CEREBRAL PHYSIOLOGY

AND

MATERIALISM,

WITH THE RESULT OF THE APPLICATION OF ANIMAL MAGNETISM TO THE CEREBRAL ORGANS.

AN ADDRESS

Delivered to the Phrenological Association in London, June 20, 1842.

BY W. C. ENGLEDUE, M.D.

WITH

A LETTER FROM DR. ELLIOTSON,

On Mesmeric Phrenology and Materialism.

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PREFACE.

SINCE the publication of this Address in the Medical Times, several correspondents have requested me to publish it in a separate form. At the meeting of the Phrenological Association, the avowal of Materialism—the inevitable inference from the facts of Cerebral Physiology—excited considerable hostility. This spirit of antagonism prompts me to yield to the wishes of my friends.

A writer of talent, speaking of "Phrenologists," states, in a communication to me, "the mass either cannot follow out the consequences of their own doctrine, or they have not the honesty or the courage to avow them."

This is the *fact*, however unpalatable the announcement. The doctrine as promulgated in the following pages, I leave to the consideration of those who acknowledge that "honesty is the best policy," and who act on the principle that it is *always* expedient to speak the Truth.

SOUTHSEA, SEPTEMBER 1, 1842.

AN ADDRESS, &c.

Mr. President, and Members of the Phrenological Association,—

Having been requested to deliver the Address at this Anniversary Meeting of our Association, I must be permitted to make one preliminary remark; it is this,—that all Cerebral Physiologists do not entertain similar opinions; consequently the doctrines advanced in this Address must not be received as the expressed opinions of our body, but rather as the doctrines conscientiously believed—deliberately and determinately promulgated on this occasion, by a section of our body. In the consideration of a subject bearing essentially on the advancement of our race, uniformity of thought is to be desired; but uniformity of thought is only to be obtained by the establishment of true principles. Influenced by this conviction I shall wander from the monotonous routine so long followed, and insist on the importance of the future exposition of our principles being preceded by the inculcation of materialism. This is not done with any sectarianising spirit, but with the hope of seeing all influenced by one power—the most powerful of all powers—Truth.

If we survey the characteristics of our age, amongst the most important and striking is the tendency to form societies and associations. For the development of every branch of literature, and every department of physical science, an association is formed; and men seem to be impelled by one most obvious truth, that "union is strength." From this concentration of intellectual energy we every day witness astounding results. The victories which have been gained over inorganic matter—the stupendous revolutions which science has achieved—it is our duty to imitate by unceasing efforts to explore one portion of organised tissue. This is to be accomplished by the collection of facts; by the experience and efforts of numbers; and, for the more extensive dissemination of our views, and the more easy collection and generalization of our facts, we have formed ourselves into this Association. But why does not this Association of naturalists form a branch of that association claiming for its title the designation of British? Because it has been declared, that the man who attempts to introduce within its precincts discussions, having for their object the investigation of living matter, is an enemy to the success of this National Union. The members confine themselves to the investigation of inanimate matter—they search into, with the most scrupulous exactness, intricate questions in the physical sciences—they spend their thousands in the collection of information essential to the assistance of man in the battle he is fighting with the elements; but man himself—the most intricate piece of organism—the most astounding result of nature's

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efforts—the very topmost link in that chain of life spread daily before us—the vitalised lump of clay wearing the human form—claims not a moment's consideration.

We must work out this problem; and in our researches we are not to discourse concerning essences, spirits, or the *immaterial mind*, but concerning one of the innumerable modifications of matter; we have to investigate one portion of man's organism—brain, and we have to determine its peculiar functions. Having taken this preliminary step—understanding now what man really is—we have to apply this knowledge; a process which will effect great changes. Nevertheless, we must perform this duty apart from every other consideration, apart from received opinions and doctrines, and undeterred by the weight and number of antique theories.

The accumulation of facts would be perfectly useless if allowed to continue a chaotic mass, without arrangement, classification, and generalization. Facts form the basement-structure of our system of philosophy. But the period is come when we must cease speaking of our facts only, the constant inculcation of which was necessary during the first promulgation of our views; it is now our duty to apply them, to build up a system, and then make it bear on specific points. The value of the marble is not known, and its beauty is not seen, whilst it lies concealed in the quarry, untouched by the chisel of the sculptor; so, in like manner, the applicability, the great power and tendency of our principles and conclusions are unseen, and their vast importance unrecognised, whilst they are allowed to remain in their present position, and not made to exert their influence on questions bearing most powerfully on man's progression. In pursuing this course, we must expect difficulties; and we must remember, that in the majority of instances we have to deal with *untrained intellect*, and consequently with the *slaves of prejudice*—we have to fight with those who are still influenced by the *impressions communicated during infancy*. Some from sloth, and others from a deficiency of moral courage, are deterred from examining the views and doctrines they embrace, and thus *prolong their infancy to the tomb*. Can we wonder at the opposition offered by such characters? Can we be surprised if they denounce physiological investigations as evil and unwise speculations? Why are the results of inductive research evil and unwise? Because such conclusions overthrow preconceived fancies and opinions, and bid the offspring of the imagination give way to a candid and scientific appeal to man's reasoning faculties. Since we address ourselves to the intellect, we ought not to consider the prejudices of the multitude. We have all sinned in this particular: we have all been too anxious to make our views dovetail with the views and opinions now current in society. No Cerebral Physiologist should do this. By this title, we mean the individual who is conversant with the cerebral organism of man and the lower animals—we mean the philosopher, and not the empiric—the physiological

investigator, who, after deducing certain principles for his guidance, boldly follows them out, and fears not the result, howsoever it may interfere with received opinions and established dogmas.

We are perfectly aware that the views which such considerations open up are new and startling,—*but they are true.* The promulgation of these views may produce inconvenience to some, and uneasiness to others; but no considerations of this kind can offer any good reasons for their suppression. Are we to sacrifice what we believe to be truth at the shrine of expediency? Is ultimate good to be lost sight of? Are we to be the butterflies of a day? Is unalloyed selfishness to be our ruling passion? Are we to employ ourselves in pandering to the taste, fancies, and prejudices of our own generation? Are antique theories and visionary speculations of more importance than laws deduced from a careful consideration of man's nature?

We should cease to endeavour to reconcile our views with any particular kind of doctrine, because it is dishonest; and should boldly assert what we consider truth, regardless of the effect. We dislike all attempts at mutilation. Let truth be the idol of our reverence. No real good has ever been effected by stifling truth, but immeasurable mischief has always resulted from the promulgation of error. It is truth which makes free—and the continued promulgation of truth is the only way to ensure perfect freedom.

If ever there was a period in the history of our race when it was pre-eminently necessary to possess correct principles for our guidance, such is the present. Ancient history traces the outlines of a mass of preponderating animalism. Modern history tracks out the course, and records the struggle of intellect escaping from bondage.

We have now presented to our view a period when men have commenced to look beyond the mist which has so long enveloped them and retarded their progress—a period when "humanity is leaping from her bed of apathy"—a period when the masses are breaking loose from their thraldom and beginning to understand their true position—when new and untried principles and powers are at work—when efforts are making by all parties to furnish the means of improvement, to sow those germs which, when rooted and grown up, must of necessity bring about a social revolution.

It must be apparent to all, even to the most common observer, that these are not common times; a great change is in progress, and men are beginning to act on principles more accurate and more enlightened. But still the style of thought is more becoming to the period of immature life than that of vigorous manhood. Men still require to be educated in a system of philosophy which will point out the necessity of discarding completely those narrow and limited views which have so long harassed and perplexed them. Such a system of philosophy is ours. All other studies are insignificant when compared with this—the study of man. With this key what bright prospects open! Who can predict the effect when man's capabilities shall be drawn forth—when his

happiness shall bear some relation to his power of attaining it? As yet we scarcely know these capabilities; as yet we are only on the threshold of investigation; as yet we have done little more than act the part of pioneers; we have opened the shaft, discovered the mine; but the amount of treasure cannot be estimated. Nevertheless, we are justified in suggesting as probable what we cannot predict with certainty.

Glance for a moment at the achievements of some of our modern philosophers! How have these victories been gained? They have resulted from superior *organism*—from trained organism. If this be true—and who can doubt it?—consider the thousands, nay, millions, that are allowed to live, grow up to maturity, shrivel and die at an advanced age, enveloped in their native rust, without an attempt to train, without an effort to afford the natural stimulus to their famishing organs. Is this right? Is this state of moral and intellectual abortion to continue? No! The multitude must be roused from their lethargy—they must be taught to think and judge for themselves—to put forth their giant power, the most distinguishing characteristic of their species.

Look at the cerebral mass of a great character, and witness the astounding results of its action! Think of the cerebral mass of the famishing millions, and estimate, if you can, the results which might be obtained if each brain were trained, if each individual were placed in that situation and calling which nature intended. Estimate, if you can, after the lapse of a few generations, the acquirements, the position, the intellectual and moral grandeur of such a race. If, then, we have even now but a faint idea of man's endowments—if they are now comparatively unknown and unexplored—if we are, after a lapse of so many ages, only commencing the study, what better guarantee can we have of the fact that humanity must advance,—that, as years roll on, and one generation succeeds another, man will gradually remove all impediments to his happiness, and assume that position his organism fits him for? *Our race is in a transition state;* but the course is *onward*, and the boldest and most enthusiastic thinker does not possess data by which he can predict the attainments of any given period: this is a secret, a germ in the womb of Time, to be evolved by man himself: his destiny is to grow in the proportion he ascertains and obeys the laws governing his structure. Extravagant and speculative as it may appear, we triumph in the idea of such an approaching consummation. We hold no dispiriting views—we look on man as only just emerging from a degraded position, although the impression which a retrospect of his past existence conveys is humiliating in the extreme. We augur more favourably for his future progress, and dare picture in the distance his future destiny.

Twelve months have elapsed since we were assembled in this room for the purpose of promulgating views considered to be of essential importance to the well-being of our species. How have we spent the intervening period? What means have we taken

to ensure their reception? What steps shall we take to inculcate the necessity of educating the rising generation in our system of philosophy? What is the cause of so much doubt concerning a question so important, so self-evident? What prevents its reception?

It appears to us, that the very first axiom of our science is erroneous. "The brain is the organ of the mind."

Mr. Combe states—"We do not in this life know *mind* as one entity and *body* as another, but we are acquainted only with the compound existence of *mind* and *body*, which act constantly together, and are so intimately connected, that every state of the *mind* involves a corresponding state of certain *corporeal organs*, and every state of *these organs* involves a certain condition of the *mind*."

A similar doctrine we shall find inculcated by almost all writers on Cerebral Physiology.

This is mere assumption. We boast that our science is purely inductive, and yet in the enumeration of our axioms we assume a position which all our facts tend to disprove. To evade the charge of materialism, we content ourselves with stating that the immaterial makes use of the material to show forth its powers. What is the result of this? We have the man of theory and believer in spiritualism, quarrelling with the man of fact and supporter of materialism. We have two parties: the one asserting that man possesses a *spirit* superadded to, but not inherent in brain—added to it, yet having no necessary connexion with it—producing material changes, yet immaterial—destitute of any of the known properties of matter—in fact, an *immaterial something*, which in one word means *nothing*, producing all the Cerebral functions of man, yet not localised, not susceptible of proof; the other party contending that the belief in spiritualism fetters and ties down physiological investigation—that man's intellect is prostrated by the domination of metaphysical speculation—that we have no evidence of the existence of an *essence*, and that organised matter is all that is requisite to produce the multitudinous manifestations of Human and Brute Cerebration.

We rank ourselves with the second party, and conceive that we must cease speaking of "the mind," and discontinue enlisting in our investigations a spiritual essence, the existence of which cannot be proved, but which tends to mystify and perplex a question sufficiently clear if we confine ourselves to the consideration of organised matter—its forms—its changes—and its aberrations from normal structure.

Almost all physiologists commence their investigations with an unfavourable bias. How is this? Because they first adopt an hypothesis, and then commence their investigations; instead of first taking a wide and extended view of Human and Comparative Physiology, apart from preconceived opinions: because in their infancy they were taught that man's position depended on the possession of some essence; and in their manhood, that intellect,

which should investigate the ground for such a belief, is "cabin'd, cribb'd, confin'd," by the apparent necessity for such a speculation. Is it necessary to prove this? Consult physiological writers, and we find that they are perfectly satisfied that the seat of mental operations is the brain, and no other organ; yet they contend that nothing more has been proved than this,—that the *brain* by its peculiar organism is the instrument by which the *mind* acts. They introduce us to a phantom, they call forth a spirit, and, without the shadow of a proof, state that it guards, governs, and directs material movements.

We contend that mind has but an imaginary existence—that we have to consider matter only.

What is organised matter? Merely a collection of atoms, possessing certain properties and assuming different and determinate forms. What is Brain? Merely one variety of organised matter. What do we mean by Cerebration? The function of the brain —one of the manifestations of animal life, resulting from a peculiar combination of matter. The varied changes of form which this matter assumes, give rise to the numerous manifestations of Cerebration in the different tribes of beings; and the varied changes of Cerebration in the same being originate in molecular alterations—merely other expressions of a new condition.

Cerebration, then, expresses the manifestation of a series of actions resulting from the properties possessed by a particular portion of organism—brain, when acted upon by appropriate powers. In the same way as organism generally has the power of manifesting, when the necessary stimuli are applied, the phenomena which we designate by the term life—so, one individual portion—brain, having peculiar and distinct properties, manifests on the application of its appropriate stimuli, a peculiar and distinct species of action, which we propose to call Cerebration. If the *sum* of all the bodily functions—life be not an entity, how can the product of the action of *one portion*, of the body—brain be an entity? *Feeling and intelligence are but fractional portions of life.*

The "why or how" such a form of matter is capable of manifesting such peculiar functions we cannot explain; it is sufficient for our purpose to decide that it does so, and perhaps we may never go further. Does any one doubt the power of matter to produce the phenomena of thought and feeling? To such a one we would say who dares assign limits to the inherent powers of matter? Let us first find out all that matter *can do*, before we dogmatize and assert what it *cannot do*.

No action can go on in an organ, that is to say, no manifestation of the function of an organ, without a change in the organic molecules composing it. This position was beautifully verified in the case related by Mr. Combe, where, the skull-cap having been removed by an accident and the brain exposed, he was enabled by conversation to excite particular faculties, and he noticed that the manifestation was always accompanied by a

peculiar movement in the portion of brain constituting the cerebral organ. We are at present quite incapable of ascertaining by what means impressions made on the organs of the senses are conveyed to the brain, or how the various stimuli emanating from the brain are conveyed to the several organs. This is most probably by a change in the molecular arrangement, as rapid as galvanic action, and perhaps more so. However, we know as little about this as we do of the nature of light, galvanism, or electricity.

In an organ whose function is to secrete a fluid, we are perfectly aware that the fluid may be vitiated and altered by a very slight change in the ultimate structure; and at first the change is not appreciable by our senses. If abnormal function continue, it is the result of absolute organic disease; that is to say, there is an alteration in the arrangement of particles quite incompatible with healthy action. In like manner, an alteration of cerebral structure is always the cause of abnormal cerebration. We see no better reason for supposing that the manifestation of cerebration depends on the excitation of cerebral matter by "an essence" —"a principle"—"the mind" than we do that the bile or the saliva are secreted by their respective glands, through the instrumentality of the same or some other essence. We do not speak of liver principle or salivary principle. We see a certain arrangement of particles in the form of an organ called liver, and a certain kind of blood sent to it; the result is, the secretion of a particular fluid, which we call bile; further than this we cannot go: no other organ is so organised—no other organ produces a similar secretion.

We see that certain articles of food conveyed to the stomach excite it to the performance of its function—Digestion. The external senses receive impressions and convey them to the brain, and excite it to the performance of its functions—Cerebration. As the perfect performance of digestion depends on the healthy state of its organ—Stomach; so the perfect performance of cerebration depends on the healthy condition of its organ—Brain.

It may be said that these views partake of the grossness of materialism—I have yet to learn that there is *grossness* in truth: that they tend to shock harmless prejudices,—I have yet to learn that a prejudice can be harmless; that they will produce a revolution in prevailing modes of thought, and overthrow received doctrines and acknowledged principles,—Be it so. If principles, doctrines, and orthodox formulæ for thought, are erroneous, and render men purblind—*sweep them away*. Fear not truth—disdain not reason—follow not authority—let opinions be sustained by the firmness and solidity of their bases.

But some one remarks, this is not the doctrine of Gall. Where are there ten Cerebral Physiologists who have studied his writings? It is little to our credit that we are not more intimately acquainted with him—more influenced by his boldness—more anxious to profit by his researches—more ready to adopt the same truth-

loving course of inquiry. But this *is* Gall's doctrine. How miserably have we fallen off and neglected his views! He says, "Your understanding, your volition, your free-will, your affection, your judgment, instinct, &c., will be no longer personified beings —they will be cerebral functions!" Is this not an intimation of the very doctrine we have inculcated? But suppose we had not been supported by Gall—how senseless the objection! The science which he left in its infancy has been cradled and nursed, but we find it still comparatively in its infancy. Are his writings to be always referred to for the truth of views deduced from the position of man generations after his removal? Such a notion is untenable—it strikes at the root of all progression, and if applied to the discoveries and advancement of any other science, to the labours of Davy and Dalton, of Newton or Herschell, would be considered unphilosophical in the extreme.

Again: we would ask those who are still doubtful, whether by means of intellect they gain a knowledge of the existence of anything independent of matter? We would ask them whether they can picture to the imagination "the mind" of man apart from the organism composing the man? If they cannot do this, we say, why make man an exception to the invariable law of nature? Why, in ascending link by link the chain of organic life, add an indefinable something to the last link, which it was found unnecessary to call to our aid in the preceding? Witness the unrelenting and savage ferocity of one tribe; the fidelity and tameness of another; the sagacity, gentleness, and intellectual manifestations of a third: contrast all these with the characteristics of man, and explain, if possible, why we are to have recourse to an hypothesis? Why, in jumping from the sagacious monkey to man, are we to have recourse to the stimulus of an essence for explaining the superior cerebration he manifests? Why not give a portion of this or some similar essence to the monkey, because its cerebration is superior to that of the sheep or goat? Nay, why not allow a minute portion of some more impoverished essence to the fish, which obeys the call of its feeder, and swims to the required spot for its daily nourishment? If this would be ridiculous —if no addition be requisite to account for the improved cerebration of inferior beings—why, without the slightest evidence, are we to suppose that a higher order of cerebration in man cannot be manifested without such addition?

It is this conjectural doctrine—this belief in the individual and indivisible essence of mind—this love of the marvellous—this thirsting after something mysterious, which is retarding the progress of cerebral physiology, and in the same ratio, the happiness of man. It is this clinging to old opinions—this disinclination to shake off old garments, which is the cause of so much doubt concerning a question so self-evident. We oppose this system by the antagonism of *Reason* and *Nature*. It is impossible any longer to countenance the opinion. It must be rooted up. It is like a malignant disease, which can only be cured by extermina-

tion. Let it be boldly stated, because it is true, that, as philosophers, we have to deal simply and *exclusively with matter*. Man neither possesses, nor does he need the possession of, any other stimulus than that which is given to the simplest of organised beings. From the lowest and simplest of organized beings, to the highest and most complicated, there is nothing more than a gradual addition of parts, accompanied by concentration.

Can any other facts be advanced to prove that cerebration is merely one of the manifestations of animal life, resulting from a peculiar combination of matter? Yes! we appeal to all animated nature—every physiological fact proves this. If we survey our own structure, we are convinced that every organ has its definite function to perform, and consequently, that each function can be referred to a particular organ. We cannot conceive action independently of cause. Since, then, no manifestation of any power whatever is demonstrable in living beings without being referrible to some portion of their structure, it necessarily follows that cerebration must be considered an attribute of a part of the same structure; and since the phenomena of cerebration have never been seen, except in connexion with the brain, it legitimately and logically follows that the former has a connexion with the latter in the relation of cause and effect.

Survey the leading characteristics of the nervous system in the various tribes.

In the lowest class, the Infusoria, the tissues appear to be homogeneous—there seems to be an absence of cognizable nervous matter. But we must not forget the fact, that our failure to detect is no proof of non-existence. Even in the human eye, the arrangement of nervous matter called retina would not be visible, if it were not for the other tissues entering into its composition: hence, we learn that it is quite possible to conceive the existence of nervous matter, although of a nature so transparent and unmixed, that it remains invisible to our senses. Analogy would lead us to conclude that there is a nervous system in these tribes. How can we avoid the belief, when, notwithstanding their excessive minuteness, requiring a microscope to display them, we see them discriminate and seize their prey—contract and bend their bodies in every direction—appear conscious of each other's approach—in fact, perform movements with as much regularity and precision as animals which undeniably possess a nervous system. From recent researches it becomes more and more probable that we shall soon be in a position to demonstrate the nervous system in all the infusoria, without distinction.

However, to discard doubtful points: as we proceed to investigate higher tribes, we find nervous matter assuming regular and determinate forms. We perceive ganglionic centres arranged exactly where they are required; and in the centres of these ganglia we find particles of grey matter, which we shall presently see are considered to be the source of power in the higher order of brains. If great locomotive powers are necessary, ganglia are

placed in the neighbourhood of the organs destined to serve this purpose. If powerful digestive organs are required, nervous energy is supplied by an assemblage of ganglia round the digestive apparatus. In some a considerable portion of nervous matter is above the œsophagus, and may be considered analogous to the brain of higher animals. In this way we may investigate, till we arrive at the Vertebrate classes, where we find cerebral lobes and a Cerebellum. Now, in proportion as we ascend in the scale, we observe increased development of these portions, and a greater amount of intelligence; in fact, more extended Cerebration. The surface of the hemisphere becomes convoluted, and the arrangement of the white portions increases in complexity. In the brain of the fish there is a want of that concentration so characteristic of the nervous structure of the higher orders. Every nerve terminates in a distinct and appropriate ganglion, and hence the peculiar appearance.

In reptiles we observe a considerable development in the cerebral hemispheres, and a proportional diminution of those portions connected with the sensory nerves.

In birds the brain and spinal cord are developed after one uniform type; and here we have the human brain in miniature: of course, cerebration is found to bear a relation to this development. In fishes the several portions of nervous matter are placed one after the other; but here they are placed one over the other, forming one mass, the cerebral hemispheres covering all these portions supplying the organs of the senses. No doubt this is for the purpose of attaining more complete consentaneousness of action. The hemispheres have not yet assumed the convoluted appearance, but in the interior they present collections of cineritious matter, through which the fibres of the spinal cord pass.

In *mammalia*, the most perfect specimen of which class is man, we find the hemispheres assuming a convoluted appearance, and the number and depth of these convolutions increasing as we ascend from the lowest to the highest. They are, comparatively speaking, absent in the rat, mouse, and rabbit; more distinct in the whale and dolphin; still more so in the camel, stag, and sheep; and very strongly marked in the tiger, dog, cat, and monkey tribes. Besides this peculiarity, the distribution of the fibres of the hemispheres becomes more and more complicated; for, in addition to the ascending or sensory fibres, and the descending or motory fibres, there are those forming the commissures connecting the two hemispheres; and to add to the complexity, there are those which bring the different parts of the same hemisphere into connexion with one another.

What, then, do we perceive by this very superficial survey of the nervous system? What conclusion is forced upon us? This:—Commence where we will, even at the very zero of animal existence, and ascend to man, there is a gradual increase of size, greater concentration and complexity, and, *pari passu*, a higher order of cerebration. Is not the conclusion logically deduced

from the premises? Have we not now obtained possession of a key which will unfold to us new views—suggest new thoughts—and solve questions, the want of power to elucidate which has rendered man so long a puzzle to himself?

We investigate the perfect brain of man, and we become acquainted with a most beautiful and complex structure, performing a certain function. Comparative physiological research furnishes us with facts proving the same position. But comparative physiology furnishes us with other facts. We can now prove that the beautiful simplicity and invariability of the laws governing inorganic matter are common to the laws regulating organized matter. The perfect man does not reach perfection by the gradual increase of a perfect form from the commencement; on the contrary, it is capable of demonstration, that the development of his several organs follows certain and invariable laws, and that these organs temporarily assume many forms, which the organs of the lower orders of beings permanently retain. The brain in its development is not an exception to this law. The brain of the most profound philosopher—the brains of Bacon and Newton—of Shakspeare and Byron, during their formation, assumed for a short time the pecular form of the same organ in inferior beings. Is this a humiliating reflection? By no means. What is the practical deduction? If we see that the brain of the human being passes, during its gradual development, through so many inferior types, it is possible there may be a stoppage of development of some particular portion. Such we really find to be the case. Human beings are sometimes born without a brain—in other cases the hemispheres are wanting, and the mass presents the appearance we see in fishes—in others, the posterior part of the brain is developed, the anterior and superior portions remaining very small. Thus we learn the cause of many cases of idiotcy; and these views, when fully investigated, may throw a flood of light on the laws regulating the minor modifications of cerebral matter. In some cases of malformed brain instincts present themselves which are never manifested when there is a proper balance existing between the several regions. This was seen lately in a most remarkable way at Paris.

A peep into Nature's laboratory is an excellent cure for chimerical notions; and one glance at her secret workings will do more to annihilate the fancies and speculations of spiritual philosophers, than the daily repetition of wordy and hypothetical disputations.

But our investigations must not rest here. Having examined the nervous organism in the mass, we naturally ask, what is its ultimate structure? This question opens a wide field for research, and a rich harvest remains to be gathered in. When we speak of a nervous system, many other considerations require attention besides the mere external form and size. It would be impossible, *d priori*, to imagine the same formation to extend throughout. A very superficial examination reveals to us two structures. But

the application of great ingenuity, and the aid of powerful microscopes, are required to inform us of the ultimate structure of these two tissues; and from this it follows that the diseases—the organic changes—may not be visible without similar assistance. The white matter is composed of millions of tubes—the grey matter is formed by innumerable nervous granules; each tube of a certain diameter and performing a separate and distinct duty—and each granule connected to its neighbour by minute fibres; the two conjoined forming a laboratory for the elimination of nervous power—for the appreciation of various stimuli—and for the evolution of thought.

When we have ascertained the minute structure in a general way, our labour is not finished—we have still to obtain a correct knowledge of the ultimate structure of *individual portions*.

Thus nerves proceed from the organs of the senses to different portions of the cerebrum. Can the ultimate structure of all these portions be the same? It would be folly, and contrary to all analogy, to suppose that portions of cerebral matter of the same structure take cognizance of volatile particles, and tremors of the air—perceive the picture painted on the retina, and impressions produced by acids or sugar applied to the tongue. What difference has yet been detected in the ultimate structure of the convolutions forming the organs of Destructiveness and Benevolence, Self-esteem and Veneration, Firmness and Philoprogenitiveness? Because two portions of brain appear to possess the same structure, are we justified in assuming that they really do? Motiferous and sensiferous nerves are not to be detected by any external mark, but the microscope has lately removed the apparent anomaly. The ordinary excitation of the nerve of smell depends on the impression of odorous particles on the minute branches of the olfactory nerve. The character of the impression will depend on the character of the external stimulant; but the reason why the same stimulant should be agreeable to one and disagreeable to another must be looked for in the peculiar structure of the cerebral organ with which the nerve is in relationship. A difference in the mere peripheral expansion of the olfactory nerve will never account for the peculiarity. Again: why does the same sound affect two persons so differently? To one person the noise produced by sharpening a saw is extreme torture—to another, not at all disagreeable. The sonorous vibrations must come to the ear with the same intensity; and why not the same result? We must seek for the cause of this difference not in the structure of the external apparatus—not solely in the structure of the auditory nerves, but in the peculiar molecular organism of the cerebral organs. We recognise this mode of reasoning when we say some persons perceive particular colours, and that others do not. We do not account for this difference by examining *the eye* for proof of a different structure, but appeal to cerebral physiology, and obtain the knowledge that there is a portion of brain for recognising the varied shades and combinations of colours.

The slightest alteration invariably produces a different action. A difference in the direction of the minute tubes, in the thickness of their walls, in their contents, the slightest increase or diminution of pressure, a new arrangement of the grey globules, an alteration in their size and shape—all these changes cannot be detected with the unassisted eye, yet they may give rise to important changes of function.

The improvements which will take place in the treatment of Insanity will emanate from our improved physiological knowledge of ultimate structure. The microscope must be appealed to. Insanity is abnormal cerebration, unhealthy action of a portion of matter. We hear it constantly asserted that the brains of individuals who have been insane for years have been examined, and no trace of diseased structure discovered. But how have these examinations been conducted? By slicing piece after piece, by tearing and pulling. The cause then is not to be sought for in the general appearance presented by the *brain;* but the healthy ultimate structure of each individual portion being ascertained, the cause of the peculiar form of insanity must be sought in the aberration from the normal standard of a particular portion or portions of brain. Till this is done, we must remain in the dark; and we would contend, that the treatment of many of these cases must be empirical.

Intimately connected with this portion of the subject is the consideration of the form, size, and position of the convolutions. We are too much engaged in attending to the external form of the cranium, and not to the convolutions. Every observer must have noticed the difference in the shape and course of the convolutions in the two hemispheres. Difficulties should be always met fairly. This is a point requiring investigation. We require drawings of the surfaces of a great number of brains, to enable us to ascertain the limits within which the irregularity is confined. Such considerations suggest the propriety of adopting some plan for the divison of labour. In all other sciences this course is followed. Our science might be divided into several compartments, and committees appointed for the investigation of particular questions. Stated periods for the reception of reports might be fixed, and as they would embrace all that was known at the time, their value would be increased by their publication and circulation amongst our members; thus diffusing important information, and exciting many to original investigations.

With regard to the development of particular portions of brain, and their respective functions, more particularly with our new assistant, Animal Magnetism, great victories might be gained. To accomplish this, certain divisions must be fixed, and individuals appointed to investigate and report on them alone.

There is another subject which appears to me to be forced on our attention: it is the present state of our bust. This has been referred to in a pamphlet published by my friend, Mr. Prideaux. Every portion is included by lines, with scarcely any attention to

the natural shape of the organs. If the plan had been pursued of marking the centres of development only, as was done by Gall, instead of marking by lines the presumed outline, which is only to be done in very well developed cases, and should only be figured on the bust when many cases prove the correctness of the conclusion, we should find a very large portion of the surface unappropriated. This is a subject requiring serious consideration. From the course here alluded to, the stimulus to original investigation is destroyed by an external appearance of completion and perfection, which does not exist.

I have now to introduce to your notice a subject of surpassing interest—*Animal Magnetism.* We all remember the ridicule thrown on our own science a few years ago, and we are all perfectly aware of the absurd notions which are prevalent regarding this interesting subject. It is not my object to enter into any lengthened detail of the extraordinary phenomena manifested during magnetic sleep, except in as far as they bear on Cerebral Physiology.

The conduct of medical men with regard to this subject has appeared to me *most disgraceful, most derogatory* to the profession. They have refused to investigate facts themselves, yet pinned their faith to the assertions of *an individual who it is now notorious hazarded an opinion on a subject he was profoundly ignorant of.* They have countenanced and encouraged the scurrilous attacks of the same party on the science and its cultivators, and supported him in making the columns of a periodical, that should have been devoted to the diffusion of truth, a channel for abusing and denouncing one of the first physicians and physiologists of the day, and one to whom they owe a deep debt of gratitude for many improvements in the practical department of their profession. I regret this, because by education and scientific acquirements medical men were peculiarly called upon to investigate the subject. The public look to them for an opinion on such subjects. The discovery of a new ganglion, the minute structure of nervous tissue, the arrangement of the fibres of vegetable matter, or the recent microscopic discoveries in various organs—all these points are carefully investigated—all these experiments are repeated again and again—comments are made, errors detected, and truth ultimately placed on a firm basis. But how is it with the experiments of the magnetizer? Because they are performed on living matter, and open to the investigation of every one —because they overthrow preconceived notions—because the subject is ridiculed, and, therefore, it is not scholastic to believe —these experiments are not repeated; but comments are made, prejudices excited, and Truth left to force her way, unassisted, against the efforts of the ignorant and interested.

Having experienced such treatment in the infancy of our own science, it behoves us to avoid a similar line of conduct. The occurrences of the last few weeks should prompt us to be quick in our movements. We find clergymen exciting prejudices, by

appealing to the passions of their hearers, instead of assisting to expound Nature's secrets, by appealing to their reason. We find them hurling forth fulminations against the investigators of Nature. One has published a sermon, in which he denounces magnetizers as sorcerers, *in league with the enemy of mankind, because* they cannot put forth a scientific statement of the laws by which the magnetic phenomena are produced. If the people are to be excited and prejudiced by religious orators regarding a scientific subject—a subject peculiarly the property of Physiologists—no time should be lost in boldly taking ground, asserting our rights, and thus preventing even an attempt at the repetition of those scenes and crimes of the dark ages, the result of bigotry, intolerance, ignorance, and priestly domination.

The discovery of the magnetic excitation of Cerebration, as far as I am aware, was made in this country by my two friends, Messrs. Mansfield and Gardiner. These two gentlemen communicated their experiments to me, and I immediately attempted to excite the cerebral organs of one of my patients, who had been regularly magnetized by me for some time, for the cure of disease. Exactly the same results were obtained.

On the 7th October, 1841, Mr. Gardiner, during the magnetic trance of his patient, played a few notes on a small musical instrument; the patient kept time by a lateral motion of the head. He then sounded the instrument without attending to harmony; the patient shuddered, and appeared to be distressed. He interrogated her as to the cause of this distress; she replied she was in pain; and when asked where, she placed a finger of each hand on the organ of Tune, on the same side. I shall not soon forget the enthusiasm of my friend when he communicated this result to me. An apple falling from a tree suggested to Newton the laws by which countless worlds hold their unvarying course; and the muscular distortion of a human countenance suggested thoughts which will assist in unfolding the greatest problem in Cerebral Physiology. After this experiment, Mr. Mansfield returned to Cambridge, where he became acquainted with a gentleman eighteen years of age, exceedingly susceptible of the magnetic influence. The first intimation he had of the fact, that the magnetizer could excite a cerebral organ, was on the 18th of December, 1841. This patient manifested impaired sense of time. He said, for instance, that he had been in a room half an hour, when he had been there more than two hours, and on another occasion two hours and a half; he would refer to events that had taken place more than half an hour before, as if a few minutes only had elapsed. Mr. Mansfield breathed on the organ of Time, and then asked his patient the same question, when he named the exact period.

On another occasion he was eating his dinner, and became exceedingly facetious, his conversation flowing in a strain of ludicrousness absolutely irresistible. Mr. M. touched the organ of Wit, with the intention of arresting his flow of humour, instantly

his countenance assumed a grave appearance, and though his conversation continued, the humorous vivacity and drollery entirely disappeared. After a few minutes Mr. M. blew upon the organ, and immediately the comic strain was again indulged in. The organ of Alimentiveness was paralysed in the same manner, and again excited; also the organ of Firmness. On the 25th of December, Mr. M. accompanied Mr. Gardiner on a visit to his patient. This was the first opportunity Mr. Gardiner had been enabled to commence his experiments, and to enter into details, and I am only stating what I know to be true, when I assert that it is owing to his great exertions, his untiring patience, his ceaseless enthusiasm, and his constant anxiety to promulgate truth, that I am enabled to detail to you the leading facts of this extraordinary discovery. He first directed the public attention to this subject in a letter in the *Hampshire Telegraph*.

The cases of my friends are exceedingly interesting, but I think it will be more in accordance with your feelings and wishes, if I confine myself to the relation of my own case.

The case which I am about to relate is that of a young lady, sixteen years of age, who had been confined to her bed eighteen months. She was magnetized for some time, and, during the trance, manifested a number of extraordinary phenomena; but I shall confine my relation to the experiments on Cerebration.

The patient having been placed in the trance, was allowed to remain quiet for a short time. I then simply applied my finger to the organ to be excited, and willed that it should become so. The excitation, in the majority of cases, was instantaneous.

Thus, the finger applied to Imitation produced the most splendid mimicry it is possible to conceive. The words and gestures of friends were copied in the most exact manner. Anecdotes which had been forgotten by all the members of the family, were repeated in a way that brought the circumstances instantaneously to their recollection, notwithstanding many years had elapsed. On one occasion the manifestation of the faculty was permitted to continue for half an hour, and was then stopped by a waive of the hand over the organ, without contact. The finger on Wit produced immoderate laughter, checked by a waive of the hand, and reproduced by a touch of the finger. The finger on Colour caused the patient to see a variety of colours, which, she said, were coloured worsteds. The finger on Size, caused her to say she saw "heaps of skeins." When asked the supposed weight of the quantity, she replied she did not know. The finger on the organ of Weight caused her immediately to exclaim, "hundreds of pounds."

Self-Esteem, Firmness, Veneration, Benevolence, Philoprogenitiveness, Caution, &c., &c., were all excited with corresponding results. The natural language of each faculty was most beautiful, and the patient in the natural state could not manifest the function in any similar degree.

The organs remained active, even after the patient had resumed

her natural state. This was so marked, that the attendants have frequently requested me not to demagnetize the organ of Benevolence, because, when this was allowed to continue active, she was so much more kind and affectionate.

Mr. Atkinson, Mr. Brookes, Mr. Prideaux, Capt. Valiant, and Dr. Elliotson, have all obtained similar results, and experiments have been made in America which also prove the truth of these statements.

By a perseverance in these experiments several new organs have been discovered; but it would be premature to publish the results of a few experiments only. The object is to excite attention and inquiry, and to remove prejudice.

Who can foresee the application of this extraordinary discovery? Do we not obtain a glance of a new method of treatment in cases of insanity; and are we not furnished with a means of exciting the cerebral organs, which may prove of vast importance—may possibly prove to be a mighty power in the hands of those to whom the education of youth is entrusted? Shall we, then, allow ourselves to stand convicted of moral cowardice? Shall we refrain from publishing these discoveries, because they are new—because they are strange—because they astonish us? Are we not lovers of truth? True, we know little about the matter; but therein consists the incentive to action—therein lies the stimulus to research. Shall man, whose present amount of knowledge may be compared to a grain of sand in the field of immensity, dare to laugh at, scorn, and ridicule, the attempts to evolve one of Nature's secrets? The Cerebral Physiologist who does this is a disgrace to the body he is ranked with, because he embraces a philosophy which loudly condemns such a line of conduct. He is not a degree removed from that Professor of Physiology, and that instructor of youth, who acknowledged there was "something" in Magnetism, but who refused publicly to avow his belief, for fear he should lecture to empty benches.

We find, then, that the last facts advanced still support *our* first axiom, viz., that Cerebration is the function of the brain—one of the manifestations of animal life, resulting from a certain peculiar combination of matter—that it is not peculiar to man, but is exhibited, in a greater or less degree, by all the gradations of animal life. I am the more anxious to insist strenuously on the reception of this axiom, because on this basis the science of Cerebral Physiology is elevated. All Cerebral Physiologists should inculcate this view. Let it be once understood that all the actions and all the thoughts of men are the products of material changes; let education be conducted on this belief, and a new era will dawn—a gross error will be removed, and very soon, all the minor errors, pernicious accompaniments and consequences, will disappear with it. Let no Cerebral Physiologist say his science is purely inductive, and, in the same breath, speak of "the mind" of man, for he cannot bring forward a single fact to support

his position. The two following facts cannot be too strongly impressed on the attention of our race:—

1st. That the actions of the human race necessarily result from its organic constitution.

2ndly. That the human race has the power of modelling its organism, so as to produce, by a series of combinations, a high moral and intellectual character, or a character decidedly the reverse—in fact, that the existing state of society is its own production, and it can either exalt or depress it, by attending to, or neglecting, the laws governing its structure.

As one truth prepares the way for the reception of another, so the knowledge of the fact, that the brain is all that is necessary for sustaining man in his position, opens the door to a number of dependent questions and considerations, which are forced on our attention, because they are the necessary sequences of the preceding axiom.

For instance, how much more intelligible and important do the laws of hereditary descent appear?

Man has power over matter; but to use that power, he must conform to the laws governing matter.

Man has power over himself and his fellow man; but to wield that power, he must investigate, ascertain, and conform to the laws presiding over organic life.

Has he done this?—only to a limited extent. Man knows this truth, and acts in accordance with it, when employed in developing and perfecting other beings; but, as regards himself, an immeasurably more important consideration, he wilfully neglects the few laws he has discovered, disdainfully turns aside from the innumerable facts daily presented to him, and thus retards the progress of his race. How is this to be explained? One cause is evident. He has been weighed down by a spiritual philosophy; he has been taught, and still believes, that he possesses "a mind"—that this presiding principle suggests and proposes modes of action; in fact, that he is a being of a higher order, in the possession of something besides his organism, the cause of his superiority.

We must keep constantly before us the opinion expressed in the commencement of this Address. We are Natural Philosophers—not bound to reconcile our views with existing notions and opinions, but to state what we believe to be truth. Man's actions and thoughts are the necessary result of the activity of his cerebral organism, and the cause of the peculiar form of his cerebral organism, and the resulting modified actions and thoughts must be sought for in the laws of Hereditary Descent, and the kind of cerebral training adopted. We know, from abundant observation, that the brain can be altered in shape; and if the laws referred to were only followed out to their full extent, society might be remodelled, in the course of three or four generations.

High moral and intellectual pre-eminence is now the exception, and not the rule: man could soon reverse the picture. The brain

can be improved by judicious training; and remember, the neglected training of one individual brain may exert an influence over several generations. We would wish to fix our position on this enlarged view; we would consider this question as philosophers and philanthropists, not as sectarians—not as affecting the individual, but as appertaining to man in the aggregate.

The laws of organic life are, like all the other laws man has discovered, invariable. The same causes always produce the same effects.

Observe individuals possessing superior brains—members of Nature's aristocracy. Why do they differ from the greater portion of their race? Compare the distinguishing characteristics, the elevated grandeur, the high moral and intellectual attainments of the one, with the grovelling debasement, the notorious animal exhibitions of the other. What causes have conduced to produce this difference? Have we discovered the cause? Can we apply the knowledge obtained? If we can, who will limit the application? Why may not *the race* ultimately become partakers of the same improved organism? Reasoning as philosophers, we have everything to hope for, and nothing to regret but the continuance of apathy and ignorance. We pity the man with his cold, withering calculations, placing limits to man's progression, fixing his race to the narrow confines suggested by his own limited power, and mapping out its future career by the experience of the past, the perverted activity, the monstrous prostitution of mere animal powers.

If we are asked, has man unlimited powers? we answer, we know not their limits, and, therefore, cannot set bounds to his progression. If the few have gained their position by any ascertainable means, we cannot see why the many may not reach the same standard. If the stimulus has been applied to some, and such astounding results have been obtained, we cannot see why the mass of men should not be elevated by the same vivifying process. The fact of human progression can be ascertained from history; but the laws of human progression are not understood, and their deduction from the study of materiality is not believed. It is too much the custom to lower, to degrade, to under-rate man; to speak of his proneness to vice—his innate depravity—his grovelling tendencies, but not of his *inherent power to become virtuous;* to refer to his derelictions from a standard of morality, as so many proofs of a sinful constitution, instead of tracing effects to causes, and becoming convinced that all these manifestations depend on, and are the necessary results of ignorance, and a total disregard of important physiological truths. It is our duty to insist on this—to cast new light—to teach that man is to be elevated, not by vainly theorising, not by lukewarm and irresolute speculations, but by adopting vigorous and efficient measures based on the laws governing his organism. Let the rising generation be educated in physiological truths; let them not only be taught the best means of preserving and improving the constitution

transmitted to them, but instructed in Cerebral Physiology: and, above all, impressed with the important fact, that the formation of the brain of their descendants can be calculated with mathematical precision, provided science can be consulted, provided intellect be the guide, and not mere blind animalism. These are truths of more importance to the individual and to the race, than a knowledge of the fooleries and absurdities of modern society—more worthy of their attention than the derogatory employment of copying the last ridiculous fashion, or the studied forms and monstrous attempts to attract the attention of the vulgar and the *pseudo*-refined.

When high moral worth and intellectual superiority shall be the standard,—the eminence to which all shall aspire, the ornaments of the present age will be considered the vulgarities of that which is to come. The improved organism, the inevitable result of consulting the natural laws, will give improved tone, and there will be a natural, unstudied gracefulness and simplicity of manner and character far more enticing, far more beautiful than the unnatural, nonsensical perversions alluded to.

Again: how do these views bear on criminal jurisprudence? Our law-makers manufacture laws, and our judges apply them, but both parties are totally ignorant of man's nature. Certain views have been entertained regarding man, and the best means of governing him; time has consecrated them, and the reformer who undertakes to enlighten his race on these questions, notwithstanding he bases all his views on man's nature, is denounced as the pest of society. Napoleon observes, that "the people of a nation were not deserving of better laws than those they submitted to." This is the language of a tyrant—this is an extract from the code of a ruler ruling by brute force. How long will the people of this country submit to the infliction of injustice, to the punishment of diseased individuals, for actions the *necessary result* of the activity of an imperfect organism transmitted to them by parents who were allowed to continue enveloped in the grossest ignorance? This will depend *on our* exertions. We have pointed out the rational mode of proceeding, and we must not cease our endeavours till we succeed in every particular.

The recognised instructors of the people teach that the gift of *mind* is to the foolish as well as to the wise, and that according as it is neglected or cultivated, must be the consequences, be they what they may. Believing and inculcating the doctrine, that a man has the power of framing his own line of conduct, they take upon themselves to punish a man for any dereliction from a certain standard. They punish a being for a certain act, because they are ignorant, and cannot point out the cause of its performance. The means they use to prevent a recurrence, is terror and punishment—if these fail, annihilation. Vengeance can destroy the being, but will never reform him; it can destroy the vitality of cerebral matter, but it will never prevent certain actions resulting from certain combinations.

If this be true regarding the individual, it is equally true as regards the community, and it is foolish and unjust to punish offenders with the hope of deterring others by the example. Surely the occurrences of the last century will prove this! Recal the thousand gibbets, and the thousand specimens of humanity dangling from their centres—the scaffold reeking with human gore—the wheels and the mangled limbs—the galley and its thousand occupants—the jails and the penal colonies, and all their attendant horrors. Is there less crime, less violence? Is man informed by all this exhibition of animalism what his duties are? Should we subdue a furious lion by destroying daily in its cage one of its one species? To tame this beast we study its nature; to tame man we must follow a similar course. Is not the spot polluted by our executions crowded by an assemblage of organisms similar in many respects to the one we are destroying? The majority of those who attend these exhibitions of brute force require care and attention; the stimulus they there receive is like water to a thirsty man—it is pleasurable—and differs only in degree from the excitement they receive from a bull-fight, or the struggles in the boxing ring. We denounce the bloody amusements of the Romans, and refer to them as examples of a barbarous age; but in what consists the difference between the spectator two thousand years ago, witnessing and rejoicing over the gaspings of the dying gladiator, and the man of yesterday, cheering, hooting, and then beholding the convulsive throes of the gibbetted convict? The gladiator fought for a garland and for victory, prompted by a false standard of glory—by the inordinate animalism of the wealthy Roman; the convict is destroyed by sanguinary laws, for committing a crime—for following the impulses of an organism so unfavourably developed as to constitute him a *moral* patient—because it is more easy *to crush than to remodel.*

Is this a test of civilization? Is this a proof that our rulers understand man's nature? If we wish to know the stage of civilization reached by a people, let us ascertain whether they are obeying the laws governing their organism, whether they have acquired the important knowledge of the connexion between them and their own happiness. Civilization is not to be measured merely by the amount of luxury, by the increased accumulation of comforts, or by the numerous victories achieved by Science, annihilating time and space, and really, in fact, rendering the whole race members of one community. No! The great test of civilization is the progress made by a people in these refinements of social intercourse, which result from moral and intellectual improvement—the extent of the inculcation of those laws and those principles which tend to elevate the many and not the few, which have for their object, and embrace in their fullest scope, every circumstance calculated to impart the greatest amount of happiness and freedom.

As Cerebral Physiologists, we must insist on the application of

the principles of our science to the important question of Criminal Legislation; by no other means will it be cleared of its difficulties, and in no other way will those unfortunate beings be properly protected, who are continually rendered amenable to the laws of their country. The rulers of this country have yet to be taught *that a man's conduct is the inevitable result of his cerebral organism, modified by the circumstances which surround him at any stated period.*

It is the universal appreciation of this truth, marked in strong and indelible characters on the skull of every human being, which constitutes the power by which the criminal code of this and every other country is to be reformed. Undoubtedly these views are not generally entertained, but they are making rapid progress, and, like the silent march of truth in other departments of science, will ultimately overcome all opposition. Such views suggest the necessity of treating criminals as *moral patients.* It is as irrational to punish a criminal for conduct resulting from an unhealthy brain, as to punish a child labouring under rickets and distorted limbs for falling. Is it optional with the child to possess healthy, well-formed limbs? Think you it is optional with the criminal to be, or not to be, guilty of a crime? The preceding views evidently tend to point out the folly of such an opinion; and having proved that the committal of the crime is not to be attributed to the free-will of the culprit, the next question is, how is the tendency to crime to be removed? In this consideration, what an important position do the laws of Hereditary Descent occupy? Of how great value the preceding observations? A boy with a malformed brain commits a crime—the law immediately punishes him; but till lately, and now only to a very limited extent, we have adopted no method of discipline at all calculated to remove the disposition to repeat the offence. How came the boy to possess this brain? To the ignorance of how many generations is it to be attributed? Did society take especial care to educate his parents? Did they know that they possessed a peculiar conformation of the brain, which of necessity they must impart to their offspring? No! They were allowed to remain ignorant; they were permitted to bequeath to society a being not only useless, but absolutely dangerous. Eagles never give birth to doves. The juvenile patient, then, with such an organism, and surrounded by certain external circumstances, is pushed on to the performance of certain actions called criminal, but which, we say, *are symptoms of disease,* and require appropriate treatment.

The boy is sent to jail. What is done there? Is any moral lesson taught? Is any example presented by which he may regulate his future conduct? No! He associates with others like himself, and perhaps a great deal worse. His propensities are roused, his moral powers untrained, his intellect unenlightened. He associates with those who laugh at the laws of society, who scorn virtuous resolutions, whose whole energies are directed

against morality and industry, and who feast on the reports of successful villany, and the practice of sensual indulgence. His period of confinement expires, and what becomes of him? He is ejected, seeks out his former companions, a greater adept than before in vice and every species of profligacy. Is the disease cured? Has confinement diminished the natural tendency to the production of diseased manifestation? If Cerebral Physiology were properly understood, could this one, selected from many abuses, exist another year? If you wished to cure a passionate child, would you allow it to associate with those of a like temper? If you wished to check the progress of a contagious disease, would you commence your endeavours by allowing patients of all kinds to mix indiscriminately? An ill-formed or diseased brain is a fountain pouring forth continued streams of impure produce. An individual possessing such a brain, if placed in a situation where the animal passions are allowed to run riot, will never be guided to virtue. The sapling, tended with care, may be made to grow straight, but the old tree, aged in its deformity, alters not. How different would be the effect if the boy, at the moment of his dereliction from a moral standard, were placed in an asylum from which temptation to vice was excluded, and in which the highest moral and intellectual training was adopted!

The present state of our criminal laws is a speculation; but unfortunately it has not met with the fate of most unsuccessful speculations, that of being overthrown. The legislature will not make use of the only obvious method for the prevention of crime; its sole attention is directed to the effect,—the cause is disregarded. These are subjects on which our rulers have not thought —they have no philosophy to guide them—the whole animus of the laws they have made has reference only to punishment, and the criminal will never be reformed by such means.

But how numerous, how endless the applications of our science! There is not a subject appertaining to man, either with reference to his present state or future progress, or as regards his formation, his education, or his government, which is not dignified and enriched by the illustration it affords, by the clear and philosophical views it enables us to take of difficult and intricate questions. It builds a foundation on which we must erect the machinery which is to propel onward and onward our race—it affords the means by which we are to remove all the impediments to our advance—it insists on the adoption of principles and laws applicable to all nations and all climes, and will accomplish for sentiment and feeling what the physical sciences promise to effect with regard to space—the consolidation of mankind into one universal brotherhood. It advocates freedom, and abhors tyranny —it recognises the free and unrestrained manifestation of thought —it matures all views, and patronizes all schemes calculated to increase man's happiness, and would banish at once and for ever the remnants of barbarism, the relics of a debasing animalism.

Is this not an exciting theme? Are we not bound to use all

our exertions to advance such a cause? Yes! The wedge has been introduced and it must be driven home. Opinions have been promulgated, and they must be countenanced and enforced. Immense numbers acknowledge the truth of certain principles and axioms, *but they are afraid to work them out.* In private they applaud certain views and reasons—in public they are cowards and shrink from the avowal of their opinions. The remark of Plato is still applicable, although ages have intervened—"The eyes of the multitude are not strong enough to look at truth." But this must not continue. If this be true of the mass, let it not be said of Cerebral Physiologists. We must dare be men. In this boasted free country man is yet a slave—is still afraid of his fellow-man. The frown of Power can crush the most superb intellect, and prevent the utterance of thoughts calculated to invigorate the drooping energies of kindred brains. In this land of liberty, the first touch of our shore infuses freedom into the enslaved muscle, but binds tighter the fetters surrounding thought—bids the trembling captive assert the rights of humanity, but prevents the free action of the organ,—the cause of his superiority. We vote millions of our treasure to unchain limbs, but make our judges persecute men for their opinions and thoughts—in theory and outward appearances encourage candour and free aspirations, in practice and in the secret workings of our institutions, render men hypocrites and slaves.

But there are some who laugh at our efforts—who treat our views as chimerical, and our ideas of progression as Utopian. These are the drones of society—these are they who first opposed all attempts at education—who exclaimed, "after all, education is but teaching us to do evil in the best possible way;" and now, because the meagre nature of the supply, the miserable pittance dealt forth, prevents the result from becoming immediately apparent, think they are safe in denouncing all who entertain opposite opinions, as enthusiasts and vulgar zealots. Ye drones! look to the past history of your race. Do ye not observe that man *is* a progressive being—that the improbabilities and supposed chimeras of one age become the facts and scientific truths of the succeeding; and the limits, if there are limits to change and progression, man can neither foresee nor predict.

Ye drag-chains to social improvement! it is ignorance that prompts you to declare that man is to remain "degraded," "radically depraved," "desperately wicked,"—that all his labours, let them be ever so Herculean, will not make him a better being, or raise him one degree nearer perfection.

We scout such opinions, and we hail with surpassing joy the promulgation of a sounder philosophy; we contend that happiness is not incompatible with humanity; but we know that as much as the arid waste differs from the fertile field, so much does man as he *is* differ from what he *might be*.

Our task, then, is to proclaim the means to be adopted, to teach what *is in man*, to insist on the inculcation of this truth—"Man

know thyself—all wisdom centres there;" and, above all, to each of our body individually I would say, in the words of the poet—

> ——— "To thine ownself be true;
> And it must follow, as the night the day,
> Thou can'st not then be false to any man."

LETTER FROM DR. ELLIOTSON.

CONDUIT STREET, September 1, 1842.

MY DEAR DOCTOR,

AT the late meeting of the Phrenological Association, I stated that both the case of Sarah Badger, recorded in the *Medical Times* for June 11th, fell far short of proving the truth of mesmeric phrenology; and that of Captain Valiant's nurse, recorded in the number for June 25th, was inconclusive to me on account of the localities being mesmerized by contact, and *my* want of positive knowledge that the patient was at the first experiment ignorant of phrenology. Since then I have informed you that my conviction of the possibility of mesmerizing distinct cerebral organs is complete; and you have requested me to write to you a letter with my opinion, which you may print at the end of your, allow me to say, powerful, truly philosophical, benevolent, and noble address.

I have had for some months under my care, for dreadful fits of many years standing, which are yielding satisfactorily to mesmerism, two charming youthful patients, of excellent cerebral development and carefully brought up, of high intelligence, and of high moral character, beautifully illustrating the power of good training upon a well-developed brain. No poet or moralist could desire finer specimens of all that is delightful in the youthful mind. They have not known each other. They both exhibit exquisite mesmeric phenomena. Are thrown into a profound coma, which no impression on the senses will dispel, and which soon becomes sleep-waking; their limbs may then be stiffened at pleasure and endowed with enormous force, which although not yielding to mechanical violence, gives way to contact, or to the breath, or to movements of the operator's hand, without contact, in the direction opposite to that of the limbs' position; the various muscles of the face may be made to twitch as if with electricity, and the eyes be opened or the body be drawn by movements of the fingers, and hands held at a short distance; the position of each finger of the operator's hand will be minutely imitated, though the eyes be closed, and the experiment be made out of the patient's sphere of vision. Though showing all the signs of sleep in the breathing, the falling of the head, the aspect, and the exquisite positions, they may be roused to talk, but never recognize the person nor the place. Their dream, if so it may be

called, is perfectly rational; but the real place, and person addressing, and even the time, are invariably fancied otherwise than is the fact.

I know to a *certainty* that both are *totally ignorant* of phrenology. Without any previous intention, I one day tried to mesmerize some of the cerebral organs in the young lady. On placing the point of a finger on the right organ of attachment, she strongly squeezed my fingers of the other hand, placed in her right hand, and fancied I was her favourite sister; on removing it to the organ of self-esteem, she let go my fingers which were in her right hand, repelled my hand, mistook me for a person she disliked, and talked in the haughtiest manner. On replacing the point of my finger on attachment, she squeezed my fingers of the other hand again, and spoke affectionately. I removed the point of my finger to destructiveness, and she let go my fingers again, repelled my hand, mistook me for some one she disliked, and fell into a passion. The finger upon benevolence silenced her instantly; and made her amiable, though not attached. I thus could alter her mood, and her conception of my person at pleasure, and play upon her head as upon a piano.

On repeating these experiments, I soon found that the same results ensued, though not so rapidly, by merely pointing the finger near the organs: and this was the more satisfactory in demonstrating the facts to others; and indeed it has beenquite satisfactory to every one, for not only were the eyes closed, but stopped up by a handful of handkerchief, held firmly upon each eye, and the experiments were made on organs so situated, that, had her eyes been open, I defy her to know to what organ I was pointing. These experiments I have repeated twenty times. But a fact still more wonderful is this. The state of the organ of one side gives evidence of itself on only half of the system. For instance, if I place my fingers in her right hand, and mesmerize attachment in the *right* side, she squeezes them and mistakes me for a dear friend; if I then mesmerize self-esteem, on the *left* side, she still speaks to me kindly, and squeezes my fingers with her right as much as ever. But if I place my fingers in her left hand, she repels them, and speaks scornfully to me, mistaking me for some one whom she dislikes. If I take hold of both her hands with one of mine, I can at pleasure make her repel both, by pointing over each organ of self-esteem or destructiveness; squeeze both, by pointing over each organ of attachment; or repel one and squeeze the other, right or left, accordingly as I point over the organ of self-esteem or destructiveness on the one side and that of attachment on the other, at the same time. These simultaneous, and especially the opposite, influences on the two sides, are the most astonishing and beautiful experiments that all physiology affords; and the sight of them enraptures every person. They are the more satisfactory, because there is no necessity for me to operate; any person, even a sceptic in both phrenology and mesmerism, may point to and mesmerize her

respective cerebral organs himself, if standing behind her. Under the opposite states of the two sides of the brain, she will address the person supposed on the one side or on the other, and speak affectionately, proudly, or angrily, as attachment on the one hand, or self-esteem or destructiveness on the other, is mesmerized. The expression, the tone, to say nothing of the words or the action of her hands, are exquisitely and rapidly in character. In the youth, the organs at present can be excited by contact only of the point of the finger, or by breathing over them. Attachment, self-esteem, destructiveness, music, and colour, I have excited in him, and the effects come very slowly, and continue long.

It is very interesting to see the first degree and the working up of the feelings. When self-esteem begins slowly, they think others are proud, and then become haughty themselves; when destructiveness begins slowly, they think others wish to quarrel, and then they quarrel,—or they begin to find fault with the fancied person, who is beloved in the waking state, and then mistake him for one disliked in the waking state.

Oh, that Gall could have lived to see this day—these astounding proofs of the truth of phrenology—proofs by which I have at once converted irresistibly to the firmest conviction of the truth of phrenology those who could never be induced before to bestow a moment's attention upon it. I have made more persons phrenologists during the last month than in all my previous life.

If it should be urged that these experiments prove nothing for phrenology, because the excitement of certain ideas in the brain of the patient resulted from the mere will of the operator, and not from his manipulations over particular cerebral organs, the answer is easy. The will of the operator certainly must be influential in producing mesmeric sleep, if it is true that patients may be mesmerized to sleep when the mesmerizer is far away from them; and I presume it is. But this can be only one source of power. I have made experiments in mesmerism daily, except the two months when I travel in every year, for five years, carefully, with no other desire than that of truth, and in the utmost variety of cases, and have never once discovered the influence of my will. I have never produced any effect by merely willing: I have never seen reason to believe (and I have made innumerable comparative experiments upon the point) that I have heightened the effect of my processes by exerting the strongest will, or lessened them by thinking intentionally of other things and endeavouring to bestow no more attention upon what I was about than was just necessary to carry on the process. So far from willing, I have at first had no idea of what would be the effect of my processes,—one set of phenomena have come *unexpectedly* in one case, and one in another, without my being able to explain the diversity of effect: nay, the same process, *conducted with the same object*, turns out to produce opposite results in different cases; for instance, I can powerfully excite the individual cerebral organs in the young gentleman by breathing over them, but when I breathe over those of

the young lady, desiring and expecting the same effects, no excitement is produced; on the contrary, if they are already excited, they at once become inactive. The same effect requires different processes in different persons; point to the epigastrium of some persons, and will with all your might, and no result comes, but point to their eyes, and they drop asleep; make passes or point at the back of the head, and will with all your might, and either no effect will ensue, or sleep will not take place before far longer time has elapsed than if you operate before the face; you may make passes in vain with all your might before the face of some persons, who drop senseless presently if you merely point; and hence is apparent the error of those who gratuitously assert that the processes merely heighten the will of the operator. As to the influence of the operator's will in exciting the *cerebral organs*, the effect ensues as well in my female patient though the manipulator be a sceptic and may therefore be presumed not to wish the proper result to ensue, and though I stand aside and do not know what organ he has in view: I have never excited them by the mere will: I have excited them with my fingers just as well when thinking of other matters with my friends and momentarily forgetting what I was about: I have always failed, however much I willed, when I have directed the finger to another organ than that which I willed to excite intentionally, or have accidentally misdirected my finger: I was taken quite by surprise when I found that I mesmerized an organ, self-esteem for instance, in the half only to which my finger happened to be pointed.

Some as gratuitously ascribe the phrenological results to sympathy with the operator's state of brain. Now I never could discover any sympathy between the mental state of either of my youthful patients and myself, when not mesmerizing their cerebral organs; and sympathy during the process there could be none, for, while mesmerizing their pride or destructiveness, I have been most calm, humble, and benevolent, lost in wonder and delight at what was before me.

I must quote to you this remarkable passage from Smellie's *Philosophy of Natural History:*

"I can conceive a superior being so thoroughly acquainted with the human frame, so perfectly skilled in the connexion and mutual dependence which subsist between our intellect and our sensitive organs, as to be able, by titillating in various modes and directions, particular combinations of nerves, or particular branches of any single nerve, to excite in the mind what ideas he may think proper. I can likewise conceive the possibility of suggesting any particular idea, or species of ideas, by affecting the nerves in the same manner as those ideas affect them by any other cause."

By the discoveries of Gall *we* know the individual portions of the nervous system which serve for particular ideas, and by the late progress of mesmerism we know how to excite these individual portions,—we are now, so far, those superiorly endowed beings fancied by Smellie. And yet there are men, vainly calling

themselves phrenologists, whose intellect and nobler feelings are as completely stunted as if grown in the darkness and narrowness of the middle ages, and who are impenetrable and scoff.

Permit me to say one word upon Materialism—a sound which generally excites certain feelings blindly, without any participation of the intellect.

No fact in nature is more evident than that in certain conditions matter thinks. Every animal is matter: every indisputable animal has a portion of itself peculiarly compounded and organised, and termed nervous, which executes the functions of feeling and consciousness, desire and will. In proportion as the composition and organization of this are more exquisite, and its developments more considerable, the faculties are more numerous and powerful. The organ is subject to every influence and every change to which all other organs are subject; and every change in it changes the mental functions, as much as changes in other organs change their functions. The brain and its functions are subject to precisely the same laws as the other portions of the body and their functions. To ascribe the properties of the brain to a spirit, or something distinct from matter, is as childish as it would be to ascribe the property of gravitation, the phenomena of light, heat, electricity, or the properties of plants, to something distinct from matter. To call matter gross, and say it is incapable of the highest and most exquisite properties, is untrue. Its particles are indefinitely minute: its properties are most exquisite, as seen in the phenomena of light, electricity, galvanism, magnetism, gravitation, all acting with astounding rapidity through the immensity of space, and in the phenomena of vegetable life, where beauty of all kinds, and properties of affecting particular animals and particular parts of animals in endless surprising manners, are the results of its peculiar composition and organization.

Grant this, say some; but still you would not be so stupid, nay so impious, as to assert that matter can think and will, and have a consciousness of personality? Yes, I do assert it; for this is the fact. There it is; there it has been; and there it will be. All animals will and think, and have a consciousness of personality:—the whale and each of the animalcules which are not larger than the three or four hundredth part of an inch. If a spirit is required for thinking and willing, and for the sense of personality, every one of these microscopic creatures must have a spirit or a soul. Away with such nonsense. "All the difficulties that are raised against the thinking of matter," says Locke, "from our ignorance or narrow conceptions, stand not in the way of the power of God, if he pleases to ordain it so." "The faculties of brutes prove either that God can and doth give to some parcels of matter, a power of conception and thinking; or that all animals have immaterial, and consequently immortal souls, as well as men: and to say that fleas, and mites, &c. have immortal souls as well as men, will possibly be looked on as going a great way to secure an HYPOTHESIS." *Second Reply to*

the Bishop of Worcester, p. 466, 8vo. ed. "A PARTICLE," says Paley, "does no less than fix whether that which is about to be produced, shall be a vegetable, a merely sentient, or a *rational* being—an oak, a frog, or a PHILOSOPHER." *Natural Theology*, conclusion, p. 591. The Christian should think it impious to hold matter—the creation of his God—to be so vile; and impious thus to limit God's power.

If the *matter-of-fact men*—the materialists—can thus quote Locke and Paley in favour of themselves, they can quote also the renowned apologist of the Bible—Bishop Watson—against the *speculators*—the spiritualists. "When I went to the University," he writes, "I was of opinion, as most *schoolboys* are, that the soul was a substance distinct from the body, and that when a man died, he, in classical phrase, breathed out his soul—*animam expiravit*; that it then went I knew not whither, as it had come into the body from I knew not where or when, and had dwelt in the body during life, but in what part of the body it had dwelt I knew not." "This notion of the soul was without doubt the offspring of *prejudice and ignorance*." *Anecdotes of the Life of Bishop Watson*, p. 14. Another Bishop, Dr. Law, in his *Theory of Religion*, proves that the words soul and spirit mean not an immaterial immortal spirit, but merely person,—*superior and inferior mental faculties*,—living creature; death, a *total cessation* of existence; the life hereafter, a *second bodily* existence.

And then comes another absurdity—another piece of rubbish, left from the darkest and most superstitious times. Unless you believe in a soul—unless you adopt an hypothesis which explains nothing—yes, which is a mere *fancy* and *whim*, you cannot believe in a future state. As though the evidences of Christianity ought not alone to convince a truly believing Christian of the reality of a future state and all else declared by Scripture, and its revelation to require no assistance from probability and speculation; as though, if a future state were discoverable by natural evidence of the existence of a soul, a revelation would have been required to inform us of it—to bring "life and immortality to light;" as though a belief in a future state is suggested by analogy, reason, or *nature*, and as though this must not evidently be a *miracle*—a *supernatural* occurence—"a mystery," as St. Paul says—a free, additional gift of God, so that Bishop Watson declares, "I have *no* hope of a future existence, except that which is grounded in the truth of Christianity." *Anecdotes, &c.* p. 107. "Hoping as I do," he also says, "for eternal life *through Jesus Christ*, I am not disturbed at my inability clearly to convince myself that the soul is or is not a substance distinct from the body." P. 119.

Thus that which a bishop viewed with indifference terrified all the more pious, learned, and enlightened members of the Phrenological Association. Believe me, my dear Doctor,

Yours most sincerely,
JOHN ELLIOTSON.

J. Watson, Printer and Publisher, 5, Paul's Alley, Paternoster Row.