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CONSISTENT WITH
SCIENCE
AND
REVELATION.**

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PHRENOLOGY

CONSISTENT WITH

SCIENCE AND REVELATION.

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PHRENOLOGY

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SCIENCE AND REVELATION.

“Why sensation, or other affections of mind, or the action of mind upon muscles, should arise from the existence or organization of any matter like that which composes our corporeal frame, we feel ourselves utterly at a loss to understand, because the fact itself is singular, has nothing with which to compare it, and cannot be arranged in that order which we consider as constituting cause and effect. On this point we are obliged to confess our utter ignorance in this enquiry, therefore, we necessarily look to the influence of some natural cause, capable of a peculiar application of common powers, or the operation of some agent whose powers were wholly confined to the production of that singular effect on parts possessing an appropriate structure. As, however, our Creator was pleased to provide for these purposes an apparatus so large, and consisting of such variety and complication of parts, it is reasonable to expect that each of those parts and forms must have its own particular capacities essential to the due performance of the several functions which appertain to mind. This relation it is our business to investigate, and its discovery is by no means a hopeless task.”—DR. C. PARRY, vol. i. p. 128.

It is the testimony of all experience, that the laws of nature have never been discovered by the mere exercise of man's reasoning powers ; but that in the acquirement of positive knowledge, we have been invariably compelled

to relinquish theoretical induction, and to found our conclusions upon the materials which simple observation has afforded. No other source of real information exists, save what we derive from direct revelation, and the latter only furnishes us with ultimate facts, which we are called upon to believe rather than to examine. The early history of every department of human investigation confirms the statement we have made, and the recent progress of science, either as regards our knowledge of mind or matter, is entirely attributable to the rejection of unsupported hypothesis, and to the pursuit of knowledge in the way which nature has prescribed.

In fact, acquaintance with general laws can only be acquired by patient and accurate attention to particular facts, and every attempt which has yet been made to set aside this essential condition of our mental constitution, has been followed by ultimate failure and disappointment.

How very vague and imperfect are our efforts to realise conceptions disassociated from the evidence of the senses! And how fluctuating their nature with the changing character of the mind in which they originate! Men differ for ever when describing their ideas of spiritual or abstract existences, each moulding his conceptions to the peculiar constitution of his own mind, and creating a system, imperfect as a representation of himself, and still less to be regarded as a transcript of the experience of another.

The systematising of mental phenomena by reflecting

upon the operations of our own thoughts, while it has naturally engaged the attention of the profoundest intellects, and been the source of many attractive and ingenious speculations, has certainly never been attended with those beneficial results, both to the investigator himself and mankind at large, which, from the interest and importance of the subject, we might naturally have expected; and this because each philosopher has attempted to write the history of mental acts from the partial knowledge he has obtained of himself, and upheld the peculiar constitution of his own mind, as the experience of mind in general.

It must also strike every reflecting observer, that the conditions of thought necessary for such abstract pursuits, involve but a partial exhibition of the mind; either excluding many feelings from observation which we really possess, or giving an undue preponderance to others whose activity we habitually cultivate. Man in the privacy of his closet is quite other than man in the strife and bustle of active life; the predatory savage, though elementarily the same, widely differs from the unimpassioned and speculative philosopher; and were each to pourtray the picture of his inward consciousness, and delineate the workings of his intellect and feelings, how different would be the system of each, and how fallacious the general application! On both sides much would be overlooked, and even the same faculties or powers so unequally described, that minds differently constituted would accuse both of exaggeration or omis-

sion, creating perhaps another system more consonant with their individual peculiarities, yet equally incapable of being regarded by other minds as the faithful picture of their own.

The feelings and motives most active and habitual with ourselves, would pervade and modify our conclusions, and certain states of mind, which, from their frequent repetition, could scarcely fail to be regarded as necessary accompaniments of mental activity in others, would be mistaken for elementary powers. The natural consequence must be, that each new hypothesis would rather describe the tone of thought of its propounder, than be delineative of mind in its universality, and though containing much truth, because derived from materials in some form or other common to all, would yet be incapable of general admission, or more than personal application. It need not be argued that the description of any class of animals from a single specimen must be very incomplete, and of necessity fail to include the numerous and important varieties of which the race might consist; and any system of mental philosophy, founded upon the analysis of any single mind, can only be descriptive of minds similarly constituted, and necessarily be imperfect as a type of mind in general.

The history of metaphysics furnishes constant illustrations of the error we are adverting to. One philosopher tells us that selfishness is the motive of our actions; another, the love of approbation; a third, the principle of utility; a fourth, the sense of duty; and yet each

supposition is at once refuted by the inward consciousness of other minds, such assumptions being simply the expression of individual peculiarities or theoretical requirements, and are at once felt to be erroneous by those whose faculties are differently combined.

The *number* of our intellectual powers has ever been a much debated question. We read amongst the ancients of a sensitive and vegetative soul. Aristotle divides the mind into the passive, active, speculative, and practical intellect; Bacon acknowledged six elementary powers; Hobbes two; Descartes four; Diderot two; Condillac seven, &c. &c.; plainly proving that the method of observation was imperfect, each system savouring more of theoretical induction, than of conclusions deduced from extensively observed facts.

Then we have the much debated subject of *innate ideas*, and see a Plato and a Descartes arrayed against a Bacon, a Locke, and a Condillac.

The *classification* of our faculties is equally vague and unsettled; in short, in every department of metaphysical science we are deluged with differences of opinion; and notwithstanding the subject has occupied the noblest intellects which have ever adorned humanity, no system of mental philosophy, with a single exception, has ever been proposed, which is capable of any general practical application. The reason of this must either be the inscrutable nature of the enquiry, or a wrong method of investigation. That the subject is difficult no one can deny, but in estimating how far it is really

open to enquiry, we must first consider to what extent we have availed ourselves of every means by which our knowledge might be increased, and whether we have not unwittingly been accustomed to regard mental phenomena as incapable of being submitted to the same method of observation, which has proved more or less successful in the elucidation of every other function of the body.

What should we now know of *respiration*, had our enquiries been limited to our internal consciousness of the function? And how imperfect our conceptions of the real nature of the act, if only known in the complicated form which it assumes in ourselves! To obtain a philosophical insight into the modes of acting of our different organs, it is indispensable not only to study functions, but also the instrument of those functions, and, what is of nearly equal importance, to trace both the one and the other through every grade of organisation where their presence can be recognised;—to discover their essential elementary character, and to view them apart from those various combinations which obscure their modes of acting in the higher orders of created beings. What beautiful unity and simplicity are now revealed through the light of comparative anatomy, where before all was confusion and hypothesis! And with what different feelings do we contemplate the lengthened chain of organic existence, or even the multiplied phenomena of the inanimate world, now that we have begun practically to admit the principle, that, independently of direct revelation, we can only profitably

investigate either ourselves or the world around us, by giving to facts a precedence over every induction of unassisted reason, and by restricting the application of our reflecting faculties to the contemplation of the materials which have been accumulated by diligent and unprejudiced observation.

We would not curb those intuitions of genius, which often, in one fleeting moment, strike out paths where inferior minds may long continue profitably to travel, but we assert that it is not within the compass of human power to be conscious of the attainment of truth by any other means than those to which we are now adverting. Genius *may* anticipate what observation ultimately establishes, but the truth of its inspirations can never be primarily ascertained; it pauses, as it were, in its onward course, for the slower but surer progress of less gifted minds, and only realises its own conceptions when it can view them as the expression of the facts which others have accumulated.

It is, therefore, not difficult to discover the cause of the comparative failure of our efforts to establish the science of mental physiology, because the materials to which induction has hitherto been applied, have been palpably insufficient for the purpose; and though *every* metaphysical system has involved a certain proportion of truth, having availed itself of *one* of the means which we must pursue for its attainment, viz., the analysis of internal consciousness, yet, as a whole, each has been deeply tinctured with error, inundated with hypothesis,

and has succeeded in presenting but a partial and distorted view of our mental and moral history. It becomes, therefore, a question of the deepest interest, whether we *can* attempt to elucidate the phenomena of mind on the same principles, and by adopting the same means which have successfully guided us in every other department of knowledge; because, unless we connect mental phenomena with physical conditions, their investigation evidently cannot be undertaken with at all a proportionate probability of success. If they *are* dependent upon physical conditions, these at once become a leading object of our study; and it is only when they shall have been fully and fairly examined, that we can properly infer that we are in possession of data from which a rational and abiding system of mental philosophy may be constructed. It is from severing the function from the organ, and from making an individual the type of the species, that our errors have originated, and if we would avoid their indefinite repetition, we must make the study of the organ of the mind, in all its developements, the basis of our philosophy.

In accordance with these principles we may remark, that if the brain be the instrument of our intellectual and moral powers, its structure *must* be in relation with the number and nature of those powers; if the mind has primitive and independent faculties, a special cerebral organisation, judging from all known analogy, must exist; and if we can discover (not imagine) the particular cerebral structure appropriated to the manifestation of

each faculty, we can no more question the speciality, both of the organ and function, than we can doubt the existence of our external senses, or of the distinct organs on which their exercise depends.

We must not foolishly hope to penetrate the mystery of how mind is associated with matter, or what it consists of in contra-distinction from matter; but simply devote our powers to the determination of whether it is not possible to seize the relations which exist between the number and degree of our moral and intellectual faculties and our physical organisation; and we again repeat, that this attempt ought to precede every effort to systematise as to the number or nature of our mental functions, and be only relinquished when experience shall teach us that we are here excluded from those means of observation which have extended our knowledge in every other department of nature.

But happily the investigation we are alluding to, *has* been undertaken, and, we do not hesitate to say, with a success which its gifted originator could never have anticipated.

To the results obtained we would now venture briefly to direct the attention of the enquiring and candid reader, believing, that while their truth is admitted by many minds which are foremost in the ranks of science and of literature, they are as yet but very partially appreciated by the great majority of the thinking portion of mankind, and that a feeling of prejudice or ridicule is still often entertained and expressed in reference to the physiology

of the brain, arising both from a want of information as to the value and extent of our knowledge, and from not duly considering the importance of every thing calculated to furnish us with an improved system of mental philosophy.

We cannot pretend to give more than a brief outline of so interesting and extensive a theme, aiming at becoming pioneers rather than instructors to those who have not as yet made cerebral physiology a subject of their direct and serious attention.

That there exists an intimate connexion between mental phenomena and organisation, is perhaps most satisfactorily proved by referring to the daily and hourly experience of each individual. It might, indeed, with justice be asked, what do we know of mind apart from organisation? Every manifestation of its presence is conveyed through material agencies, and we are not in possession of a single function by which we can perceive other than physical existences. The highest flights of creative genius fail to disrobe of a material covering the fairest beings it can fashion, and our conception of spirit is nothing more, when analysed, than indefinitely attenuated matter. The natural history of mind intimately links it with corporeal conditions. It is as infantine as the body ; it grows with its growth, and strengthens with its strength ; it becomes enfeebled by age, and falters with its declining powers. There is not a vibration of the frame with which it does not sympathise, and by universal experience bodily and mental health have

been indissolubly associated. The horrors of the dyspeptic, the delicious reveries of the opium eater, the frightful ravings of the maniac,—what are they but the consequences of certain bodily conditions? And if terror may be assuaged by a narcotic, if fancy may be stimulated by the grape, if intellect may be arrested by a blow, can we for a moment hesitate as to the close union which exists between our mental acts and our bodily organisation. But this conviction, however general it may be, is too often sterile in its effects; we stop short at the commencement of the enquiry, and do not, either from fear, prejudice, or indifference, trace it to its legitimate consequences. It is, however, essential to be deeply imbued with this primary and so demonstrable a truth, in order to pursue the investigation with any rational expectation of success.

If mind, then, is so interwoven with organisation that we can form no idea whatever of its nature but through the intermedium of the latter, the laws or the conditions by which this mysterious union is regulated, become at once a rational and intensely interesting subject of enquiry;—rational, because embracing the study of phenomena within the pale of human observation, and interesting, because tending to make us acquainted with incomparably the noblest of all our attributes. It is not, however, by philosophising in our closets, or by our own imaginings, that we can ever hope to arrive at any positive or valuable results, and every system which has emanated from such a source, only proclaims the feeble-

ness of man's power, and the poverty of his efforts when striving to become the interpreter rather than the observer of nature.

Almost every organ of the body has been at different times selected as the seat of intellect or passion, and man's highest functions have been most conveniently shifted about, and made to occupy any portion of our frame most conducive to the theory advanced, most compatible with our hypothetical necessities, or most gratifying to an exuberant fancy. When we recal the names of Hippocrates, Plato, Aristotle, Galen, Willis, Boerhave, Haller, Bichat, with many others, and reflect on their fanciful and erroneous suppositions as to the physiology of the mind, we cannot but be convinced of the utter vanity of mere theoretical deduction, and of the absolute necessity of limiting ourselves to the determination of what *is*, and not to what we may imagine to exist.*

Independently of any evidence founded upon the universal experience of mankind, or any other sources of mere inferential probability, we possess proofs of the brain being the organ of the mind, as positive and direct as any we can refer to in favour of the eye being the

* The notions of the vulgar are often more accordant with nature than those of polite scholars. Thus a stupid person is called a numbskull, a thick head, or said to be addle-pated—badly furnished in the upper story: while a talented person is said to be strong headed—long headed—to have plenty of brains; a madman is said to be crazy—to be cracked in the head—touched in the noddle, &c.

organ of vision. To some of these we shall now briefly advert.

By removing the hemispheres of the brain, life is not always extinguished, and an animal will continue for months to exercise every function which characterises it in a state of integrity, with the exception of its mental or voluntary acts, precisely as if vision had been the function alone deficient and the eyes the organs alone destroyed.

Mental acts have been instantaneously arrested by the pressure of the finger on the brain; and during mental repose and activity such changes have been *seen* in the workings of this mysterious organ, as have induced the greatest of British surgeons to declare that tranquillity of mind is an indispensable condition for the cure of injuries of the brain.

There is no instance on record of mind being manifested *without* a brain, and idiotcy is inseparable from a brain of certain dimensions.*

The organisation of the cerebral mass, and the developement of mental power, are in the vertebrated classes constantly in relation with each other, and it is in the structure of the brain that we can especially discover a superiority in man's conformation over that of the inferior animals.

There is no other organ but the brain whose injury

* Persons having a brain weighing but one and a half pounds are invariably idiotic.

or removal directly interferes with our mental functions, unless life itself be involved; and delirium or mental aberration is universally regarded as a symptom of cerebral disturbance.

It is, therefore, absolutely demonstrable that the brain is the instrument of thought and feeling, and if so, we may safely conclude that it is admirably adapted for the fulfilment of its important functions.

We would also observe, that in no department of nature do we find an instrument selected for the manifestation of a particular power, and yet all proportion be violated between the intensity of the manifestation and the conditions of the instrument; indeed, such a fact, did it exist, would to the eye of reason virtually set aside the utility of such an instrument, and render the power independent of its existence. We know, in fact, nothing of powers or functions but as associated with particular forms of matter, and whether we speak of gravitation, cohesion, affinity, electricity, magnetism, or vital acts, we cannot practically separate the phenomena from the material or organs through which we become conscious of their presence; though it would be very unphilosophical to infer that the union was necessary, or their nature identical.

Again; it is a fact beyond all disputation that mental operations not only vary nationally and individually, but that they are, to a certain extent, peculiar to age and sex; that our faculties are multiple and various in their character; that they are combined in every possible

proportion, and that they are capable of single or collective activity. It is equally certain that the physical conformation of man's head presents infinite variety, and that there are particular forms characteristic of certain races of mankind. It is also a fact that men's heads are not so much distinguished by variations in absolute size, as by changes in the developement of particular regions of the skull, which vary at different periods of life, and coincide with a succession of changes in mental developement. Cuvier, the most celebrated of modern naturalists, says, "It appears that there are always certain relations between the faculties of animals and the proportions of the different parts of the brain. Thus their intelligence appears to be always great in proportion to the developement of the hemispheres and their several commissures. Man has these parts thicker, more voluminous, and more complicated than other animals, and as we recede from man, they become thinner and more simple. In like manner man excels all other animals in intelligence. "It appears even," he continues, "that certain parts of the brain attain, in all classes of animals, a developement proportioned to the peculiar properties of these animals, and one may hope that, in following up these researches, we may at length acquire some notions respecting the particular uses of each part of the brain."

If the brain be, therefore, the instrument of the mind, it must, unless it prove an exception to all other organs of the body, be adapted to each special mental mani-

festation, and it would be quite as rational to suppose the same eye to possess different powers of vision, as to imagine the same brain acting as the organ of different minds. The mind is also not only multiple in its faculties, but contradictory, if we may so speak, in its operations, and the brain must equally be composed of organs adapted to these several powers ; unless, indeed, we should prefer supposing the same organ to be at once the instrument of benevolence and anger, of attachment and hate, of veneration and blasphemy, of hope and despondency, in short, to be acting in opposition to every other known law of the organic or inorganic world,—an idea too improbable for a moment to be entertained. Such a view of the brain would, in fact, be tantamount to proving the independence of cause and effect, and that man might think as well without as with a brain, an admission which, however it may gratify certain vague spiritual notions, is quite as contradictory to all experience, to all facts, as that man can see and hear as well without as with the organs of hearing and vision.

The *distinctness of our external senses*, which are certainly in their functions in close contact with our thoughts, would strongly imply the multiplicity of our cerebral organs, for it would be much more easy to suppose that modifications of touch (to which all the senses may be referred) might have been entrusted to a single sense, than that the brain, as a whole, should be the seat of the various and conflicting phenomena of

thought. A similar conclusion is powerfully supported by what we now know of the nervous system ; the more we examine it, the more distinct the functions of its several parts become : and to assert that change of function was depending on nervous distribution, and not on special organisation, would now be considered as displaying either the grossest ignorance of physiology and anatomy, or as springing from an obstinate preference of theory to fact. To admit the special functions of the nerves, and to deny distinction of parts and functions to the centres with which they maintain such uniform relations, is, indeed, to be lamentably the victim of hypothesis ; and to suppose a difference in the organs of every other function of the body, with the exception of those we term moral or intellectual, is to assume a position which the examination of nature manifestly contradicts.

The *structure* of the brain would, *a priori*, imply a multiplicity of organs ; it can no longer be regarded as a pulpy homogeneous mass, but composed of an innumerable series of fibres, each one of which might act as specially and independently as organs the most diverse in appearance, and most distant from each other. The remarkable *arrangement* of the fibres,* their uniform

* The *intellectual* organs are formed of fibres connected with the *motory* tract of the spinal marrow, the organs of the *feelings* are formed of fibres connected *principally* with the *sensory*, but *partly* with the *motory* tract.

distribution, the infinite care which is manifested to secure their mutual communication, as by transverse and longitudinal commissures, and the complicated but constant connection of certain portions of the brain, can only be rationally accounted for on the supposition of its consisting of a congeries of organs, capable of individual or collective activity, and of entering into every necessary combination with each other. The microscope is daily discovering distinctions in parts hitherto regarded as identical, and we are already enabled to distinguish the ganglionic from the voluntary nerves, the special nerves of sense from each other, and the grey from the medullary matter; and there is no reason at all to suppose that the subject is exhausted.

“The human brain,” says Mr. Solly, “is but a series of large ganglia, though their close connexion, and the great size of the commissures, give it a degree of complication which we can only unravel by seizing the thread at the simple though perfect type of a nervous system, and never dropping it till it has conducted us through all the various additions made to its fundamental simplicity, up to the perfect but complex organisation in the human being.” *

* The human brain at one stage of developement presents appearances analogous to the brain in fishes; then to that of birds; then to that of the mammalia—and has no convolutions prior to the 6th or 7th month of gestation (as is the case in mature fishes and birds)—convolutions then begin to appear and enlarge gradually to adult age.

That the brain is not a single organ, but a congeries of organs, each manifesting a special function, may therefore be strongly inferred from physical and analogical examination,—and, in the words of the late lamented Dr. Fletcher, we are justified in saying, that the extent, the diversity, the energy and complication of the intellectual operations, are in general, both in man and the lower animals, in the direct ratio of the volume and multiplicity of the brain.

We might enlarge upon the fact of mind being progressively developed as well as the brain itself; of the various mental powers being possessed in very different degrees; upon the phenomena of dreaming, insanity, monomania, &c. &c.; but our object is simply to establish a fact, and not to exhaust the evidence by which it may be supported. We think, then, enough has been adduced to satisfy the most sceptical of the probable truth of the doctrine that the brain is an assemblage of organs, each charged with a particular function.

Hitherto we have viewed the subject at a distance, and satisfied ourselves with inferential evidence, but we will now turn to positive proofs, and submit them to the calm consideration of impartial minds.

It is palpable to the most superficial observer, that the human head presents an infinite variety of forms, whether we simply look at individuals or nations; also that women have differently shaped heads from men; and that there are very appreciable differences in the size and form of the head of the child and of the adult.

That the heads of animals are also distinguished by peculiarity of form, which not only can be regarded as characteristic of particular races, but as peculiar to each individual of which the race is composed. These variations in form must, therefore, be considered as a legitimate and highly interesting subject of investigation ; and the attempt to determine their correspondence with, or independence of, any peculiarity of mental manifestation, can surely not be regarded as exceeding the limits of the most rational enquiry. Anatomy proves that there is a correspondence between the brain, the acknowledged organ of the mind, and the outward configuration of the skull ; and although this fact is not without exceptions, yet, for practical purposes, and in any large number of instances, the relation in form of one with the other, is such as not materially to interfere with the correctness of external indications.

Now for nearly half a century a prodigious number of observations have been made upon the form of the head in men and animals, in order to ascertain its accordance or non-accordance with particular mental conditions ; and though for a long time pursued without reference to the structure or functions of the brain, they have terminated not only in establishing the fact of such agreement between form and function, but have originated a system of mental philosophy, which is the only one the world has ever seen capable of a practical application.

We have already adverted to the reasons why mere

metaphysical enquiry has proved so barren and unsatisfactory, and expressed our belief that, to arrive at any definite and lasting conclusions, we must become acquainted with the structure and functions of the organ of the mind. Let us now briefly direct our attention to the means by which this knowledge may be successfully acquired.

We would commence by observing, that all inferences deduced from experiments on living animals, must necessarily be defective and fallacious, when intended to determine the separate functions of the brain; and we are the more desirous to direct attention to this circumstance, because young enquirers perceiving that experiments of this description have not accomplished the ends for which they were instituted, are at a loss to decide on the real merits of the question, and on the value of results founded upon other means of observation. The established practice with physiologists is to cut away a certain portion of the cerebrum or cerebellum, and to observe the effect. But, we would ask, is it known what is and what is not a separate organ in the brain? Can we be sure of only injuring one organ and not another? Do we act with a previous knowledge of what are the mental powers, and can we determine when one among the number is suppressed or imperfect? Is the animal in a situation to manifest all its mental faculties, or even those which may be left, after having been so operated upon, and is it in our power to excite different functions to activity of whose nature and whose

number we are ignorant? If we experiment on the ground of not knowing the functions of the cerebrum, is it not absurd to expect to discover them by observing the effect produced by the destruction of the very organ whose function we are seeking to detect? If physiologists are ignorant of the primitive faculties of the mind, how can they assert that a particular power is the sole faculty suppressed or not, and that that particular power and no other depends upon the portion of the brain they have destroyed? They may have removed the half of an organ, or two halves of different organs; the corresponding organ of the opposite side might be entire; in fact, they are in the situation of an individual who, viewing an animal for the first time, endeavours to obtain a knowledge of its physiology by cutting it to pieces. To render vivisection available for the discovery of the function of an organ, the latter must be distinct; its boundaries and distribution known; the possibility of its being injured or destroyed without materially interfering with other organs and functions must be ascertained; and after its removal, we must be able clearly to determine what function is deficient. Now, while these conditions may be fulfilled in the section of particular nerves, they are wholly deficient in the instance of the brain, and we cannot therefore rationally expect to determine the cerebral functions by the means we are now considering.

Pathological observations, though of greater value than the preceding, are liable to many of the objections

already stated, and must be received with great caution as evidences for or against the functions of particular portions of the brain ; but if conjoined with the information derived from extensive physiological research, may prove powerfully confirmatory of the latter. Pursued however, as, with some rare exceptions, they have hitherto been, few will be inclined to differ from a recent writer in thinking, "that there are scarcely any investigations more unsatisfactory and disappointing in their results, than those which have diseases of the nervous centres for their subject, in reference to a connexion between disordered function and diseased structure." And the reason of this not only depends upon the very imperfect manner in which these difficult enquiries have been generally conducted, but still more from our ignorance of the structure and functions of the brain ; from changes in the nervous substance, being, from its very nature, difficult to appreciate ; from disease being so seldom limited to a single organ ; and from the very important fact of a vast number of functional derangements taking place, and leaving no tangible organic alteration behind. Pathological research has, however, uniformly established the fact of the brain being the instrument of thought, and there is no instance on record of the mind remaining wholly unaffected, when the disorganisation had extended to the corresponding points of both sides of the brain.

We are aware that many cases are adduced in which the mental disturbance was less considerable than might

have been anticipated, judging from the extent of the cerebral lesion ; it must, however, be confessed that the details neither exhibit that knowledge of mental phenomena or cerebral structure, on the part of the narrator, which would justify any positive or safe conclusions. If, however, pathology has as yet done little in localising the cerebral functions, we believe its utility is daily augmenting with the increase and greater precision of our knowledge ; and already numerous facts clearly connect mental alienation with cerebral disease, and that in the assumed locality.

Having thus adverted to the reasons which render the analysis of internal consciousness, experiments upon living animals, and the study of morbid appearances, inefficient of themselves as means of discovering the separate functions of the brain, we shall now return to the consideration of another method, which, we have already said, has been extensively employed, and attended with most gratifying success. We again repeat, that this method consists in contrasting particular mental manifestations with the physical conformation of the head, and in endeavouring to determine how far these differences in form, which are more or less palpable to all, correspond to certain mental states or peculiarities ; and from the knowledge of function to deduce the form, and from the form to predict the function.

With the question of how far we are capable of discovering primitive faculties, or whether these enter or not into the composition of the mind, the investigator

has nothing to do ; his task is simply to determine the accordance of certain mental operations with particular cerebral conformations, let the mental phenomena themselves be either forms or states of thought, compound or simple in their character. And if observation has been sufficiently multiplied to justify us in concluding that such accordance exists, it is evident that, by tracing out this correspondence, we are much more likely to arrive at correct metaphysical knowledge, and to obtain real information in regard to the physiology of the brain, than we can rationally expect from any of the purely metaphysical methods previously pursued. In fact, the study of mind is at once brought within the range of strict observation, and individual conceptions are tried at the bar of an ever widening field of experience. Every mind becomes an object of separate contemplation ; each cerebral configuration is individual and peculiar ; and the general history both of organ and function is founded upon the same principles which have so successfully directed us in every other department of nature. We must not damp our zeal or anticipations by supposing the necessary number of individual instances to be indefinite, remembering that no science has been founded upon the observation of more than a small number of the facts which it embodies ; but such is the uniformity of nature's works, that conclusions thus deduced, are often as stable as they could be, had no single instance been omitted.

The idea of certain parts of the brain being the in-

struments of particular mental functions, is not of recent birth, but it is by modern research alone that the truth of the proposition has been established. And when we reflect on what men had accomplished when left to their own feeble imaginings, and then compare their crude and clumsy speculations with the beautiful harmony and arrangement which have now been disclosed, we cannot but be deeply convinced of the limited powers of our understanding, and of the futility of our efforts to arrive at truth by any other means than what nature has enjoined.

Man's nervous system, and in particular his brain, being but a modified developement of what exists in animals inferior to himself, and the former possessing certain faculties and feelings common to both, it must be at once conceded, that the study of their simpler organisation and functions must be unusually interesting, and highly calculated to elucidate the more complicated manifestations in ourselves.

Now, it has resulted from the laborious and most extensive researches of Dr. Vimont, that a correspondence between cerebral configuration and mental activity, exists in animals inferior to man, and that the amount of the intelligence, and the nature and number of their faculties, are constantly in relation with the size and complication of the brain. Dr. Vimont devoted several years to the observation of a great number of animals, reared under his immediate superintendence; and in 1827 presented to the Institute of France a me-

moir, founded upon the examination of two thousand five hundred heads, belonging to animals of different classes, orders, genera, and species, with the habits of fifteen hundred of which he had made himself acquainted. To these were added four hundred brains, modelled in wax, and more than three hundred drawings of this organ and its osseous covering. In 1836 he published a large treatise, accompanied by an unrivalled collection of six hundred drawings, embracing the study of the brain and skull in man as well as in animals, and confirming in the most conclusive manner the fact of the brain consisting of a congeries of organs, and that the majority at least were susceptible of being appreciated by the external examination of the skull. It may in the minds of some, add to the value of these researches, when informed that Dr. Vimont commenced his investigations as an opponent to phrenology, and became satisfied of its truth by the very facts he had collected for its refutation.

The method pursued by the immortal Gall, whose vigorous intellect and unparalleled perseverance first opened a path to future observers, was of all others most rational in principle, and eminently calculated to obtain the end he proposed. He contrasted individuals with strongly marked mental peculiarities with each other, and sought out, by simple inspection, the points of agreement or difference in their physical conformation. After long years of indefatigable research, he accumulated an unequalled series of facts, demonstrative,

we do not hesitate to say, of the important principle, that the brain is multiple, and that the developement of its different parts corresponds to certain mental manifestations. The anatomy and pathology of the brain were also minutely investigated, and he established the former on a footing which it had never previously attained. It is but justice to remark that no conclusions were ever deduced by means more strictly conformable to the Baconian philosophy than those of the illustrious Gall.

During and since the period of his researches, numerous and highly-gifted minds have followed in the same path of observation, and an amount of labour has been bestowed upon this important enquiry, and a mass of facts has been collected, exceeding all that have ever been brought forward in support of any other physiological question. No one can now be acquainted with the actual state of our information in reference to the functions of the brain, and either not oppose to it a blind and unqualified disbelief, or admit that we are in possession of knowledge far exceeding in interest and importance any that we have ever previously acquired; and though it is far from our intention to assert, that our acquaintance with cerebral functions and organisation is no longer beset with difficulties, yet we are anxious to excite the attention of all thinking minds to the fact, that we already know sufficient, not only to stimulate enquiry, but at once to admit of useful practical application. The data upon which such knowledge is founded address themselves to the daily experience of

all, and would long since have been refuted by evidence equally palpable and opposing, were not truth their immutable foundation ; and though many difficulties surround the exact appreciation of cerebral development, and many circumstances interfere with functional manifestation, yet it must be admitted that obstacles to the application of truth are not to be regarded in the light of objections to its reality, obstacles which, in the instance we are now considering, we ought, from the very nature of the structure and functions of the brain, *à priori*, to have anticipated.

The very term of "voluntary functions," implies control over their activity, distinguishing them from the operations of vegetative existence ; we cannot, therefore, expect the same correspondence between organ and function as obtains in those acts necessary for the immediate preservation of life. The *variety* also of our mental and moral faculties, and the different kind of *food* by which their activity is sustained, contrasted with the innumerable changes in the circumstances of each individual, would lead us to infer that the cerebral functions would often be very irregularly excited, and, upon ordinary occasions, only partially active. The influence too of *education* is such, that no safe conclusions as to the positive activity of different powers can be correctly inferred, without having regard to the modifications which their relative exercise has induced ; and, in addition to this, if we consider the *motives* which influence us to cultivate or repress particular faculties, the re-

straint which the habits of civilized society impose, and the insufficiency of the circumstances, by which the great majority are surrounded, to elicit more than a very partial exhibition of the mind, we cannot be surprised if the effect to determine the character from the physical conformation of the skull, should, in many instances, appear to the superficial observer to be incorrect and fallacious. As a general rule, it is not to be expected that we shall ever be able to ascertain with precision, either the deeds or particular thoughts of mankind, but we can rationally expect to discover the *inherent capabilities and tendencies of the mind*; because, if we know the organs of individual powers, or of different forms of thought and feeling, we may safely infer that the tendency to certain functional activities exists, however these may be curbed by restraining influences from without, or rendered almost passive by internal neglect or deficient opportunity. It must not either be forgotten that mental acts are not so easily analysed as other of our bodily functions, and the discovery of what is or what is not a primitive power, or what form of thought is associated with a particular portion of the brain, can only be accomplished by extensive comparative observations.

Conclusions founded upon cerebral developement must also be modified by the presence of those conditions expressed by the term "temperament," conditions which indisputably affect both the amount and energy of the action of *all* our organs, and whose influence we

have only approximative means of estimating. It is also clearly ascertained that the complete developement of the brain is not accomplished until adult age, that different parts of the brain are perfected at different periods of life, and that the cerebral substance undergoes other changes than mere augmentation or diminution in *volume*. It is equally a fact that in old age the alterations in the size of the brain are not always indicated by corresponding variations in the skull, and that the osseous envelope sometimes ceases to maintain its exact relations with the cerebrum.

The appreciation of form and volume in cases of very equal or moderate developement, is also a matter of considerable difficulty, and may not furnish absolutely identical conclusions to different observers; but, supposing this latter obstacle to exist to a much greater extent than it really does, yet if the locality of our organs can be determined in instances of exaggerated or very deficient developement, we may safely admit the principle, if we cannot demonstrate the fact, that "*extremis probatis intermedia vera sunt.*" Notwithstanding, however, the difficulties we have now enumerated, it is beyond contradiction that the leading traits of individual character *have been* correctly inferred from the examination of the skull in many thousands of instances; that these experiments are being daily made by individuals whose probity and whose science we cannot for a moment call in question; and their united observations are far more uniform and accordant than those we can

adduce in favour of any other contested physiological question.

Different countries have been traversed; schools, prisons, lunatic asylums, have been visited, and they have all confirmed the grand and leading principle that the qualities of the mind may be inferred from the examination of the head; and, let it be recollected, that although the facts are such as may be verified or confirmed by any intelligent observer, yet there is no instance of any individual pursuing the same series of observations and arriving at contradictory results.

That differences of opinion have arisen as to the nature and seat of particular powers, it would be folly to conceal; but the leading principles and the great majority of the facts which Gall and Spurzheim accumulated, have only been additionally strengthened by succeeding enquirers; and to refuse our assent to the truth of these facts because they either baffle our comprehension, refute our theories, or on the ground that their verification is difficult, is as irrational as denying the light of the sun because we discover dark spots upon the surface, or refusing to Napoleon the title of conqueror because the whole world had not yielded to his dominion.

It is important to remember that no system of mental philosophy but the one founded upon physical examination, ever before admitted of *practical application*; and that no metaphysical enquirer ever previously pretended, or professed by any system whatever, to determine the mental qualities of different individuals in the manner

and to the extent which is now daily effected; and if the effort be successful, the principles by which the judgment is directed *must be founded on truth*, or we are driven to the alternative of ascribing to chance, results which have hitherto baffled the highest efforts of philosophy to attain.

It has already been remarked that the theory of mind evolved by the investigations we have been alluding to, is the most comprehensive and intelligible of any we possess; and when we reflect that it was gradually constructed by observers at different times and in widely distant localities, and that the materials were derived from repeated observation, we possess a guarantee of its truth, and a power of testing its reality, which have ever been wanting in all other metaphysical systems.

In concluding this part of our subject, we would remark, that if an individual submitting his head for examination to a perfect stranger, can receive information respecting himself, which he acknowledges to be correct, and if this experiment can be repeated an indefinite number of times, it is idle to deny the truth or value of the method employed, and absurd to suppose that it can have any other foundation than positive facts for its support; and yet, strange to say, the discovery of the function of a single nervous filament, seems to excite more interest and controversy among the majority of medical observers, than the ascertaining the functions of the brain; and those who have devoted their lives and talents to what is incomparably the most important

and difficult of all physiological problems, have too frequently only encountered ridicule or opposition, academic condemnation, and scholastic contempt. Our estimate of effort is not always proportioned to the value of the object which it seeks to attain, and our respect and admiration for a time are often withheld from those whose labours have most tended to advance the best interests of mankind. The period, however, never fails to arrive, sooner or later, when public opinion acknowledges the force of truth ; and we believe a far higher rank will be conceded to those who have so successfully laboured to advance our cerebral physiology, than it has hitherto been their good fortune to secure.

We cannot terminate these very general and imperfect remarks without adverting to some of the *Objections* which have been repeatedly urged by many pious and learned individuals against the study of mental phenomena in connexion with the brain. By far the most important of which we consider to be the "*evil tendency*," of such pursuits ; it being asserted that they too frequently lead to *materialism* and *fatalism*.

In reference to this serious allegation we would advise the prior inquiry—*are the facts true ?*

If they are true, and yet their tendency be necessarily evil, then we must cease to investigate the works of God, lest we should find some flaw in his perfections ;

we must forbear to employ the faculties with which he has mercifully entrusted us, for fear we should make discoveries at variance with his revealed character; lest man's limited investigations, in fact, should disclose some contradictions in the acts of his Creator. The truth is, that in our pride we dare to theorise upon what we should be content simply to acknowledge as a fact, and we examine nature too often to pamper our poor conceits, and to bolster up our vain imaginings; we cling to opinions as if they were absolute truths, and fortify them with evidence which more extended information would have proved directly adverse to our conclusions. We can only pity the man who can contemplate the works of God, and rob them of their Author; and it is most absurd to suppose that the detailed examination of the natural world can lead to inferences hostile to those which a more superficial inspection seldom fails to inspire. Such a result appears just as rational as the conduct of an individual would be, who, after examining a piece of complicated machinery, watching its harmoniously adjusted movements, and admiring the beautiful coherence of its parts, should gradually lose sight of the intelligent agent by whom it was constructed, and infer that it was self-existent! If there be in human beings an affecting representation of a mind lost to every function of a healthy understanding, incapable of rising from effects to causes, and of tracing the relations of things—a mind deserted by its rightful guardian, and left the unprotected victim of every wild

delusion—it is to be found in him, who possessed of the senses of a living man, can stand before the fair face of creation and say in his heart,—“there is no God.”

That phrenology, however, is susceptible, like every other branch of human knowledge, of abuse, we willingly, and from painful experience, admit; and we do not hesitate to assert that by some of its ablest expounders the applications of the science have been carried beyond their legitimate bounds, and that the facts have been too often interpreted to the exclusion and to the prejudice of revealed truth. It has also always appeared to us that the connection established between individual portions of the brain and particular mental faculties, does not involve that addition to our *real* knowledge of the nature and of the laws of mental and moral phenomena which some able writers seem to imply, since it must be admitted, that much general knowledge had been previously acquired, and that we are still restricted to the study of the *instrument* of the mind *alone*, of which we know nothing beyond some of its grosser modifications, and are wholly ignorant of the nature, and but very imperfectly acquainted with the modes of acting, of the mind itself; our analysis of the functions of the latter being throughout incomplete, and in many of the details most unsatisfactory. Much flimsy and superficial philosophising has also, we believe, resulted from the popular phraseology of the science; and that to regard the system in its present form as a complete elucidation of our moral and intellectual ma-

chinery, and to contemplate its progress and diffusion as the means of man's future regeneration, is to mistake a very small part of the problem for the whole, and to encourage hopes directly at variance with the statements of Revelation.*

But while we thus deprecate all hasty and intemperate applications of the facts of phrenology, we are far from being insensible of their great scientific and practical value, and cannot for a moment admit that they can be legitimately charged with leading either to materialism or fatalism. Matter, in all its forms and combinations, is but the instrument of its Creator's will, and however mysterious the function it may be destined to discharge, it is never more than a passive agent in the hands of Omnipotent Wisdom, and cannot, without gross absurdity, be supposed to possess a single independent power or property.

In the first place, the phenomena of the inorganic world cannot be regarded as the result of the inherent activity of the different substances by which they are manifested. What, we would ask, is gravitation, but a power to which the material universe is subject, and

* "That there does exist an harmonious connection between Scriptural Christianity and the Science of Phrenology, will not be questioned by those who believe that the former is of Divine origin, and that the latter is true. For the God of nature is the God of Revelation, and, of course, the works of his hands, and the relations of his mind, must be in harmony with each other."—*Harmony between the Scriptures and Phrenology.*

whose particular effects are modified by the nature of the instrument on which it acts? What are cohesion, affinity, repulsion, but terms expressive of agencies distinct from all ponderable matter, and on the influence of which the active properties of the latter are immediately depending? Of what infinite modifications is not the atomic universe susceptible, when exposed to electric, magnetic, or galvanic influences? In short, it is evidently nothing more than a vast aggregate of machines, capable of no acts or changes but what are impressed from without, and special in no other respect than as presenting peculiar combinations through which these unseen forces manifest their presence. On what these powers themselves depend, we have no means of ascertaining, nor is it now important to enquire; for our present purpose it is sufficient to prove that the active phenomena of inorganic matter are to be ascribed to agencies distinct from the matter itself.

Now it is a remarkable circumstance that the material selected for our brain is composed of atoms in every respect identical with those which enter into the constitution of innumerable other substances, and that their only peculiarity, as portions of the brain, consists in their mode of aggregation. Is it not, therefore, absurd to suppose that these atoms, in virtue of this peculiar arrangement, should acquire the marvellous and inscrutable properties of mind, or that they should be anything more than, as in the inorganic world, the mere instruments of the unseen and intelligent principle?

And if we cannot suppose that mental phenomena are the simple consequences of the *relative position* of the particles of matter, an hypothesis, we presume, no one will uphold, can we with greater plausibility infer that mind is enthroned in the *individual atoms*? Are not these equally compounded with the mass? And shall we admit a republic of many millions of minds, perpetually perishing and renewed, and existing also elsewhere than in the brain? The mere statement of such a scheme is its best refutation, for how could we ever on so shallow a supposition plausibly account for the phenomena of personal identity, memory, conscience, and, in fact, all moral emotions? Are we to admit that each new atomic visitor is informed by his predecessor of the transactions of the past, and thus voluntarily becomes responsible for their various virtues or misdeeds? Indeed the "moral responsibility" of an *atom* is an association of ideas which can only excite a smile, or a feeling of commiseration for the perverted reason which can, even for a brief moment, be the victim of such an utterly irrational supposition.

The fact is, that finding the perfection of mind and body go together, we begin to suspect that the phenomena of sensibility and perception are in some way or other to be ascribed to the atomic structure of animals, and lose sight of those other facts which prove the extreme shallowness and fallacy of such a conjecture. It has been well observed, that if mind is an atomic function, it is an atomic *insanity*, for the acts of intel-

ligent beings are in direct opposition to genuine atomic forces, perpetually creating what nature never executes, and moulding unnatural forms by the magic exercise of the will; while all philosophy demonstrates more and more that the phenomena of matter are purely mechanical; mathematically circumscribed, and to be referred to the laws of motion and polarization.

To talk, as some of our teachers unfortunately do talk, of the brain "secreting thought," or of its being the "organ of the mind," in the *same sense* as we understand the lungs to be the organ of respiration, is to violate all scientific accuracy of expression, to involve fundamental error, and to confound things which are essentially distinct. Mental phenomena do not in the slightest degree resemble the modes of acting of our other organs,—always excepting those evident effects resulting from the admitted influence of matter upon mind,—and cannot, with the least pretence to probability, be classified with them.*

* "Now, it is well to explain that, when the physiologist speaks of the intellectual powers, moral feelings, &c.—as *functions* of the nervous system, they are not so *in the sense* in which the term is employed in regard to other operations of the bodily frame. In general, by the *function* of an organ we understand some change which may be made evident to the senses, as well in our own system as in the body of another. Sensation, thought, motion, and volition, however, are changes imperceptible to our senses, by any means of observation we at present possess. We are cognizant of them in ourselves without the intervention of those processes by which we observe material changes external to our minds; but we judge of them in others only

The assumption of the different portions of the brain *originating* their respective functions, would, we think, be irreconcilable with strict phrenological principles, since each organ must then be compounded of all the other organs, distinguished merely by an excess in some individual faculty, in the direction of which it has a constant tendency itself to act, and to induce its neighbours to follow its example. Unless we admit this, we cannot rationally explain the mutual influence of the different powers, the modes of combination of our faculties; for how can they modify or control each other, unless they are mutually conscious of each other's dispositions and intentions, and endowed with the power of mutual communication, and of imparting their wishes or commands in a manner which the object of their indignation or solicitude can comprehend? For conscientiousness to restrain acquisitiveness, or benevolence destructiveness, they must surely be capable of appreciating each other's modes of acting or feeling, of perceiving the objects of their activity, of judging how far those objects are justifiable or otherwise, or no possible reason for their inter-

by inference founded on the actions to which they give rise, when compared with our own. When we speak of sensation, thought, emotion or volition, therefore, as functions of the nervous system, we mean only that this system furnishes the conditions under which they take place in a living body; and we leave the question whether the $\psi\upsilon\chi\eta$ has or has not an existence independent of that of the material organism by which it operates in man as at present constituted."—*Dr. Carpenter's Lecture on the Nervous System.* 1841. *Med. Gaz.*

ference would exist; and to imagine such a colloquial intercourse to take place among the differently organised beings which each cerebral organ would thus represent, is quite as adverse to every principle of cerebral physiology, as it is a glaring infringement of all personal experience on the subject.

Another argument may be founded upon the fact that our sensorium is incompetent to express our nobler conceptions! Who does not feel within him a power of discovering a far greater breadth of truth, and of experiencing emotions far more strongly than his organic confinements permit? Who is not sensible that all organic invention, even language itself, is an apparatus from which feeling often shrinks as from an amputating instrument? The intellectual consideration of an emotion, as has been forcibly observed, hungers it to death, and to attempt its description is to undertake its funeral! Our deepest and strongest feelings operate like a freezing mixture on the body, which never indicates the mind's grandeur so much as when reduced to living marble! And are we not conscious of yearnings of the soul, and of looking forward to a state when we shall be disenthralled from those corporeal disabilities by which the full developement of our mental and moral powers is now impeded? When, in short, a spiritual shall replace a carnal body? And can matter thus contemplate with pleasure and joyous anticipation the period of its own destruction? Nothing but contradiction upon contradiction can await the materialist wherever he may

direct his gaze, and to no hypothesis of man's restless mind can we more aptly apply the words of the Wise Man, "that all is vanity and vexation of spirit."

The system of *fatalism* equally sins against the dictates of conscience, the dicta of revelation, and the evidence of facts.

Phrenology, however, is certainly not justly chargeable with any such consequence, since it does not create, but merely points out in a clearer and more definite manner, those individual peculiarities, the reality of which the most superficial observer must admit; and if it demonstrates their coincidence with certain cerebral conformation, we surely have no right thence to deduce the inference of man being a mere machine. The premises and conclusions have no logical connection whatever, and facts, far more certainly attested, prove the very reverse. The whole volume of Revelation is founded upon our moral responsibility, and it is, indeed, a striking proof of our moral aberration and mental feebleness, when the imperfect results of phrenological observation can weaken our belief in those all-important truths which ages have only sanctified and confirmed, and which repose upon evidence immeasurably superior to any which can possibly accredit the scanty materials of man's feeble philosophising.

Instead of being anxious to disassociate mind from matter, and at once to reject every system which is founded upon such an admission, we should rather freely admit their intimate and close connexion; for a

contrary hypothesis would furnish the infidel with the strongest possible argument against the very truths we are so solicitous to maintain. He could prove unanswerably that mind had its infancy, adult age, and decrepitude; that, like the body, it was liable to disease, and ceased with the dissolution of the latter; in short, that its manifestations were, in many respects, analagous to the workings of functions avowedly temporary in their nature, and that, like them, it was destined to die and be no more. To these assertions no satisfactory reply can be offered, when meeting the objector on his own ground, except the admitted dependence of the mind on the corporeal conditions, which at once furnishes a rational solution of what must otherwise often frighten the timid and stagger the wavering. And, lastly, let it never be forgotten, that God's designs are not obstructed by human opinions, and that our ideas of things do not in the slightest degree alter the things themselves. The evidence of a future life, of the immortality of the soul, of man's responsibility and free agency, rest not merely upon general consciousness and conviction, but upon direct Revelation; and to suppose that human science can in any degree interfere with God's intentions is to place ourselves on a level with the Deity himself, and madly to endeavour to judge His ways at the tribunal of human reason.

We trifle with our dearest truths, and weaken their vast importance on the minds of others, when we talk of their being endangered, or in any way affected, by the

researches or suppositions of the profoundest philosophers. Real philosophy consists in the discovery of truth for its own sake ; in seeking to amalgamate it with what God has revealed of himself ; and where this is beyond our power, as often, very often, it is, in attributing our failure to the feebleness of our intellect, and not to the discordancy of facts : resting satisfied with the conviction, that when the veil of human ignorance shall be lifted up, and the circle of our vision be enlarged, we shall then behold the Creator's glory manifested in his works and confess that in wisdom he has made them *all*.*

* " It may be taken as a great and distinctly marked principle in the arrangement of nature, that there is nothing wasteful and nothing unmeaning ; and yet, unless man be appointed to a higher and nobler existence, it is undeniable that there has been bestowed upon him a vast deal which is truly superfluous, and that no proportion whatever is maintained between the powers wherewith he is endowed, and the achievements which are placed within his reach.

Who can contemplate man and not perceive him to be possessed of energies and capacities which are thrown away, or lost, if a few years spent within the trammels of a circumscribed scene make up the sum total of his being ? Were his life extended to a thousand years, he might continue gathering in accessions of knowledge in the varied scenes which now invite his research. And what is this but saying that man is blessed with unmeasurably larger capacities than it is possible to fill during the scant moments of his lifetime ; so that if at death he be altogether withdrawn from the theatre of being, he carries down with him into nothingness a rich freight of unemployed and undeveloped energies ; and thus leaves behind a record of the wastefulness of the Creator, and furnishes a proof that God bestows what is not wanted, and gives means without an end. * * * *

There are embryo powers which are either not at all or only partially

There are others who advance numerous *theoretical* objections against the *probability* of an organ like the brain manifesting mind; of the difficulty of *conceiving* that small portions of an organ so apparently homogeneous in structure, should be the instrument of such varied manifestations; of the impossibility of detecting the form of the brain by examination of the skull, and many other difficulties of a similar nature. To all such objections we would answer, that the evidence in favour of the physiology of the brain, is neither derived from

called forth on earth; there are capacities which will hold unmeasurably more than they are here required to contain; there is a grasp and tenacity of intellect which are as much out of place if there be no futurity, as would be the sinew and grapple of a giant, when only a feather is to be raised or a straw to be wielded; there are unutterable longings which find nothing in the present scene at all corresponding; in short, the soul of man cannot be "filled," it is too big for time, and craves eternity. And what do we infer from this ascertained disproportion between the powers and circumstances of man? Shall not the intellectual anatomist proceed, as in the like case the physical would proceed? Shall we not believe that the excess of energies over present employment witnesses that the soul is appointed to a future and far higher career—that she is destined to expatiate in a sphere, compared to that which now binds her journeyings, which shrinks into a point? And shall we not even from the known restlessness of man, from the fact that creation cannot satisfy the creature, but that the world with all it can afford is too little—shall we not learn from this, that the death of the body terminates not the existence of the spirit; but that in some yet untravelled region, into which the soul shall be hereafter translated, there are objects great enough and glorious enough, to engage our every power, crown our every capacity, and satiate our every longing."—*Melville.*

probabilities or the possible conceptions of any individual, but from accurate and extensive observation; that its truth or fallacy is utterly independent of its being in accordance or at variance with any notions we may happen to entertain, and can only be rationally admitted or rejected by counter evidence similar in character to that on which it was originally founded. The most ardent believer in its truth freely admits that probability was greatly against what facts have demonstrated, and that their own conceptions have been falsified by the result: but might not the same admission be made for every organ of the body, for every flower of the field; all of which equally lay man's pride in the dust, and prove the imperfection of his reason. But if the knowledge we possess of the brain, however inexplicable, coalesces with the evidence of observation in every other department of the organized world, and harmonizes with the laws which regulate the manifestations of organs whose functions are more easily examined, we possess, independently of direct observation, one of the strongest evidences of its truth which man's intellect is capable of estimating.

It has been argued by a most distinguished member of the medical profession, that the comparative anatomy of the nervous system in non-vertebrated animals, many of which evidently possess various powers or instincts common to the higher orders, is unfavourable to the truth of the conclusions obtained with regard to man. To this it may at once be replied, that facts accumulated

in one department of nature can never be invalidated by facts observed in another ; and, secondly, the modifications in form, structure, and functions, not only as respects the brain, but every other organ of the body when traced through the descending scale of organisation, are so numerous and important, that we cannot rationally expect to trace a close analogy, except in beings not widely separated in their conformation from each other. How can we appreciate the sensitive existence of the worm or the insect, organised in so different a manner to ourselves, and occupying so remote a region in the expanse of creation ? How can we venture to speculate on the perceptions of the animalcule, whose world is a drop of fluid, and whose fleeting existence, chequered perhaps by various transformations, is destined to run its course in a few hours ?

To compare the insect's brain with man's might at once be expected to be negative in its results, so dissimilar are the beings contrasted ; and to argue that because both have instinct common to each other, and no common organization can be discovered by which these are manifested, that *therefore* the supposed function of particular portions of the brain in man are not established, is as rational as the assertion that respiration is not effected by the human lungs, because no such organs can be discovered in many of the inferior animals, though the function itself is undoubtedly common to all.

We see innumerable contrivances in nature for the accomplishment of the same ends, and why should we be

surprised if the nervous system should be affected by those modifying influences by which its form and bulk are adapted to animals so different in their habits and requirements from ourselves? That it is so modified, no doubt can possibly be entertained, and the knowledge of this should make us very cautious in drawing conclusions from its physical arrangement in one department of animal life, as to what it may be in another. Still it should not be forgotten, that there is a greater unity of type in the nervous system than in any other, but the differences in the degree of intensity of its functions are such as often to render any attempt at comparison most uncertain and fallacious. It is, however, but justice to remark, that in those animals whose structure closely corresponds to that of man, and whose functions we are capable of contrasting with our own, observation has confirmed in all the leading particulars, conclusions which were originally deduced from the examination of man alone. The fact, therefore, of our not being able to follow out the physiology of the brain in *every* gradation of the scale, is only what we might theoretically have anticipated, and cannot be regarded as in any degree adverse to results which have been founded upon the examination of more limited but more comparable materials.

As to the objection, that the physical constitution of animals is essentially different from our own, and therefore that no comparison is possible, we can only reply that such an assertion is gratuitous in the highest degree,

and that whether we regard their organization or their acts, there is as much reason to admit the analogy of both to what we observe and find in ourselves, as to consider the organs and functions of respiration and digestion essentially the same, however modified they may be to suit the varying wants and conditions of the individual.

By other objectors, a general assent is given to the fact that the brain is the organ of the mind; and some will go so far as to admit that different regions of the head correspond to the intellect, moral feelings, and propensities; but they yet deny the truth of what they are pleased to term the "details" of the science; forgetting that those very details were established by observation before the inferences to which they deign to affix their assent could have been deduced, and that the determination of the functions of particular regions depended on the prior analysis of their individual parts. The same class of objectors denounce all *practical application* of our knowledge, even supposing it to be theoretically true; equally unmindful that practice was the original source of our information, the theory of mind, and of the functions of the brain, wholly resulting from reiterated observation, made by different observers at different times; if, therefore, the investigation is not susceptible of becoming practical, the whole science of cerebral physiology deserves no other name than a plausible theory or ingenious speculation.

A still less reflective class of opponents deride the

subject because it is opposed by names deservedly respected in the ranks of science, and has not yet received the sanction of the schools. To all such we would reply, that popularity is no test of truth, and that the latter has never been popular until man's interests or prejudices have been enlisted in its behalf. Whatever is feeble is always plausible, because it favours mental indolence; and whatever is indifferent and avoids collision with or fortifies our preconceived notions, soon forms part of our opinions, and gains an easy entrance into the mind. But knowledge which requires reflection to be understood, which interferes with the conclusions we may have formed, which sets aside the systems we have embraced, which convicts us of error, and involves practical consequences, is, of necessity, slow in its progress, and ultimately adopted rather from the evidence of its effect than from a careful examination of the principles on which it may be founded. "He who is allowed to take the start of his species, and to penetrate the veil which conceals from common minds the mysteries of nature, must not expect that the world will be patiently dragged at the chariot wheels of his philosophy. Mind has its inertia as well as in matter; and its progress to truth can only be insured by the gradual and patient removal of the obstructions which surround it." Such a fate might naturally have been expected for cerebral physiology as expounded by Dr. Gall, directly interfering, as it does, with the previous conclusions of the physiologist and the metaphysician; yet, notwithstanding the nun-

rous difficulties which have impeded its general reception, such is the force of truth and the high interest of the investigation, that already more societies exist in Great Britain, America, and upon the Continent, for its special prosecution, than for that of any other science whatever.*

Nor is the support of great names wanting for those who pin their faith upon authority rather than upon facts; but to such we can no longer address ourselves, caring little for the assent or dissent of individuals whose belief amounts to little more than imitation, whose love of truth does not extend beyond the trappings with which it may be decked, and who would claim fellowship with error if only patronised by rank and reputation.

Our object in the preceding observations has been to fix the attention of the reader, strongly upon the nature of the evidence and upon the fundamental principles of phrenology, and we sincerely trust that we have not wholly failed in satisfying the mind, of the rationality and general truth of the present system of cerebral physiology; and that we have succeeded in shielding it from some of those objections, which have too frequently interfered with its dispassionate examination, while they have occasionally converted it into an instrument of evil. We should not have insisted upon the much-hackneyed questions of materialism and fatalism, had we not been anxious to dissolve those chains of distressing

* In 1836 the number of Phrenological Societies in Great Britain alone, was twenty-nine.

doubt and perplexity which we know the unguarded statements of phrenologists have fastened round the minds of many an ardent but timid enquirer, and because we strongly sympathize with the scruples and apprehensions of those who feel a holy jealousy for the truth which the Bible contains, and are ever anxious to defend it from the contamination of a cold and cheerless scepticism. Should there still be some who feel conscious that they cannot investigate the subject without detriment to their best and highest convictions, let them at once relinquish the pursuit of what man has discovered for what God has revealed, and this not because of any real discordance between the God of nature and revelation, but because such methods of enquiry are incompatible with the peace, and not adapted for the peculiar constitution of their own minds.

In conclusion, we would simply remark, that if phrenology be true, it possesses the highest claims to our serious and attentive examination, and if false, it admits of the most direct and practical refutation. To facts it appeals, and by facts it can alone be disproved; and we know of no instance of any individual having made himself acquainted with the evidence already accumulated, and who has thus questioned nature for himself, whose conclusions have been adverse to the great and leading principles which have emanated from the researches of the illustrious Gall.

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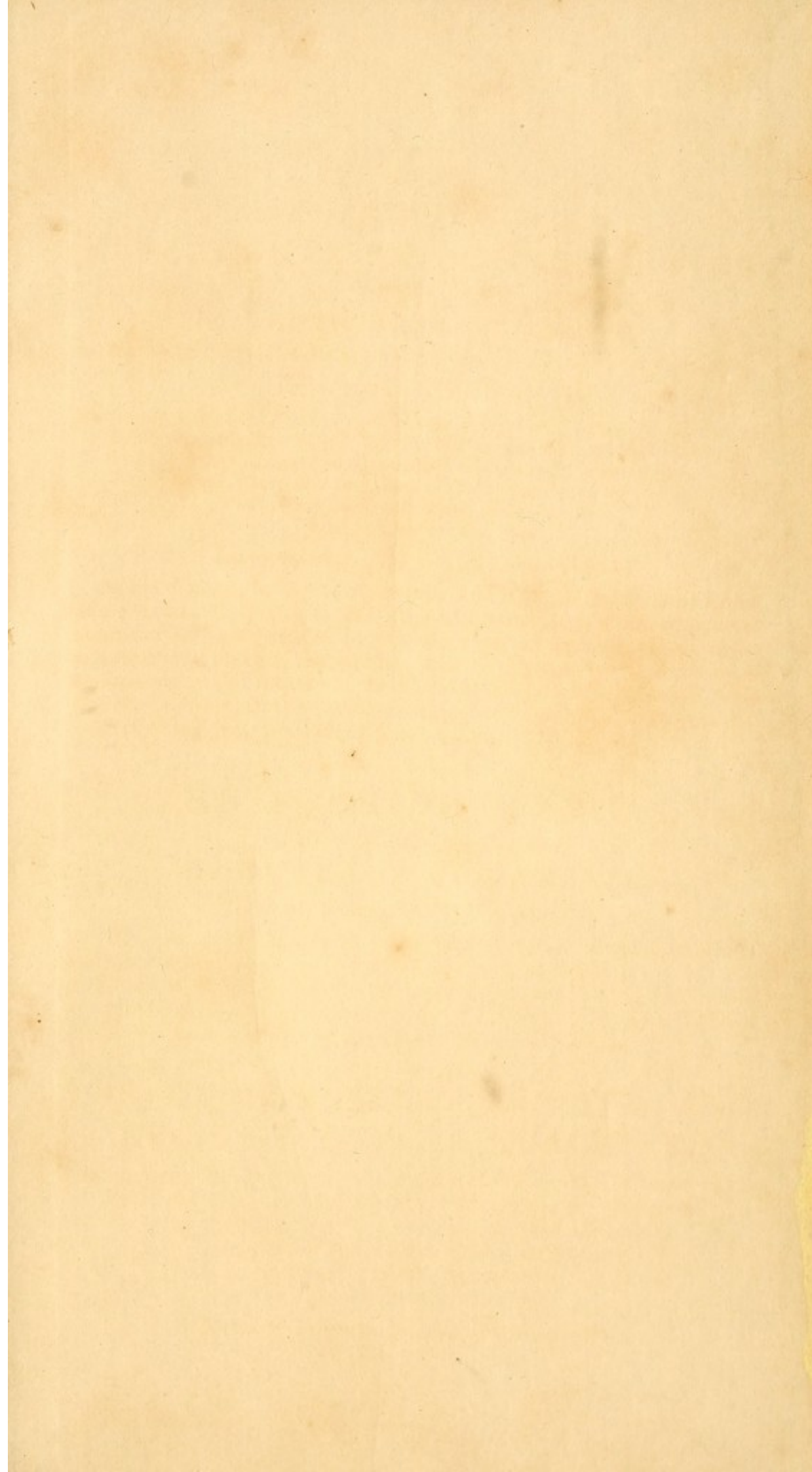
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