy, let him be holy still.* (Rev. xxii. 11). The light of reason does not, any more than that of revelation, force men to submit to its authority: both admonish them of what they ought to do and avoid, together with the consequences of each; and after this, leave them at full liberty to act just as they please, till the appointed time of Judgment. Every moment's experience shews, that this is GOD's general rule of government." Part II. c. i. p. 186.

The reader is referred also to Butler's Dissertation on the Nature of Virtue; and his Sermons on Human Nature, where doctrines similar to those taught by Dr. Spurzheim are laid down in every page. The following, for example, among many others, might have been adopted by Dr. Spurzheim himself.

"There is a principle of reflection in men, by which they distinguish between, approve and disapprove their own actions. We are plainly constituted such sort of creatures, as to reflect upon our own nature. The mind can take a view of what passes within itself, its propension, aversions, passions, affections, as respecting such objects, and in such degrees: and of the several actions consequent thereupon. In this survey it approves of one, disapproves of another, and towards the third, is affected in neither of these ways, but is quite indifferent. This principle in man, by which he approves or disapproves his heart, temper and actions, is conscience; for this is the strict sense of the word, though sometimes it is used so as to takein more." Sermon I. upon Human Nature.

These doctrines coincide exactly with those of Dr. Spurzheim; and it would be extremely desirable, that

those who are disposed to attack the Doctor's views, should themselves favour us with some other theory, that we might ascertain the merits of the one with more facility, by comparing it with the other. I make this observation, from having observed, that those individuals are ever loudest in clamouring against the system as leading to fatalism, who do not themselves possess a single philosophical idea on the subject of Moral Liberty; and I am convinced, that the best way of enlightening the understandings of such individuals, is to induce them to endeavour to form a theory of their own, even in imagination; because they will then find, that they must always recur to innate dispositions, as the basis even of their imaginations on the subject.

SECT. VII.

FACTS ILLUSTRATIVE OF THE SYSTEM.

HITHERTO, when statements of particular facts have been brought forward in support of the system of Drs. Gall and Spurzheim, the opponents have, in every instance, represented them as untrue; and stigmatized them as either the deliberate falsehoods of designing quackery, or the result of the miserable delusions of a weak credulity. Such representations cannot be philosophically answered; being altogether gratuitous, they cannot be met by argument. The proper mode of treating them, is to regard them with contempt. But as we ought, in every case, to profit by experience; and as authenticity in facts tends powerfully to advance the progress of truth, it will be proper in future to bring forward cases, supported by all the evidence that can be obtained, and as free from suspicion as possible. In proportion as the number of witnesses to any set of facts is increased, the chances of incorrect evidence being given, from imperfect observation or deliberate design to delude, are diminished. Accordingly, although I have made many hundred observations myself, I have endeavoured, rather than state these, to obtain written statements of the observations of other individuals; and now present the latter to the reader as less liable to suspicion, than observations depending entirely on either my own veracity or judgment for their credibility. The gentlemen who have written these communications, do not, indeed, permit me to add their real signatures to their letters; but I pledge myself that the communications are genuine, and that the cases reported are real. To these

cases many more might have been added; but to the philosophical inquirer nothing is less interesting than mere details; and to the popular reader, too many facts are liable to appear fatiguing.

It is proper to add, also, to prevent misconception, that the facts now to be brought forward are presented not as data from which the reader is expected to conclude, without farther enquiry, that the system is founded in nature, or as the only grounds on which I have ventured so strongly to recommend it to his attention. They are laid before him merely as evidence to convince him that there are facts in nature in support of the system, which he may himself observe, if he will qualify himself to do so; and that the clamorous imputations, on the part of the opponents, of quackery and delusion against the supporters of the system, may be presumed to have arisen in no small degree from the ignorance of the opponents themselves on the subject. The facts now to be mentioned may, no doubt, like those which have already been presented, be made a subject of ridicule and contempt, by persons whose wit is greater than their judgment. But, as formerly observed, the ridicule in such a case attaches to Nature, and not to those who merely observe her constitution.

The first communication requires no preliminary observations.

"SIR, *22d June*, 1819.

"You are right in believing, that truth is most likely to be obtained from one, who was formerly a thorough despiser of Dr. Spurzheim's doctrine; but who, from self-examination, and a patient investigation of facts, was led not only to believe that the Doctor was right, but that all that had been previously taught of the Philosophy of the Human Mind, was emptiness. No apology was necessary for the request you have made, to be pos-

sessed of the history of my conversion, which I shall proceed to detail; and I am glad of the opportunity you have given me, not only to serve the cause of science by describing my own case, but of communicating the result of some observations on the indication of one faculty, that of language and verbal memory, inattention to which has led to some mistakes.

"That provoking word *Craniology*, which has misled so many, deceived me. I considered the system, without examination, as an extension of the whims of Lavater; and believed that it was just as possible to tell, from the appearance and shape of the fingers, whether a person had a delicate sense of touch, as to discover from the appearance of the skull, which is hard bone, whether a man was wise or foolish. In this state of mind, and at the time when the critique on Dr. Spurzheim's work appeared in the Edinburgh Review, I was attacked on the subject, by a lady very well known for her uncommon talent. As soon as she discovered that I had not read the Doctor's book, she ceased to argue, and asked, as a personal favour that I would take the first opportunity of hearing the Doctor lecture, and of becoming acquainted with him. This opportunity occurred, not many months after I had promised to give the Doctor a fair and patient hearing. His introductory explanation of the objects of his system, and of the foundation on which it was built, at once secured my attention, and arrested my whole thoughts. I sought an introduction to him, and resolved not only to listen to his lectures, but to converse with him as often as I could find him disengaged.

"Having some peculiarities of character, and some propensities sufficiently remarkable to have roused my exertions to overcome them, long before Dr. Spurzheim had been heard of, I considered my own case as fully sufficient to determine whether the Doctor was a true philosopher or a quack. I had not forgotten some symptoms of destruc-

tiveness that had manifested themselves in my conduct, and the recollection of which always made me shudder. On examination, I found the organ of that propensity fully developed; and I think it is a remark of Dr. Spurzheim's, that this organ is most active in childhood, the higher faculties which afterwards controul it, not arriving at maturity till later in life. I never could learn to repeat either prose or verse; and at school, I always experienced the greatest difficulty in getting my tasks by heart. In concomitance with this fact, I found the external indication of the organ of verbal memory or the organ of language, small. This defect is particularly distressing to me on many occasions; for I cannot speak in public, though my imagination is lively enough; nor can I recollect long what I read, nor write down readily any thing I have designed. I feel this defect, together with a deficiency in the organ of number, in another respect. Having the organ of music pretty well developed, I can with the greatest facility, compose music, but I lose it almost instantly, from my inability to remember the notes. I have forgotten the name of a friend; but I never forgot a face, nor a picture, nor scenes of nature; and in coincidence with this latter fact, form and locality are well developed. I may mention likewise, that the propensity to construct is strong, and the organ well marked; and I can exhibit on my hands numerous scars, the consequences of my youthful exertions with sharp tools. I am still very fond of designing and constructing. These, and many other peculiarities, I found most distinctly indicated on my head. If, then, any man will appeal to his own conscience, and examine his head in private, according to the rules laid down by Dr. Spurzheim, and after having compared several heads or skulls, he cannot fail to be convinced.

"Let any one when he meets another, known to be a linguist, or who has written on language, observe the

configuration of his eyes. Poets must have this as well as ideality, well developed, and I have remarked them in several. Almost every one who is zealous in the pursuit of natural history in any of its branches, possesses strong indications of verbal memory, as well as of form. Travellers have locality well developed. These are obvious signs, together with that of music.

"In regard to that kind of memory which retains words, allow me to mention, in order to guard you against mistakes, into which I have myself fallen, that, although a full and *prominent* eye at once indicates a strong verbal memory, and a facility in learning languages; yet small eyes, when in a particular position, relatively to the eye-brows, that is, somewhat distant from and below them, also indicate strong verbal memory. But when the eyes are deep seated, and near or close to the eye-brows, or upper part of the socket, then a defect of memory may be almost relied on. Also, when the eye is of a moderate size, but close up to the eye-brow, as in my own case, deficient memory is indicated. These configurations depend on the degree of depression of the brow forming the upper part of the socket, occasioned by the size of the portion of brain immediately above it. It is exceedingly difficult to become an adept in observing the smaller organs in living subjects; and to be able to do so, the organ of comparison must be in good order. But, for the mere purpose of confirming the principles of the system, there are a sufficient number of organs, the prominence and size of which, can never fail to convince every one, who is not too wise in his own conceit, or who is not afraid of self-condemnation.

"You ask me respecting a child whom Dr. Spurzheim selected, at sight, from among several other children who were very found of music, as having the musical faculty in a superior degree, and of whom the Doctor prophesied that he would not only be remarkably fond of music, but

that he would be most partial to the music of Mozart. The boy is not arrived at a time of life to shew any thing decided as to his taste; but I can say that some one or more of Mozart's airs, is sure to be heard from him every day, and sung with a precision of intonation, of which a child's voice is seldom capable. Dr. Spurzheim mentioned, that as Mozart's music had more philosophical combination than Beethoven's, which is more under the influence of imagination, he considered that the former would be the favourite with the boy, as he saw the indication of those powers which are necessary for that combination, in his head. I have observed, that the boy referred to, seems particularly pleased with such airs as have an expression of mildness and benevolence, such as that beginning, "Batti, Batti, O bel Masetto;" and these dispositions are not only most evident in the configuration of his head, but in his behaviour and manner.

"I am not yet prepared to state particular cases; but as far as my observation has gone, I think it very evident, that the peculiar taste in music of each individual, will be found to indicate certain peculiarities of his feeling and character, and which will be seen also in the form of the head.—If I have not answered your inquiries with sufficient minuteness, have the goodness to inform me; as I am ready to satisfy you in every particular."

The next letter is from a medical gentleman of this city; and his statement will, perhaps, be received with the greater confidence by some readers, when I mention, that he has not yet studied the system himself in detail, so as to form an ultimate opinion on its merits. In consequence, he cannot be regarded as viewing the facts which he states with the supposed partiality of a convert. His letter regards a son, who has a very uncommon development of the organs of the reflecting faculties and of form, and who has shewn talents uncommon for his years. I have seen the boy myself.

"DEAR SIR, *July* 9, 1819.

"In compliance with your wishes, I shall state to you such particulars as have appeared most striking in my son's turn of mind, and in the form of his head. He is now eight years of age.

"His head is altogether larger than the average. The part most particularly prominent, is the upper part of the forehead. His eyes are rather large, and remarkably distant from one another.

"In his conversation, he evinces a remarkable degree of mechanical curiosity, and a wish to account for the form and qualities of objects. He is fond of devising processes for the production of effects, that are either known to him, or strike him as practicable. When very young, he was often in the habit of putting various substances in the fire, to see whether they would melt, or burn, or remain unchanged.

"One of his favourite amusements is natural history; and the chief talent which he has discovered, is that of tracing the forms of animals, with any sort of drawing materials, and cutting them on paper, which he has long done. He produces striking resemblances in this manner, with the scissors, without any previous outline being traced, and without coming back, or altering his work. These are taken from Nature and artificial figures indiscriminately; and, where his materials strike him as deficient when used in the ordinary way, he often employs ingenious contrivances for completing his resemblances.

"He at one time conceived a passion for etymologies, in which he sometimes hit the truth, but for the most part shewed merely his good will to that pursuit, pleasing himself with vague and ridiculous derivations of words, under the disadvantages attending the confinement of his literary knowledge to his mother tongue.

"It is not easy to express in precise terms the *degree*

in which these mental phenomena have appeared. I may, however, state, that his talent in drawing and cutting figures, has appeared to many individuals quite singular and incredible, and that nearly all his voluntary conversation is occupied in the manner above described.

I am," &c. B.

The next letter is from a gentleman whose first strong impressions in favour of the system, arose from the exact correspondence betwixt the development of his own head, and the dispositions of which he was conscious.

"DEAR SIR, *Edinburgh, July* 15, 1819.

"I very willingly comply with your request. I am aware, indeed, that I cannot bring forward any facts that will be considered as decisive, respecting the truth of Spurzheim's System. You know that it is not long since my prejudices were so far overcome, as to allow me to compare facts with theory; and my opportunities of observation have not been very great. But the facts which I have observed, few and inconclusive as they are by themselves, will, I hope, meet the object you have in view. I may mention, in the first place, that I found the development of my own cranium correspond with the most wonderful exactness to my character. The very degree of my sentiments and intellectual faculties is denoted with the utmost precision. Every person who wishes to become acquainted with the science, naturally begins by examining his own development. But nobody ought to satisfy himself with comparing his cranium with the cast. Cranioscopy is an *art*, and before one can be expert in it, a time must be served to it, as to every other art. Recourse, therefore, should be had to some experienced observer, who will point out the situation of the different organs. I know that I made several mistakes, when comparing by myself the cast with my own head:

And, this, for a considerable time, I employed as an argument against the system. But my mistakes were at length rectified by a Spurzheimite who knew nothing of my character.—The most curious case that I have met with, is that of a boy whose brow sinks into a furrow immediately above the eyes, and rises into a ridge immediately under the hair. His character corresponds exactly with this development. He has a total want of order; his clothes and books are scattered over the whole house; he scarcely knows north from south; hates travelling; has no taste for the beauties of external nature; and is so absent to the common objects around him, that one would suppose he had an indistinctness of vision. But then his understanding is far above his years. He reasons like a philosopher. The account which he gives of any thing he has been reading, is a model for an abstract. Though he has a bad memory for the words of a language, (his eyes by the way are small and pressed upwards,) it is quite astonishing how he unravels a knotty passage. His dispositions are as exactly denoted by the development of the organs of his propensities and sentiments; but as there are some by whom the likeness might perhaps be recognized, it may not be quite fair to mention them. I have met with a number of gentlemen who have No. 24., Locality, strikingly developed, and I have uniformly found them given to travel, delighted with descriptive poetry, and anxious to know the relative situation of places. A friend of mine is well known by all his acquaintances as an excellent arithmetician. He can resolve a very complicated question in the least time, without having recourse to his pencil. When I first began to direct my attention to this science, I resolved to examine his organ for Number, the first time I should meet with him; and I was happy to find the protuberance at the external angle of the eye very remarkable. You must have observed this organ very strikingly developed in Dr. C.;

and you know he was once more admired as an eminent Mathematician, than as a Pulpit Orator. I unluckily am not acquainted with any person who is an eminent designer or architect; but I know many who are are utterly destitute of all constructiveness; and in them all I have found a hollow in No. 7. I have made many more observations; but I shall not trouble you with the details. I may mention in general, that I have found the development of Nos. 12. 31. 11. 20. and 29*, accompanied with corresponding manifestations. I only know of one ininstance where No. 9. Secretiveness, is much developed; and the individual shews, in his side-long look, all the slyness that is said to lurk in that organ. In the course of my observations, I have found several facts which I cannot reconcile to the system. But while there is such a mass of facts on the other side, I am disposed to ascribe these anomalies, partly to my want of expertness in examining the cranium, (I have a sad want of No. 20, Form and do not easily perceive differences in form,) and partly to the counteracting power of other propensities. If I find that this is not the case, I shall not give up the great principles of the system, which I now consider as established; but shall merely modify it according to the newly observed facts. I expect, indeed, that there will be much of this modifying: for, though Gall and Spurzheim have perhaps done as much as it was possible to expect, yet it is not to be supposed that any *two* individuals, whatever may be their talents and opportunities of observation, could form a system upon a subject of such difficulty, that would not require to be in some respects altered, improved, and enlarged. I am," &c. C.

The communication next in order, is from a gentleman who is but little acquainted with the system himself; but whose observations are not unimportant, so far as they go.

* Cautiousness,—Causality,—Love of Approbation,—Form, and Language.

"DEAR SIR, *20th June*, 1819.

"Although I know exceedingly little about Dr. Spurzheim's system, yet I shall, in compliance with your request, state with pleasure, the facts which have come under my observation.

"1*st*, I recollect distinctly, that you told me, that the head of the celebrated Dr. C. ought to be very broad, at the upper and lateral parts of the forehead; and when I saw him, I found it to be exactly so. I think you said, that the organs which he ought to have large, were those of ideality. At this time I had not seen Dr. C.; and you said you had not seen him either.

"2*dly*, I recollect also, that on one occasion, when the system was spoken of, I mentioned, that there was a man on my premises, who approached very nearly to the state of an idiot. He was able to lay turnips before cattle, clean a stable, or do any piece of work that required mere labour and no skill; but he was incapable of doing any thing that required the smallest portion of reflection. On examining his head in presence of a number of gentlemen, we found it altogether very small; so much so, that the hat, which fitted him exactly, stood on the crown of the head of every one of the gentlemen present; and the forehead in particular, did not rise more than an inch above the eye-brows; so that the upper part of it was wanting. The forehead was also remarkably narrow, and sloped suddenly backwards.

"3*dly*, On the same occasion it was mentioned, that Dr. Spurzheim had said, that tractable and good natured animals might be distinguished from intractable and vicious ones, by the former having full and broad foreheads, while the latter had the forehead small and narrow; and I said, that this observation could soon be put to the test; because I had two horses, the one of which was remarkable for docility, while the other was as remarkable for ill-nature and intractability.

"When the two animals were brought out, the difference betwixt their heads was very conspicuous. The forehead of the former was an inch broader, immediately below the eyes, than that of the latter, and also considerably fuller in the middle.

"In the last place, I may mention, that my acquaintance with the situations of the organs is so limited, that my observations have, in consequence, been confined to the organ of amativeness. I easily recollected the situation of this one, from several facts regarding the lower animals, which were familiar to me before I had heard any thing of Dr. Spurzheim's doctrines.

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"If the other organs be founded as strongly in facts as this one, both in the human race and the brute creation, I am perfectly certain, that the system will bear the strictest comparison with nature; and that the conviction of its truth will be irresistible. I am," &c. D.

The next communication requires no preliminary observations.

"DEAR SIR, *2d August*, 1819.

"Though accustomed to regard Dr. Spurzheim's system with no small degree of scepticism, I confess, that some of the *facts* by which I have seen it illustrated have at least inclined me to give it a candid examination; and, as far as my limited powers of observation extend, I have found it uniformly confirmed by facts. You may remember my surprise, when you told me some time since, that I am susceptible in a very high degree of the influence of hope; and this merely, from examining my head, when the short term of our acquaintance had given you very little opportunity of observing,

otherwise than by your *eye*, any of my peculiarities. If I have one tendency more decided than another, it is to view things in their fairest light; and my whole life has been cheered by the influence of this happy *sentiment*. On comparing my head with one of Dr. Spurzheim's casts, I find the organ of Hope fully developed. You told me also that I had the organs of Locality and Order, large. On a similar comparison, I find, that in this respect likewise, you were quite correct; and I can safely say, that scenery in nature and descriptive poetry, give me great delight, and that I am fond of *localities*. I am distressed to see things in disorder; and on farther consideration I find, that I am well entitled to have that tendency particularly developed, as I shall explain at greater length when I have the pleasure of seeing you.

I am," &c.

The writer of the following letter is well acquainted with the doctrines.

"*Edinburgh, 4th June*, 1819.

"As you have requested me to write down such facts illustrative of the truth of Dr. Spurzheim's system as have fallen under my observation, I make you welcome to the following, if they can be of any service.

"I am well acquainted with several young persons, who are little prone to conceal their true dispositions; and I thought it a good test of the system, to try if the shape of their heads corresponded with their characters. The eldest youth, of whom I shall now speak, is about fifteen. He was by no means a good scholar; but he is remarkable for correctness of feeling, and what is called good common sense. On examining his head, I found that his eyes are not prominent, and that they lie rather up in the socket than down. This configuration I see from Dr. Spurzheim's book, which I have read, marks a small organ of language. The organs of conscientious-

ness, firmness, cautiousness, love of approbation and benevolence, are full; and this, I think, is exactly in correspondence with his character. He is remarkably modest, rather approaching to bashfulness, obliging in his dispositions, and very candid.

"The immediate younger brother of this youth, is in some respects different. He, too, is not eminent as a scholar; and his eyes resemble his brother's. But while his brother is very sensible to the approbation or disapprobation of others, he cares very little about what we think of him. He is fond of money, however, which he carefully accumulates. His head is very decidedly less than his brother's at the seat of the organ of the love of approbation; but I cannot say that it is so much fuller at that of Covetiveness, as the difference of dispositions is great.

"Another of the same family, now about eight years of age, is a good scholar; he is very fond of approbation; is quick in feeling offence; is somewhat obstinate if provoked; and altogether has an air and carriage different from that of his two brothers, and what would be called more genteel. His eyes are more prominent; and the organs of self-esteem, firmness, conscientiousness and love of approbation are very fully developed; all which appear to me to correspond with what Dr. Spurzheim says such kinds of individuals should have.

"A fourth of these boys is remarkable for a large development of the organ of form, apparent by the great distance at which his eyes are placed, and he shewed a passion for writing before he was put to school, and he draws on paper and fashions in wood a great many objects of his own accord.

"One of the girls also has a very remarkable head. She has very large organs of cautiousness, conscientiousness and firmness, with little hope; and she is one of the most serious, sedate-looking children that can be seen.

She shews great timidity in her manner, and yet at times the most determined obstinacy, when her feelings are roused. She is now only about five years old, so I cannot speak of her talents.

"To these cases I could add many more, but suppose you have enough. The system of Dr. Spurzheim has afforded me a great deal of insight into character, and I am sure I know both others and myself better in consequence of it, although, in truth, I know but little of its merits.

"*P. S.*—I do not mean to give you an account of my own head; but I may mention, that the organs of locality are by no means prominent, and that I am not fond of travelling, and do not conceive descriptions of local scenery with facility." F.

"DEAR SIR, *Edinburgh, 3d August*, 1819.

"I have no hesitation in stating, that I know various instances of the correctness of Dr. Spurzheim's system. A friend of mine whom you know, notwithstanding the limited opportunities he has enjoyed of improving his mind, discovers great depth of thought, and in his head the organs of causality are largely developed. I may give myself also as an instance. I have considerable difficulty in distinguishing shades of colours, and have often been laughed at for mistaking a dark shade of brown or green for black. I do think that the organs of colour are rather small in my head, and others, better able to judge, have said so likewise. I have no defect of sight otherwise. I am," G.

The following communication was sent to me from Paris, by the medical gentleman mentioned in a former part of these essays. It has already appeared in the Literary and Statistical Magazine for Scotland: but as it is of considerable importance, and as I can answer for the authenticity of it, a place is given to it here.

"*Paris*, 13*th December*, 1818.

"I mentioned to you formerly the case of a suicide who was brought to the Hotel Dieu. His case appeared to me very interesting, and I had him in my eye from the beginning to the end, and paid him the most particular attention. I took notes as the circumstances occurred, and I now transcribe them, that you may see every thing I saw or heard at the man's bedside, and also at Dr. Spurzheim's lectures, and I give you *nothing* of which I was not a witness. I omit the medical treatment, symptoms of the disease, &c. as that is nothing to the present purpose. My note-book, then, bears as follows: —"14th November, 1818, Hotel Dieu, 74. Salle St Bernard.—To-day a man aged fifty years, is entered at the hospital, having a wound betwixt the seventh and eighth ribs, inflicted with a knife, at the most convex part of these ribs. The cause of it is as follows: He had been a soldier, but for *some fault or crime* (he did not tell which) he had been condemned to an infamous punishment, and consequently banished from Paris to Orleans, where he was to remain under the surveillance of the Police. He had been bred a barber to trade. At Orleans, every one from whom he solicited employment, discovered his condition, and refused to employ him. He remained there for some time; but having taken it into his head that his wife, who remained at Paris, acted in concert with the Police to keep him banished at a distance from the capital, and in disgrace, he formed the resolution of coming to Paris to avenge himself *by killing his wife*, and afterwards to kill himself. He walked to Paris, a distance of about twenty-two leagues, and on arriving, attacked his wife with the intention of killing her. But she, being stronger than he, saved herself, and thereupon he gave himself a stab with a knife between the ribs. He is in a state of great irritation. He says he still wishes to kill his wife. He is excessively impatient." (Here follows

the medical treatment, which I omit, only mentioning that he was bled six times, and had a great number of leeches applied, &c. ; but he died.)

" M. Dupuytren, in telling us his opinion of him, insisted much *sur le mauvais moral* of this man, which rendered the danger ten times greater, and on his impatience against all remedies. He was obliged to put a strait waiscoat on him for a few days, and I heard the man say, when Duphytren prescribed bleeding, *On ne me saignera plus.* He shewed the most determined resistance to all remedies and measures adopted.

" After death, the dresser of the Hotel Dieu took out his brain, and sent it *anonymously* to Dr. Spurzheim, on his lecture night, saying, There is the brain of a man, what were his dispositions ? The Doctor, of course, laboured under disadvantages, as the brain changes a little in its shape on being taken out, but he said he would give his opinion on what appeared. (I quote again from the notes I took at the Doctor's lecture). He would not speak of his *actions*, as a person might be excited to an act by an accidental circumstance, but he would speak of his dispositions. With an active temperament, then, (said the Doctor) he thought that this man had *strong dispositions to physical love, and that he had the organs of all the inferior propensities common to man and animals*, (such as destructiveness, combativensss, &c.) *strongly developed ;* that he was *un mauvais sujet ;* that he would by no means speak of his actions, but that he was one to whom the *law* was necessary as a guide, as his natural tendency was not to virtue. He remarked also, that the organs of Self-esteem and Firmness were large. I remarked myself, on seeing the brain, that the posterior lobes of the brain were very large, and that there was a great development of the organs of Firmness and Self-esteem. *He had very little brain in front*, or

in the anterior lobes, where the organs of the *reflecting faculties* are situated*.

"Dr. Spurzheim did not know the man nor his history; but, after the lecture, a young gentleman came forward, and told whose brain it was. The Doctor's indications of his dispositions were most evidently correct, for the man's whole life appears to have been a series of manifestations of the lower propensities of our nature, and his end the most frightful conclusion of the whole. All the development of which I speak was very striking. When will people learn that Spurzheim does not teach craniology, as it is called, or attribute functions to the skull? Where was the skull here? Lying at the Hotel Dieu, and Spurzheim never saw it."

I conclude the enumeration of cases with the following letter from a gentleman who has studied the system with great attention, and who is able to boast of having made an extensive series of observations upon it. H.

"DEAR SIR, *24th July*, 1819.

"I am ashamed that I have been so long in answering you, nor do I well know how I shall be able to do so as I could wish in the compass of one letter. To give any idea of the way in which my opinion has been formed, and grown to the firm and unshaken settlement of conviction, that the views of Drs. Gall and Spurzheim have Nature for their support, would be impossible. Circumstances through life have strengthened and confirmed my inclination and interest in the study of character, and for some years past the situation in which it has either been my fortune or misfortune to be placed, have enabled me to make *examinations* not only to a very great extent,

* The organs are not nnmbered precisely in the same order in Dr. Spurzheim's works, published in London and in Paris. My correspondent uses the Parisian order; but, to prevent mistakes, I have here given the names of the organs. His No 22, mentioned on page 25, is our 19, or Individuality.

but in a way that was little liable to entangle my judgment as can be well conceived possible. They were almost wholly among strangers, and among all descriptions and degrees of character, often in manufactories of several hundred persons, in hospitals and lunatic asylums; and in these instances, as professed trials of the truth of the system, I proceeded without any previous theory to support, any fixed belief on the subject, or any wish to believe in one way rather than another, unless truth was there.

"In fact I had formed a pure and steady resolution, that my conviction either for or against the system should be the result of personal observation and personal experience. And I now declare, that I have not yet found one single exception to the agreement of character with the configuration of the head; and until I find such a disagreement, my minds rests as fully satisfied of its truth, as it does that we see with our eyes, and hear with our ears; in fact, as it does in any well known function of the senses. And I defy any one to pass through the same process, without coming to the same conviction.

The usual test of the system is, in my opinion, very unfair and inconclusive,—that of taking any single organ as a test of its truth. We do not judge of a character by one feature in particular, but by those general features which result from the assemblage of all those talents, and sentiments, and dispositions, and actions, and manners, which form the characteristics of man, and of that class, in particular, in which the individual, the object of our scrutiny, happens to move; so, in the same manner, this system must be proved by trying whether the character agrees in reality with that which you form *a priori* from the combined comparison of the whole head. Not but I conceive that when one organ is relatively more prominent than any other, then we may safely peril our belief in the system, by trusting to it as

the sure indication of a certain prominent feature in the character. But what I mean is, that we should never infer this, without an examination of the whole head : for, without such an examination, we can neither judge how far this organ is in reality more prominent than the rest, or how far there may not exist a fulness in one or more organs besides, and a fulness indicating both activity and power, and an activity and power of a nature and form which will infallibly prevent the unrestrained operation and exhibition of the one we hastily pronounced upon.

"But, in compliance with your request, I shall confine myself to stating a few, out of an immense number of striking examples which have fallen under my observation.

"I know several families who have the character of caution, taciturnity and timidity, and who have the organ of cautiousness very greatly developed ; and those individuals in these families, who are singled out by the world as exceptions from this general character of their relations, want this configuration of the head ; and this I have found to be the case with every other organ. Families distinguished for their pride in the world, I have invariably found to possess a fulness in the organ of self-esteem. I conceive nothing can be more certain than this fact, that as families have their peculiarity of character, so there are most decidedly family heads.

"An old clergyman at Stonehaven, who, during his life-time, was particularly delighted with reading travels, fancied, in his dotage, that he had actually travelled in every part of the world, and talked of his travels with great minuteness and fluency : in every other respect, he was perfecty sane. The organ of *locality was very unusually large.* I know several instances, where locality is very full, accompanied with a love of wandering. This is particularly the case with a gentleman, a Lieute-

nant in the army, now living *occasionally* at Montrose, and who is remarked for this by all his friends.

"A whole family of whitesmiths, near Stonehaven, are all remarked for the correctness of their eye, as exemplified in squaring or rounding any piece of work without instruments; and they are distinguished by a prodigious distance between the eyes. A gentleman, a particular friend of my own, who was inclined to laugh at the system, has this prodigiously great; and I found he possessed the power of recognising faces he had seen when a child between five and six years of age; and could draw any objects he had ever seen, either singly or in groups; if in groups, they are all made to possess their relative places. In his case, there was a most striking correspondence between the configuration of the head, and his whole character, in every minute particular. This, with the examination of several of his friends at the same time, astonished and silenced his opposition. I could relate to you a very great number of cases of the same kind.

"You have heard me declare, in conversation, that I have invariably found the heads of females much more regular and better equipoised than males, and almost invariably indicating more activity, but less power; and that veneration, love of approbation, and adhesiveness, and philoprogenitiveness were seldom defective. I do not remember more than two instances of the first three being defective, and only one of the last; and all these instances exhibited striking defects in the feminine character.

"I know a whole family in Brechin and Montrose, whose genius for music is pre-eminent; and they all have a very great and unusual fulness in that part of the head.

"But the examinations which turn upon the general and combined view of the whole head, with that of the

general features of the character, are the most interesting and conclusive. In visiting the Montrose Asylum, with several medical men, I was overwhelmed with the wonderful accordance between the configuration of the head, and the features of the partially insane. This examination continued for several days in succession. In one female, I found veneration, conscientiousnness, and cautiousness, very full; with hope, self-esteem, and reasoning powers defective; with some other organs full. Here I found religion, melancholy, and self-condemnation, the prominent features. Another had hope, veneration, and self-esteem, full; with cautiousness, conscientiousness, and animal organs defective: in this instance, it was religious rapture and delight, with self-complacency, &c. These results I stated as that which I should suppose *a priori*, were the distinguishing characteristics; and, in every instance, I found this correspond with the testimony of the superintendant.

"I may add, that I have always observed, that when one organ predominated, it was always shewn by peculiarity of deportment and movement of the body, corresponding with the seat of the organ. In fact, there can be no doubt, but the soul of man is held forth in every movement of the frame, as the most interesting, and most fascinating object of public inspection, and studious contemplation. We are struck with it only in these more striking instances; and they are more striking, from the circumstance of their being less modified by a mixture of other features, and of course less difficult to detect and understand. The correctness of this observation, will appear very evident to those medical men who witnessed the examinations in the Montrose Asylum; and especially as exemplified in one case of a young lady, whose disposition for friendship spoke through the sound of her voice, through her tears and through her smiles, and through every movement of her body, and was most com-

pletely and wonderfully confirmed by the inimitable beauty of her speeches. But it seems to me such a perfect waste of words to give cases to those who want candour to examine for themselves, on the one hand, and equally so to those who have candour to examine on the other, that I shall content myself with what I have already given. All that you or I can do in the way of enumerating cases, is perfect mockery of that which every one may do for himself. I am," &c. M. A.

I here close the communications from my correspondents. I may add, that the reader will find a source of amusement and instruction in examining the busts and portraits of illustrious men, with the view of comparing the development of their heads with their characters and genius, as manifested in their works. Busts and portraits, however, cannot, in every instance, be relied on as expressing accurately the actual form of the head of the illustrious originals; because, while artists were ignorant, which many of them still are, that the configuration of the skull is indicative of character, they sometimes added fanciful heads to the features of the face which they copied from Nature. In general, however, they have copied accurately; and it is easy for a person acquainted with this science to trace an exact and interesting correspondence betwixt the development and manifestations of many of the illustrious dead.

I perceive, in a portrait of the Admirable Crichton*, a development of forehead as astonishingly great, as the geinus of that individual was universal and transcendant.† The portraits of Buonaparte shew an immense development of the head above the eyes. It is recorded in Ecclesiastical History, that Mahomet was distinguished by a

* Prefixed to the account of his Life by Mr. Tytler, just published, and said to be engraved from an original picture.

† The most superficial observer must be struck with the great similarity of frontal configuration in the portraits of Lord Bacon and Chrichton, as given in Mackenzie's Illustrations of Phrenology. Ed.

full and liberal development of forehead. In going through Westminster Abbey, every tyro in the system could point out, at once, the busts of the poets from the great development of ideality in their heads, although he were entirely unacquainted with the illustrious names which adorn the literature of England. The best portraits of Shakespeare shew a prodigious development of ideality, and also of imitation; and, on this last faculty, I suspect, has depended, in no small degree, the universality of his power of representing human characters of every age, rank, and degree of intelligence, with the full features of actual and individual existence. The eminent men of the present day also afford ample confirmation of the system in the development of their heads; but delicacy forbids direct references to them. If the reader will compare their portraits together, he will find as great differences in the forms of their heads as in the styles of their works. The shape of Byron's head appears, from the portraits of him, to be as different from the form of Thomas Campbell's, as his manner of feeling and thinking is different.

Travellers could not present a more valuable tribute to science, than by observing and describing accurately the prevalent forms of the head, and the comparative dispositions and capacities of the nations which they visit. In Humboldt and Bonpland's "Personal Narrative of Travels to the Equinoctical Regions of the New Continent," vol. iii. c. 9., some interesting observations are made, quite incidentally and without reference to the system of Gall and Spurzheim, on the physical constitution and manners of the Chaymas, in which the form of their heads is partially mentioned, and also their mental peculiarities. The following coincidences betwixt development and mental power, occurring in a remote region of the globe, and mentioned by an author who appears to have been wholly unaware of their application to the present system, must strike every reflecting person

as interesting and remarkable. The author informs us, that the Chaymas have "foreheads small and but little prominent," and he notices the small progress that they have made in civilization under their Spanish instructors. He describes their eyes as "black, *sunk*, and very long?" and he tells us, that "nothing can exceed the difficulty with which the Indians learn Spanish." He informs us, that "the corner of the eye is sensibly raised *up* toward the temple," and that the Chaymas have great difficulty in comprehending any thing that belongs to *numerical* relations," and "the more intelligent count in Spanish, with an air that denotes a great effort of mind, as far as thirty, or perhaps fifty."

In closing these details of cases, I am fully aware of the objections which may be made against them. One opponent will probably observe, that no testimony is so little to be depended upon as that of individuals, when they certify their own endowment of faculties of the mind. Another will say, that the evidence of converts to the system is extremely suspicious; for, even with the best intentions, we are too apt to perceive facts as we wish to see them, rather than as they really are, when we have a theory to support. A third will be ready to observe, that in the cases mentioned, the dispositions and capacities described may probably be susceptible of explanation, by extraneous circumstances in the education of the individuals, which are here altogether omitted, as easily as by the configuration of their heads. A fourth will perhaps add, that as no instances of exceptions are given, it is impossible for the reader to judge how far the concomitance betwixt the dispositions and developments described was uniform, and how far accidental; and that unless it was ascertained to be uniform, no philosophical conclusion whatever could be drawn from it. On the strength of such observations, and many more of a similar nature which could be added, opponents of even mo-

derate ingenuity may be able to rear up a very plausible argument to shew, that no credit whatever ought to be given to the cases now detailed, and no conclusion drawn from them in favour of the system.

I shall not fatigue the reader with a formal answer to such objections. The cases are given, as already mentioned, only with a view of stimulating the reader to make inquiries and observations to satisfy his own mind, and not as philosophical evidence, on which the system ought to be believed, without farther investigation. In the next place, if the advocates for the system are disqualified, by their partisanship, for giving credible evidence in its favour, the opponents are equally disqualified, by their hostility, for giving credible evidence against it; and hence the opinion of every one, of its truth or falsehood, must, even according to the rules of evidence laid down by the opponents themselves, be founded on his own observations,—which is precisely what every friend of the system anxiously desires. In the third place, If I have succeeded, in showing, in the first Essay, that consciousness gives us no intimation of the existence of the organs, and dissection no information respecting their functions, I have demonstrated the necessary and unavoidable ignorance, in regard to the truth or falsehood of the doctrines, of every opponent who has not himself compared manifestations and development together. And as no opponent has ever brought forward observations of his own against the system, while its advocates found their belief on observations alone, the whole weight of the testimony is in favour of the doctrines, and there is not a shadow of substantial evidence against them. And, in the last place, I readily admit, that I have met with cases presenting difficulties and apparent exceptions, but these have been so few compared with the numerous instances of indubitable conformity betwixt the dispositions and development described as concomitant, that I cannot

doubt of the concomitance depending on philosophical connection, and not on accidental coincidence. Besides, greater skill in observing, and greater knowledge of the mutual influence of the faculties, would probably have enabled me to explain even the few anomalous appearances which occurred. But the best evidence which the reader can obtain regarding the nature of the concomitance, is to appeal to Nature himself; which I again request him to do*.

Additional Facts by the Editor.

We here insert an extract from the second Number of the "New Edinburgh Review," as affording additional proofs in support of Phrenology.

"We have mentioned that our opinions in favour of phrenology are founded on inquiry into the facts by which it is supported; and as we derived a stronger conviction of its truth from this source, than by reading the ablest arguments in its defence, we shall state, for the satisfaction of the reader, a few out of many cases which have fallen under our notice, and for the accuracy of the details of which, we pledge ourselves in the most decided manner. To render them intelligible, we have prefixed a tabular view of the phrenological faculties and their functions, together with figures of the head, pointing out the relative positions of the organs.

In October, 1820, a member of the Phrenological Society visited Mr. Owen's establishment at New Lanark. He was introduced to the schools which contained nearly 200 children, and informed, that he might make such observations on the development of their heads and their talents and dispositions, as occurred to him. He began at one end of the apartments and proceeded to the other,

* See Appendix, No. III.

selecting extreme case both of deficiency and endowment of cerebral organization, and pointed out the mental defects in qualifications which he supposed them to indicate. Mr. William Ballantyne, the teacher, who, from a close intimacy with the children, was acquainted not only with their talents but with their dispositions, bore ample testimony to the general correctness of the observations; so much so, that in consequence of this demonstration of its truth, he commenced the study of the science without delay*. This examination took place in the presence of Mr. Owen and several ladies and gentlemen whose names have been mentioned to us, and to whom we are ready to refer any reader who may be sceptical on the subject.

Another case is well known in this city. Captain D. along with Mr. D. B. junior, lately called on the same gentleman, bringing with them a boy aged 10 years, and saying "this youth is a prodigy, tell us from his development in what respect." The gentleman requested them to take a note of his development, and said he would give his opinion upon seeing the general result of the whole combination of organs. He began at the organ No. 1, and mentioned the size of each up to 33.—The note bears, that "Combativeness, Destructiveness, Covetiveness, Secretiveness and Cautiousness," are very large; that the organs of the knowing and reflecting faculties are uncommonly well developed, as are also those of "Benevolence and Ideality," but that "Conscientiousness," is particularly defective.—He requested them to desire the boy to withdraw, and then mentioned that the intellectual de-

* In a letter, dated July 24th, 1821, which we have seen, Mr. Ballantyne writes, "I can now with ease trace the different organs as they are marked on the plate at the end of the Essays on Phrenology, and understand the faculties connected with them; and have acquired more knowledge of human nature by this study in six months, than I have been able to acquire in six years preceding (during which I have been in Mr. Owen's School) without such assistance."—We have heard a similar declaration made by an eminent teacher in Edinburgh, who is now studying the science.

velopment indicated great talents, but that the moral development was particularly deficient; and that he feared the youth would be groveling in his dispositions and prone to falsehood, duplicity and finesse. Captain D. then mentioned that the boy had been picked up some months before on the highway almost naked and starving, by a lady who resides in the neighbourhood of Edinburgh; that she had clothed him, treated him with great kindness, and attempted to educate him; but that he had turned out so complete a thief, a liar, and scoundrel, as to excite equal astonishment and abhorrence, and that he displayed talents for trick and dissimulation far above his years. A note of his development, with some remarks on the means which his high intellect promised to afford of saving him from destruction, by a sedulous education, were given to Captain D.; and we have been informed that an eminent individual in Glasgow is now in consequence, directing a friendly eye to his moral and religious instruction.

Mr. B. D. of London, sent to a phrenologist in Edinburgh, a cast of the head of a *gentleman*, without mentioning the name or any circumstances of his life or profession, and requested that he would draw the character indicated by the development. The desired observations were transmitted in a letter dated 31st March, 1821; the development afforded by the cast appearing to be as follows:

1. Amativeness.	*Rather small.*	15. Hope.	*Large.*
2. Philoprogenitiveness.	*Large.*	16. Ideality.	*Not large.*
3. Inhabitiveness.	*Moderate.*	17. Conscientiousness.	*Very large.*
4. Adhesiveness.	*Moderate.*	18. Firmness.	*Large.*
5. Combativeness.	*Small.*	19. Individuality.	*Small.*
6. Destructiveness.	*Pretty full.*	20. Form.	*Moderate.*
7. Constructiveness.	*Moderate.*	21. Locality.	*Large.*
8. Acquisitiveness.	*Rather full.*	22. Tune.	*Rather full.*
9. Secretiveness.	*Rather full.*	23. Comparison.	*Full.*
10. Self-Esteem.	*Large.*	24. Causality.	*Full.*
11. Love of Approbation.	*Very large.*	25. Wit.	*Moderate.*
12. Cautiousness.	*Very large.*	26. Imitation.	*Full.*
13. Benevolence.	*Large.*	Wonder.	*Not large.*
14. Veneration.	*Very large.*		

"The character is inferred to be the following: The individual would be decidedly moral and intellectual, and little prone to animal indulgence. He would be scrupulous and honourable in the extreme, with a great aversion to debt; ambitious of distinction, or desirous to please; but exceedingly modest, and most esteemed by those who know him best. His justice, though great, would not be severe; but would be softened by benevolence, and elevated by veneration. The intellect would be penetrating, but would have a greater tendency to speculate on moral, than on physical causes. He would shine more in the private circle than in public. His understanding would be slow but sound in its conclusions; and he would be much troubled with doubts and difficulties in his decisions. The individual would not worship wealth, but he would have a prudent regard for property, and would calculate his expenses to his income so as to keep the former considerably within the latter. He would be alive to music. He would be religious and a sincere worshipper of God."

The following answer was received to his commnication. "You hit off the character of the clergyman (for such he was) to a nicety. Your letter has been shewn to the most intimate acquaintances of the deceased, and in all material points is fully assented to by them*."

The next case we shall mention is one of a still more decisive nature. By the rules of the Phrenological Society, a note of the cerebral development of each candi-

* "Since writing the above, we have been informed that the individual in question, when in health, was remarkable for prudence and circumspection; but that six years before his death he was struck with apoplexy, and rapidly lost this quality of mind. He became at length perfectly foolish, his mind retaining no distinct ideas, except on theological subjects, on which he always gave consistent answers. After death, his brain was dissected by a medical gentleman in London of high respectability, who found that the parts of the brain which had become pulpy were those, in which Dr. Gall places the organ of prudence and circumspection," or *cautiousness* in the table.

date requires to be annexed to his application for admission, the Society having so much confidence in their own science, as to hold this specification as the best intimation which they could obtain of the dispositions and talents of the applicant. A gentleman well known in this city, requested one of the members to draw out a sketch of the character which the development of his brain indicated, promising to declare honestly whether it was correct. The member alluded to, declined to comply with this request, observing that he knew the character so well from personal intimacy, that no one would be disposed to believe that he had proceeded in his observations entirely on phrenological principles; but he offered to transmit the note of the development without a name to a person who was an entire stranger to the individual and to solicit his report. The memorandum transmitted was verbatim as follows, and the only intimation which accompanied it was, that the individual was educated and moved in cultivated Society.

1. Amativenass.	*Full.*	18. Firmness.	*Large.*
2. Philoprogenitiveness.	*Moderate.*	19. Individuality.	*Small.*
3. Inhabitiveness.	*Large.*	20. Form.	*Large.*
4. Adhesiveness.	*Full.*	21. Size.	*Full.*
5. Combativeness.	*Full.*	22. Weight.	*Unascertained.*
6. Destructiveness.	*Large.*	23. Colouring.	*Large.*
7. Constructiveness.	*Full.*	24. Locality.	*Very large.*
8. Acquisitiveness.	*Large.*	25. Order.	*Large.*
9. Secretiveness.	*Full.*	26. Time.	*Full.*
10. Self Esteem.	*Moderate.*	27. Number.	*Moderate.*
11. Love of Approbation.	*Very large.*	28. Tune.	*Full.*
12. Cautiousness.	*Large.*	29. Language.	*Large.*
13. Benevolence.	*Very large.*	30. Comparison.	*Large.*
14. Veneration.	*Small.*	31. Causality.	*Full.*
15. Hope.	*Full.*	32. Wit.	*Full.*
16. Ideality.	*Very large.*	33. Imitation.	*Full.*
17. Conscientiousness.	*Large.*	Wonder.	*Moderate.*

N. B. *The head is round, broad from side to side, and moderately high from the ear to the circumference.*

The gentleman returned the memorandum with the following remarks: "The head of this individual is excellently calculated for passing through this world with satisfaction to himself and to those who know him. He

"The character is inferred to be the following: The individual would be decidedly moral and intellectual, and little prone to animal indulgence. He would be scrupulous and honourable in the extreme, with a great aversion to debt; ambitious of distinction, or desirous to please; but exceedingly modest, and most esteemed by those who know him best. His justice, though great, would not be severe; but would be softened by benevolence, and elevated by veneration. The intellect would be penetrating, but would have a greater tendency to speculate on moral, than on physical causes. He would shine more in the private circle than in public. His understanding would be slow but sound in its conclusions; and he would be much troubled with doubts and difficulties in his decisions. The individual would not worship wealth, but he would have a prudent regard for property, and would calculate his expenses to his income so as to keep the former considerably within the latter. He would be alive to music. He would be religious and a sincere worshipper of God."

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The gentleman returned the memorandum with the following remarks: "The head of this individual is excellently calculated for passing through this world with satisfaction to himself and to those who know him. He

has enough of the lower propensities to make him sufficiently attentive to his own interests, and spirit enough to defend them. There is too much principle and too much good feeling ever to allow him to forget the feelings or sufferings of others, or ever to see them without an anxious desire to relieve them. He would be kind and obliging to every one; much alive to the opinion of others, and rather ambitious. He would be enthusiastic but not rash in his undertakings, more inclined to respect merit than rank. In religion good works will go very far with him. He would be a very amusing, and a very rational companion. His discourse will be much more the offspring of his own brain, than the *on dits* or *anecdotes* of others. He should have a taste for drawing especially landscapes and portraits, and for the fine arts in general, though I think he would make a better judge than artist. He would have a good ear for music both as to time and melody. He ought to be a good mimic. He would never be at a loss for words to clothe his idea; and if not a poet himself, he would delight in poetry and works of imagination. Though perhaps fond of indulging in wild vagaries for the sake of amusement, yet he would shew strong good sense at bottom; or when serious a free liberal way of thinking. This form of head is in general a very active one and takes an interest in every thing. Generally fond of society."

We have shewn these remarks to several friends of the individual described, and they unite in declaring that a more correct and characteristic description could not have been given even after a twenty years acquaintance; nor is it improper to mention that its general accuracy has been testified to us by a gentleman in a high official situation in this city, to whom the individual is well known. The author of the observations was not informed for several days after they were handed about, who the subject of them was, and we know that he has not seen him up to the moment when we write.

We shall add only one case more, and we present it for the sake of contrast. The vulgar dabbler in phrenology conceives, that the whole science terminates in a discovery of elevations in the head, indicating certain propensities and talents in the mind, and he perceives no purpose to which it is applicable beyond that of satisfying an idle, and often an impertinent curiosity. Those on the other hand, who study it as a science, endeavour to estimate the effects of the combinations of the organs in giving rise to the varieties of individual character, and to acquire the power of determining with precision for what situations particular persons are fitted by nature, or the reverse. It is only by studying the effects of the combinations that this knowledge can be attained; and to shew how different the character becomes from variations in the relative proportions of the organs, we add, the development of David Haggart, lately executed in this city, as it appears upon a very accurate cast taken after death. It forms a striking contrast to that of the Clergyman formerly mentioned, and a single glance at the two casts produces a stronger perception of the great inferiority of Haggart's moral development, than any description that could be given.

1. Amativeness.	*Moderate.*	18. Firmness.	*Very large.*
2. Philoprogenitiveness.	*Large.*	19. Individuality.	*Moderate.*
3. Inhabitiveness.	*Large.*	20. Form.	*Full.*
4. Adhesiveness.	*Moderate.*	21. Size.	*Moderate.*
5. Combativeness.	*Very large.*	22. Weight.	*Unascertained.*
6. Destructiveness.	*Full.*	23. Colouring.	*Small.*
7. Constructiveness.	*Large.*	24. Locality.	*Large.*
8. Acquisitiveness.	*Moderate.*	25. Order.	*Full.*
9. Secretiveness.	*Very large.*	26. Time.	*Moderate.*
10. Self-Esteem.	*Very large.*	27. Number.	*Moderate.*
11. Love of Approbation.	*Small.*	28. Tune.	*Full.*
12. Cautiousness.	*Full.*	29. Language.	*Full.*
13. Benevolence.	*Large.*	30. Comparison.	*Moderate.*
14. Veneration.	*Moderate.*	31. Causality.	*Full.*
15. Hope.	*Rather small.*	32. Wit.	*Full.*
16. Ideality.	*Very small.*	33. Imitation.	*Full.*
17. Conscientiousness.	*Small.*	Wonder.	*Small.*

This head is very high from the ear to the circumference; the coronal surface is narrow, and the basilar surface broad; the length is moderate.

It is unnessary to describe the character of this individual, as his atrocities are unfortunately too well known by means of his life written by himself, and published after his execution. By comparing his development with that of the moral individuals already mentioned, it will be observed, that Haggart was not so unfortunate in an immoderate endowment of the lower propensities, as in a great deficiency of the organs of the higher sentiments. In him combativeness, destructiveness, acquisitiveness, secretiveness, and self-esteem, although singly not unprecedently large, formed a combination of fearful tendency, when acting together and inadequately controuled by sentiment. The organ of benevolence is the only one of all the sentiments which is largely developed, while the organs of love of approbation, ideality, hope, and justice, are decidedly deficient, and that of veneration only moderate in degree. The intellectual faculties and firmness confer the means of gratifying desires ; but the nature of these depends on the propensities and sentiments which predominate in the individual, and hence it is easy to conceive how Haggart's tendencies would, with few exceptions, be only towards evil. Nevertheless, the large organ of benevolence, and the high intellect which he possessed, appear to us to have afforded the means of effectuating his reformation, if, when he had committed his first offence, he had been subjected to a proper system of prison discipline, in place of being educated to tenfold iniquity, by associating with the corrupted beings with whom he herded in the common prisons. The means of reformation were obviously such treatment as would weaken his lower propensities by long restraint, and strengthen his higher sentiments by sedulous and continued cultivation. His combination of faculties is one which severity would only render more savage and intractable ; but which kindness joined with intelligence

and firmness, might readily have been expected to subdue."

Viewing Phrenology as a mere catalogue of human faculties, its superiority over the metaphysical systems is obvious from the foregoing instance of its practical application; for, although the science of the mind has been cultivated since the time of Aristotle, and with particular assiduity since the days of Locke, no attempt, with which we are acquainted, has been made to apply it in the practical manner here exemplified. When it is recollected, that the phenological faculties are not mere emanations from the fancies of the founders, but that they were discovered and published to the world successively, without arrangement or perceptible relation, and merely in the order in which the several organs were casually observed, their capability of application to the delineation of character, affords a strong presumption of their truth. Bacon inferred that Aristotle's philosophy was false because it was barren; and it is a legitimate inference from the same principle, that phrenology is true because it is fruitful. Farther, as we stand pledged to the most perfect good faith in the statement of the foregoing cases, we think ourselves entitled to observe, that either phrenology must have a foundation in nature, or its professers must be endowed with a spirit of divination; for we defy any one to account for the remarkable correspondence of the delineations now given, with the characters in nature, upon any other supposition. In the case of the gentleman in Edinburgh, there was not even a cast to lead the phrenologist to a single line of his description; so that inference from physiognomy was entirely excluded. Lately however, when the opponents have been pressed by the constant and forcible appeal to facts made by phrenologists, they have resorted to a new device in order to elude it. They have invented and circulated a report, that physiologists of France and

Germany, and also many persons in this country, after having at first believed in the doctrines, have on farther examination found them to be false, and have therefore renounced their faith in them. We have made diligent enquiry into the truth of this assertion, but have not discovered one instance of an individual recanting who had believed on observation; and we have seen a letter from Dr. Spurzheim to a gentleman in Edinburgh, dated Paris, 13th March, 1821, by which we learn the trary.

"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 stoped too short a time to form practical pupils. The principles were explained, the development shown, 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 opportunity 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, second 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."

We are enabled to confirm this statement, by the testimony of an intelligent friend who paid a visit to Paris in June, 1821. He writes as follows.

"I have heard a belief in phrenology avowed by some of the most eminent professors, both of the colleges and of the Garden of Plants. Blainville mentioned in a lec-

ture which I heard, that the principles were too well established to admit of doubt, and that he himself had made many observations and never found an exception. He said, that he regarded the greater number of the organs as established, and that he believed farther observations alone were wanting to enable him to admit others. He started some objections regarding the lower animals, the unequal thickness of whose skulls, he said, rendered it difficult to determine whether the external elevations perceptible in their heads, were caused by brain or bone. In man, he said no such objection exists, except in old age or cases of disease. Geoffroy St. Hilaire, also, in his lectures at the Museum of Natural History, avows his belief in the doctrines, and points out in the lower animals many correspondences. Monsieur Royer too, of the Garden of Plants, is well known as a most decided convert; and indeed, he applied to me to procure for him the form of an application to be admitted a corresponding member of the Phrenological Society of Edinburgh, which I obtained and gave him. It is worth mentioning also, that about two years ago, Dr. Gall at the request of the minister 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 eagerly 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 most philosophic of the two*. I beg to add, that the physiognomical expression of some of the English students who were present at Blainville's lecture, and who probably knew nothing of prenology but through the English reviews, was truly ludicrous. They appeared to relax their features for a laugh, when the name of Dr. Gall first escaped the lips of the Professor; but when they heard him spoken of with respect, and his doctrines declared to be true, the expression changed into wonder in some, and in others to absolute contempt. I thought of the self-esteem for which their nation is so remarkable, and I could not refrain from smiling in my turn at this amusing manifestation of the organ."

So much for the allegation that the doctrines are falling into disrepute on the continent. We observe, in the next place, that 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, we willingly allow the opponents all the advantages which they 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

* Mr. Combe, in a letter which he recently wrote to a gentleman of this city, says, that, Dr. Spurzheim lectured to a larger class last winter (1821—2), than on any former occasion, and that he (Mr. C.) gave a course of lectures on Phrenology, in Edinburgh, which was well attended. Ed.

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 Ency. Brit. second Diss. p. 57. The same thing may occur in Phrenology; but as a general rule, we hold that the observations of those, who, from natural talent and previous study, are best qualified to conduct the investigation with success, are entitled to be viewed with the greatest confidence, and a little inquiry will in general shew on which side the advantages lie. ED.

ESSAY II.

ON THE UTILITY OF THE SYSTEM.

INTRODUCTION.

After what has been said, the reader will probably be able to form his own opinion of the utility of the system under consideration. It is a system of the philosophy of Man, and treats of the innate powers of feeling and of thinking conferred upon him by nature, and on which education and external circumstances are destined to act. It unfolds to us also many interesting views regarding the apparent connection betwixt the immaterial principle of the mind and our organic constitution; a connection, the influence of which we feel every day of our lives, but the Philosophy of which has hitherto been enveloped in the deepest mystery.

No study appears more facinating, and at the same time of higher importance, than that of human nature. When we see unfolded to us the nature of man as he comes from the hand of his Creator,—when we see what his innate propensities to action, and his innate powers of thinking are, then we shall be able to tell how far the actual character of individuals and of nations, is to be attributed to cir-

cumstances over which we possess controul, and how much is unalterably fixed by the fiat of nature's GOD. No doubt, every accurate and philosophical observer is at present practically acquainted with human nature, because the subject is before him, and his mind insensibly draws the conclusion to which the facts obtruded on his notice naturally lead. Before Sir Isaac Newton explained the theory of the tides, the practical navigator knew that the sea ebbed and flowed; and before the chemists explained the theory of chemical affinities, the practical farmer was aware that manure increases the produce of the fields. In like manner, every intelligent observer of human nature was particularly acquainted with the phenomena of the mind, and with the apparent connection betwixt it and our organic constitution, before Gall and Spurzheim discriminated the number and functions of the innate faculties of man, and discovered that each faculty manifests itself by means of a special organ. Gall and Spurzheim, therefore, may be said, in some respect, to have discovered only the philosophy of facts previously well known to the world. But the importance of this discovery, can be fully appreciated only after attending to the previous state of the knowledge even of intelligent men, in regard to the constitution and faculties of the mind. Among the metaphysicians it is not yet settled what a faculty is, or how the existence and functions of the faculties are to be ascertained. Among the practical observers of mankind, every one has always been prone to invest human nature with the peculiarities of his own mind, or with the dispositions and capacities which have fallen most frequently under his own observation. Hence one represents human nature as an assemblage of degrading propensities, and of miserable capacities, without one good quality to redeem the bad. Another individual, on the other hand, represents it as yet resplendent with the bright image of the Deity, and as still endowed, amid all

its earthly weakness, with no small portion of those moral powers and intellectual capacities which we have reason to believe are the attributes of beings placed in the highest scale of created existence. And each class of individuals supports these different views by a confident appeal to facts, and a pertinacity of argument, as if the opinions were as indubitable as the demonstrations of science.

The same partial conceptions concerning the nature of man, prevail in the public practical business of society. Let any scheme be proposed for ameliorating the condition of the poor; for conferring the blessings of education on the uninstructed; or for reforming criminal legislation; and instantly conflicting theories respecting the consequences of our proposed operations, rise on every side; some shewing the result to be a final termination to human misery, and others shewing an incalculable increase of evil, as the only consequences that can ensue. One represents the human character as altogether the creature of circumstances, and dreams of eradicating vice and misery by acts of Parliament, Lancasterian schools, and Utopian regulations. Another maintains, that misery is the ordination of nature, and that ignorance best fits man to support it; and hence, he concludes, that as instruction and refinement multiply the susceptibilities of suffering, while they do not remove the causes of evil, it is the duty of legislators, and all persons in power, to allow the poor to remain in that state of comfortable indifference which is the result of ignorance, rather than to force upon them a perception of their miseries, by enlightening their understandings.

In all these discussions, there are no doubt, points regarding which all men of sense are agreed, and which may be regarded as principles in the philosophy of human nature, admitted by general consent. But such principles are always mere practical maxims forced upon men by experience, rather than scientific views established on

philosophic induction; and, accordingly, it is when we wish to reason upon the nature of man as an object of science, that we discover our unacquaintance with the philosophy of his constitution. In the course of the discussions now alluded to, no one is able to appeal to principles in human nature philosophically ascertained, and universally admitted as the basis of his arguments, and from which he may arrive at an undeniable conclusion. Many theories in political economy and religion also, although evidently absurd, cannot, for the same reason, be subjected to a philosophical refutation. No circumstances can shew more forcibly than these, that the knowledge of man, as a science, is still in a state of extreme imperfection.

Or to take an instance from literature.—In what branch of learning is less of philosophic principle to be found than in criticism? Critics, too often merely reflect the impressions made upon their own minds by the works under their consideration, and refer their opinions to no principles in human nature. If the mind of the reader be different in natural constitution, or in point of cultivation from that of the critic, there will be no harmony betwixt them; and yet each will praise or condemn the author without a moments hesitation, as if his own sentiments were infallible dictates of the human understanding in general.

When, again, we turn our attention to the state of the mind under the influence of disease, and form an estimate of the extent of our philosophic information as to its natural constitution in a state of health, or as to the causes of the diseased manifestations, we perceive a total blank. The general phenomena indeed, are known; and many practical rules have been laid down; but no philosophical principle is to be found to direct practice.

The philosophy of the mind consists in a scientific knowledge of the nature of man, and of the modifications

of which his nature is susceptible; and the first step in attaining it, appears to be, to ascertain what powers and capacities the Creator has implanted in him; and the second, how far these innate powers may be modified by external circumstances. That there are innate powers and capacities in human nature, every day's experience and the analogy of all created things falling under the scope of our observation, prove. In every age, and in every clime, the great features of human character have been the same; and yet the very first principle assumed by the most celebrated philosophers on the mind has been, that no innate powers or faculties exist; but that the mind, as it comes from the hand of the Creator, is a *tabula rasa* or *blank*. Having treated of this point, under the head of metaphysical objections, I shall not now revert to it.

The utility of the philosophy of Gall and Spurzheim, therefore, consists in this, that it gives us a clear and philosophical view of the innate capacities of human nature, and of the effects of external circumstances in modifying them. It points out to us the manner and extent in which individuals may differ from each other, in their natural capacities of feeling and of thinking. It presents to us also, an interesting view of the apparent connection betwixt the immaterial and material parts of man; and it explains the causes of the varying phenomena which the immaterial principle exhibits in its manifestations, as the state of the body varies from infancy to old age, and from health to disease. In short, it reduces the philosophy of man to a science, by shewing us the number and scope of the human faculties, the effects of their different combinations in forming the characters of individuals, and their susceptibilities of modification. Its tendency is to make us acquainted with ourselves, and indulgent to our fellow creatures; for it teaches us that no individual is a standard of human nature; and that those whom we are prone to condemn for differing from

us in sentiment, may have as good a right to condemn us for differing from them, and will consider their own mode of feeling equally founded in nature, as we consider ours. Hence it shews the necessity of our seeking a higher standard for measuring mankind than any furnished by an individual.

The system of philosophy, therefore, is fitted to throw light upon every subject in which human nature is concerned; and if it be founded in fact, which I am convinced it is, it will as certainly triumph over all other theories of man, as the philosophy of Newton did over the doctrines in physics which, before his time, held the world in the bonds of ignorance. To point out the whole extent of its application would be to write a system of universal moral science. And who can compare the extent of such an undertaking with his own limited resources, without shrinking from the view? It is comparatively an easy task to tell what the system is; but it would require a gigantic mind to shew the full scope of its application and utility. It is with the deepest sense, therefore, of my own inadequacy to do justice to the subject, that I enter on a short and imperfect illustration of its application to a few subjects of literary interest.

The subjects on which it is peculiarly fitted to throw a powerful light, are Education, Genius, the Philosophy of Criticism, Criminal Legislation, and Insanity; but the three last are too extensive, and my own qualifications, to do them justice, too deficient to allow me to attempt any remarks upon them on the present occasion. I purpose to confine myself to two short sections, one on Education, and one on Genius, in which the mode of applying the system to important uses, will be pointed out, rather than any attempt made to bring forward new or interesting views on these subjects.

Should the public take an interest in the science, additional illustrations of its application may be given at a future period.

SECT. I.

ON EDUCATION.

" Il existe dans l' espèce humaine des dispositions qui se retrouvent toujours,
" quand les mêmes circonstances les mettent en dehors."

MADAME DE STAEL.

" THE effects of moral instruction and precept on the mind," says Mr. Henry Mackenzie, " have been rated very highly by some grave and worthy men, while by others, the experience of their inefficacy, in regulating the conduct of the hearer or reader, has been cited as an indubitable proof of their unimportance. Among those, say they, on whom Moral Eloquence has employed all her powers, who have been tutored by the wisest and most virtuous teachers, and have had the advice and direction of the ablest and most persuasive guides, how few are there whose future conduct has answered to the instructions they received, or the maxims which were so often repeated to them. Natural disposition or acquired habits, regulate the tenor of our lives ; and neither the sermon that persuades, nor the relation that moves, has any permanent effect on the actions of him who listens or who weeps." It shall now be our endeavour to show, how far these opposite views of the effects of education are founded in truth.

Every one who has observed mankind must be convinced, that Nature has implanted certain dispositions and capacities in the mind, and that these form the basis of the character of each individual through life. The

object of education is to modify these innate powers, and to regulate their manifestations, to restrain such of them as may be too energetic, or to call forth into greater activity those which may be naturally languid. Before we can hope to conduct education to advantage, we must acquire a knowledge of the innate dispositions and capacities of the mind, and learn philosophically the sphere of action of each faculty, and how far each is susceptible of being repressed or exalted. The system of Gall and Spurzheim is of great utility, as affording us such information; for it professes to treat of the innate faculties of the mind, and the modifications of which they are susceptible.

According to this system, the object of education ought to be, to regulate the manifestations of all the faculties, by the dictates of those peculiar to man; and for this purpose, to subdue the activity of the propensities common to man with the low animals, and to exalt the activity of the faculties peculiar to man, or those which produce the moral sentiments and understanding.

In treating of education, therefore, we have to consider, in the first place, On what the power of manifesting the faculties depends? In the second place, What order the faculties follow in the course of their successive development? Thirdly, What are the best means for accomplishing the modifications we may have in view? And, lastly, How far our power of modification extends.

In the first place, then, this system teaches that the power of manifesting the faculties depends on the state of the organization. No fact is more undeniable, than that great differences exist in the power of different individuals to manifest their faculties. In early infancy, the power of manifestation is very imperfectly possessed; and by some individuals that power is never fully possessed at all. Such individuals are idiots partial or total. The power of manifesting the mind varies also in

health and sickness, in middle life and in old age. Now, the cause of these differences can be explained only by one of two theories. Either the Creator makes the immaterial mind itself to differ in its powers in different individuals, and at different periods of life; or the immaterial principle is the same in all individuals, and in every situation; but its powers of manifesting itself in the external world are different, in consequence of the organization by the instrumentality of which it acts, being different in developement and activity.

Analogy, and a fair induction from the phenomena falling under our observation, lead us to conclude, that these differences depend upon organization. It is not to be presumed, without evidence, that the Creator has endowed the immaterial and immortal principle of one man with powers and capacities which he has denied to another; or that the mind itself varies in its powers with the state of health and the age of the body, while it consists with every day's experience, that differences of organic constitution are the result of natural endowment and of physical events. Nature, for example, gives to one individual a power of voluntary motion, far exceeding that which she confers upon another. She makes one blind, another deaf, and denies to a third the power of speech. It is proved by this system that, in the same way, she denies to one individual the development and activity of brain which she confers upon another; and it is observed that hence the power of manifesting the mind externally, is different in proportion.

In this way also, alone, does it appear possible to account for the transmission of mental peculiarities from parents to children. "There is," too, says Mr. Stewart, "a certain hereditary character (whether resulting from physical constitution, or caught from imitation and the influence of situation,) which appears remarkably in particular families. One race, for a succession of genera-

tions, is distinguished by a genius for the abstract sciences, while it is deficient in vivacity, in imagination, and in taste. Another is no less distinguished for wit and gaiety, and fancy, while it appears incapable of patient attention, or of profound research." The same important fact in the philosophy of man, is remarked also by Dr. Gregory, with his usual felicity of expression: "Hujusmodi varietates non corporis modo, verum et animi quoque, plerumque congenitæ, nonnunquam hæreditariæ observantur. Hoc modo parentes sæpe in prole reviviscunt; certe parentibus liberi similes sunt, non vultum modo et corporis formam, sed animi indolem, et virtutes, et vitia. Imperiosa gens Claudia diu Romæ floruit, impigra, ferox, superba; eadem illachrymabilem Tiberium, tristissimum tyrannum, produxit; tandem in immanem Caligulam, et Claudium, et Agrippinam, ipsumque demum Neronem, post sexcentos annos, desitura."— Gregory's Conspectus, c. 1. § 16.

As then, the power of manifesting the faculties depends on the state of the organs, it is of importance to remark that we are able to exercise a considerable influence on the organization of the body by physical education. Parents, therefore, ought to be aware that the power of the child in future life to manifest the faculties of the mind, will often depend in a considerable degree on the mode in which his physical education is conducted. This topic is highly interesting in itself, and one on which much might be said, but being only imperfectly acquainted with the subject myself, and my object being chiefly to state principles, the observations to be now offered, are intended to excite inquiry rather than to convey ultimate information.

Too great sensibility of the nervous system is unfavourable to mental exertion, but too great muscular power is also adverse to it. The great object of parents, therefore, ought to be, to fit their children for the scenes of life in

which they intend them to act. If the individual be destined to a learned profession or literary pursuits, his physical education ought to be conducted in such a way as to give him due muscular power, but not to render him too athletic. If, on the other hand, he is destined for labour, his constitution cannot be rendered too robust.

The sensibility of the nervous system will be powerfully affected by diet and exercise. Too little attention is paid to adapting the diet of children to their constitutions. The impression is too prevalent, that food to be wholesome for children must be vegetable or succulent. To many constitutions, no doubt, such kinds of food are best adapted; but where the digestive organs are weak, vegetable diet should be sparingly given, and animal food without sauce or high seasoning, more generally administered.

Exercise in the open air is favourable to all children, if not carried to excess; but if indulged to a great extent, and till too advanced a period of youth, the individual becomes in a great measure incapable of exerting the mental faculties. Exercise in the open air, and amidst new and varied objects, is unfavourable to reflection, and to those labours which require a concentration of the power of the mind. It gives a greater tendency to exert the sentiments than the reasoning faculties.

An augmentation of the tone of the muscles diminishes nervous mobility. When, therefore, weakness of mental functions, is owing to too great mobility of the organic system, exercise is beneficial, because it contributes to give stability and energy.

Repose has a contrary effect. Those who live a sedentary life, think and feel more than the active, unless their sedentary habits are carried so far as to produce diseases of the organization, and then the manifestations of the mind are less active.

It is observed by Cabanis, "That great activity of the brain is often supported by spasms of the intestines, or by vicious sensibility of particular parts of the hypochondriac region*. Hence," says he, a certain state of physical disease is often favourable to the rapid and brilliant development of talent, as well as of the most pure and delicate moral affections. Hence also, in re-establishing the health of such persons, their comfort may be increased, but their talents are not always augmented." These observations are in some degree confirmed by facts which are open to general observation. Pope was remarkable for the feebleness of his bodily constitution, and the life of Dr. Johnson was a continued disease. Cowper also was long the victim of morbid nervous sensibility; and in common life it is not rare to find the most delicate member of a family surpassing in intellectual capacity the most robust.

These observations, however are offered chiefly for the purpose of calling the attention of other persons to the subject, who are more able to treat it as its importance deserves.

We proceed, therefore, to the second object of our inquiry,—the order observed by the faculties in the course of their successive development. The faculties which produce the propensities and sentiments are earliest manifested in the order of nature, and therefore, a child is susceptible of moral education before he is susceptible in an equal degree of intellectual cultivation.

It is of importance to parents and teaches to attend to the fact, that the feelings and dispositions of the mind depend upon innate faculties, as well as the intellectual powers, and that the former faculties may be cultivated

* La grande activité de l'organe pensant est souvent entretenue par les spasmes des viscères du basventre, ou par de points de sensibilité vicieuse établis dans leur region.—*Rapport du Physic et du moral de l' homme.* Tom. ii. p. 202.

as well as the latter. The embryo feelings of every kind, (except two, amativeness and veneration,) which distinguish the full grown man, may be experienced by the child. A few years after birth, the individual will experience the same sensibility to fear, to censure and applause, and to justice, and the same natural tendency to fight, which will distinguish his character in future life. These feelings may, in maturer years, be directed to other objects; but the power of experiencing them exists at both periods. The child who trembles at the threat of being shut up in a dark closet,—who exhibits to us with delight his new suit of clothes,—who fights about a marble,—or who covet's his neighbour's top, is under the influence of the same faculties which in future years may make him tremble under the anticipation of a fall of stocks,—which may make him desire to be invested with a star and garter,—which may make him contend for an island or a kingdom, or which may lead him to covet his neighbour's property.

If, therefore, the faculties which give feelings are innate, and manifest themselves thus early, we are bound, by every tie of duty and affection, to direct these feelings to their proper objects, and not to lacerate them by treating those who possess them, as if they had no feelings at all. Many persons appear, by their conduct, to believe that a child cannot distinguish betwixt justice and injustice, when practised towards him; betwixt polite treatment, and rudeness; betwixt the due exercise of parental authority, and self-willed tyranny;—because he cannot reason on abstract subjects. But such ideas are equally erroneous and disgraceful. The power of feeling depends on faculties different from those which produce intellectual manifestations; and although the child cannot reason so well, he can feel as acutely as his parents.

We ought never, therefore, to treat a child with seve-

rity, because he is prone to indulge the particular faculties which Nature has made most powerful in his mind. Our first care ought to be, to discover what powers are particularly energetic in his constitution; and our second, to learn how to direct them. The existence of a powerful innate faculty is discovered, not only by perceiving the organ large, but by studying the actions of the individual.

If the faculty be powerful, it will manifest itself in actions. The child who has a strong faculty for music, will make music of his own accord. The child who has a strong faculty of form, will draw from a spontaneous impulse. The child who has a strong faculty of benevolence, will shew it by the humaneness of his disposition, his aversion to cruelty, and his readiness to bestow. The child who has a strong faculty of covetiveness will shew it by the selfishness of his disposition; by his propensity to acquire; and by never giving. The child who has a strong faculty of destructiveness will shew it by his propensity to break and destroy; and, if benevolence be weak, by his disposition to be cruel, and by his delight in tormenting and killing animals. The child who has a strong faculty of the love of approbation will shew it by his propensity to boasting, and by his sense of shame. The child who has a strong faculty of cautiousness will shew it by his proneness to the emotion of fear. The individual who has the reflecting faculties strong, will shew them by the consecutiveness of his discourse, the depth of his penetration, and the scope of his invention.

We ought to receive as axioms in education, therefore, that the predominating dispositions manifested in childhood are innate; that their existence will be permanent; and that it is our duty only to regulate them, and not to be offended at their existence. On these principles we ought to endeavour, if possible to guide children by the law of kindness. If a child possess, from Nature,

a great endowment of self-esteem and firmness, he will be naturally self-willed and obstinate in his dispositions. Such a child ought never to be punished for possessing the feelings; for, as they are part of himself, they will appear to him natural and proper; and he will only rebel the more, the more we outrage them, by indulging in anger against himself. We ought, therefore, to check the manifestations of these feelings, by firmness on our part, guided by affection; and, as soon as reflection begins to dawn, we ought to explain to him his natural proneness to them, and shew that the feelings are in themselves excellent, if well directed; that he is an object of our warmest affection, but that we are determined to repress all irregular manifestations of them. Until the reflecting powers are in some degree capable of acting, these explanations will not be understood; and, till then, the feelings ought to be repressed by a firm, though affectionate resistance to their manifestations on the part of the parent, but never by wrath. But, when the child begins to reflect, such explanations will have more effect than is generally believed. If, again, a child possess powerful faculties of conscientiousness, cautiousness, and love of approbation, he will be naturally prone to timidity and bashfulness. The treatment proper for such an individual is not to scold and ridicule him for being timid; for this only produces pain, and increases the evil; but to inspire him with confidence, by kindness and affability. If another child possess powerful faculties of self-esteem and love of approbation, he will be prone to magnify himself, and to assume airs of importance, which to others may appear ridiculous. The proper treatment for him, is to direct these feelings to proper objects; to make him ambitious of virtue and magnanimous conduct.

I am happy to be able to adduce the authority of so accurate an observer of human nature as Dr. Adam Smith in support of these views. He clearly points out the

propriety of considering the faculties as innate, and of endeavouring only to direct, and not to eradicate them. He says, "The great secret of education is to direct vanity," (and he might have added, every feeling,) "to proper objects. Never suffer your son to value himself upon trivial accomplishments. But do not always discourage his pretensions to those that are of real importance. He would not pretend to them, if he did not earnestly desire to possess them. Encourage this desire; afford him every means to facilitate the acquisition; and do not take too much offence, although he should sometimes assume the air of having attained it a little before the time." —(Theory of Mor. Sent. Part. 6. § 3.)

After having discovered the particular dispositions which are remarkable either for strength or deficiency in the child, our next object ought to be to cultivate them, that is, to repress the manifestations of those which are too energetic, and to increase the activity of those which are too feeble. As education is at present conducted, the feelings are not systematically cultivated at all. No system of philosophy has hitherto taught that feelings depend upon faculties; that the power of experiencing them is different in different individuals, and that that power may be increased in those in whom it is weak, by cultivating the faculties which produce them, in the same manner as the power of reasoning may be increased by cultivating the faculties of the understanding. Hence it has never formed a regular part of any plan of education to increase the power of feeling benevolence, of feeling justice, or of feeling veneration, by the special exercise of the faculties upon which those sentiments depend. Nor has any plan been laid down for cultivating the minds of individuals according to the peculiarities of their natural constitutions. Indeed, no such plan could be devised; for we have hitherto possessed no philosophic means of discovering what the peculiarities of individual

constitutions are. The only cultivation which the sentiments receive, according to the present system, is from the casual influence of example. This mode of cultivation is no doubt good in itself, and, as experience shews, highly beneficial, but it is best suited to the case of individuals who are prone to virtue from innate dispositions, for we generally perceive the more intractable to be very little benefited by it.

According to this system, however, it is necessary to cultivate the feelings by the direct exercise of the faculties upon which they depend. Parents and guardians, therefore, ought to repress the manifestations of the lower propensities in children when they are too energetic, and to call the faculties of the higher sentiments into vigorous activity. The latter effect will be produced, as already mentioned, by the influence of example; because, by the law of social sympathy, active manisfestations in one individual excite the same faculties upon which the manifestations depend into activity in the beholders. Thus, if a parent or guardian manifest the faculties of benevolence, of justice, of veneration, or of covetiveness, strongly and habitually in the presence of a child, the same faculties will, by these acts, be cultivated and excited into permanent activity in the child. This is the true account of what the metaphysicians call the Principle of Imitation in children. There is no doubt, a faculty of imitation, which gives the power of mimickry, and which unquestionably exerts an influence in disposing the child to imitate his seniors; but there is, besides, an identity of faculties, and a sympathetic influence arising from similiarity of constitution, that makes a child prone to do the acts which he sees done before him. Every child does not always do so; because, as already said, the faculties are not, in every case, precisely the same in energy in every individual; and, of consequence, where the faculties of the parent differ from those of the child,

the former may exhibit many active manifestations of particular feelings; but, from the primitive faculties which produce these feelings not being naturally powerful in the child, the parent may fail in impressing on him his own character.

As a general rule, however, for cultivating the moral powers, it may be safely laid down that, by a law of nature, the regular active manifestations of faculties in parents excite into habitual activity similar faculties in children. But this rule obtains in the faculties which are most prone to run into abuse, as well as in those of a higher order. A parent who inflicts personal chastisement often, and in a rage, or who scolds loud and long, and shows little politeness, little benevolence, and little justice towards a child, cultivates in the latter the faculties which give rise to the emotions of rage and resistance, (combativeness and destructiveness,) and outrages the higher sentiments, just as effectually, or indeed more effectually, than if he were to frame and teach a catechism recommending rage and resistance as positive duties, and decrying justice and benevolence as dangerous and prejudicial. As a general rule, whatever you wish your child to be or to do, be that, or do that to him. If you wish him to be outrageous, to be cruel, and to be quarrelsome, be outrageous, cruel and quarrelsome to him. If you wish him to be humane and polite, be humane and polite to him. If you wish him to be just and pious, be just and devout before him.

This result, as already noticed, arises not solely from a principle of imitation leading him to do mechanically as you do. Such a principle would be cold and lifeless. The result arises from sympathetic faculties in the child, giving inward emotions and feelings corresponding to your own. These faculties are innate, permanent and steady, and, when you have cultivated them, you can depend on the permanence of their effects. When you

cultivate in children the faculties which feel benevolence, veneration and justice, you will make the feelings which attend the activity of these faculties known to them by experience, and these feelings are so agreeable in themselves, that they will afterwards, without your superintendence, indulge the same faculties in active manifestations, for the sake of experiencing the inward satisfaction that attends their activity. But if you outrage all these faculties in your conduct to your children, and act towards them under the influence of rage, of deceit, of self-will, or of any improper feeling, you will excite into permanent and energetic activity the same faculties in them.

I have great pleasure in being able to support these views by the testimony which Mr. C. Pictet gives to the success of Mr. Fellenberg's exertions, in reforming the mendicant children of the Canton of Berne, in his institution at Hofwyl, by cultivating their moral faculties in the way now recommended. "Le soin," says he "de developper la gaité des élèves, de les maintenir sereins, alertes et actifs, est considéré comme très important. Ils sont constamment câressés et prévenus ; tout les invite à la confiance. Vehrli* ne leur parle qu'en souriant. Il travaille avec eux, il lit, il cause, il chante avec eux ; il leur conte des histoires, et ne les quitte dans aucun moment.

"Le travail et l'ordre, la douceur, une marche sage, égale et persévérante, triomphent de tous les obstacles moraux, de toutes les habitudes perverses. Ces enfans vagabonds, mendians, ou ramassés çà et là dans la plus profonde misère, mais accueillis et soignés avec une bonté affectueuse, instruits dans la pratique de leurs devoirs envers Dieu et envers leurs semblables, soumis à un travail continu, à une régle constante et ne perdant pas une minute pour l'instruction, même dans leurs jeux, n'ont jamais eu besoin d'un seul châtiment pour être

* The Assistant Teacher.

amenés à une conduite régulière."—See Edinburgh Review, No. 61. p. 158.

But to cultivate the moral powers properly, it is not sufficient merely to excite their sympathetic activity by the influence of example. To give them the full measure of cultivation, we must allow them to manifest themselves externally in actions as frequently as possibly, or, in other words, we must allow them to produce actual effects. If we wish to cultivate the faculty of benevolence to the best advantage, we must make our children the actual administrators of benevolence themselves. We must allow them to do acts of charity, and not merely to give alms, but to court acquaintance with poverty, misery and distress in its bodily form, and to feel the sympathetic glow which can be experienced in its full fervour, only when we see the objects of our charity in all their misery, but at the same time "in possession of all the feelings which unite them to us by the ties of a common nature." The case is the same with all the other faculties. If we wish to cultivate the faculty of justice in children to the best advantage, we must accustom them to practise it, and administer it in acts. Constitute them judges of each other's conduct, teach them to award punishments or recompences to each other, and let their awards always be fulfilled, unless they are extremely erroneous and absurb, which will rarely be the case. In the same manner, if a child has too little regard for property, and is too much disposed to bestow on others, without consideration, every thing which he happens to possess, endeavour to excite his desires ardently for some object, but do not allow him to obtain it till he has performed a quantity of labour as the purchase of it, and then his faculty of caution will be more ready to restrain his generosity when he has learned the difficulty of acquiring.

So much for the mode of cultivating the propensities and sentiments of our nature. The other faculties susceptible of education at an early period of life, are the

KNOWING FACULTIES. The functions of these faculties are to become acquainted with objects and their qualities, but not to reason. Most of these faculties may be manifested in the first stages of childhood, but the reflecting faculties, or those which trace abstract relations and consequences, cannot in general be so till a much later period in life.

The proper mode of cultivating the knowing faculties as well as the former, is by exercising them in active manifestations. If the reader will look over the list of these faculties, and their functions, already enumerated he will have no difficulty in perceiving the class of studies in which children may advantageously engage. According to the present mode of conducting education, the faculty of Language is the only one of all the knowing faculties cultivated in childhood. Children are made to learn sounds, the meaning of which they are not capable of comprehending; and they are not instructed in regard to the knowledge of many external objects which they are quite capable of understanding; and instruction in which, would afford them delight. To be able to convey such instruction, indeed, the teacher must himself possess an accurate knowledge of the functions of the faculties, and the different periods at which they are developed; which, by the common systems of philosophy, it is very difficult for him to attain. When he sees manifestations in a child particularly powerful, he must know to what faculty these belong, and the particular class of objects or of studies fitted to cultivate this into permanent energy and activity. However unphilosophical it may appear, yet it is a fact established by every day's experience, that a child may excel greatly in the capacity for learning words, who is not able to manifest sentiments, or other faculties, in proportion to the faculty of language. On the other hand, an individual may possess a very limited power of learning words,

who may possess great natural genius for other pursuits. If one child, possessed of a powerful faculty of language, should experience great pleasure, and manifest great power in learning words; and another child, possessed of powerful faculties of constructiveness and form, should experience great pleasure in drawing, cutting figures, and constructing, and manifest these faculties in acts, it is barbarism to punish the latter for manifesting the faculties which Nature has made most powerful in his mind, and for not manifesting the faculty of language as powerfully as the former, which is perhaps bestowed upon him in a very limited degree. It is equally absurd to conceive, that the former individual is endowed by Nature with all the elements of a splendid genius, merely because he manifests one knowing faculty with superior power. In like manner, if a child manifest a great natural talent for calculation, or for music, the parent and teacher ought to know the exact sphere of the functions of the faculties on which these acts depend, and either cultivate the faculties of the child, with reference to his future destination, or direct his destination with a regard to the faculties which he possesses. They ought never to conceive for a moment, that a great talent for language, for drawing, for music, for mechanics, or for mathematics, implies the possession of moral sentiments and reflecting faculties in equally eminent perfection. While, therefore, they do not despise any talent which Nature has bestowed, they ought never to delude themselves into a belief that any particular faculty, to which Nature has assigned only limited functions, is universal in its scope of activity.

The Reflecting Faculties are the last manifested in the order of time. The brain in the upper part of the forehead, which is the organ of these faculties, is not fully developed in some individualas, till the age of twenty, twenty-three or twenty-four. In others, how-

ever, the development is complete at an earlier period of life; but rarely in any one, before fourteen or fifteen. At this latter period also, the full development of the cerebellum, on which the amative propensity depends, takes place. Until, therefore, the organs, both of this propensity and of the reflecting faculties, are fully developed, we cannot, with sufficient certainty, predicate what the natural dispositions and capacities of any individual will be. No doubt, if an individual is able to manifest powerfully the faculties of veneration, or tune, when a child, we may safely predicate that he will possess the power of manifesting these faculties during life; but if the reflecting faculties and amative propensity, when they come to be developed, prove eminently energetic, the individual may then experience greater pleasure in obscenity than in veneration, or in philosophical discussion than in music; and he may then become sensual, rather than devout; or philosophical, rather than musical; although his natural capacity for veneration and music remain the same. Or, in such cases, the individual may exhibit the most absurd inconsistency of conduct; may be at one time a saint, and at another time a sinner; at one time a philosopher, and at another a musicante; and all with equal sincerity.

The reflecting faculties, like all the others, will be best cultivated by that mode of exercise which makes them produce the most active manifestations. In the metaphysical systems of philosophy, ideas have been unfortunately confounded with the mind; and it has been conceived that, if we merely infuse, with sufficient assiduity, a store of moral precepts and philosopoical ideas into the memory, we shall produce the highest state of cultivation in the mind. According to our system, however, all beneficial education consists in the cultivation of faculties. Precepts cannot exert an influence on the mind, unless the faculties be previously sufficiently powerful to

feel the obligation of them, or to perceive their force. Hence the proper way to make an individual devout is to cultivate his faculty of veneration, and this will be better done by exciting it into a glow of activity by the influence of example, than by merely encumbering his memory with words. Hence also, the way to render an individual charitable and humane, is to cultivate his faculty of benevolence, and this will be done more effectually by exciting the faculty to produce active manifestations, than by laying down abstract rules concerning his duty to his neighbour, unattended by active practice of them in life.

Hence our great object in cultivating the reflecting faculties ought to be to give them energy and activity in performing their functions, and to point out the best modes of directing their manifestations. The particular ideas which we furnish are stores or materials for these faculties to work upon; but, if we wish the faculties to produce powerful manifestations themselves, we must excite them to act; we must excite them to compare, penetrate and trace conclusions; we must teach them to use the stores which we furnish; for, till we do so, the latter are of no utility. Hence every mode of instruction in which the pupil himself is actively employed, is always the best. If prelections alone are read, it will only be minds possessed of great natural internal activity that will derive full benefit from them. Such minds, being naturally energetic, seize on and appropriate thoughts wherever they are to be found; "they gather sweets from every opening flower;" but on minds of inferior capacity, the sentences of the teacher fall like sounds on a deaf ear, they never penetrate, and the sluggish faculties instead of being excited, are lulled into more hopeless inactivity, by dull discourses which they do not comprehend. Where the natural energy of the faculties is weak, or only moderate in degree, it is the more ne-

cessary to stimulate them to greater energy, by calling them into activity, and hence such a mode of education is undoubtedly the most effectual.

I have heard an objection stated against cultivating the reflecting faculties by exercise ; that by doing so we are apt to produce conceit in the pupil, and an exaggerated opinion of his own attainments. Such an objection, however, is founded upon ignorance of the separate functions of the faculties. It is the faculty of self-esteem alone which produces conceit ; and exaggerated opinions of ourselves, are in proportion to the activity of that faculty, and not to the cultivation of the understanding. No doubt, if the faculty of self-esteem be particularly energetic in an individual, and if he write an essay at College, he will be exceedingly proud of it, and in all probability will entertain exaggerated opinions of its merits. But it is not the writing of the essay which produces the sentiment of self-esteem ; the sentiment was previously energetic in his mind, and that circumstance only gives it a particular direction. Had he not written the Essay, he would have been equally proud, but of some other real or supposed accomplishment ; and, as it is certainly better to be proud of intellectual talent than of inferior attainments, the writing of the essay must be regarded as a fortunate incident in his education.

Hence the objects of education are to cultivate the faculties of the higher sentiments, and the knowing and reflecting faculties into permanent energy and activity, and to repress the energy of the faculties common to man and animals, so as to place them under the guidance of the faculties proper to man. The morality of the individual will be in proportion to the predominance of the faculties of the higher sentiments over the lower propensities ; and his genius will be in proportion to the energy of the knowing and reflecting faculties.

The cultivation of the intellectual faculties is of great

importance in directing the faculties of the propensities and sentiments in the proper mode of their gratification: but I am obliged to observe, that the cultivation of the intellect, where the higher sentiments are not equally cultivated, has less effect in leading to morality than is generally supposed. On observing mankind, I find individuals, in whom the faculties of the higher sentiments are naturally powerful, exceedingly moral, although their intellectual powers are often slender: and I find individuals, whose faculties of the higher sentiments are weak, often exceedingly immoral, although their intellectual powers are remarkably strong. I observe that the individuals in whom the faculties of cautiousness, conscientiousness, benevolence, veneration, and firmness, are energetic, either from natural endowment, or much cultivation, are generally prudent, honourable, and virtuous, although possessed of very different degrees of intellectual power. I find, on the contrary, individuals in whom these faculties are weak, selfish, illiberal, and unjust, even although adorned with the most splendid intellectual capacities.

Many absurd theories have been advanced in regard to the bad effect of education upon the lower and middle classes of the community. We have been told, that "after a desire of rising seizes a peasant or mechanic, his whole life is spent in the fevered anxiety of discontent and unhappiness,—a sort of diseased restlessness, of which he becomes the passive victim, infects his mind, and tinges his pursuits; and, even when his friends are looking up to his labour as super-human, while they are admiring or envying his advancement in knowledge, his nights are often spent in sleepless musings, and his days consumed in the labour, at which his whole soul revolts, but which he finds indispensible to his schemes of advancement. He feels his condition as miserable as that of the

slave chained to the galley-oar; because he knows, from his books, situations of a different kind."

Such notions are founded on lamentable ignorance of human nature. The individual, whose higher faculties are not cultivated, is just a human being adandoned to the impulses of the propensities and sentiments which are naturally most powerful in his mind. These are always the lower propensities of our nature; and hence savage and uncultivated man is a being inspired by strong propensities of amativeness, destructiveness, combativeness and covetiveness, without moral faculties equally active to direct or modify their manifestations. And, in point of fact, the savage character is uniformly found to be a compound of lust, ferocity, pugnacity and dishonesty, corresponding completely with what might be expected from the unrestrained manifestation of the faculties which predominate in his constitution. Human nature is the same in every country; and the labourer of civilized life is naturally just as prone to disgusting and dreadful vices, as the savage of the wilderness; and the actual difference of character betwixt them, is attributable entirely to the education of the latter. In the former, the faculties of the lower propensities are excited to vehement activity by his situation. In the latter, the manifestations of these faculties are repressed, and his higher powers more or less cultivated. If we cultivate the moral sentiments of the mechanic, his lower faculties will be controlled in proportion as the energy of those is increased. If we cultivate his knowing and reflecting faculties, we open to him sources of gratification of a higher nature, and give him an increased power of usefulness, and a capacity of adapting means to an end, which will not only benefit the individual himself, but make him a much more useful member of Society. If nature have bestowed upon him powerful faculties of ideality, causality and comparison, it is very probable, that by education, we shall give

him a dislike to the meaner drudgeries of labour. But in doing so, we shall capacitate him for a higher sphere of action. If nature implant the higher faculties eminently powerful in any individual, and if circumstances conspire to oppose the manifestation of them in their legitimate sphere of action, his life will present a melancholy history of high minded efforts continually failing, and continually plunging him into deeper misery, because the faculties were not properly directed. Of this, the life of Burns, and the lives of many other eminent but unfortunate men, furnish too conspicuous examples. In them these faculties were innate; and being naturally great, produced great conceptions, notwithstanding the abject circumstances in which their possessors were placed. If such individuals had been placed in circumstances where their faculties would have had scope for an unobstructed activity, the individual themselves would have been happy, and their lives useful to society.

Let not one apprehend that by education we shall be in danger of rendering the mass of the lower population disgusted with their employments, and lead them to aspire to too elevated destinies. The effects of education are always bounded by the natural capacity of the mind to be educated; and nature has taken care to provide a sufficient supply of men for every rank of life, by making the endowment of the faculties of a large majority of the race so moderate in degree, that they will never be enabled by the efforts of others, to aspire to any thing much above the level of moderation.

As to the education of the middle classes, again, we have been told, that cultivation makes them proud and fantastic in their notions, and averse to the duties of their situation in life, and incapable of fulfilling them. This has been alleged in a particular manner, to be the result of cultivating the minds of the females of the middle rank. In answer to such objections, I remark, that the

capacity for discharging domestic duties, depends upon the cultivation of the superior sentiments, and of the knowing and reflecting faculties jointly. Hence, a woman who possesses cautiousness, conscientiousness, benevolence, philoprogenitiveness and firmness, in an eminent degree, will make an excellent daughter, sister, wife or mother. If the faculties of language, constructiveness and tune, are eminently cultivated in her mind; she will possesses, besides, three valuable sources of amusement to herself, and of entertainment to others. And if the reflecting faculties are also eminently cultivated, she will be still the more excellent. She will then possess a depth of penetration and a scope of understanding, which will give her dignity as a woman, and extended usefulness as a member of society. Hence, the first requisite for constituting a good wife, is vigorous and active faculties of the moral sentiments; and the second is a liberal endowment and cultivation of the knowing and reflecting faculties. Those persons, however, who think, that intellectual endowment or education incapacitates woman for the duties of her situation, seem to believe either that the propensities and sentiments will be manifested to most advantage, when altogether undirected by intellectual powers; or that cultivation of the intellect withers up, and eradicates the moral faculties. Such ideas are too absurd to merit refutation. The best sentiments degenerate into weakness, when undirected by reflection; and the most vigorous exercise of understanding, does not necessarily dry up the sources of feeling. The most perfect character is made up of a happy endowment of both.

As the direct tendency of a good education, therefore, is to repress the manifestations of the lower propensities, and to cultivate the superior sentiments and the knowing and reflecting faculties, we may hold it as an indisputable axiom that, where an individual has been well educated,

and his subsequent conduct has not corresponded to the instructions he has received, his imperfections are to be attributed to nature, and not to education. In some individuals, the natural endowment of the lower faculties is so great, that it is a matter of extreme difficulty to subdue their energy ; and hence, in such individuals, education may not always appear to have produced its full effects. But education improves even the worst natures to a considerable extent. If the ferocity, the sensuality, the avarice, or the lust of dominion of such persons, is at any time apparently restrained by the predominance of higher sentiments, this advantage may be owing, in no inconsiderable degree, to education ; for we have only to look at the savage state to be satisfied of the general brutality of man when uncultivated.

This leads us to consider, as was proposed in the last place, the extent of our power to modify the manifestations of the faculties.

As this system teaches that the faculties are innate, and that each has received a determinate constitution from nature, it follows according to it that we cannot *change* the nature of any individual ; and that all we can do is only to regulate the activity of the several faculties in their outward manifestations.

We have already discussed the best modes of increasing the activity of those faculties which we wish to cultivate ; and in doing so, we have anticipated, in some degree, the discussion of the extent of our powers of modification. Great as these powers undoubtedly are, it must not be concealed that all our exertions to cultivate the moral and intellectual powers, and to restrain the propensities in their external manifestations, by example, by precept, and by active employment, may sometimes turn out unavailing ; and that some individuals will prove ultimately vicious, after every endeavour, conscientiously and intelligently applied, to reclaim them. The system

of Gall and Spurzheim not only admits this fact, but explains the causes of it, and affords us great assistance in applying every possible memory to the evil. Strong propensity to vice arises from great natural endowment of the faculties common to man with the lower animals, joined with a weak endowment of the faculties peculiar to man. After we have discovered, therefore, which of the lower propensities are inordinate in their activity, which we easily do by observing the actions of the individual, the next thing to be done is to discover whether the different higher faculties, such as those which give the love of approbation, the sentiment of justice, the sentiment of veneration, or of benevolence, possess considerable or moderate natural power. If they do, we must then be most sedulous in cultivating them by extraordinary efforts, so as to find in them the means of controlling the lower propensities, which are naturally too energetic. We must endeavour to increase, by all practical means, the activity and the sensibility of these higher faculties, so as, if possible, to render the pleasure resulting from their activity, equal or superior to the pleasure attending the indulgence of the others. If we can succeed in these endeavours, we gain the victory to the cause of morality by the most amiable means. If we cannot do so, we must try a remedy of another description.

The pleasure attending the indulgence of a strong propensity is the true motive which incites us to indulge it. If we can set up rivals in the higher sentiments to this pleasure, we succeed in restraining the propensity. If we cannot balance pleasure with pleasure, we must endeavour to diminish the one pleasure, by connecting it with pain, and this will increase the relative power of the other. For example: If an individual naturally prefers the pleasure of stealing, of fighting, or of blaspheming, to the pleasures of practising justice, benevolence and veneration, notwithstanding all our exertions to di-

minish the *quantum* of the one, and increase the *quantum* of the other,—we must then endeavour to diminish the pleasure of stealing, or fighting, or blaspheming, by making suffering follow closely upon it; in short, by inflicting punishment. There is a faculty of the mind which feels the emotion of fear, (Cautiousness), as well as faculties which produce propensities to inferior actions; and this faculty, if addressed and roused to action, may, as well as those of a higher order, operate as a check upon these lower faculties. If the faculty which feels the emotion of fear, be strong and active in any individual, we may, in his case, predict that punishment will prevent immoral manifestations of his inferior propensities.

But in awarding punishments, also, the different functions of the faculties, and the difference of their endowment in different individuals ought to be kept constantly in view; for what occasions severe suffering to one individual, will often excite no uneasiness in another. If the love of approbation be powerful in one individual, he will be liable to be deeply affected by disgrace; while in another in whom that faculty is weak, disgrace will produce a very trifling sensation. In a third individual in whom covetiveness is strong, the loss of property will be dreaded as a serious evil; and he will be more affected by the loss of money than by any other affliction. It is only in the very lowest natures, that some feeling may not be found, by means of which the conduct may be influenced; and it is only with such individuals that corporal chastisement ought to be resorted to.

In such cases, where all our endeavours to elevate the conduct by education prove ineffectual, no duty remains for man to perform, but to guard himself against the evils likely to be produced to society by such unfortunate individuals. Such persons ought to be looked upon rather as patients than as objects of wrath. They then be-

come the subjects of criminal legislation ;—but with this topic of discussion it is not my present intention to interfere.

In the views of education now given, there is, perhaps, nothing new, and nothing but what was formerly familiar to men of correct observation and sound understandings. But, as already said, this system, being merely a theory of human nature as it exists, is not calculated so much to make new discoveries concerning the nature of man, as to reduce to the certainty and precision of a science, the practical observations which had formerly been made.

The very coincidence betwixt the most accurate observations upon human nature and the principles of this science, is a strong testimony in its favour, and goes far to prove that it is no empirical theory, devised by the imagination without a foundation in nature ; but that it is, what has long been wanted, a Theory of Man, founded on the basis of all true science, the observation of facts.

SECT. II.

ON GENIUS.

" The impulse of Nature, which softly I feel,
" The law which she prints in deep lines on my heart,
" Must I doubt; till the School to that law set her seal,
" And bind the free spirit in the trammels of art? *"

SCHILLER.

No subject has occupied philosophers more than Genius, and yet on no subject have their opinions been more inconsistent and unsatisfactory. The subject itself is fascinating and splendid; and the nature of genius is known, although the philosophy of it is in a state of extreme imperfection. When we regard a Shakespeare, speaking the language of every mind, from that which occupies the throne, to that which inhabits the cottage, and pouring forth the pure and natural conceptions of every intellect, from that of a Cæsar to that of a goodman Dull;—when we regard a Byron, pouring forth his dreadful, yet spirit-stirring notes, which fascinate our feelings, while they make our souls shrink, and our limbs tremble;—when we contemplate a Scott, now rattling in

* " Muss ich dem Trieb misstraun, der leise mich warnt, dem Gesetze,
Das du selber, Natur mir in den Busen geprägt,
Bis auf die ewige Schrift die Schul' ihr siegel gedrücket,
Und der Formel Gefäss bindet den flüchtigen Geist?"

our ears the wild din of war, now melting our hearts in the soft sympathy of love ;—when we regard a Maturin, now chilling us with horror, now bracing our souls up to fiend-like fury ;—when we regard a Campbell, breathing on our minds the delicate and the delightful sentiments of heavenly purity and love :—when we regard a Mozart, breathing the strains of heaven from the harps of men, and exciting in our souls the most exquisite and rapturous emotions ;—when we regard all these great and glorious minds, and when we feel our own littleness beside them, we have an irresistible desire to discover the secret sources whence such mighty emanations flow.

When, however, we consult the philosophers on the mind, for information respecting this high and interesting subject, we receive the most inconclusive and unedifying answers. We meet with no theory admitting and successfully accounting for the existence of those great natural differences of intellectual power, which we perceive so conspicuous in different individuals. We meet with no theory admitting of the existence of faculties formed and endowed with functions by the hand of Nature, on the power of manifesting which such differences might depend. Instead of looking to Nature for an explanation of such interesting phenomena, we find the metaphysical philosophers pressing habit and association, and every external circumstance, into their service to explain them, and leaving Nature entirely unregarded.

These observations will be best elucidated by laying before the reader the opinions of some of the metaphysical philosophers themselves on genius ; and a more accurate opinion regarding their merits will be formed by a close contrast of their jarring theories, than could be conveyed by any criticism on their works.

" Helvetius and other bold metaphysicians have maintained the paradox, that all men are born originally the same, and are moulded into what they afterwards be-

come, solely by the force of external circumstances. Genius, according to this doctrine, is a mere creature of the fancy, and originally belongs no more to one man than to another. Train all men alike, and their powers, their attainments, and their actions, will be similar. Accident, more than design or premeditation, has fixed the destinies of great men, as well as disposed of those who are unknown to fame*."

"Demosthenes," say these philosophers, "became eloquent because he heard an oration of Callistratus, whose eloquence made so deep an impression on his mind, that he aspired only to acquire this talent. Vaŭcanson attained excellence in mechanics, because, being obliged, when a child, to stay alone in the waiting-room of his mother's confessor, he found there a clock, examined its wheels, and endeavoured, with help of a bad knife, to make a similar machine of wood. He succeeded, and one step leading on to another, he arrived at the construction of his wonderful automatons. Milton would not have composed his Paradise Lost, had he not been deprived of his place of secretary to Cromwell. Shakespeare composed his tragedies, because he was an actor; and he became an actor, because he was forced to leave his native place, on account of some juvenile errors. Corneille fell in love, made verses for the object of his passion, and thence became a great poet. An apple fell at the feet of Newton, while he was in a contemplative mood; and this event, so trivial in itself, led him to the theory of gravitation†."

Dr. Johnson, on the same subject, has said, "The supposition of one man having more imagination, another more judgment, is not true. It is only one man has more mind than another.—Sir, the man who has vigour may

* Article Cranioscopy in New. Sup. to Encyc. Brit.

† Dr. Spurzheim's Physiognomical System, 8vo. p. 452.

walk to the east as well as to the west, if he happens to turn his head that way."

The author of an ingenious article on Logic, in the Edinburgh Encyclopædia, gives it as his theory of genius, "That every man has, to a certain degree, the elements of genius; and that those who stand pre-eminent above the rest, owe their distinction entirely to the acuteness of their powers of perception, and the retentiveness of their memory." And, according to him, acuteness of perception depends on the perfection of the external senses.

And lastly, Mr. Stewart teaches, that difference of genius depends chiefly on habits of association. According to him, the *mind* forms a *habit*, and the *habit* forms a *power* or *capacity* of the mind.

"To these *powers* of *wit* and *fancy*," says he, "that of *invention in the arts and sciences* has a striking resemblance; *like them*, it implies a command over certain *classes of ideas*, which, in ordinary men, are not equally subject to the will; and, *like them, too, it is the result of acquired habits, and not the original gift of Nature.*"—(Elem. vol. i. chap. v. part 1. § 4.) Again he says, "What we call the *power of imagination, is not the gift of Nature, but the result of acquired habits*, aided by favourable circumstances."—(Ibid. chap. vii. § 1.) Again, in his Outlines of Moral Philosophy, he informs us, that "besides these intellectual faculties, which *in some degree are common to the whole species, there are other more complicated* POWERS or CAPACITIES which are *gradually formed by particular habits of study or of business.* Such are the *power* of Taste, a GENIUS for *poetry*, for *painting*, for *music*, for *mathematics*, *with* all the various *intellectual habits* acquired in the different professions of life."—(p. 16.) And again, he has, in his Outlines, a chapter entitled, "Of Intellectual *Powers* or *Capacities*, *formed by Particular Habits* of Study or of Business."

According to Mr. Stewart, the reason why we are not

all Shakespeares, Byrons, Maturins, Campbells, Mozarts, Newtons, or Davies, is because we have not all acquired "the habits of association," and the habits "of study or of business," which "formed the genius" of these celebrated individuals, for poetry and music, philosophy, and chemical discovery. But let me ask the metaphysicians, *Why* we do not all form these habits? and *how* it has happened that these individuals acquired them?

If genius depends on habits of association, and on habits of study or of business, *on what does the power of forming these habits depend?* This is the question which it is next of importance for us to solve. We ought never to suppose that we are in possession of ultimate knowledge before we have attained it. Every one has heard of the philosophy which teaches that Atlas supports the Globe. Then what supports Atlas? The system does not tell. In like manner, Habits form genius. What gives the power of forming habits? The metaphysicians do not tell. If all men have an equal natural power of forming habits, then it is absurd to talk of *differences* in *natural* genius. If all men have not equal natural power of forming habits, then it is of no use to tell us that habits form genius, unless we are told on what circumstances the power of forming habits depends. No hypothesis can be more unphilosophical than that which attributes the formation of genius to habits; for habit is merely a facility of doing a thing, acquired by the practice of doing it. But before we could begin to act, we must have had the *power* or *capacity* implied in the act itself.

The prevalence of such hypotheses as these among the most esteemed authors, gives us a humiliating proof of the small progress that has been made in the philosophy of the mind. In short, it shows that the nature of man, as a science, is almost absolutely unknown; and that every author endows the mind with faculties according to his own fancy, none being capable of pointing out any

satisfactory evidence on which the admission of them is founded.

The real cause, however, of these unsatisfactory and contradictory hypotheses for unfolding the nature of genius, is to be found in the circumstance of philosophers never having studied the natural constitution or functions of the faculties themselves; but having confined their attention exclusively to ideas, and to the supposed relations which unite them. In order to obtain a better explanation of the philosophy of genius, therefore, let us again have recourse to the philosophy of Gall and Spurzheim.

According to their system, the power of feeling desires and emotions, and the power of forming ideas, depend on the faculties, and each faculty, in virtue of its constitution, gives the power of feeling emotions of a certain kind, or of forming ideas of a certain kind, and it owes its functions neither to the human will, nor to any fortuitous circumstances, but to nature alone. Hence powerful faculties confer the capacity of feeling strongly, and of thinking deeply. The mind does not manifest one faculty alone, equally capable of feeling in every way, and of forming ideas of every kind; but it manifests several faculties, each independent and distinct in its functions. Genius is the capacity of forming ideas with facility and vigour, and of reproducing them with ease, vivacity and effect. Now, the faculties of the propensities and sentiments only feel, and do not form ideas; they may inspire genius, therefore, with feelings and emotions, but they do not constitute it. The knowing and reflecting faculties, however, form ideas, and reproduce them. An eminent endowment of the whole of these faculties, therefore, constitute universal genius. An eminent endowment of a limited number of them constitutes a partial genius. A man who only feels strongly is not a genius; it is he who can not only feel, but who can perceive, con-

ceive, remember, imagine and judge, in a certain way, with power and effect, who is such.

As the faculties are independent and distinct in their functions, it is absurd to suppose that genius is a single general indescribable feeling of inspiration, equally applicable to every pursuit. Each faculty has its specific functions from nature, and he is a genius whose knowing and reflecting faculties are able to perform their functions with eminent effect. Hence the greatest genius is substantially the same being as the dullest mortal; he has only the same faculties in a higher degree of perfection. Hence, too, an individual may be in one respect a great genius, and in another respect very deficient in natural ability. The individual who has the faculty of Tune eminently powerful may be a genius in music, and in nothing else. He who has the faculty of language eminently bestowed may be a supereminent linguist, and excel in no other accomplishment. He who has the faculties of constructiveness and form eminently powerful may be an eminent mechanician, and excel in no other art. He who has the faculties of comparison and causality powerful may be a profound philosopher, and no poet; and he who is highly gifted with ideality may have the rapturous inspirations of the poet, without possessing the deep-penetrating and logical powers of the philosopher.

Hence, when we are informed what faculties an individual pre-eminently possesses, and the degree of energy with which he is able to manifest them, we are able, by means of this system, to tell for what pursuits he is fitted, and for what he is not fitted; we see at once the extent and scope of his mental powers, and are able to form an enlightened estimate of his genius. By no metaphysical system can this be done.

These differences in the power of manifesting the faculties must depend on some cause. It may be difficult

to say whether the size and activity of the brain is the result of superior energy of the faculties, or if the superior power of manifesting the mind depends on superior size and activity of the brain ; but Gall and Spurzheim have found by observation, that the degree of power with which each faculty is manifested is *de facto* in proportion to the size and activity of a particular portion of the brain.

The reason, therefore, why we cannot all write poetry like Milton, Byron, Burns, Scott or Campbell, cannot all compose music like Mozart, or make statues like Phidias, is because we cannot manifest the specific faculties which they possessed, with so much power and activity. We cannot feel as such men do, and we cannot form the clear, rapid, powerful and impressive conceptions which flow upon their minds, because our faculties have not the innate strength and energy of theirs. This is the reason, too, why we cannot acquire their "habits of association," and their "habits of study and of business." The ideas must be *formed* before they can be associated, and it is because we cannot form them so powerfully, so varied, so impressive as they, that we cannot associate them as they do.

Who, indeed, that is not blinded by the mysticism of metaphysical philosophy can doubt that the habits of the musician depend radically on a power or faculty which nature has implanted in him, which gives the desire and the power to make music ? And what unhappy girl, who, without possessing any appreciable faculty of tune, is doomed to strike the keys of a piano-forte, does not feel by experience that musical habits cannot be acquired where the natural power is wanting ? Who that knows any thing of science, or the arts, or of life, does not know that the enthusiasm of the philosopher, of the mechanic, of the painter, of the poet, or their "habits of study," if that phrase pleases better, are founded on the antecedent

possession of specific natural faculties which give the power, and the desire, to perform the various acts which they respectively delight in ; and that, unless these faculties be given powerfully by nature, no habits of association or of study can be formed, which will confer excellence in their several pursuits ? Now, I say again, these natural faculties are never spoken of by the metaphysicians, while it is the sole object of the system of Gall and Spurzheim to give an account of them and of their functions.

Let it not be forgotten, however, that the faculties may be exercised, and that their activity is thereby increased. Exercise increases the power of forming ideas, and, consequently, the power of associating them. It has been most justly observed that education improves in an astonishing degree even the greatest genius : Witness the first productions of any author, and compare them with his maturer pieces ; the contrast is often so great, that it is difficult to believe them the productions of the same mind. The causes are these : First, The natural power of the faculties continues to increase with age and exercise, till it attain a certain state of perfection, at which farther improvement stops. In the second place, Nature furnishes only faculties, not ideas : Ideas, however, are the materials, and the faculties the instruments. Powerful faculties placed amid the productions of nature, will no doubt gather ideas from every passing scene. But furnish them with the best materials in profuse abundance, and you add astonishingly to their means of producing excellence themselves. Besides, excellence depends so much on comparison, that, without models of high perfection, even the first-rate genius is apt to be satisfied with results much inferior to those which he might attain, were higher objects kept in view.

When the faculties, therefore, are powerfully active by natural energy, the conceptions are both rapid and

strong; when they are naturally weak and languid, the conceptions are slow, laborious and feeble. Some men talk of "the fatigue, exercise, and anxiety of mind, which an author has to endure," and say that they "appear greater than those which attend military stations."—(Duncan on Genius, p. 129.) But this is the case only when a man becomes an author, whom nature never destined for one. When the faculties are languid and feeble, we cannot by an effort of the will rouse them to form rapid and forcible conceptions, or to feel powerful emotions. We may tug at the chain of association, but brilliant conceptions will not appear, because such conceptions cannot be formed by misty and expiring faculties. But, as the faculties owe their constitution to nature, and as they perform their functions in consequence of their constitution, they will, when naturally powerful, produce powerful thoughts, with as little pain to the possessor, as will be felt by the high-spirited race-horse when he gallops over the plain. Instead of mental exertion being to such men a pain, it is their delight. Ask any man who ever invented in the arts or sciences, and he will tell you that the act of invention was the most delightful of his life; he will tell you that he was able to invent only when the strong impulse came from within; only when his faculties answered to the summons of his will; and that, although there were long periods when the god of inspiration seemed to have forsaken him, yet when "the great burst of inspiration came," the ideas poured like a torrent upon his mind, and no pleasure equalled that of giving scope to his mental powers, when thus spontaneously energetic. The works of Shakespeare, Scott, Byron, and such mighty men, shew that the efforts which produced them were made with the ease of might, and not with the toil of impotency.

It has justly been observed, that "no poet of the first rank has ever spoken of the mechanism of his art, while

poets of inferior station have laborously displayed its rules in verse ;" and that " while inferior performers only endeavour to copy preceding models, or to supply the want of inventive faculty, by abstract discussion, or the dull formalities of logic ; those of a superior order, though they generally practise good logic, sometimes hardly understand, and seldom stoop to explain the grounds of their art." Such inferior performers have never felt what genius is, and hence they conceived that its place could be supplied by rules. The use of rules is merely to direct the faculties into the proper mode of exercising their powers, not to confer or supply the place of power ; and their utility even in this respect is but limited. When nature gives the power, she teaches also how to use it ; and it is difficult to determine whether rules and art have not done more harm to genius by the fetters they have imposed, than benefit by the aid and direction they have afforded. At all events, rules, to be useful to genius, ought to be general, and should be delivered more in the shape of practical observations to be kept in view in order to avoid faults, than as directions to be followed as the only mode of attaining excellence. It ought never to be forgotten that vigorous faculties are the essence of genius; and that the modes in which they may be successfully exerted are as numerous as the range of human thought itself is extensive.

Yet those who have written rules to direct others in the prosecution of literary pursuits have too frequently forgotten to keep this fact in view. They have considered literary compositions as mere collections of ideas, not as vivid emanations of living powers ; and hence have given rules for the composition of ideas, as an architect would prescribe rules for the arrangement of stones. The greater part of Horace's rules "de Arte Poetica," are of this latter description, and are therefore of subordinate utility ; because he who has not powerful facul-

ties cannot put them into practice, and he who has powerful faculties, observes them without the aid of such instructions. Rules to direct the faculties how to attain the highest estate of energy and activity, and the best stock of materials, are useful, because the faculties are naturally susceptible of great improvement by education, and because one kind of ideas is preferable to another; but beyond these limits rules are of no utility. Dietetic rules for attaining strength of muscle may be of service in preparing a man to make a great bodily exertion; but if he has not the innate power, no rules will enable him to display a vigorous strength of limb. I am aware that Horace has said,

> ——————" O ego lævus,
> " Qui purgor bilem sub verni temporis horam!
> " Non alius faceret meliora poemata* ;"

which is meant to ridicule the doctrine of natural power. But when he lays down as a rule,

> " Non satis est pulchra esse poemata; dulcia sunto,
> " Et quocunque volent, animum auditoris aguntoꝗ ;"

he might just as well have expected to confer on a tottering man of eighty the vigour of eighteen, by desiring him to be strong, as to confer on ordinary minds the power of doing what he prescribes, by merely desiring them to do it. If the rule was intended for men of mighty minds alone, it was unnecessary; nature, in bestowing the power, would teach them how to produce such an effect as this without the aid of Horace's prescription.

* " O fool that I am, who purge for bile in the spring time; else none would make better poems than I."

ꝗ " It is not enough that poems be beautiful: let them be sweet and affecting also: let them bear the soul of the reader wheresoever they please."

His other observation is much better founded :

" Natura fieret laudabile carmen, an arte
" Quæsitum est. Ego nec studium sinè divite venâ,
" Nec rude quid possit video ingenium : alterius sic
" Altera poscit opem res, et conjurat amicè*."

In fact, nature and art cannot be contrased as two separate things, for without natural power, art cannot be acquired. The truth, therefore, is, that natural power, as the essence of genius, is the basis of excellence ; but that art, when judiciously applied, gives it the polish and elegance which the diamond receives from the hands of the artist, the intrinsic value being in both cases bestowed by nature alone.

Schiller, with reference to this subject, has well said,

" Thus, my friend, it always has been,
" And thus it will always remain,
" Impotency oft has the Rule on her side,
" But Strength takes Success in her train†."

No doubt, however, every one has heard of the difficulty of an union betwixt Genius and Taste in the same author. " Why," says Schiller, " will Taste and Genius so seldom combine ? Because Taste is affrighted at Strength, while Genius spurns controul‡." The cause of the difficulty of this union of taste and genius, however, is to be sought for also in the nature of the faculties.

* " It is often asked whether nature or art does most in the production of exquisite poetry ; but the end requires so much the union of both, and they conspire so harmoniously in attaining it, that, for my part, I cannot conceive, what study without genius, or genius without study could accomplish."

† " Das Naturgesetz.
" So war's immer mein freund und so wird's bleiben, die Ohnmacht
" Hat die Regel für sich, aber die Kraft den Erfolg."

‡ " Die Schwere Verbindung.
" Warum will sich Geschmack und Geist so selten vereinen ?
" Jener fürchtet die Kraft, dieses verachtet den Zaum."——

SCHILLER.

Genius is the result of faculties strong and energetic, roused into a state of vivid excitement. Taste is the consequence of cultivated faculties, remarkable more for sensibility than strength. In the mighty whirlwind of inspiration which constitutes genius, the faculties may produce manifestations remarkable more for vigour than delicacy; or, under the impulse of one faculty peculiarly strong in the individual, ideas may be formed, which will not please the general faculties of readers. The author may embody his own peculiarities in his works, and such peculiarities will offend, unless his genius be so overwhelming as to make the depth of tone exclusively occupy the mind, and thus obscure the perception of faults. This is in some degree Lord Byron's case: If the feelings and ideas which he embodies in many of his lines were expressed by the pen of an inferior mind, the pages would often present a monstrous bloat of disgusting images and scenes. But there is nothing in genius in natural opposition to taste. The man of genius does not stop, while his faculties are in the glow of excitement, to contemplate their operation; he yields to the impulse he feels, and pursues his course directly to the end. Having gained it, he then relaxes, surveys his thoughts themselves, and amends what appears offensive to his mind in a cooler state, or to taste. When Pope corrected his version of the Iliad, we are not to suppose that he reasoned on the propriety of particular words. He must have tried how each would sound, and how it would express the sense; and the faculties judged intuitively from their natural constitution, of the effect of the alterations. Such alterations, moreover, rarely extend beyond verbal corrections, and if made when the glow of the original fervour is passed away, they are not always improvements.

If philosophers had but conceived that the faculties have received a specific constitution from Nature, and

that they perform their functions in virtue of that constitution, we should not have been distressed with the absurd and contradictory opinions now too widely current, that taste and genius are mere habits of association; or that taste is one thing of an incomprehensible kind and genius another, possessed by one mind or two, but not founded on the broad basis of human nature. The faculties themselves, and their functions, are radically the same in all the human race; but they differ in their combinations, and in their degrees of energy and activity; and hence an explanation of taste, genius, and every other phenomenon of thought, must be sought for in a knowledge of the faculties, and not in the supposed relations of particular ideas, or in vague and imaginary powers or inspirations which have no existence in Nature.

Genius, thus, is nothing but eminent energy and activity of the faculties which form ideas. He in whom the reflecting faculties are powerful, sees through the most difficult propositions as if by intuition, and he unfolds his ideas with the purest simplicity, and yet with irresistible effect. Vivacity and ease combine with strength, to distinguish every act of his mind; there is a spirit in every act that he performs, and a soul in every sentence that he writes. He makes the printed page speak, and his ideas seem to flow spontaneously from the fulness of his stores, and scarcely to require an effort for their production. His impressiveness and strength delight us, even although we do not always approve of his conclusions; for the pleasure experienced by himself in the exercise of his faculties is communicated, in a secondary though subordinate degree, to us who receive their impressions. It is this quality in the productions of men of genius which gives them that secret charm which fascinates our will, dazzles our understanding, and which pleases us, even when we cannot approve. Madam de Staël describes it most characteristically in a single sentence, when speak-

ing of Mirabeau. She says: "*On sentait une puissance de vie dans ses discours, dont l'effet etoit prodigieux.*" It is this "*puissance de vie*," which makes the heart thrill when listening to the powerful conceptions of a certain Pulpit Orator whom we have already had occasion to mention.

The man who wants genius, on the other hand, is one whose faculties possess only moderate energy and activity in their manifestations. Such a one may apply his powers to a great variety of pursuits, and be tolerably successful in them all, because he has no particular internal impulse to any specific courses of action. He may, by long exercise of his faculties, increase their activity to a certain extent, and acquire a degree of expertness highly useful, and often highly respectable. But he still will be only an ordinary mortal after all. The fire, the force, the depth, the originality, the creative power of genius, will be wanting, and his most valuable qualities will be correctness and precision. In all those situations to which he has been accustomed, he may even shine; but in the great and pressing moments of life's dreadful crisis, the difference between Nature and education will be conspicuously displayed in his want of resources. The weak mind then sinks appalled; but the great and powerful soul rises to every obstacle, and surmounts it. With great faculties, resources multiply as difficulties occur. The mind glories in its strength, and scarcely knows a limit to its powers.

It has been frequently remarked that an individual often betrays great genius in speculation, who shews great simplicity in the conduct of affairs; and hence some have concluded that excellence in any pursuit depends solely on the direction given to the mind; while others have inferred that genius is a kind of delusive faculty, quite incompatible with sober sense and discretion, and a dangerous gift for any man to possess, who wishes to thrive

in his worldly business. Both notions are erroneous; because both are founded on the supposition that the mind manifests but one single power, while, in point of fact, it manifests several powers each distinct from the other. Genius depends on the superior endowment of the faculties which form ideas; and the peculiar sphere of activity of these faculties is to observe and to speculate. Accordingly, an individual who possesses them powerfully is naturally fitted to excel in the lucubrations of the closet; but for the conduct of affairs other faculties are requisite. In the intercourse of life, we come in contact with the propensities and feelings of our fellows. Our motions are opposed by this man's pride, another man's avarice, and the vanity of a third. To meet these obstacles successfully, we must possess the faculties which give propensities and sentiments too. The proper check to the domination of the pride of others, is pride; to the encroachments of avarice, is keenness in holding; to the provoking influence of vanity, is contempt; and to the solicitations of the rascally and designing, firmness to our own purpose. Although an individual may have a great endowment of the faculties which form ideas, if he be deficient in the faculties of cautiousness and firmness, he will not be naturally prudent; if deficient in covetiveness, he will not be naturally keen or economical; if deficient in conscientiousness, he will not be naturally just; "so true is it, that folly" (in conduct) "is as often owing to a want of proper sentiments, as to a want of understanding*." But let it not be imagined, that the words Cautiousness, Firmness, and so on, are here used as mere names for fleeting and occasional feelings or ideas in the mind; they designate innate, permanent, and steadily operating capacities to feel in a certain way, and the character is modified by them, although the influence is unperceived by unreflecting individuals themselves.

* Hazlitt.

But, on the other hand, if an individual, besides great knowing and reflecting faculties have received powerful faculties of the superior sentiments, viz. of cautiousness, conscientiousness, self-esteem, firmness, veneration, and benevolence, he will naturally conduct himself as prudently in the business of life, as the dullest of mortals. A poet with great ideality and little covetiveness, will not be a match at a bargain for a bookseller with great covetiveness and no ideality; yet if the poet be gifted with covetiveness equal to his ideality, he will match the keenest literary leech. Pope shewed this in his conduct. Hence the circumstance of men of genius being too often unfit for the cool calculations of profit and loss is owing, not altogether to their endowment of genius, but to their want of an equal endowment of some other powers. The principle of this system, which I have often repeated, is of great utility in philosophy, that the same causes produce always the same effect; or, in other words, the same faculties always perform the same functions; and hence, if it were part of the functions of the knowing and reflecting faculties to incapacitate for business, it would be a general rule, without a single exception, that capacity for business would be great in proportion as the endowment of these faculties was small. Such, however, is not the case, and hence that practical defect must depend on some other cause.

It has often been remarked, that men of great genius are frequently prone to great vices; and hence many persons have rashly concluded that genius and ungovernable passions are necessarily connected. Nay, some individuals have even presumed so far on the supposed inseparability of the two, as to be proud of their vices, and to suppose, that, by manifesting them, they afforded indubitable proofs of genius, although their possession of intellectual capacity was proved in no other way. Such notions, however are wholly absurd. The lower propensi-

ties of our nature depend on faculties as distinct from those which inspire with genius, as the eyes are distinct from the ears ; and hence, until the persons now supposed are able to cause the cerebellum to manifest the intellectual powers, they will never render great proneness to vice equivalent to great endowment of genius. It is unquestionably true, that several men of great intellectual powers have been prone to the indulgence of the lower propensities of our nature in a lamentable degree. But this concomitance is in every case accidental, and not necessary. Many great men have been virtuous, as well as many vicious. If nature bestow on the same individual a great endowment of the faculties which produce propensities, and also of the knowing and reflecting faculties, with an inferior endowment of the faculties which produce the moral sentiments, he may be a great genius, and at the same time extremely prone to vice. But if she bestow on another individual the same endowment of the knowing and reflecting faculties, with a weak endowment of the propensities, and a strong endowment of the sentiments, he will be equal to the other in genius, and far surpass him in morality. Thus the vices of great men are spots upon their greatness ; proofs of their lamentable subjection to the animal desires of our nature ; but by no means constituent parts of their intellectual superiority. The cause of morality is never in greater danger than when vice is invested with a false lustre borrowed from concomitant greatness ; for those who are subject to the vice, without being possessed of the genius, are ever ready to represent the connection as indissoluble, and to pretend to the one because they exhibit the other. But this system exposes the falsity of such pretensions ; and, by drawing a strong line of demarcation betwixt the sources of genius and immorality, shews us both in their true colours, and enables us to distinguish

betwixt them, however close and frequent their combinations may happen to be.

The *direction* of the genius will depend generally on the particular propensities and sentiments which predominate in the individual. A person with great reflecting faculties, little love of approbation, and much covetiveness, will apply his reflecting faculties to acquire property to gratify covetiveness. Another individual with the same reflecting faculties, little covetiveness, and much love of approbation, will apply his reflecting powers to acquire fame, in order to gratify his love of praise. The faculties of the propensities and sentiments, thus afford motives of excitement to the intellectual powers; and the mutual influence of the faculties is so great, that a strong feeling will frequently excite extraordinary displays of intellect, which cannot be commanded by the individual on ordinary occasions. Hence, to excite the manifestations of genius in the most powerful manner, we ought to address to each individual, motives corresponding to his predominant propensities or sentiments. At present, the love of praise, or the love of money, are the two chief exciting causes; but the motives might be considerably multiplied, as the faculties which give desires are more numerous. With regard to children, this fact in our constitution ought always to be kept in view; for one will be excited by one motive, and another by another, to the most forcible manifestation of his intellectual powers.

Having begun this essay with the enumeration of various metaphysical accounts of genius, and having given an account of it on the principles of Gall and Spurzheim's philosophy, I cannot conclude better than by adding a few observations on the subject, made by men who have possessed it, and who have been able to speak of its nature and effects from experience. The reader will then see which theory coincides most with the experience of

those who could not be mistaken as to genius itself. He will judge whether it is a mere habit of association, or an innate energy of mind referable to nature and the constitution of the faculties as its essential cause. Our great poet, Cowper, shall speak first, and his theme is the endowment of the poet.

THE POET.

" I know the mind that feels indeed the fire
The muse imparts, and can command the lyre,
Acts with a force, and kindles with a zeal,
Whate'er the theme, that others never feel.
If human woes her soft attention claim,
A tender sympathy pervades the frame;
She pours a sensibility divine
Along the nerve of every feeling line.
But, if a deed not tamely to be borne,
Fire indignation and a sense of scorn,
The strings are swept with such a power, so loud,
The storm of music shakes the astonished crowd!
So, when remote futurity is brought
Before the keen inquiry of her thought,
A terrible sagacity informs
The poet's heart; he looks to distant storms;
He hears the thunder ere the tempest lowers;
And, armed with strength surpassing human powers,
Seizes events as yet unknown to man,
And darts his soul into the dawning plan."

The next extract relates to a genius of a different kind; namely, to the great and celebrated Mozart. The Baron de Grimm, in his Memoirs, gives the following account of the first appearance in Paris of that celebrated individual.

" The master of a choir at Saltzsburgh, by name Mozart," (the father,) " is just arrived at Paris (1763) with two children. His daughter, who is only eleven years of age, plays on the harpsicord divinely; she executes the most difficult pieces with a precision that is perfectly astonishing. Her brother," (afterwards the great composer,) " will not be *seven* years old till next February,

is yet a more extraordinary phenomenon; so extraordinary, that we scarcely knew how to believe what we saw with our own eyes, and heard with our own ears. Not only does he execute the most difficult passages with the utmost precision, but the astonishing thing is, *to hear him play from his own head* for an hour together, *abandoning himself to all the inspirations of his genius*, producing a thousand ideas that enchant, which succeed the one to the other with the utmost taste, and the most exquisite harmony, perfectly free from all confusion. The most consummate master of the science, could not shew more skill in his modulations, which he conducts by ways the least known, yet always exact. He *reads* with the utmost readiness all the music presented to him, and *writes and composes with wonderful facility*, without coming near the instrument to seek his chords*. I wrote down a minuet, and desired him to put the bass to it; he took the pen and did so immediately, without ever touching the harpsichord. Another thing to which I was a witness, and which seems almost incomprehensible, is this:—A lady asked him the other day, "whether he could, by his *ear* alone, without seeing the music, accompany an Italian *cavatina*, which she knew by heart;" and she began to sing it. The child tried a bass, which he found not perfectly exact, because of the impossibility of preparing beforehand, the accompaniment of a song which he did not know; but, when the air was finished, he requested the lady to sing it again; and in the second essay, he not only played the air perfectly well with his right hand, but he added the bass with his left, without the least hesitation or embarrassment. After this, he begged the lady, ten times over, to sing the air again,

* This shews the great power of *Conception* which an energetic faculty confers; for it is obvious, that he could conceive the notes so distinctly, as to compare and arrange them in his mind, without the aid of an instrument to give them body.

and every time varied the character of the accompaniment. He would, probably, have gone on twenty times, had he not been desired to stop. These two extraordinary children have excited the admiration of every one who has seen and heard them."*

The next extract regards a mechanical genius ; namely, the late celebrated Mr. Smeaton, civil engineer. I copy from the biographical account prefixed to his published reports.

"Mr. Smeaton seems to have been born an engineer. The originality of his genius, and the strength of his understanding, appeared at a very early age. His playthings were not those of children, but the tools men work with ; and he had always more amusement in observing artificers work, and asking them questions, than any thing else. Having watched some mill-wrights at work, he was one day soon after seen, (to the distress of his family,) on the top of his father's barn, fixing up something like a wind-mill. Another time, attending some men who were fixing a pump at a neighbouring village, and observing them cut off a piece of bored pipe, he contrived to procure it, of which he made a working pump, that actually raised water. These anecdotes refer to circumstances that happened when he was hardly out of petticoats, and probably before he had reached the sixth year of his age. About his fourteenth or fifteenth year, he made for himself an engine to turn rose-wood ; and he made several presents to his friends of boxes, in wood and ivory, turned by him in that way.

"His friend and partner in the Deptford Water-works, Mr. John Holmes, visited Mr. Smeaton, and spent a

* This shews the great power of *Conception* which an energetic faculty confers ; for it is obvious, that he could conceive the notes so distinctly, as to compare and arrange them in his mind, without the aid of an instrument to give them body.

month with him at his father's house, in the year 1742, when, consequently, our author was about eighteen years of age. Mr. Holmes could not but view young Smeaton's works with astonishment; he forged his own iron and steel, and melted his own metals; he had tools of every sort for working in wood, ivory, and metals. He had made a lathe, by which he cut a perpetual screw in brass; a thing very little known at that day.

"Thus had Mr. Smeaton, by the strength of his genius, and indefatigable industry, acquired at eighteen years of age, an extensive set of tools, and the art of working in most of the mechanical trades, without the assistance of any master, and which he continued to do a part of every day, when at the place where his tools were; and few men could work better.

"Mr. Smeaton's father was an attorney, and was desirous of bringing his son up to the same profession. He was, therefore, sent up to London in 1743, where, for some time, he attended the Courts of Westminster-hall; but finding that the profession of the law did not suit the bent of his genius, (as his usual expression was,) he wrote a strong memorial to his father on the subject, whose good sense, from that moment, left Mr. Smeaton to pursue the bent of his genius in his own way."

In the next place, let us hear on this subject our own great minstrel, of whose genius Scotland is so justly proud.

"But say, my Erskine, hast thou weighed
That secret power by all obeyed,
Which warps not less the passive mind,
Its source concealed or undefined;
Whether an *impulse*, that has birth,
Soon as the infant wakes on earth
One with our feelings and our powers,
And rather part of us than ours;
Or whether fitlier termed the sway
Of habit formed in early day?

Howe'er derived, its force confessed,
Rules with despotic sway the breast,
And drags us on by viewless chain,
While taste and reason plead in vain."
Introduction to Canto 4. of Marmion.

I conclude with a passage from Schiller, who thus expresses himself, in his poem on Genius, "What *thou* doest, what pleases *thee*, is law, and passes as a Divine Word of Power to all generations. The works of thy gifted hand, the words of thy inspired tongue, move the inchanted soul with impulse irresistible. Thou alone markest not the divinity that stirs within thee; and the mighty spell that makes every spirit obedient to thy call. Simple and modest is thy way, through a subjected world."

This passage in the original is the finest that can be read. I subjoin it.

DER GENIUS.

——"Was du thust, was dir gefält ist Gesetz
Und an alle Geschlechter ergeht ein göttliches Machtwort,
Was du mit heiliger Hand bildest, mit heiligem Mund
Redest, wird den erstaunten Sinn allmächtig bewegen,
Du nur merkst nicht den Gott, der dir im Busen gebeut,
Nicht des Siegels Gewalt, das alle Geister dir beuget,
Einfach gehst du und still durch die eroberte Welt."

Schiller's Gedichte.

scites of the organs of *Comparison*, *Causality* and *Ideality*,) weaken and even destroy the imaginative power.

A smallness of Cranium, continues the same writer, in proportion to the other parts of the body, a flattening of the vertex, of the temples and even of the occipital protuberance are met with most generally in the Cretins of Switzerland, who are no others than *Dementes* from infancy*. Not susceptible of cure, they show clearly, that their Insanity proceeds from organic lesions of the Sensorium, and above all, consists in a disproportioned smallness of the Cerebral organ ; consequently, smallness of the Brain ought to be at least regarded as a predisposing cause of Insanity.

In some cases of idiocy, the brain is morbidly enlarged by fluid in its cavities, or in consequence of the fibrous substance being soft and swollen,—a state of things generally indicated by the imperfect nutrition of other parts of the body, and accompanied by enfeebled function, as locommotion is impeded by a white swelling of the knee joint, or elephantiasis.

Dementia, *Amentia*, or *Fatuity*, characterised by weakness or entire impuissance of the faculties of the mind, is met with in old age, or after mania, melancholia or concussion of the brain from a blow or fall ; and is distinguished from Idiocy by its succeeding a previously sound state of mind, and being the result of disorganization, or a kind of pulsy of the cerebral organs. It admits only of actions from present impressions without any memory of the past ; the ideas are isolated and succeed each other rapidly, but are deficient in connection. Chiarugi has

* This is no new observation : we find Dr. David Abercrombie in his "Discourse of Wit," published at London, in 1686, express himself as follows: "I remember to have seen in Amsterdam, in the house near the temple, wherein the natural fools are kept, to the number of three or four, whose heads did not surpass in bulk an ordinary fist." *New Edinburgh Review*. October, 1821.

defined *Amentia, to be an universal Insanity, with irregular action of the intellectual and voluntary functions, but naturally without great emotions.*

A second set of derangements of the mind is distinguished by the faculties individually or wholly, being two active, and no longer under the influence of the will. The division is not in this case so lucid, nor the names so expressive as we could wish. The two diseased states of the mind have been termed *Mania* and *Melancholia*; the former, marked by general delirium or extravagant ideas on all subjects, is more generally accompanied by excitement of the intellectual and voluntary functions; the latter is distinguished by a depressed state of mind, which, for the most part, is only diseased on one or two subjects. But the fact of their occasionally running into and alternating with each other, proves the impropriety of considering them as distinct genuses. Greater precision of ideas is obtained by adopting in part the proposal of Esquirol to discard the term *Melancholia* and substitute *Monomania* or partial Insanity; and let *Polymania* take the place of *Mania*, and indicate the confusion of all ideas, or general and complete *Insanity*. Where the mind is diseased on one subject, and that of a sad or melancholy nature, we may designate such a state by the word *Lupemania, Delirium*, which was by Sauvages made the third order of his *Vesaniæ*, is by Pinel only viewed as a symptom; hence he speaks of Mania with delirium; of Melancholia or exclusive delirium on one subject. It has been defined, a perversion of the faculties of the mind, in which the patient associates incompatible ideas and takes these ideas as well founded truths. It is more generally considered as symptomatic of other diseases, and accompanied with a febrile state, as in typhus fever or enflammatory fever with great determination to the head, in which case it is called *phrenetic delirium*.

In admitting the brain to be the organ of the mind, we

are of course prepared to consider it, in common with all other corporeal parts, as liable to be deranged in its functions from proximate corporeal causes alone, which may be preceded by others either immediate, mediate or sympathetic. That the proximate cause of Insanity is corporeal, is proved by the following considerations.

*Insanity is connate and hereditary.** It is similar in this respect to those constitutional expressions of manner and predisposition to diseases, which are transmitted from generation to generation. The risk in all these cases is of course diminished by intermarriage with sane persons. Fodéré (*on Goitre and Cretinism*) has remarked that, among Cretins, children of the first generation are less disposed to that disease ; that if such children intermarry with other Cretins, the propogation of the disease is more certain ; and that if during three generations consecutively they intermix, the disease is a certain event. This hereditary influence is fortified by alliances in the same rank, or among particular families, as was the case in France. The same has been said of the Catholics of England. Hence it is best to mix the different stocks. It was observed, that when Louis XIV called the nobility of the country up to court, they uniting themselves to that of the city gave a fine race of men ; while under Louis XVI, by degeneracy from constant alliances among each other, they became rickety, consumptive or insane. The revolution, says Esquirol, to whom we are indebted for the remark, brought about another race with better hopes.

The mind viewed as a free agent and uninfluenced by organization, would not assuredly be exposed to such an unhappy condition as this.

* In our division of the subject and the arrangements in support of it, we follow, almost literally, Spurzheim in his valuable work, entitled "*Observations on the Deranged Manifestations of the Mind, or Insanity*," referring occasionally to other works which tend to illustrate particular questions.

Age has an influence on Insanity. It has been generally found that Menomania and Polymania, the most usual forms of Insanity, are more frequent from 25 to 35 years of age, than during any other periods. The risk is diminished between 40 and 50, and still more between 50 and 60, (*Esquirol*). Both very young and very old people are generally exempt, and we find the mind most liable to derangements when its manifestations are most energetic, and this is the case when the cerebral organisation is the most active, which is in the prime of life.—The most probable reason why children do not become insane is, as Spurzheim has very appropriately suggested, "because their cerebral organization is too delicate, and does not bear a strong morbid affection, without its entirely losing its fitness for the mind and endangering life", and hence in them, *Idiotism* is the most usual form of mental derangement. Cases are cited by different authors of mania in children, but it is of comparatively rare occurrence. In old age the mind loses its activity like the external senses, and when much enfeebled falls into *Amentia* or fatuity, from the brain being exhausted, or worn out by long action.

Insanity is produced by causes which directly injure the body alone. Every person knows that the common causes of other diseases will produce those of the mind, and that imperfect digestion, suppressed secretions, as of perspiration &c., and repelled eruptions or what ever exhausts the bodily powers will influence the manifestations of the mind and even cause Insanity.

Insanity depends on season and weather. It was an opinion, deeply grounded in the minds of mankind generally, that the periodical returns of Insanity were regulated by the moon, and hence the term Lunacy, which ought however to be entirely discarded as erroneous and unfounded. Haslam could not after a long series of years discover, "that the aberrations of the human intellect

corresponded with, or were influenced by, the vicissitudes of this luminary." Esquirol, observing that maniacal persons were more turbulent about the periods of full moon, determined to try the effect of excluding the light of this planet, and found that on so doing, his patients continued in the same state as usual without evidencing any unusual excitement. We must nevertheless acknowledge the influence of season and weather on the mind as well as on the functions of the body. Prolonged damp and cloudy weather renders the mind gloomy and desponding. "Melancholy with the propensity to suicide is at certain periods more powerful than at others".* Pinel remarked that maniacal paroxysms were more readily excited by a higher temperature of the atmosphere, and gives cases in which the remissions and exacerbations corresponded with the changes in the temperature of the atmosphere.

Insanity is periodical and has exacerbations. This is a fact so well known and so analogous to many other bodily diseases, that it is unnecessary to lay any additional stress on the inferences to be drawn from it.

Insanity is often accompanied by or alternates with corporeal diseases. Mental alienation has been known to originate from a variety of causes affecting the body, such as worms in the intestines, other complaints of the viscera, suppression of different discharges, concussion and injuries done to the head, great determination of blood to the brain. The same cause will often produce in one individual hysteria and hypochondrias, in another epilepsy, in a third monomania, in a fourth polymania.—Sometimes the symptoms of all these diseases exist in the same patient and are occasionally converted into each other. Insanity sometimes alternates with intermittent fever, Epilepsy and other bodily complaints. It is on this principle of the mind's being influenced by the

* Spurzheim on Insanity.

changes in the body, that we regulate our views and hope for success by medical treatment. So strong and frequent is this sympathy, that madness has been asserted by M. Prost of Paris, to be always the effect of disease in the abdomen. But, here as on many other occasions, the effect is no doubt substituted for the cause, since we all know what powerful influence the mind exercises through the brain and nervous system on the functions of the liver, stomach, and digestive organs generally.

Sleep is often disturbed in Insanity. The functions of the mind we well know require repose, which, to be complete and refreshing, must amount to sleep, and this state is dependent on corporeal causes.

Agitated slumbers or entire sleeplessness is a precursory sign of insanity as well as of some other diseases. There is also a great analogy between various symptoms of insanity and dreams, which latter are conformable to the age and organic constitution of the body.

"Thus, from observation and reasoning; it results that the proximate cause of the deranged manifestations of the mind must be considered as corporeal. The soul in its deranged manifestations of feelings and intellectual powers, is no more diseased than in the disturbances of the five senses, and voluntary motion. In palsy, the cause is not looked for in the mind but in the instrument by which will is propogated or voluntary motion performed. In the derangements of hunger and thirst, of hearing and seeing, smelling, tasting and feeling, the seat of the proximate cause is admitted in the respective organs by which these powers are manifested. It ought to be the same with the internal operations of the mind. Indeed, a too assiduous attention has hitherto been paid to the development of moral or metaphysical causes, while the corporeal, undisputably more within the sphere of human understanding, has been greatly neglected. I cannot conceive for what reason the mind, a being endowed with

reflection and *will*, should be pleased to appear sometimes below the nature of a brute. And if it be not its will, what has overpowered the will? Is it a supernatural being? a good or bad spirit? Then let us expect every salutary event from prayers above, and let us again have recourse to exorcism!!"*

The same author, in speaking of the morbid alteration of structure in disease of brain, holds the following language. "In fever with delirium, in phrenitis, in insanity with too powerful manifestions of the faculties, in children who from birth were able to manifest their powers of mind, but lost them by accidental disease, and in those who after violent mania became fatuous, or who died apoplectic, I was always able to detect some morbid appearances or organic alterations, either in the substance of the brain, or in the blood-vessels, or membranes, or even on the skull which sometimes is uncommonly thick or dense like ivory".

Of the Causes of Insanity.

The causes of Insanity have been already alluded to in part. Violence done to the brain was mentioned as a cause of idiotism and fatuity, but there are instances where similar causes have given greater energy to the faculties of the mind in persons previously stupid. Spurzheim knew "the history of a boy, who, from the fall of a stone on his head, became more stupid, but at the same time infinitely more quarrelsome than he was before the accident. The history of Père Mabillon is generally known: he was a boy of inferior abilities, till a tile fell on his head; then he began to display great talents. Acrell, in his Surgical Observations, relates the case of a boy, who received a blow on the temporal bone, which

* Spurzheim, Op. Cit. p. p. 113, 114.

was depressed, the trepan was applied and he recovered; but in his mind a singular change took place, for from that time he felt an irresistible propensity to steal. Acrell, who declared his mind deranged, delivered him from prison. Dr. Jenner told me a similar fact from his own observation, where a mechanical lesion of the head excited the same propensity*".

Thickened skulls, and various morbid appearances after death, such as the internal table receding from the external, ought rather to be considered as effects, than causes of diseased state of the brain.

The question, agitated by Greding and Pinel, *whether the shape of the head is a cause of Insanity*, has been answered in the negative by the latter who takes some pains to disprove such an idea, by measuring the skulls of insane persons, in all their dimensions, comparing both sides together, and the whole with the proportions of the head of the Apollo Belvedere, which he views as the model of perfection. In his examinations he gives the instance of an idiot with extreme disproportion between the extent of the face and the smallness of the cranium, which was flattened at the summit and sides, thickened in its substance and deficient in symmetry between the right and left sides; but he forbears to draw any inference†.

Both Haller and Bichat considered the inequality of the two hemispheres as a cause of insanity. That this inequality is often found, cannot be denied, but we ought not on that account to regard it as a cause of Insanity. Bichat, whose extraordinary talents are acknowledged by all, had himself the two sides of his forehead unequal; and it may be farther advanced that in the majority of mankind the two sides of the head are not precisely alike. Gall relates the case of a friend of his, who has the right

* Op. Cit.

† Sur l' Alienation Mentale.

side of his forehead half an inch higher than the left, and complains bitterly that he cannot think with his left side. At Dublin, a gentlemen, whose forehead on the left side is about four lines less developed than on the right, often feels head ache on the defective side, and assured Spurzheim that he is conscious of not thinking with that side. Laland's head was much higher on the right side than on the left. Numerous other instances might be mentioned of families possessing great irregularity and deformity of the head without manifesting any symptoms of insanity.

Spurzheim, while on this subject, takes occasion to declare against the misconception of his opinions by those, who suppose that he knows from the external shape of the head, whether any one is predisposed to insanity or not. Every part of the body, whatever may be its configuration, can become diseased: there are eyes of every colour, lungs large and small, brains of all sizes and forms. "As, however, certain eyes are more disposed to inflammation than others, and certain lungs more to consumption; and in the same way as medical men speak of an apoplectic configuration of the neck, a consumptive habit of the thorax; so we find that certain brains are more disposed to disease and certain configurations more liable to insanity. This is particularly the case with idiotism from birth and partial insanities, called hallucinations". The former state has been demonstrated to depend on too small a brain: more difficulties attend the determination of the configuration causing or predisposing to the latter. "It is a fact that by far the greater number of persons who are insane by pride, have the organ of self esteem large in proportion to the other organs of the mind.* It does not follow, however, that

* Gall possesses the skull of a madman from amativeness, who fancied himself the husband of six wives, and manifested various ideas of that kind. His cerebellum was extremely large. Gall has also the skull of a woman who imagined herself pregnant with five children: the organ of the love of offspring is of extraordinary development.

every one who has this organ large must become insane by pride, nor that every one who has this organ small will be absolutely exempt from such an hallucination, for every small organ may be excited by diseased affection, and show too great activity and deranged manifestations. The influence of size seems to be obvious, since the greatest number of persons insane with peculiar hallucinations, have the respective organs larger." "Insane people who show a peculiar degree of vanity, who like decorations and all sorts of distinction and ornament, commonly have the organ of approbation large. Persons insane from religion have generally elevated heads. Visionaries, or those who think they have communications with spirits, usually have the head elevated at the middle lateral parts of the coronal suture, between ideality and imitation. Those who are of an anxious melancholic character, who are afraid of persecutions or fear where there is not the least reason, mostly have the midst of the parietal bones prominent. Those who suffer the violent impulse to destroy or to do mischief, though their reflection and will resist, who beg to be loaded with chains to be prevented from their extraordinary propensity are commonly broad above the ears. This consideration may be applied to all primitive powers. But I repeat, that only in the greater number of cases, not always, the respective organs will be found larger, in the same way as the predominant character is mostly, but not always preserved. Particularly in those who, when young, adult, and insane, manifest great energy of the same dispositions, the respective organs will be found large. In such cases I am not aware of any exception".*

The greatest difficulty in understanding the diseases of the brain, as well as of other parts of the body, results from the infinite modifications to which organization is liable; and the peculiar manner in which diffierent func-

* Spurzheim, Op. Cit.

tions are modified as from idiosyncrasies. "Thus, in insanity, the configuration of the head is neither to be overlooked, nor to be overrated."

Under the other head of what Spurzheim terms *Idiopathic dynamic causes of insanity*, are included all those which immediately influence the functions of the brain.

It becomes as necessary to regulate the functions of the brain, as to regulate the aliments for the stomach, or air for the lungs. They may be either enfeebled by inactivity, strengthened by exercise, or excited into irregular action by too intense application. These irregular or inordinate exercises of the functions of the brain, are generally said to be the moral causes of insanity.

Of those causes depending on the organization, we have already seen that too small a brain is unfit for the exercise of its functions, and it may also happen that these latter become too energetic on account of their size or internal activity. The brains of children with premature development, as in scrophulous and rickety habits, and with too great energy of mind are most liable to diseases. In adults also, we know that a too great activity of one power will readily disturb the balance of healthy functions, and hence the close alliance said to exist between Genius and Insanity, that is, the faculty is so energetic as to act independent of the will. Though this may occur with every faculty, yet we are *a priori* prepared to expect that organisation will here have great influence, in other words, that the most energetic powers will produce the greatest number of insane persons, owing to the manifestations of the most active faculties depending on the largest organs.—Under this class are ranked amativeness, combativeness and destructiveness, cautiousness, self-esteem, love of approbation, religious feelings, ideality, and attachment. This view of Spurz-

heim is not dissimilar in fact from that of Pinel, Crichton, and Esquirol. The latter says that, almost all the insane confided to his care have displayed some irregularity in their functions, in their intellectual faculties, and their affections, before being diseased, and this often from early infancy. Some had been excessively proud, others passionate; one set often melancholy, another evincing the most ridiculous gaiety; some with fickleness to such a degree as to impede most lamentably their instruction; others with a stubbornness of application to whatever they undertook, but without fixity of pursuit: many were triflers, attached to minutiæ, fearful, timid, irresolute: almost all had been endowed with a great activity of the intellectual and moral faculties, which had been exerted with redoubled energy just before the accession of the disease: the greater number had laboured under nervous disorders; the women had suffered from convulsions and hysterical spasms; the men had been subject to cramps, palpitations, paralysis. With these primitive or acquired dispositions, there only wants a moral affection to determine the explosion of mania or the depression of melancholia.*

We apprehend, however, that few will run much risk of this disease from *acquired* disposition, and the moral affection will in general be found to be something which has thwarted or called into strong excitation the primitive propensity or faculty. Pinel gives numerous examples of mental derangement produced by the predominant feelings of pride and vanity. After remarking, that it is common to find insanity joined to a presumptuous manner and all the inflation of pride, only during the accession of the fit, and as a symptom peculiar to it, he goes on to consider this sentiment as inherent, not casual or symptomatic, and, heightened greatly in early youth,

* Des Passions considerées comme causes, symptomes, &c. de l' Alienation Mentale.

receive subsequent increase, be exalted, and become the cause of real mania ; as in the following case taken from Perfect's Annals of Insanity. A man of middle age and lofty stature, became noted for the harshness of his discourse and replies, as well as for his violent bursts of passion and austere manners. The expression and features of his face bore the stamp of haughtiness and of the most suspicious and morose mind ; he indulged in continual uneasiness, and bitter reproaches, and even invectives against all those who approached him. His savage misanthropy was still more augmented by misfortunes in commerce, and then his mania became evident. He drew bills of exchange for enormous sums on his banker, as well as on other houses which had no connexion with him ; and was soon after shut up on account of insanity. He preserved the same pride in the place of his detention, and issued orders with all the haughtiness of an eastern despot : he finished by imagining himself lord chancellor of England, duke of Batavia, and a powerful monarch.

We shall give two other cases of Insanity, the predisposition to which consisted in inordinate vanity, of itself sufficient, sooner or later, to have induced the disease, without the exciting causes of irregularity and excess in living. A young man, distinguished in other respects for his talents and profound knowledge of chemistry, had been meditating for some time before on a discovery which must, in his opinion, insure him a large fortune. His imagination is exalted ; he determines on shutting himself up for several days in his laboratory ; and to excite himself the better to exertion, to keep off sleep and elevate himself to the height of the object on which he meditates, he prepares stimulants of different kinds. A young singer shares in his retirement ; he makes repeated use of ardent spirits ; he snuffs up alternately odoriferous substances and the oxygenated muriate of potass : he

even goes so far as to sprinkle Cologne water frequently in his laboratory. One may conceive how the combined action of all these means, joined to the heat of a reverberating furnace, was calculated to carry to the highest degree of excitation his physical and moral faculties, and we cannot be astonished that on the eighth day a raging delirium supervened.

Another young man of good fortune and endowments, had applied himself successively, during the various periods of his education, to natural philosophy, chemistry, and the fine arts. An excessive vanity predominates in him, and makes him foresee in futurity a most brilliant career. Nothing appears better adapted to this course than a long voyage undertaken to become acquainted with countries little known. The history of this voyage, which is to announce him to the world, must be remarkable for the novelty of the facts, the richness of typography, and the elegance of the plates. Artists of merit accompany him every where ; and that he may the better sustain the fatigues of the day, and watching during the night, he drinks coffee to excess. He sometimes stops in his learned excursions to arrange his collections and digest his notes, and applies himself for several days to the closest study in a room of a high temperature. Still fearful that his senses may not be sufficiently excited, he adds to this the copious use of alcoholic liquors. His ardent imagination soon carries him to another excess ; he wishes to know to what degree he can bear abstinence, he throws himself into a post carriage and with some trusty servants, penetrates into regions thinly habited, only stops to change horses, and takes nothing for nourishment during several days but coffee and strong drinks, with which he had abundantly supplied himself. Repose abruptly succeeds this travelling. He remains for a whole month in bed, and only rises to swallow hastily a very frugal repast. His love of singu-

larity prompts him to try another experiment. He chooses for the place of his residence a city well known for its insalubrity, and, to guard against any deleterious impressions, he takes every day during a month large doses of peruvian bark. He returns again to his usual home, and abandons himself to his reveries, he considers time given to sleep as lost beyond recovery, and stimulated by the example of many great men, he goes to bed very late, and gives most positive orders to be awakened at dawn of day, and even compelled to rise. Vexations supervening at this epoch, and considerable disappointments give fresh shocks to his wavering reason, and a violent delirium supervened.*

We introduce these cases, not for the mere gratification of curiosity, but as illustrating principles previously laid down, and as solemn warnings to those who have the direction of youth. How often are the sickly dreams of puerile vanity, mistaken for the noble inspirations calculated to form new æras in science, or to controul the destinies of nations. The cant phrase of a *fine mind*, the chief characteristics of which are youthful extravagance of opinion and eccentricity of behaviour, is made the theme for admiring friends or ignorant sycophants, and advanced as a claim for future indulgence and countenance, in place of being a signal for the interference of the strong arm of parental authority or delegated guardianship. The practical inference which we wish to be drawn from this remark is, the necessity of clearly determining the primitive faculties of the mind, in order to their appropriate cultivation; to counteract the propensities when too strong by the sentiments, and regulate these latter by the intellect; to fix the attention on details by encouraging the exercise of the organs adapted to this kind of knowledge, thereby affording the mind some-

* Pinel, sur l'Alienation Mentale.

thing positive to rest upon, and guarding against the vagaries of ideality if it be very active, or the overweening suggestions of vanity and pride.

But, while thus avoiding that injudicious indulgence which is the more common evil, parents ought to hold in mind the tendency of unnecessary harshness and uniform tone of discouragement. "There are, says, La Bruyere, strange fathers, whose whole life seems entirely occupied in preparing reasons for their children consoling themselves for their death. Do not houses of correction and establishments for the insane furnish unceasingly examples calculated to serve as commentaries on this text."

Observing the great portion of brain allotted to the manifestations of the propensities and sentiments, or feelings as they are termed in common language, we cease to be surprised at their inordinate action being so much more usual causes of insanity than the excessive exercise of the intellectual faculties. In illustration of this part of the subject, we resume the views and nearly the language of Spurzheim. Pinel never saw a mathematician at the Bicetre, or hospital for the insane men, and prison for criminals near Paris, but Spurzheim mentions his possessing the skull of an individual who excelled in mathematics, but who had been insane by pride and vanity. That few become insane from the study of mathematics is admitted, and readily accounted for. Few study them intensely, in proportion to the immense number of those who are tormented by amativeness, pride, and ambition. Besides, the organ of number is too small to derange even by its great activity the larger organs, and the inclination depending on it is more readily gratified than those strong propensities of the latter.

Great determination of blood to the head, either disturbing the circulation of the brain in general or affecting portions of it, is a frequent cause of its derangements.

The influence of this plethoric state will generally depend on the different degrees of irritability of the nervous fibre. We forbear enumerating many other causes of Insanity, as our business, at present, is to notice the mental or moral causes, as they are commonly termed, and the moral treatment.

In the same way as the external senses become enfeebled or excited by continued action and even the impression remain, after the object which first produced it is removed, so, the internal senses, if intensely excited, fall into irregular and morbid action and retain the impressions or hallucinations long after the apparent causes of trouble have disappeared. The most active powers of the mind are most apt to produce insanity; and of these amativeness is one of the most powerful, particularly in youth, at which age derangements from this propensity usually occur. "In many persons it constantly occupies the mind, excites the other faculties in an extraordinary degree, causes sleepless nights, the most extravagant reveries and is a fruitful source of insanity. It may act alone or combined with other feelings, and appears therefore under various modifications, as unsatisfied, disappointed, seduced, jealous."* Pinel relates a very interesting case of the struggle between this feeling and a sense of duty and veneration, in a young woman sixteen years of age, which terminated in insanity. In her convulsive movements and aberrations of reason, amid broken sentences and exclamations, the words *God!* and *temptation!* were frequently heard.

Infidelity has made a handle of the expression, advanced occasionally by even well meaning persons, that religion is a frequent cause of insanity. But let it always be held in mind, that true religion calms agitation, soothes the troubled spirit and, begetting a pious confidence in

* Spurzheim on Insanity.

future happiness, makes the believer less influenced by those strong and wordly passions which so frequently destroy the empire of reason. Haslam, in saying that it is sinful to consider religion as a cause of insanity, adds however, that he would be ungrateful, did he not avow his obligations to methodism for its supply of numerous cases. As the mere expression of a fact, we cannot take exception at this assertion of Haslam, who was not bound to enter into explanations of what might be termed irrelevant to his subject; but, justice requires us to add, that this implied censure of Methodism is not well founded and that for one person whose mind was thus inordinately excited, thousands have been roused by Methodist preachers from a state of apathy, to the cheering influence of faith; and led from the paths of sinful indulgence to the ways of goodness and peace. We shall generally find that persons thus insane by religion have had the predisposition to such an infirmity, which only wanted an exciting cause to call it into action.

Similar observations might be made with respect to all cases of insanity and their respective causes. But we err in attributing too much to external agencies, and overlooking the predispositions of the mind, the activity of which is the result of internal innate power, and of external exciting causes. Kant, the celebrated German philosopher was right in saying, when a common man falls in love with a queen and becomes insane, he was insane before, because he fell in love with a queen.

"Insanity often originates from ungovernable or disappointed ambition, love of glory and fame; from reverse of fortune and from various affections of other feelings, such as from sorrow, grief, anxiety, apprehension, melancholy, fear and despair in cautiousness; from anger, fury wrath and hatred in combativeness and destructiveness; from pride, haughtiness, contempt and disdain in self-

esteem, &c. Several compound affections also, such as jealousy, envy, shame often disturb the functions of the mind."

Whatever excites in an inordinate degree the feelings and their affections will contribute to insanity. The history of revolutions affords ample proof of this. We have heard Esquirol himself say, that there is not a single event affecting the public mind in France, from the commencement of the revolution down to the assassination of the Duke of *Berri*, but what has proved the exciting causes of insanity. Nor is this surprising since all the strong feelings and selfish passions, such as ambition, pride, hate, fear, anxiety, courage, &c. are then most active, and must be frequently disappointed in their operations.

The influence of civilisation on insanity has been already explained on the above principle by Rush, and it gives us pleasure to state that Spurzheim's frequent reference to his "Medical Inquiries," and his work "on Diseases of the Mind," proves the high estimation in which he so deservedly held the industrious researches of that distinguished man.

We cannot let the present opportunity pass without renewing the caution so frequently given against the intemperate use of strong drinks, and quoting the emphatic language of Spurzheim on this subject. "Intemperance and the abuse of intoxicating liquors is a frequent cause of insanity. Indeed the consequences of intemperance are dreadful. Not only the functions of the body are greatly disturbed, but also those of the brain are formidably deranged. It affects the stomach, liver, intestines, the circulation and the brain; it is the cause of numerous complaints, of indigestion, obstructions, cardialgia, cephalalgia, vertigo, numbness of the senses, melancholia, mania, epilepsy and apoplexy. It is particularly dangerous to persons who have a natural disposition to insanity.

Who then might not wish to see this perverted appetite restrained within moderate boundaries."

Esquirol remarks that drunkenness is a frequent source of insanity in northern climates. In France, instances of insanity among the higher classes from the abuse of distilled or fermented liquors is very rare. In Russia numbers even of the highest rank and many professors of literature and science end their lives in dementia, owing to the abuse of ardent spirits. Perhaps it is owing to excess in the use of drinks of this description that suicide is so frequent in England. The children of drunkards are very liable to insanity. Mental alienation from alcoholic liquors is more frequent than from wine : the former are rendered more powerful in England by narcotic mixtures. It is well to remember that the abuse of vinous liquors, where the person had previously led a very regular life, is one of the first symptoms of insanity, and not the cause as many have imagined.

Tea produces hypochondriasis going on to monomania and dementia. Coffee, which in the healthy subject is useful and exhilirating, in small quantities, is more dangerous than tea when used largely.

Of the senses which are most affected in insanity, it has been found that the ears suffer more than the eyes, on account of the auditory nerve being more in connexion with the organs of the feelings than the optic nerve ; and for the same reason the sense of hearing and the organs of voice are more active in the manifestations of the feelings than the eyes.

The intense application of the intellectual faculties is more likely to prove a cause of mental derangement, if the inclination to study be greater than the power, and if the individual excite himself by spirits or stimulating liquors of any description as we have seen in the two cases already quoted from Pinel. "Among scientific

professions, however, with respect to insanity, it may be observed that those whose occupations naturally excite the feelings at the same time, such as priests, poets, advocates, actors, musicians, painters, sculptors, are more disposed to insanity than those who study geometry, mathematics, and natural philosophy in general."*

Suicide as a Form of Insanity.

The English, says Montesquieu, destroy themselves without one's being able to imagine any reason which could determine them to such an act; they destroy themselves in the midst of happiness. This action, which among the Romans was the effect of Education and depended on their customs and modes of thinking, is among the English the consequence of disease, and arises, from the physical condition of the frame. This kind of suicide, continues Pinel, indicated by the author of the Spirit of Laws, and which is independent of the most powerful motives for self-destruction, such as the loss of honour and fortune, is not a disease peculiar to England; numerous examples are seen in France in the establishments for the sick and infirm. This writer might have added, and in that country generally. The revolutions and counter-revolutions in France have operated strongly on the character of the nation at large, and produced such alternate excitement and prostration of hopes as to have led hundreds, either to the immediate commission of suicide, or plunged them into such vicious habits as have produced similar results. During the year 1819, there were 376 suicides in Paris, (population 715,000,) of which 25 were from love, 116 from uneasiness of life and mental alienation, 52 from bad conduct, gaming and debauchery,

* Spurzheim, Op. Cit.

93 from poverty, loss of situation and derangement of affairs, 12 from fear of reproach and punishment.

Here we have manifest proof, how infringement on the moral code and unlicensed indulgence of the passions leads to this, as to other forms of insanity. We unhappily find too many of those who commit this rash act, to have previously during life attempted to justify its morality, and have displayed an obtuseness of the moral sense long before the physical ones were affected. If we abhor the murderer of an another, the stamp of reprobation ought to rest on the memory of him who becomes his own executioner. If any crime be called damnable, the epithet is justly due to this, when committed with that coolness and forethought which too often marks it. Could the man who dare thus rush unasked into the presence of his Maker, but reflect on the misery, the anguish which he entails on his children and friends which the lapse of years cannot efface : could he but reflect on their after helplessness, their dependent situation, the innumerable mortifications to which they are exposed, and how often he must pass before their memories, not as the tender parent or kind friend, but as an angel of darkness blasting all their fairest prospects—he, rash, selfish as he is, might stay his murdering hand. The propensity to suicide appears under three modifications. The patients destroy themselves ; or they kill first their relations and then themselves ; or they kill others in order to be put to death. In many instances, suicide is evidently a corporeal disease. There are countries and districts where it is endemical. In Germany, about Hamburgh, Potsdam, Halle and Jena, it is much more common than in Austria ; and at certain periods it is more frequent than at others ; sometimes it is epidemic, so that in a short period there are a great number of instances and then much fewer during a longer interval. Like other forms of insanity, the inclination to self-destruction is

hereditary." The morbid symptoms which are commonly observed in such unfortunate beings, resemble those of melancholy in general. The patients often complain that their hands and feet are stiff and benumbed, more frequently the sensibility of the skin is increased, they feel either in the whole body, or in certain parts, principally in the intestines, or in the thighs and feet an ardent heat, as if it were produced by burning coals. The greater number are timorous, and pusillanimous so that sometimes very tall men tremble like children, feel a strong and permanent pain above the root of the nose, and in the midst of the inferior part of the forehead, sometimes at the top of the head. Others complain of an unsupportable tension in the forehead, and of tightness in the region of the stomach. Some vex themselves, and others around them, about trifles, feel suffocating anxieties, a sentiment of despair and see nothing but misfortune and wickedness, though sometimes their situation is extremely fortunate. All external circumstances often indicate prosperity when they despair and fancy that they and their family will die of hunger and misery. Certain individuals imagine they are despised and persecuted by every body. Some have inspirations and visions. They see and hear angels, who excite them to put an end to their days.

Sometimes the various symptoms disappear, but return. The visionaries, at the beginning, often judge exactly their situation; they consider their sensations and ideas as illusions, but when the disease increases they think they are real. They sometimes feel the impulse to self-destruction for years, and keep a note book in which they manifest evidently by the sentences they write down, that their mind is deranged. They often note, *I am mad; I am distracted*, and in thinking of self-destruction *I however shall do it.* Such persons sometimes bear about them a knife or other destructive weapon, for several

years ; uncertain and unresolved as to manner, place and time, when they will destroy themselves."* Several who attempted to break the ties that bound them to this life have not succeeded. " After a few days they often seem to repent of their action, but commonly new fits take place, and they repeat their attempts till they succeed. Those who begin by destroying their relations or others, do not always give the mortal blow to themselves, but they surrender themselves to justice, and request to be punished."

" Another proof that the chronic impulse to suicide in disease, results from the appearance of the skulls of such patients. They are often dense like ivory and often thick."†

This state certainly deserves our pity and calls for prompt remedial measures. The advantage of considering it a corporeal disease consists in our being thereby led to the adoption of such steps as will influence the mind through the medium of the body. The patient appears to suffer from ennui or that tedium vitæ which is caused by the want of positive sensations, or the oppression of some of the viscera from chronic derangement. No sooner then do we discover this suspicious state of mind than we watch the more prominent symptoms ; if heat in the abdomen, we give drastic purgatives as well to rouse the parts to action as to remove causes of irritation ; if there be tension of the forehead with considerable pain we should draw blood freely ; if there be mere languor, or despondency, we fix the attention on corporeal pain by blisters, caustic or the actual cautery. To persuade the person suffering under this infirmity that his body, more than his mind, is deranged in its functions, is already a great point gained ; he yields his confidence to the physician, he awaits the result of his prescriptions ;

* Op. Cit. † Op. Cit.

his physical structure is operated on, his ideas are the result of new impressions and associations ; and the lapse of a week will restore a man to his family, or the councils of his country, who might by injudicious measures, of merely a mental operation, have been hurried on to the commission of the rash and criminal deed. We mean not to censure ; but it is more than probable that had steps of this nature been pursued by the physician on a recent occasion in England, her statesman might have been still living.

Moral Treatment of Insanity.

Under this head will be embraced, the situation, ventilation, division of apartments of the establishments for the insane, as well as the management of all those causes of impressions operating on the feelings and faculties, and the means of occupying them all to advantage. For very useful directions in fulfilment of the first indication, we refer to Spurzheim's work, from which we have already so largely quoted, and we shall pass on to where he treats of the management of the feelings and intellectual faculties.

" Insanity particularly concerns the deranged feelings ; and, as their functions appear often disordered in the state of health, it has been said that the whole world is a madhouse." We term madness, that state in which the mind has lost its influence on the manifestations of the feelings, or in which the intellectual faculties no longer regulate the sentiments and propensities. We find the same modification of the powers of the mind in insanity, as in health; the dispositions are sometimes playful, often morose; peaceable or fractious; yielding or obstinate, as in health. There is often the same manage-

ment, same art, to gratify a favourite propensity, as could be displayed by the most practised intriguer in common life. How important then must be the study of human character, in its healthy state, to do justice to the management of it in its derangements, and we can easily coincide with Pinel when he says, "The doctrine of balancing the passions of man, by others of equal or superior force, is not less applicable to the treatment of the insane, than to the science of politics. Unfortunate then is the fate of those maniacs who are placed in hospitals for the insane, where the basis of practice is routine, and where perhaps the patients are abandoned to the savage cruelty of underlings."

It is only by a clear comprehension of the nature, extent, and modification of each feeling that we can hope for success in this balancing. We too often overlook the all important fact, that man's actions are the result of feelings, not of reasoning. Haslam says, "We have a number of patients in Bethlehem hospital, whose ideas are in the most disordered state, who yet act with great steadiness and propriety, and are capable of being trusted to a considerable extent." With the sane as the insane, both acting by feelings, are also guided by very different motives. One maniac will be soothed by appeals to his faculty of veneration; another by those to fear; a third will be guided by the love of approbation, often by attention paid to his self-esteem; many by gentle manners and kindness; melancholic, anxious, and fearful patients by the greatest mildness. The conversation must be adapted to the different states of mind in which we may find the patients; for they are not always in the same disposition. Derision is hurtful to one who has much self-esteem. Such a feeling being disdained, will be excited and excite others; at the same time, we must not coax, but repress haughtiness by a firm yet mild manner. On this account, persons insane by pride are seldom cured

in the bosom of their family, where they are accustomed to command.

Deception is by no means to be practised. Dr. Hallaran justly remarks that, "Maniacs, when in a state to be influenced by moral agents, are not to be subdued by measures of mere force; and he who will attempt to impose upon their credulity, by aiming at a too great refinement in address or intellect, will often find himself detected and treated by them with marked contempt."

We should be particularly careful how we call the diseased feelings into action, as we would be to avoid irritating an inflamed eye, or exercising a swollen joint. Every object which can excite the deranged feelings must be removed. This is the case with religious insanity, pride, melancholy, or any other feeling. How injudicious is it therefore to give books to persons insane from religion, or to let them hear sermons, which nourish their disorders; or to keep with melancholics a conversation on the subject of their despondency! Thus we see that the mutual influence of the faculties may be employed as a means of curing the disordered feelings.

Treatment of the Intellectual Feelings.

As we have already mentioned that insanity more frequently consists in disordered feelings, than deranged intellectual faculties, we ought not to expect much benefit from reasoning in the cure of the disease: though it is true that too great or irregular activity of the intellectual faculties may produce madness. "An endeavour," says Haslam, "to convince madmen of their errors by reasoning, is folly in those who attempt it, since there is always in madness the firmest conviction of the truth of

what is false, and which the clearest and most circumstantial evidence cannot remove."

Examples have been cited of the chain of diseased thoughts having been broken by reasoning. Pinel mentions one of a very intelligent watchmaker, who became deranged, and believed that he had been guillotined, his head mixed with those of other victims, and that another head had been replaced on his body; in fine, that his former head was exchanged for his actual one. He was corrected by the representation of the miracle of St. Denis, who carried his head under his arm, and kissed it as he went along. When the watchmaker maintained the possibility of the fact, and endeavoured to confirm it by the appeal to his own case, a companion burst out into a loud laugh, and said to him, "What a fool you are! how could St. Denis kiss his own head? Was it with his heel? This repartee struck the insane; he returned, and never after spoke of the misplacement of his head. Dr. Cox mentions that one patient asserted that he was the Holy Ghost. Another asked him, "Are there two Holy Ghosts? How can you be the Holy Ghost and I be so too? He appeared surprised and after a short pause said, "But are you the Holy Ghost?" And when the other replied, "Did you not know that I was?" he answered, "I did not know it before; then I cannot be the Holy Ghost."

We ought not in the treatment of the insane, to neglect the regulation of the five senses, and voluntary motion. Even the smell ought to be attended to. In fainting and various nervous complaints, we act on the brain by means of the smell. Insane people are commonly fond of taking snuff. In debility or inactivity of the intellectual faculties, excitement of the smell may be useful, and anatomy and physiology prove that the olfactory nerve is in the most intimate connection with the organs of the intellectual faculties. The senses of seeing and hearing

ought also to be appropriately acted on, and it is a matter of surprise that no more contrivances have been invented to amuse the eyes, as is done with the ears; in our language, says Spurzheim, to amuse the power of colouring, as well as that of tune. The directions for adapting the representations of objects in painting or exciting by music, are similar to those given respecting conversation, and the perusal of books.

This is not the place to enter into the medical treatment of insanity, and we shall merely remark that in this, as in other diseases, we must be regulated by sound pathological notions, which will generally be correct in proportion to our physiological knowledge. Symptoms of debility do not always call for tonics, nor the appearances of high fever require violent depletion. We should hold in mind the different manner in which the feelings are manifested by excitement of the organs:—thus, where there is furious mania, flushed face, and sparkling eye, we seldom fail to prescribe debilitating remedies; but where there is much timidity and anxiety, with inertness of thought and motion, we think it necessary to give cordials, forgetting that the difference in the two states, proceeds from combativeness, and destructiveness being excited in the former,—and cautiousness and perhaps secretiveness in the latter; and that the determination of blood to the brain, or increased activity of the circulation may give rise to the symptoms in both states. The extreme debility and feeling of exhaustion, with small pulse, so far from deterring us from the free use of the lancet in inflammation of the stomach, is an additional motive for our drawing blood to a large amount. Why then should we not often have recourse to similar measures in insanity, where despondency, and disinclination to mental and bodily exertion are the most prominent symptoms?

We shall finish this article, already extended beyond

the proposed limits, by inserting an account of a case which was lately tried in the Court of Sessions at Edinburgh,* and which shows that phrenology "is calculated to render the subject of insanity more intelligible not only to the physician but to the lawyer."

B—— against G——

J—— B——, student of divinity, having succeeded to some property on the death of a brother, the Court of Session 10th July, 1816, appointed W—— G——, his sister's husband, *curator bonis*, to manage his effects, (on the certificate of two medical practitioners that he was imbecile in mind.) In a year and a half afterwards, a petition was presented to the Court in name of M. B—— himself, and of certain persons as his interdictors, alleging that he was capable of managing his own affairs, and craving that the curatory in favour of Mr. G—— might be recalled. This brought on the question, whether he was imbecile or not; and the Court remitted to the sheriff of Edinburgh, then Sir William Rae, to lead a proof, and to report upon the subject. The following evidence was given to show that Mr. B—— was sane.

J—— W——, Solicitor of Supreme Courts, deposed, that he became acquainted with B—— in 1781, when at the high school of Canongate; that B—— "was an excellent scholar and generally dux in his class." B—— was employed by Mr. Inglis, the master, "to assist him." "He was uncommonly good natured and obliging, and not deficient in point of understanding, but quite the contrary." "Down to within these two or three years, there was no material change on his mind; but during this last period he was not so correct as he used to be."

The Rev. A—— J—— of S——, deposed, that about

* New Edinburgh Review, January, 1822, Art. x., Abernethy on Phrenology.

ten or twelve years ago, B—— taught a school at Elphinston and applied to the presbytery of Haddington to be licensed. He was remitted to two or three of the presbytery, to examine him privately ; and the report was favourable. He was taken therefore, upon public trials, and was *remitted* to his studies,—a mild mode of rejection.

J—— B——, Esq. advocate, deposed, that B—— officiated as his private teacher in 1799 or 1800, and it did not appear to the deponent at that time, that there was any defect in his mind. He saw him for half an hour in the house of J. A. Murray, Esq. advocate, in summer of 1818, and for any thing he could see on that occasion, there was no material alteration in the state of his mind. His impression was, that his mind was entire, but that his manners, habits and dress, were calculated to lead to a supposition that his mind was imbecile.

J—— D——, coach maker at Edinburgh, deposed, that he was at the Canongate school with B——, and about thirteen years ago he attended the deponent's son as a private teacher, and has called upon him since. When at the Canongate school, B—— was the best scholar in his class ; he was not defective in understanding, and was not made game of by the other boys. His mind continued equally free from defect when he attended the deponent's son, and he considers his understanding as perfectly entire at present.

The Rev. J—— S——, Edinburgh, deposed, that, so far as the deponent could judge from conversing with him, he seemed to be possessed of all his faculties, as far as to be able to perform the ordinary duties of life, and this in February 1818.

R—— R——, shoemaker, deposed, that B—— was very *siccar* (anglice hard) in his bargains, and spoke rationally on many subjects ; and his gestures were the worst things about him.

Mr. M——, cutler, P—— M——, baker, and other tradesmen, all deposed that B—— made bargains with them, with sufficient attention to his own interest, and conducted himself rationally.

On the other side,

The Rev. J—— P——, Edinburgh, deposed, that B—— and he attended the classes in the college together: that the boys about the college treated him as a fool, and that his impression at this time was, that B—— had been born a fool. He has observed no change in his faculties and considers him still as an imbecile person.

P—— B——, insurance broker, considers him as a weak minded man.

B—— W——, merchant, had a fixed impression that B—— was silly in his mind.

Mrs. P——, 17 Cross-causeway, considers him as altogether an imbecile and weak person, and incapable of managing his own affairs.

B—— K——, writer, deposed, that his general impression was that B—— was crazy.

Dr. A——, Dr. W—— F——, and Dr. G—— W——, all reported that B—— was highly imbecile and deficient in understanding.

The sheriff of Edinburgh gave in a report to the same purpose, and the court held him to be imbecile, and refused his petition for recal of the curatory under which he had been placed.

"It is impossible to read these contradictory statements without surprise; and an unreflecting mind might suspect want of discernment or candour on the part of the witnesses. But, in the first place, this case shews us how extremely vague the notions are which ordinary thinkers attach to the word faculties; and in the second place, the fact revealed by phrenology, that some faculties may be diseased or deficient, while others are entire, removes every difficulty.

We have seen B——, and can testify that his head presents a great development of language, lower individuality, acquisitiveness, secretiveness, conscientiousness, and cautiousness; while the organs of the reflecting faculties, although distinctly marked, are decidedly deficient in size. Hence, the witnesses who had attended to the manifestations of his faculty of language alone, deposed that he was an excellent scholar. The shoemaker and tradesmen who had sold him goods, having found that, under the influence of his powerful acquisitiveness, he drove a hard bargain, swore that he was a shrewd and *siccar* man. The presbytery of Haddington, at his first examination, which was confined to the languages, were pleased with his appearance; but the moment the manifestations of the reflecting faculties were required in a sermon, his deficiencies of understanding appeared, and the presbytery accordingly rejected him. The medical gentlemen, and the sheriff who attempted to reason with him, pronounced the same opinion. Phrenology is thus not only a key to the whole case, but affords the only means of reconciling the apparent contradictory statements of the witnesses, who were, in fact above suspicion.

The individual now alluded to, appears to us to possess the sentiments and perceptive faculties in a sound state, and an average degree; and his reasoning powers are rather deficient in strength than deranged. We have heard that his case is under appeal to the House of Lords, and we look with considerable interest for their decision." ED.

APPENDIX.

No. I.

CORRESPONDENCE betwixt the Author and Dr. P. M. ROGET, author of the Article CRANIOSCOPY, in the new Supplement to the Encyclopædia Britannica, *referred* to on page 136, of the preceding Essays.

To P. M. Roget, Esq. M. D.

SIR, *Edinburgh, 5th, May* 1819.

As I have not the pleasure of being personally known to you, I avail myself of the introduction of our common friend Dr. Dewar, to afford me an apology for intruding upon your attention. I am at present engaged in preparing some Essays on the system of Gall and Spurzheim for the press, and in these essays I find it necessary to advert to your article Cranioscopy, on the same subject, but to differ very widely from your views. In consequence, your article is spoken of in terms rather of severity than otherwise. It gave me pain to be obliged to do so, but the interest of truth appeared to require it. As, however, I may have misapprehended the scope of your arguments, or may myself be mistaken; and as the furtherance of truth is the only object I have in view, I take the liberty

to trouble you with this letter, and to say that I shall have great pleasure in modifying my observations if you are in the right, and in being corrected myself, if I am in the wrong. If your views and mine shall not after all correspond, I shall be happy to print any observations with which you may be kind enough to favour me on the subject, either in defence of your own views, or in refutation of mine.

The principles, then, on which I proceed, are the following:

First, It is a principle in physiology, now universally granted, that functions can never be inferred, *a priori*, from structure. Hence, the brain *may* be the organ of the mind, and different parts of it *may* be the organs of different faculties, and yet mere dissection or examination of structure could never reveal such facts.

Secondly, Consciousness gives us no intimation of the existence or functions of any organs of the body, made use of by the mind as instruments for manifesting its powers: For example, We are not conscious of the existence or functions of the nerves of voluntary motion, although it is by means of these nerves that we act on the external world. In moving the arm, we are not conscious of the operation of the muscles which produce the motion; in speaking, we are not conscious of the functions performed by the muscles which contract the larynx; in hearing, we are not conscious of the functions of the auditory apparatus. And, in like manner, we are not conscious, when in health, of the existence or functions of the brain, whatever these functions be. Hence, he who has sought to discover the functions of the brain only by dissecting it, and he who has sought to discover the organs of the mind only by attending to the subjects of his own consciousness, must, from the necessity of the case, be ignorant equally of the functions of the brain, and of the organs of the mind; for, by neither means

means could the fact be discovered, that the brain is the organ of the mind, even although it were indisputably so. These principles are distinctly stated by Dr. Spurzheim, at p. 205, of his octavo work, from which I perceive your article is taken.

Now, in the *third* place, the only way of discovering the functions of any organ of the body, serving as an instrument for manifesting the mind, appears to me to be, by comparing the power of manifestation with the state of the organ; and this mode of discovering functions, if pursued long enough, and with sufficient attention, must lead ultimately to results which cannot be doubted.

When, therefore, Dr. Spurzheim said, that by comparing the development of the cerebellum with the power of manifesting the amative propensity, he found the size and power to be generally in proportion to each other; when he said, that by comparing the development of the brain under the middle of the parietal bones, with the power of manifesting the sentiment of cautiousness, he found the size and power to be generally in proportion; and when he said that, by comparing the development of the brain in the upper part of the forehead, with the power of manifesting the reflecting faculties, he found the size and power to be generally in proportion;—when he said so, did he not proceed on principles which, if followed out with sufficient attention, would lead to indubitable results? and did he not proceed on the *only principles*, by means of which either the functions of the brain, or the organs of the mind can possibly be discovered?

Farther, if it be a fact that dissection cannot reveal the functions of the brain;—if it be a fact that reflection on the subjects of our own consciousness can never reveal the organs of the mind; and if it be a fact that the functions of the brain, and the organs of the mind can be discovered only by comparing the power of manifesting the mind with development of brain, is it not philosophical to

make such a comparison, and to state the results candidly and fairly, and to solicit the aid of every philosopher in checking the observations and results, for the sake of insuring accuracy and certainty?

Now, in your article Cranioscopy, you appear to me not to have stated these principles to the public, and not to have shewn that the principles are unsound, or that, *de facto*, the observations made in following them out, have been inaccurate. You appear only to have used every argument to shew, that inquiry is unnecessary, and that the system is self-evidently absurd.

This, however, with all deference, is arriving at the conclusion a little too rapidly; for, if it be impossible to discover that any particular part of the brain is the organ of any particular faculty, by any way, except by comparing development and power of manifestation together, and if you have not made such a comparison, which you no where say you have done, you appear to me to be arguing without an inch of ground to stand on yourself. When Dr. Spurzheim says he has made the comparison, and found so and so;—when his followers say they have made the comparison, and found so and so, on what principle do you, if you have never made the comparison, teach the public that Dr. Spurzheim and his followers have not, and could not find so and so? Every word that Dr. Spurzheim says may be true, for any thing that dissection, or consciousness can reveal to the contrary; and you do not say that you proceed on any other data than those furnished by dissection and consciousness when you call the system a "fantastic edifice," and "the wild effusions of a bewildered fancy;" and you do not specify any data, which can enable you, without comparison, and *a priori*, to predicate that the facts stated by Dr. Spurzheim are absurd; which it appears to me you ought to have done before you could philosophically condemn the system without comparing it with nature. Such is the

cause of my speaking of your article in terms of disapprobation; and my reason for troubling you with this letter, is to state fairly the principles on which I proceed, that I may yet, ere the Essays go to press, avoid doing you an injustice, if I have inadvertently misapprehended the scope of your argument, or fallen myself into a mistake as to the principles of the science. I am, &c.

LETTER from P. M. ROGET, Esq.

Bernard Street, Russell Square,
SIR, *London, May*, 18, 1819.

I AM obliged to you for the honour of your communication relative to the system of Drs. Gall and Spurzheim; and have read with great interest and pleasure the pamphlets you were so good as to send me, extracted from the Literary and Statistical Magazine. Although I fear there will still remain a considerable difference in our opinions as to the merits of this system, I flatter myself the difference lies in a narrower compass than you seem to imagine; and that my endeavours to convince you, that the censures you have passed upon my Essay, which has appeared in the Supplement to the Encyclopædia Britannica, are founded upon a misconception of the scope of my reasoning, will not be altogether unsuccessful.

The essential point, I conceive, on which the disciples and the opponents, of Gall and Spurzheim are at issue, is whether there really exists such an uniform correspondence between certain forms of the head, skull, or brain, and certain characters of mind, as can be distinctly recognised by observation. Until this be ascertained as a matter of fact, all speculation as to what may possibly be the functions of different parts of the brain, founded on reasonings *à priori*, can in my opinion, lead to no positive

or certain result. The question then, is, Whether sufficient evidence has been obtained to establish the fact, that certain forms of brain are accompanied by certain powers of mind? What I principally contend for is, that, as far as that evidence is derived from the observations of Drs. Gall and Spurzheim, it is quite inconclusive, not only because the general accuracy of their observations is extremely suspicious, but because the several propositions with respect to the functions and particular parts of the brain do not appear to have been obtained by fair induction from experience. In the article *Cranioscopy*, I have fully explained the grounds on which this scepticism may, I think, reasonably be entertained. From the remarks you have made on this part of my Essay, it appears to me that you have not exactly appreciated the nature of my objections, which are principally directed against the sufficiency of the evidence brought forward by Gall and Spurzheim in support of these pretended facts.

You find fault with me for not having stated more explicitly, that the truth of the theory must ultimately depend on its conformity with experience. But the proposition really appeared to me to be too self-evident to require even the most concise enunciation. A theory, being merely the generalization of facts, must, of course, be built upon facts. When the facts have been ascertained and collected, and when we have shewn them to admit of being comprehended under a smaller number of more general facts, we have, in other words, established their theory. Neither the one nor the other has, I think, been accomplished, in the present instance. I have no confidence in the authors of this system, either as faithful observers, or as sound reasoners; and, as far as I have myself had an opportunity of comparing the results they pretend to have obtained, with my own experience, I cannot say that I have found them in any degree verified. I at one time took some pains to make observations

on this subject; and am persuaded that I met, in the course of them, nearly as many exceptions to the rules, as instances in confirmation of them. One consequence of my endeavours to satisfy myself by a reference to nature, was the conviction I received of the extreme difficulty of conducting an investigation of this nature. I have stated some of the sources of difficulty, not with a view of discouraging inquiry, if conducted on the true principles of philosophical induction, but as ultimately contributing to its success, by inspiring a salutary caution against a fault, to which it seems to me that the founders of this system have shewn a strong propensity, that of too hasty and imperfect generalization.

You complain that I have not proved that the observations of Gall and Spurzheim are, *de facto*, inaccurate. It appears to me, on the contrary, that where doubts can be reasonably entertained of the accuracy of the observers, the exposition of the grounds of doubt leaves the *onus probandi* on the side of those who seek to establish the facts in question. With those who are satisfied with the testimony of Drs. Gall and Spurzheim on these points,—who esteem them accurate observers, and give them credit for having exercised that coolness and caution of judgment which alone can secure us from deception, even by our external senses,—and who can trust to their fidelity in generalizing the results of observation, and are satisfied with the logic which they are in the habit of employing, I cannot presume that any thing I might say would have much weight. I am, therefore, inclined to let the matter rest here; since, after all, the judgments we are likely to form on the validity or insufficiency of this sort of evidence must be as much the result of feeling as of reasoning. On this account I do not feel disposed to enter into any further controversy on the subject; though, at the same time, I remain open to conviction, if the evidence in favour of the theory, furnished

by observers worthy of confidence, shall ultimately be found to preponderate. I am, Sir, your very obedient humble servant,

P. M. ROGET.

To P. M. Roget, Esq.

SIR, *Edinburgh*, 28*th May*, 1819.

I HAVE had the pleasure of receiving the letter of 18th May, which you did me the honour to write to me, under cover to Dr. Dewar. I fear there is no prospect of you and I agreeing on the merits of the system of Gall and Spurzheim; so I drop all private controversy on that subject. But I am sorry that we do not yet agree on the apparent tendency of your article Cranioscopy in the Encyclopædia; and it is on this topic alone that I trouble you with another letter.

If it was your object, in that article, to state, that the great cause of the present deep ignorance in regard to the functions of the brain, was to be found in the circumstance of anatomists having hitherto confined themselves to dissection alone of that organ;—that Gall and Spurzheim had at least the merit of suggesting the only way in which this ignorance was likely ever to be removed, viz. by comparing manifestations and development together;—but that from their enthusiasm, or incapacity, or some other cause, they have pursued their own mode of philosophising with so little advantage, that their conclusions cannot be depended upon;—and, hence, that other anatomists ought to follow industriously in the same course, and seek to perfect science by obtaining correcter results;—if it was your object to make such a statement in the article Cranioscopy, then I have done you great injustice in the Essays intended for publication: and I now write, to say, that, with your permission, I shall print your letter

to me in the Appendix, or any *note* with which you may be pleased to furnish me, in explanation of your object.

On reading your article, it appeared to me, that your object was to represent both the mode of philosophising, and the conclusions of Gall and Spurzheim, as absurd, and deserving of no consideration; and that you meant to shew, first, that the *true* faculties and dispositions of the mind, could not be discovered by observing manifestations, except with extreme difficulty and uncertainty; Secondly, That the true development of the brain could not be discovered with any moderate certainty through the cranium and integuments; and, thirdly, That experience shewed rather that the mind might be manifested without perceptible diminution of power, even although the brain were partially, if not indeed totally destroyed by disease, than that the brain was the organ of the mind; and, hence, that the whole system both in foundation and superstructure, was only "the wild effusion of a bewildered imagination."

Since I received your letter, I have again read your article, and with all the candour in my power; and I am sorry to say I cannot see the object of it in another light from that now stated. It is with regret, therefore, that I cannot alter the observations made on it in what I intend to print; and although I am well aware that any observations of mine will give you no uneasiness, yet it is so painful to be supposed capable of wilfully misrepresenting an author, in order to make an attack upon him, that it would be a real favour to me to be allowed to establish at least my *bona fides*, by publishing the correspondence, or the substance of it, and thus to afford the reader a safeguard against my misconceptions, if I have so egregiously erred. I have the honour to be, Sir, &c.

P. S. I cannot but regret that you did not state the result of your *observations* in the article Cranioscopy; as a

number of well authenticated facts in contradiction to Gall and Spurzheim's statements would have outweighed, in my humble apprehension, a whole Encyclopædia filled with arguments. G. C.

LETTER from P. M. ROGET, Esq.

Bernard Street, Russel Square,
SIR, *London, June* 3, 1819.

I HAVE to acknowledge the honour of a second letter from you on the subject of my article on Cranioscopy in the Encyclopædia. In answer to your inquiries as to my object in writing it, I can only say, that I have endeavoured to give such a statement of the arguments for and against the system, as might enable the reader to form his own judgment respecting its truth. My comments of course, applied solely to the evidence brought forward by its founders, Drs. Gall and Spurzheim; I accordingly thought it right to omit all reference to my personal experience on the matter, more especially as I was not exactly writing in my own name; and I felt it nowise incumbent in me to lay the foundations of any similar system myself, or presume to direct others in the pursuit, by laying down a plan of operations to be followed for that purpose. But, as I have before stated, I shall certainly not refuse my assent to the facts in question, when I shall be convinced they have been fairly established. I have the honour to be, Sir, your most obedient humble servant.

P. M. ROGET.

P. S. I have no objection to your publishing this and my former letter to you, if you think it worth while.

No. II.

EXTRACT from Sermons preached in the Tron Church of Glasgow, by Thomas Chalmers, D. D., referred to on page 268.

"GOD has, for the well being of society, provided man *with certain feelings and constitutional principles of action*, which lead him to a conduct beneficial to those around him; to which conduct he may be carried *by the impulse of these principles*, with as little reference to the will of God, as a mother, among the inferior animals, when constrained by the sweet and powerful influences of natural affection, to guard the safety, and provide for the nourishment of her young. Take account of these principles as they exist in the bosom of man, and you there find compassion for the unfortunate; the shame of detection in any thing mean or disgraceful; the desire of standing well in the opinion of his fellows; the kindlier charities, which shed a mild and quiet lustre over the walks of domestic life; and those wider principles of patriotism and public usefulness, which, combined with an appetite for distinction, will raise a few of the more illustrious of our race to some high and splendid career of beneficence. Now, these are the principles which, scattered in various proportions among the individuals of human kind, give rise to the varied hues of character among them. *Some possess them in no sensible degree;* and they are pointed at with abhorrence, as the most monstrous and deformed of the species. *Others have an average share of them;* and they take their station among the common-place characters of society; *and others go beyond the average*, and are singled out from among their

fellows, as the kind, the amiable, the sweet-tempered, the upright, whose hearts swell with honourable feeling, or whose pulse beats high in the pride of integrity.

"Now, conceive for a moment, that the belief of a God were to be altogether expunged from the world. We have no doubt that society would suffer most painfully in its temporal interests by such an event. But the machine of society might still be kept up; and on the face of it you might still meet with the same gradations of character, and the same varied distribution of praise, among the individuals who compose it. Suppose it possible that the world could be broken off from the system of God's administration altogether; and that he were to consign it, with all its present accommodations, *and all its natural principles*, to some far and solitary place beyond the limits of his economy,—we should still find ourselves in the midst of a moral variety of character; and man, sitting in judgment over it, would say of some, that they are good, and of others, that they are evil. Even in this desolate region of atheism, the eye of the sentamentalist might expatiate among beauteous and interesting spectacles,—amiable mothers shedding their graceful tears over the tomb of departed infancy; high-toned integrity maintaining itself unsullied amid the allurements of corruption; benevolence plying its labours of usefulness, and patriotism earning its proud reward in the testimony of an approving people. Here, then, you have *compassion* and *natural affection*, and *justice*, and *public spirit*,—but would it not be a glaring perversion of language to say, that there was godliness in a world, where there was no feeling and no conviction about God?" (Sermon iv. pp. 132,-3,-4,-5.)

No. III.

NOTE referred to on page 341.

Dr. Spurzheim has remarked in a cursory manner, that "Every one feels that he thinks by means of the brain;" and in the foregoing Essays it is laid down as a principle of the System, that we have no consciousness, when in health, of the existence or functions of that organ. These apparently opposite propositions may, without difficulty, be reconciled. We have a general consciousness that the thinking principle is somehow connected with the head more intimately than with any other member of the body. We all feel that we do not think by means of the legs, arms, or trunk; while we have a sort of indistinct consciousness that we think my means of the head. This, accordingly, is what I understand Dr. Spurzheim to mean by the words now quoted. But this indistinct feeling does not amount to a consciousness that the substance within our heads is brain, and that the special function of that substance is to serve as the instrument for manifesting the mind; which is the true import of the proposition maintained in the Essays. It is worth mentioning, however, that I have met with one gentleman who assured me that he has distinct consciousness that he feels and thinks by means of the brain; and that after severe application to abstract study, he feels heat, and a pain in the forehead, at the seat of the organs of Causality and Comparison. Such sensibility of constitution is perhaps by no means common; but this system shews so clearly that we ought not to take our own feelings and perceptions as infallible types of the feelings and perceptions of the whole human race, that it will be

more philosophical not to reject the statement of this gentleman as incredible, merely because our own feelings do not confirm it, but to admit that it may be true, as his constitution and ours may probably differ.

No. IV.

NOTE.

In page 141, of the Essays, a passage is quoted from the article Cranioscopy, in answer to the charge of Materialism brought against the system. It ought to be mentioned, that these observations originally appeared in the Edinburgh Review, vol. ii. p. 148. They are ingenious and philosophical, and as they were made at a very early period of the discussions on the System, the reviewer has the greater merit in the liberality displayed in them, of which he ought not to be deprived.

Note on Organ No. 3; and on the Organ of Wonder.

Dr. Spurzheim's account of the functions of this organ is merely Conjectural, and does not appear to me to be borne out by facts. Light has lately begun to break in upon the mental power which is attached to it; but the observations do not yet afford such complete philosophical evidence as to authorise me to hold out the following views as perfectly ascertained. They are stated, therefore, as merely probable, to be confirmed or corrected by a wider induction of facts.

Some persons experience a natural facility in concentrating their thoughts and bending them to one point. They possess a tact by which they feel what circumstances bear upon the merits of the subject before them, and what are essentially unconnected with it. These persons have the organ marked No. 3, large. There are other persons, on the contrary, who, although not deficient in intellectual acumen, appear, in writing upon any subject, incapable of rejecting associations of inferior interest, which serve only to distract," and, in whose pages, a thousand fleeting assemblages of momentary importance are perpetually hovering around us ;" who, in telling a story, never keep to the leading object of discourse ; but introduced such a mass of unconnected communications that the main subject can scarcely be perceived. These persons have the organ in question small.

On a metaphysical analysis, the faculty of the organ seems to be the tendency to concentrate the mind within itself, and to make all its powers act in harmony, and I am disposed to name it *Concentrativeness*. A young gentlemen, with whom I am acquainted, possesses a large development of the reflecting organs, and of firmness, and also Conscientiousness, with a small development of the organ, No. 3. He manifests a vigorous and comprehensive understanding with determination of character, but he feels a strong dislike to the close thinking and concentrative application requisite in the profession of the law, to which he is bred. It gives him pleasure to use his reflecting faculties about any outwardly existing objects ; but not to concentrate his powers so as to trace within himself an abstract and metaphysical relation. Another gentleman, an officer in the army, possesses a development of the reflecting organs, of Firmness, and of Conscientiousness similar to the foregoing, and a *large* development of No. 3. He also manifests a powerful intellect and decided character, but so prone is

he to internal meditation, and so little is he annoyed by a tendency to dissipation in his thoughts, that during short and occasional halts in the marches of the peninsular war he found himself capable, in the midst of all the bustle and excitement by which he was surrounded, of collecting his mind within himself and of reading, writing, and keeping accounts, as if every distracting circumstance had been absent.

The busts of the Right Honourable William Pitt and Mr. Horner, M. P. shew a great development of this organ.

Wonder.

I have met with persons who were extremely fond of news and novelty of every kind; who were prone to admiration and the expression of surprise and astonishment in their ordinary discourse; who were extremely delighted by the Arabian Nights Entertainment and by ghost and goblin stories wherever they occur. Such persons had also a peculiar expression about their eye-lids; a turning of them up involuntarily and unconsciously with the expression of surprise; and on examining their heads, I found the organ betwixt Ideality and Imitation large. The emotion seems to me to be that of Wonder, and the faculty might be denoted by that name. Persons in whom the organ is small, have feelings the reverse of those now described.

These views coincide with those entertained by Dr. Spurzheim.

GEO. COMBE.

Edinburgh, 21st *May*, 1822.

We present the above observations without comments, which would necessarily be hypothetical, and neither confirmatory or in opposition to the views of our author. We may simply remark that the location of such an organ as *Concentrativeness*, which is an intellectual one, among those allotted to the sentiments and propensities, is contrary to the general principles of analogy which prevail in the present arrangement. Ed.

THE END.

THE FACULTIES ARE DIVIDED INTO

1. Order. Feelings.

1. Genus. Propensities. Having the organs of

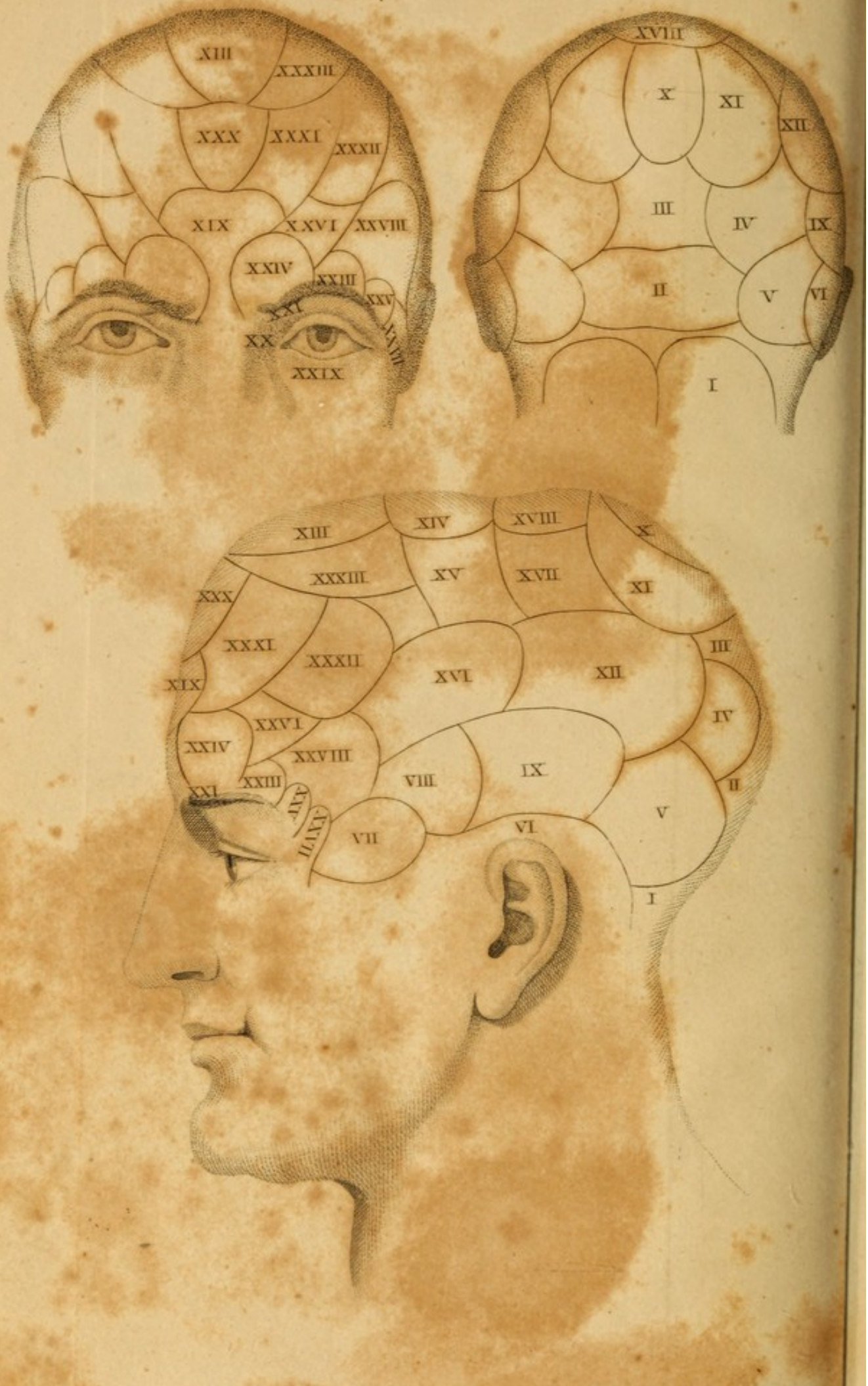
2. Genus. Sentiments. Having the organs of

2. Order. Intellect.

1. Genus. Knowing Faculties. Having the organs of

2. Gen. Reflect. Fac. Having the organs of

NAMES OF THE ORGANS.	SITUATION OF THE ORGANS.	REMARKS.
1. Amativeness, or physical love.	The cerebellum. At the base of the back part of the head, immediately above the middle of the neck.	Generally most developed in man and male animals; and not considerable till puberty.
2. Philoprogenitiveness, or love of offspring.	The posterior part of the head, immediately above the former organ.	Most remarkable in women, and the females of other animals.
3. Inhabitiveness—in animals the disposition to determine the place of dwelling—in man, love of country.	Probably seated above the centre of the preceding.	This is most conspicuous in certain animals that are fond of elevated situations.
4. Adhesiveness, or disposition to form attachments.	Outward and upward on each side of the second organ.	Society results from this disposition, which is found in some of the lower animals. In man it disposes to friendship, and it is generally large in women.
5. Combativeness, or disposition to quarrel and fight.	About the posterior lower angle of the parietal bone; or, in adults, about an inch and a half behind the ear.	Conspicuous in the courageous animals. In man it produces courage, and the tendency to attack.
6. Destructiveness, or disposition to destroy.	On the side of the head, immediately above, and somewhat around the ear.	Very discernible in the carnivorous animals; also found in the human species. When this and the preceding organ are large, they give the tendency to rage and ferocity.
7. Constructiveness, or disposition to build, &c.	At the temples, above the cheek bones; when large, it gives a kind of square appearance to that part of the face.	Remarkable in those animals which build, and in men noted for mechanical invention.
8. Acquisitiveness, or disposition to obtain or acquire.	At the upper part of the temples, upward and backward a little from the preceding organ.	In excess, this leads to avarice; and, when conscientiousness is small, to theft, dishonesty, &c.
9. Secretiveness, or disposition to conceal.	In the middle of the side of the head, immediately above destructiveness.	Cunning, dissimulation, hypocrisy, &c. are its results, when abused or improperly directed. Legitimately employed, it enables us to suppress improper feelings.
10. Self-esteem, or self-love.	The middle of the upper posterior part of the head, or top of the back part.	When not checked, it gives rise to pride, disdain, overweening conceit of one's self. Most noted in men. When regulated by conscientiousness, it gives dignity and elevation to the character.
11. Love of approbation, or desire of applause.	On each side of the preceding; or the posterior upper and lateral part of the head.	Ambition and vanity are its occasional products. Most remarkable in women. Well directed, it gives the love of fame, glory, and distinction.
12. Cautiousness, or circumspection.	The upper posterior part of the sides of the head, or upwards and backwards, from No. 9.	Timid animals and very cautious men have it in a great degree. It produces fear when large.
13. Benevolence, or kind affection.	The superior middle part of the forehead, or top of the fore part of the head.	The meek and peaceable animals have it much developed. In man it gives universal charity or philanthropy.
14. Veneration, or tendency to adore.	The middle of the upper part of the head, a little before the crown.	Conceived to be proper to man, and to dispose to religion; as also to venerate any object to which it is directed.
15. Hope, or inclination to expect and believe.	On each side of veneration.	In religion this sentiment produces faith; its excess occasions credulity. It paints the future fair and smiling.
16. Ideality, or poetic and enthusiastic tendency.	A little above the temples, and immediately above No. 8, but extending farther back.	The opposite of cautiousness. Fancy, enthusiasm, poetical feeling, are referable to it.
17. Conscientiousness, or sense of justice and duty.	On each side of the following organ.	None of the lower animals are thought to possess this sentiment. It is the moral sense of the metaphysicians.
18. Firmness, or resoluteness of character, &c.	The top of the head, a little in front of self-esteem.	This serves to maintain the activity of the other faculties. It gives determination and perseverance; but in excess leads to obstinacy and infatuation.
19. Individuality, or faculty of knowing external objects.	The upper portion is supposed to give the fondness for history, events, &c. and is called by Spurzheim Phenomena.—The lower portion to give a disposition to attend to matters of fact, and is by him called Individuality.	These contribute to universal but superficial knowledge, and are early developed. They are conversant with facts, but do not trace their relations.
20. Form, the power of considering forms.	In the internal angle of the orbit of the eye.	Form is imagined to be the first quality of bodies that is considered by the intellect.
21. Size, faculty of contemplating size.	Supposed to be near the preceding.	Size the next quality considered.
22. Weight and momenta, &c.; faculty by which ideas of weight, &c. are acquired.	Conjectural; but supposed as above.	Consistency, density, and some other qualities, are supposed to be ascertained by this faculty.
23. Colouring, faculty of perceiving the harmony and relation of colours.	The middle of the arch of the eyebrows.	This is not in proportion to the sense of sight. Some persons see figure and distance correctly, but cannot perceive minute shades of colour, and *vice versa*.
24. Locality, faculty of contemplating places, situation, space, &c.	From above the inner angles of the eyes, towards the middle line of the forehead, or towards the lower sides of organ 19.	Gives rise to a propensity to travel, takes cognizance of space and localities, and is necessary to a landscape painter.
25. Order, faculty of conceiving order, method, &c.	Betwixt the organs of colouring and number. Probable.	The notion of regularity is dependent on this faculty.
26. Time, faculty of attending to the succession of events; duration.	Uncertain; but supposed to be outward and upward from 21 and 24.	Implies a succession of events. Supposed to give perception of time in music; and the feeling of duration.
27. Number, faculty of calculating, &c.	About the external angle of the orbit of the eye.	Whatever concerns unity and plurality belongs to this faculty.
28. Tune, faculty of perceiving melody in sounds; musical genius depends on it.	The lateral parts, or external corners of the forehead.	Much developed in singing birds and in great musicians.
29. Language, faculty of acquiring and using arbitrary signs.	About the middle of the orbit, so as when considerable to give prominence to the eyes.	Not confined to oral discourse, but applies to all arbitrary signs whatever.
30. Comparison, faculty of finding resemblances, using examples, &c.	The middle of the superior part of the forehead, between 19 and 13.	Does not determine the kinds of comparison. Gives a fondness for analogies, and an acuteness of discrimination.
31. Causality, faculty of examining causes and relations; metaphysical genius.	The superior part of the forehead, on each side of 30.	The general relation of cause and effect is its object. This and the preceding are essential requisites in a philosophic understanding.
32. Wit, faculty of the ludicrous in general; gaiety.	The upper and outward parts of the forehead, on the side of 31.	Gives the perception of the ludicrous.
33. Imitation, faculty of copying or mimicking the actions, manners, &c. of others.	The superior part of the forehead, on the sides of the organ of benevolence.	Very discernible in children, actors, mimics, &c.
ADDENDA—Wonder, or feeling of the marvellous.	Betwixt ideality and imitation. (Probable.)	Gives the feeling of surprise, and of pleasure from novelty. In excess, produces astonishment and a tendency to the marvellous.


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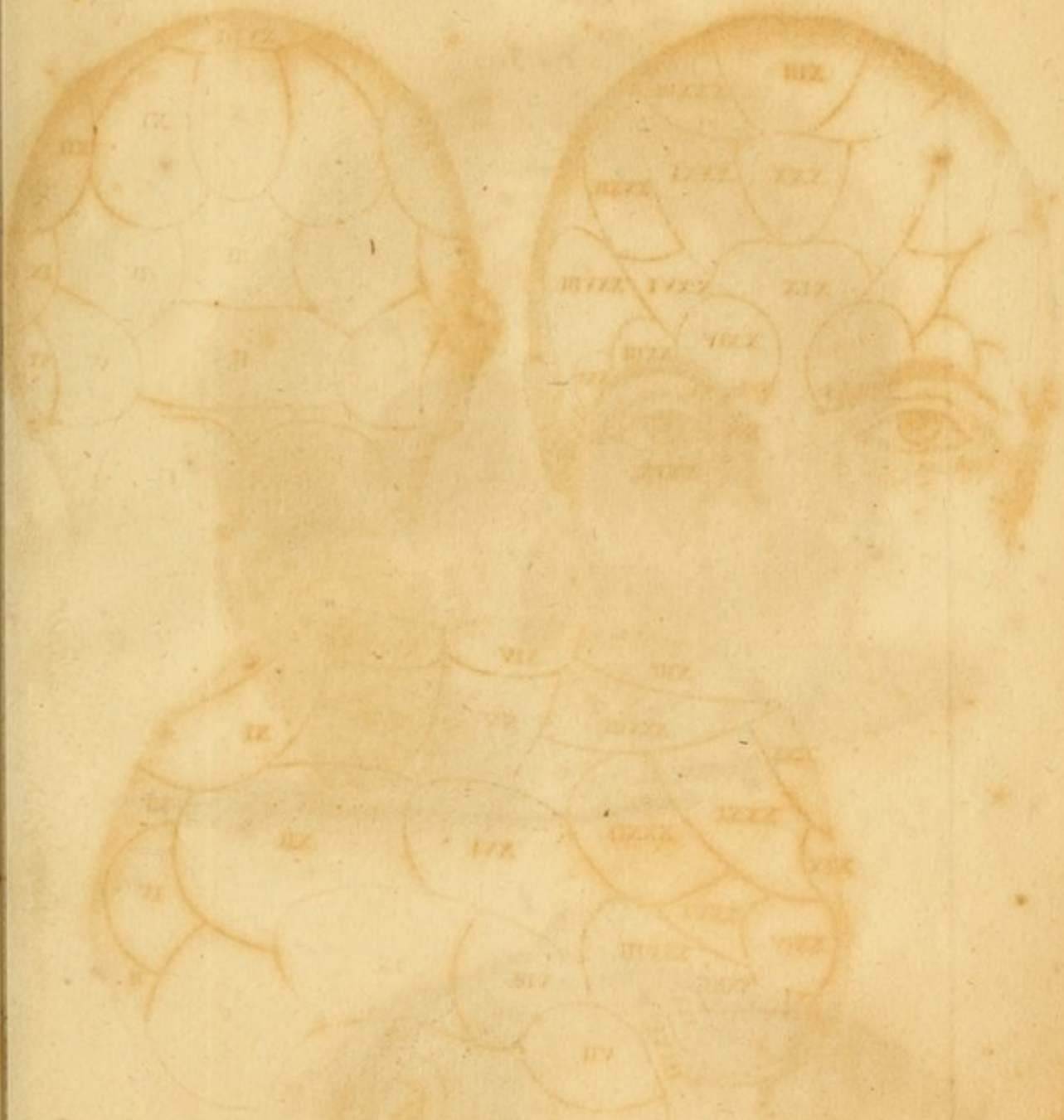


Fig. 1.

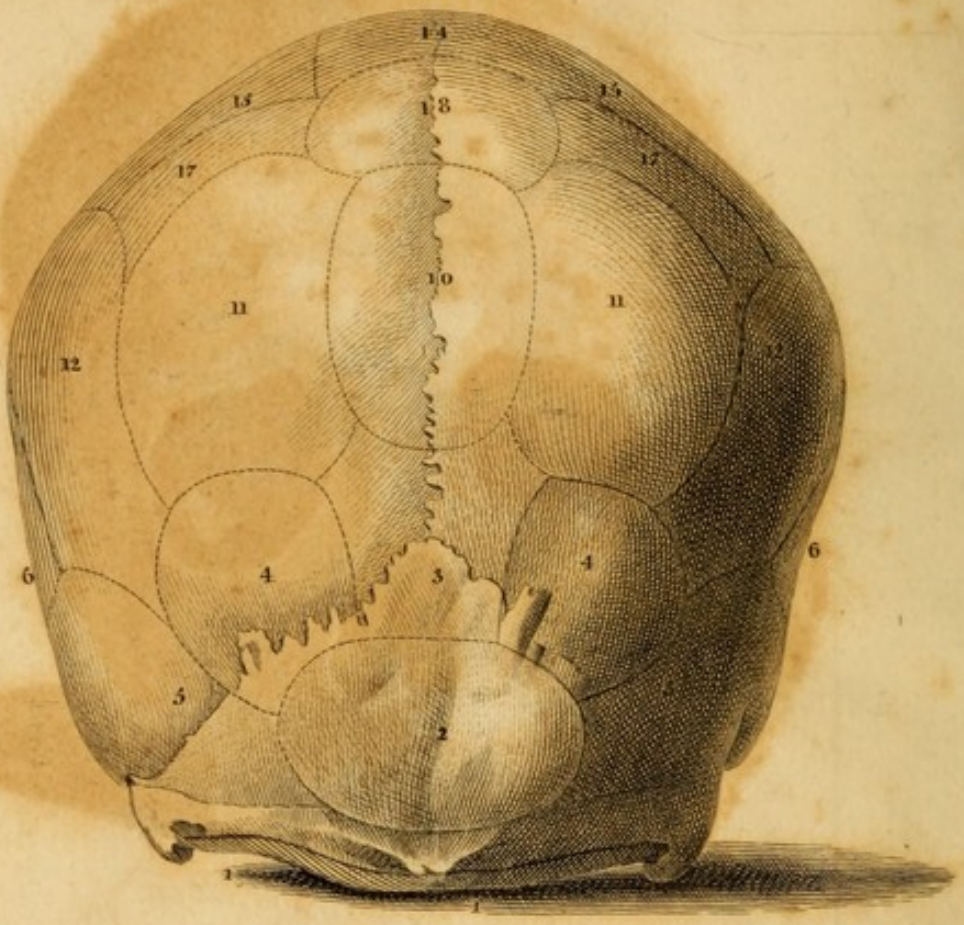
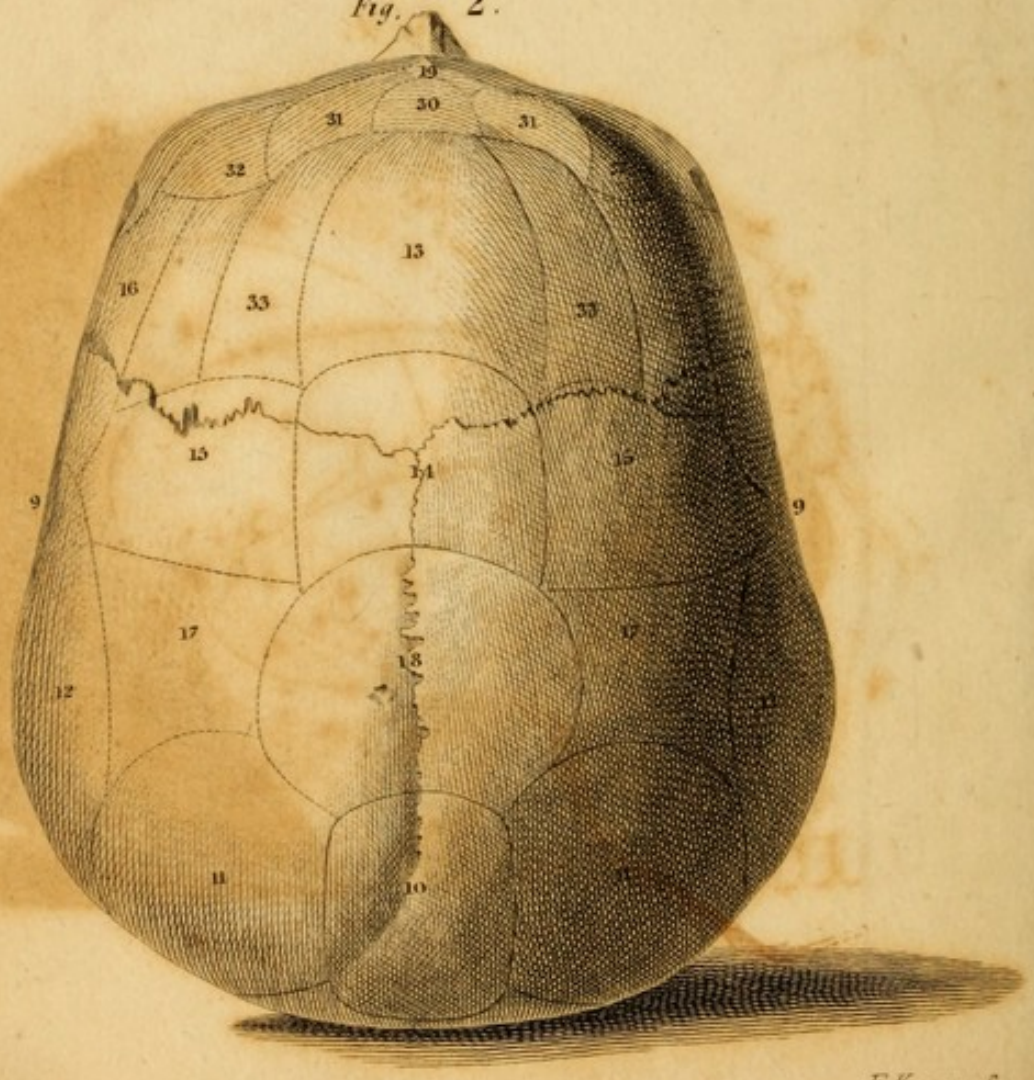


Fig. 2.



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Fig. 3.

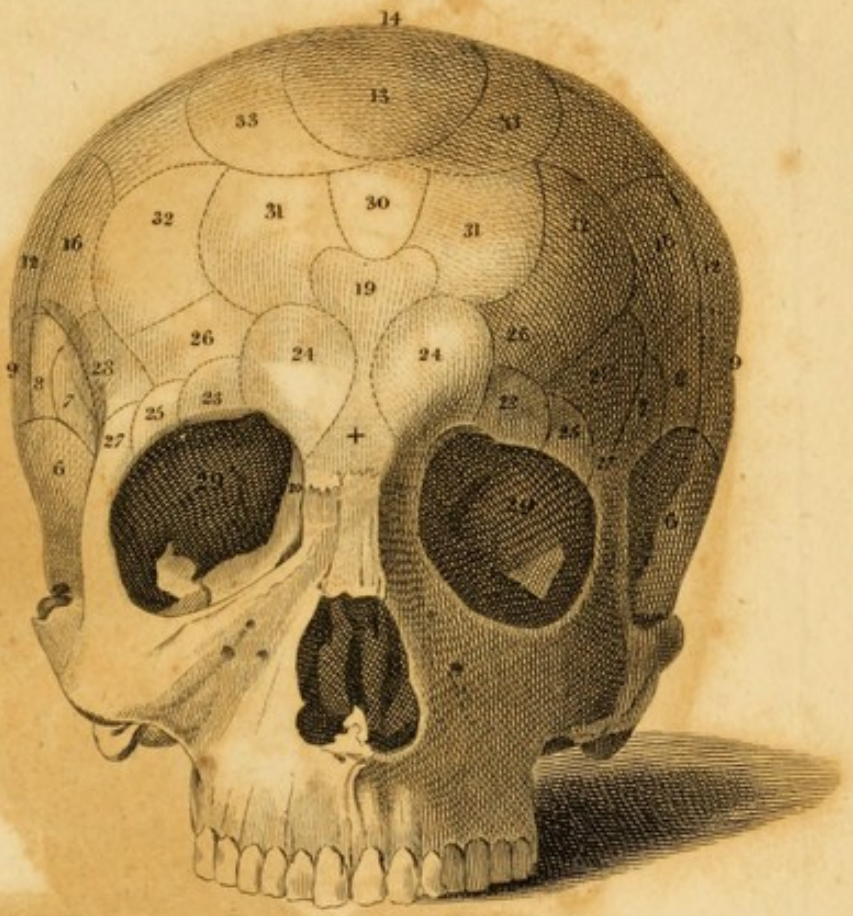
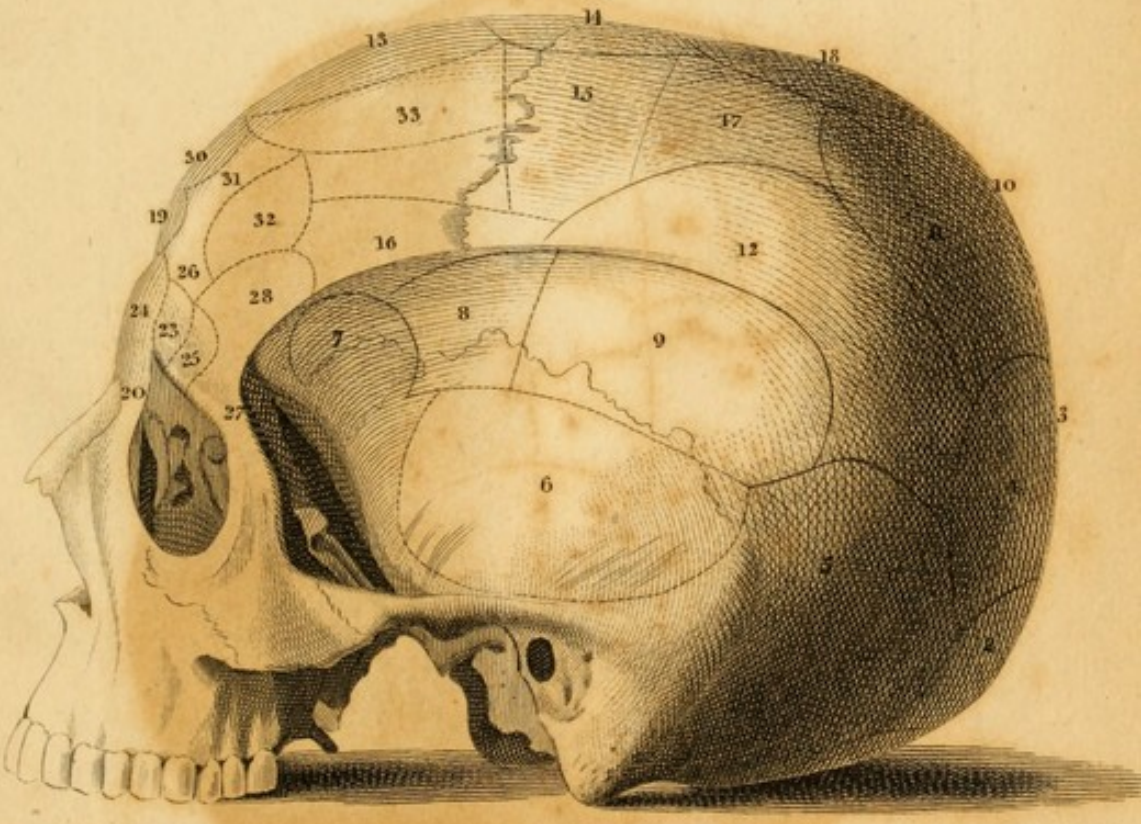


Fig. 4.



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