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ARTICLE I.

PHRENOLOGY.[1]

By Enoch Pond, D. D., Professor in Bangor Theological Seminary.

It is now half a century, since the public began to hear about phrenology. Indeed, the elements of this science, if science it be, were discovered at a much earlier period. Aristotle speaks of the brain as a congeries of organs, and assigns to different portions of it particular mental functions. The anterior part he apportions to common sense; the middle region to imagination, judgment and reflection; and the posterior to memory. Galen was acquainted

[1] The writers chiefly consulted in preparing the following Article, are, on the side of the phrenologists, the Works of Drs. Gall and Spurzheim, in several volumes; various works of Mr. George Combe, and of his brother, Dr. Andrew Combe; Solly on the Brain; Simpson on Popular Education; Levison on Mental Culture; Weaver's Lectures; several volumes of the Phrenological Journal, published in Edinburgh, containing, among other things, the controversy between Sir William Hamilton and Messrs. Spurzheim and Combe, in 1828; the Annals of Phrenology, published some years ago in Boston; Pierpont's Phrenology and the Scriptures; the Phrenological Journal, published in New York; and most of the other publications of Messrs. Fowler and Wells on the subject.

On the other side, we have consulted the Lectures of the late Dr. Sewall of Washington, and of Dr. John A. Smith of New York; also Articles on the subject in Blackwood's Magazine; in the Edinburgh Review; in the Christian Spectator; in the Princeton Biblical Repertory; in the North British Review; in the North American Review; and a very learned Article in the British and Foreign Medical Review, supposed to have been written by Dr. Carpenter of London.

with the speculations of Aristotle, and seems to have adopted them. Nemesius, a Christian bishop in the reign of Theodosius, taught that the sensations had their origin in the anterior ventricle of the brain, memory in the middle, and understanding in the posterior ventricle. Albertus Magnus, in the thirteenth century, speculated learnedly on this subject, and mapped out the supposed seats of the different faculties upon the head, after the manner of our modern phrenologists; though differing from them entirely as to the localities of the several organs.

John Baptist de la Porta, an Italian philosopher of the sixteenth century, resumed the subject, and pursued it further than any one who had preceded him. He maintains that the intellectual and moral faculties of every man may be gathered from his bodily configuration. Every lineament of the face, and every member of the body, even the fingers and nails, bear testimony to the qualities of the mind and heart. He lays the greatest stress, however, upon the form of the cranium, and for this reason: "The form of the brain depends upon the form of the skull; and hence a deficiency in any part of the skull indicates a deficiency in the corresponding part of the brain, and a feebleness of the faculties which have their seat in that portion." This is very like one of the fundamental positions of modern phrenology.[1]

About the middle of the seventeenth century, Dr. Thomas Willis of Oxford published a work, in which he asserts that the corpora striata are the seat of perception; the medullary part of the brain that of memory and imagination; the corpus callosum that of reflection; while the cerebellum contains the principle of voluntary motion.

From the statements here made, it will be seen how difficult it is for those who are agreed in assigning particular faculties of the mind to different portions of the brain, to fix upon the specific localities of each. One places memory in the middle of the head; another in the hinder part. One assigns the anterior portion of the brain to the sensations, and the posterior to the understanding; while a third makes the cerebellum, the lower and hinder part of the brain, the seat of the will.

The credit of reviving these speculations, in more recent times, is chiefly due to two German physicians, Doctors Gall and Spurzheim, who flourished from thirty to sixty years ago. Dr. Gall commenced his observations while yet a boy. In the family, and in the school,

[1] A folio edition of the works of this author is found in the library of Harvard University, containing a large number of plates.

he was disposed to inquire as to the cause of the differences in point of talent, taste, disposition and character, which he noticed in those around him. He pursued the same inquiries at the university, and came at last to the conclusion that the differences he had observed, could be traced to corresponding differences in the shape of the head, and consequently to some peculiarity in the conformation of the brain. This happy idea was the basis of his whole system. It encouraged the hope that, with this clue, he might successfully thread the windings of that labyrinth, where every previous explorer had been lost; the mysterious connection between body and mind, and the secret causes of that variety which we see around us, in moral disposition and intellectual ability. He immediately commenced his researches upon the skulls of animals and of men. He visited hospitals, and prisons, and the seats of justice; he was introduced to schools, and colleges, and the courts of princes; and wherever he heard of an individual distinguished for any mental peculiarity, he observed and studied the developments of his head. He resorted to all measures, good and bad, to draw out the leading traits of persons, and then felt of their heads, to see if there was anything peculiar there. After long and diligent observation, his system became somewhat matured, and, in 1796, he gave his first course of lectures at Vienna, in explanation and defence of it. He continued to lecture for several years, until an order was issued by the Austrian government forbidding the further prosecution of the subject, on the ground that it savored of materialism and atheism.

But this, like other similar expedients, rather aided the philosopher, than hindered him. It brought him into public notice, awakened curiosity, and phrenology was studied more zealously than ever.

It was about this time that Dr. Gall became associated with Spurzheim, and they labored together with unwearied assiduity. In 1809, they commenced the publication of their great work on the Anatomy and Physiology of the Brain, which was completed ten years afterwards, in four quarto volumes.

It is almost incredible that, up to this time, Dr. Gall should have been so deplorably ignorant, as he is represented, of the structure of the brain, and of other parts of the human body. In the Philosophical Transactions for 1823, Sir Charles Bell assures us, that Gall had no accurate knowledge of "the grand divisions of the nervous system, or of the distinct properties of individual nerves, or of the column of the spinal marrow." He did not even know "the difference between the cerebrum and the cerebellum." If this be true,

his observations must have been confined to the *outside* of men's heads, rather than to their internal contents.[1]

Shortly after the publication of the great work referred to, Gall and Spurzheim separated from each other; the former taking up his residence at Paris, and the latter continuing to travel in different parts of Europe, collecting facts and teaching phrenology, wherever he could find hearers. In 1832, Spurzheim visited this country, and died at Boston only a few months after his arrival. Dr. Gall died at Paris in 1828.

Next to Gall and Spurzheim, the most distinguished advocate of the subject in hand is Mr. George Combe of Edinburgh. His various works on phrenology have been long before the public, and have been extensively read. It has been supposed that his writings, together with those of his brother, Dr. Andrew Combe, have done more to recommend the subject than even those of its original founders.

In our own country, the most successful promoters of phrenology, at least so far as their own pockets are concerned, are the Messrs. Fowler and Wells of New York. They profess to have made some new discoveries, and to have introduced important improvements into the science; but whether the founders, if alive, would accept their improvements, may be a matter of doubt.

It may be questioned whether, within the last twenty years, phrenology has not suffered more from its professed advocates and friends, than from avowed enemies. It has fallen, for the most part, into poor and incompetent hands. The sciolist, the mountebank, those who have become bankrupt in fortune and character and can find little else to do, are seen driving about with a box of skulls, examining heads for money, and lecturing upon phrenology. We do not say that *all* the lecturers have been of this stamp; but that this is true of many of them, is confessed and lamented by phrenologists themselves. And it is this course of things, more than any other, which has brought phrenology into disrepute.

But what is phrenology? And wherein does it differ from the views commonly entertained as to the constitution of man?

First of all, we remark, — and it is important that this should be remembered, — phrenology is not the same as *physiognomy*. Physiognomy is the art of discovering something of the character of the

[1] In 1815, Dr. Gordon of Edinburgh convicted Spurzheim of great ignorance, or of intentional deception, in regard to the internal structure of the brain. See Edinburgh Review, Vol. XXV. pp. 254—267. Blackwood's Magazine, Vol. I. p. 36.

mind, from the expression of the countenance, or the features of the face, an art in which we have a good deal of confidence. Phrenology is the art of determining the character, from the size and shape of the head. Every one can see that the two things are *very different*, and that they should not be confounded, the one with the other.

But what does phrenology teach that is peculiar respecting the head? We all believe that men must have heads and brains, in order to be of much consequence in the world. We like to see well shaped and proportioned heads; not *block-heads*, on the one hand, nor the heads of dwarfs or pigmies, on the other. We hold the brain to be an indispensable organ of the human system, without which we should not be able to think, or feel, or do anything, more than we should without heart or lungs. Thus far we all agree. But the phrenologist does not stop here. His theory necessitates him to go much further than this. The five following propositions may be regarded as embracing all that is peculiar and essential in phrenology:

I. The brain is the natural organ *of* the mind, and *necessary to all its operations.*

II. In proportion to the size of the brain (other things being equal) will be the vigor of the mental faculties.

III. The brain is a congeries of organs, some say thirty-five, others near a hundred, each commencing at the base of the brain, and thence extending upward and outward, in the form of an inverted cone, to the surface.

IV. Each of these organs is the instrument of a distinct faculty, propensity or sentiment of the mind; and no mental operation can be performed but by its appropriate faculty; and in proportion to the size of any organ (other things being equal) will be the strength of the faculty that works by its means.

V. We can judge of the size of these organs, and therefore of the character of the mind, or the man, by the external projections of the skull.

Such is phrenology, as stated by its most distinguished advocates. We propose to examine it, as here laid down, and see how far it is entitled to our confidence.

First, then, is it true that the brain is the material organ of the mind and necessary to all its operations? In a certain sense, we suppose this *is* true. The brain is an essential part of the body; and, so long as soul and body are united, the *whole body* may be regarded as the organ or instrument of the mind. It is the instrument, through which the mind is affected, and by which it operates, in all its inter-

course with the outer world. The brain, then, is the organ of the mind, inasmuch as it is a part, and a vitally essential part, of the body.

Nor is this all. We hold that the brain, including the spinal cord and the nervous system, has a *closer* and *more intimate* connection with the mind, than perhaps any other part of the body. The structure of the body would seem to indicate as much as this. The joints are moved by the muscles, the muscles by the nerves, and the nerves, so far as it appears, by the mind or will. The nervous system, too, is the seat of sensation; and all sensation is in the mind. Perhaps the *intellectual* operations of the mind are more specifically confined to the head, or the literal brain, than to any other part of the body. Thus we customarily speak of a man of clear perceptions, as having a *clear head;* and of one of an opposite character as being a *dull-head.* We sometimes say of the man of feeble intellect, that he has *no brains.*

Thus far we are willing to go, in speaking of the brain as the organ of the mind. But much more than this is intended by phrenologists, when they use the same language. The meaning of some is, that there is no real distinction between body and mind; that the brain generates thought as really as the liver does bile, or as the glands of the throat generate saliva. With such men we have no controversy here. There is an ulterior question to be settled first, viz. whether man has any soul distinct from the body, before we can discuss the relations between the two.

But all phrenologists are not of this class. Some hold to the distinction between body and mind, but insist that the mind operates, even in its higher and more spiritual exercises, through the brain. The brain is the organ of thought, of reason, of emotion, of desire, just as the eye is the organ of seeing, or the ear of sound.[1] Every mental operation is performed through the brain, as really and truly as external sensation is produced through the organs of sense.

But what proof have we of a supposition so strange and incredible as this? It will hardly do to say in these days, that the brain is the exclusive *residence* and *home* of the soul, — where it dwells, and whence it operates. This used to be said in former times; and thousands of heads have been laid open, to discover the latent habitation of the soul. But the search was as fruitless as was that of the dunce who cut his bellows open to find the wind. Who does not

[1] Mr. Combe says, that "as the mind sees, through the medium of the eye, just so does it think and feel, through the medium of the brain."

know that the soul inhabits the whole body; that wherever there is sensation, circulation or voluntary motion, there must be the presence of a soul? The body, without the soul, does not feel anything. The fact, therefore, that one feels a wound in his foot, as much proves the presence of the soul there, as the fact of seeing with our eyes proves that the soul is there.

The point to be proved, it will be remembered, is, that the brain is the organ of thought and feeling, just as the ear is the organ of hearing, or the eye of sight. But there is no such analogy, surely, between the *brain* and the *organs of sense*, that an argument may be drawn from the one to the other. The eye, from its very structure, is manifestly *adapted* to be the organ of seeing, and so is the ear for hearing; but what visible adaptation is there in the brain to be the organ of emotion, desire and thought? The brain is a soft, pulpy substance, consisting chiefly of water, mixed up with albumen, phosphate of lime, and some other ingredients; and how can such a substance be the instrument of thought?

Besides; we all *know*, *infallibly*, that we see with our eyes, and hear with our ears. But who has any such kind or degree of knowledge, as to his thinking and feeling with the brain, thinking with the front part of his head, and feeling with the other part? Manifestly, there is no analogy or resemblance between the two cases.

But it is said that the brain must have been given us for some purpose; and if it is not the organ of feeling and thought, what can have been its object? What was it given for? Suppose we cannot tell for what. Are we thence to conclude that it was made in vain? Or are we at liberty to assign it an office to suit our fancies, an office, too, for which it does not seem to be at all adapted?

Some have thought that the office of the brain was to generate and send forth a subtle fluid, — whether liquid or gaseous, galvanic or odylic, it is not material to say, — through the whole nervous system, giving vitality to that system, and preparing each and every part of it for the discharge of its appropriate functions. And this, it has seemed to us, was as probable a theory of the brain, as any that has been proposed. But we pretend not to speak with confidence here. The subject lies, in no small degree, beyond the confines of our knowledge. It is a recommendation of this theory that it accounts for most, if not all, of the facts which have been observed in connection with the brain. It accounts for the deep sympathy which exists between the brain, and every other part of the system. It shows

why, when a nerve is severed, it can no longer discharge its appropriate functions. From its great source of vitality it is cut off. This view of the office and object of the brain is thus set forth by one of the French philosophers: "The nervous system of man, that physical instrument of his life, is like the connected branches of a tree, of which the trunk is the spinal marrow, and the brain *the earth*, in which its roots are spread out; an earth that is rich with the quintessence of life."

Mr. Combe undertakes to prove that the brain is the appropriate organ of thought and feeling, from his own *consciousness*. He affirms that he is conscious of it. But if so, we can only say that his consciousness reaches much further than ours. We are no more conscious of thinking with the brain, than we are with the skull, or the diaphragm. Indeed, there is not a person living who is *conscious* of possessing any brain at all. We all believe we have brains, but we learn this fact from other evidence than that of consciousness. People generally, perhaps, have the impression, that the seat of *thought* is in the head; but not so as to the seat of affection and *feeling*. If consciousness were allowed to localize these anywhere, it would be rather in the *breast*, than in the head. We customarily refer it to the *heart*. The lover speaks of giving his *heart* to his mistress, but never, so far as we have heard, of giving her his brains, or any portion of them.[1]

To prove the brain to be the organ of the mind, it is urged, that in insects, where there is almost no brain, there is little mind; where there is more brain, there is more mind; and so on through the animal creation up to man; whose brain is larger in proportion to his size than that of any other animal, and who has more mind than all. But this argument, though plausible, is far from being conclusive. There are other differences of structure and organization among animals, besides the relative size of their brains; and why ascribe their difference in point of intelligence wholly to the latter cause, and not, in part, at least, to some other?

Besides; it is not true that the degree of intelligence among animals and insects is always in proportion to the size of their brains. The brain of a beaver, for example, is not more elaborate in its structure, or larger in its proportions, than that of a sheep. Among all the insect tribes with which we are acquainted, none discover more of intelligence, or of something which looks very like intelli-

[1] The ancients believed the σπλάγχνα, the *bowels*, to be the seat of feeling, more especially of *compassionate* feeling.

gence, than the ant, or the bee. Yet no one will ascribe to either of these a very large amount of brains.

Nor is it true that the brain of man is larger, *in proportion to his size*, than that of any other animal. This subject has been elaborately investigated by Cuvier, and other anatomists, and it has been found that "four species of the monkey, one species of dolphins, and three kinds of birds, viz. the canary bird, the sparrow, and the dunghill cock, each and all of them *exceed man*, in the proportion of the brain to the body; and that various other animals are nearly on a level with him." The proportion of the brain of the canary bird is to that of its whole body, as one to fourteen; whereas the proportion of the human brain is ordinarily to that of the body, as one to thirty. According to this estimate, which is supposed to be strictly accurate, the intelligence of the canary bird ought far to exceed that of the human species.

Another argument to prove the brain to be the organ of the mind, is drawn from the correspondence between the growth and decay of the brain, and the progress and decline of the intellectual powers. In infancy, while the brain is in a soft and pulpy state, intelligence is feeble; as the brain grows with years, so the mind grows; and in old age, when the brain becomes hardened, and in some instances shrivelled, the mind seems to decay in the same proportion.

This argument would have the more weight, if the facts on which it rests were uniformly apparent; but they are not so. "There have been many instances of precocity in children, whose brains presented, upon examination, the usual soft and pulpy appearance; and there have been old men, who have retained their mental faculties to the last, whose brains have been found as dry and hard as in other cases, where the powers of the mind have in great measure disappeared." These cases, it must be allowed, however, are exceptions. As a general thing, it is true, that, while the brain is going through one series of changes, the mind is passing through another. But how do we know that these phenomena have any necessary connection other than that of time? For aught we can see, a hard, or a soft brain is just as good to think with, as one of a medium consistency. Besides; every other organ undergoes changes, between the periods of infancy and old age, changes as remarkable as those in the brain. Why then should the observed differences in intellectual power be referred exclusively to the latter, as a cause? Or if we admit this argument to its full extent, it will only prove that the mind has a *more intimate* connection with the brain than with any other part of the body; a

position which we shall not undertake to dispute. It will not prove the brain to be the organ of the mind, in the *strict sense* contended for by phrenologists.

Still another argument to the same point is drawn from the fact, that injuries inflicted on the brain are found almost invariably to affect the mind. But on the theory of the phrenologists, there should be no need of inserting an *almost* here. A serious injury of the brain might be expected, in *all cases*, to affect the mind. And yet we know that it does not. This great organ often receives essential injury from diseases and wounds, without any detriment to the mental faculties. Thus we read of large tumors being formed within the skull, which must have compressed the brain for years, without producing the least mental defect or aberration. Persons sometimes suffer from hydrocephalus for a considerable time, until pounds of water are collected in the skull, and yet the mind be as free as ever. There is now living a little girl in Cincinnati — the daughter, we think, of a Methodist minister — whose head is so filled and enlarged with water, that she has not been able to hold it up for months; and yet her intellect is unimpaired. Many years ago, a like instance fell under our own personal observation.

Dr. Smith speaks of a case where, in consequence of water in the ventricles of the brain, the cerebral substance was *absorbed*, until, to appearance, little more than the membranes were left. Also of another case, where, from the pressure of water on the outside of the brain, it was compressed to but a small part of its original size. Yet, in neither of these cases were the mental faculties impaired.[1]

Hundreds of cases are on record of sudden *injury* to the brain, without the loss of mental power. A young man in Holland fired a pistol, loaded with two balls, through his own head. Both balls came out at the same orifice, followed by enough of the brain to fill two tea-cups. The wound was dressed for twenty-eight successive days, and at each dressing, a portion of the brain came away. He recovered from the injury, with no other inconvenience than the loss of sight. His mental faculties remained as before.

[1] In one of the Reports of the Anatomical Society of Paris, a case is noted, in which there was a *complete and congenital absence of the anterior lobes of the brain*, the space being filled with a transparent, serous, watery substance. The child, though idiotic, was yet able to speak, and make known her wants. She had apparently a good forehead, and the inner side of the frontal bone was marked with the usual eminences and depressions; thus going to disprove the opinion that the bone is modelled by the organ which it contains. See the Philadelphia Medical Journal, Vol. VII. p. 224.

But let us look at this matter of injuries on the brain a little more in detail. When we receive a heavy blow on the eye, or the ear, we expect, of course, that those organs will be injured, if not destroyed. Do the same effects follow, when blows are inflicted upon any of the other organs? According to the phrenologists, a man's head is all over embossed with the protuberant organs of his different mental faculties; and, in the casualties and conflicts of life, these are receiving continual injury. "To say nothing of battles, and the hacking of troopers' heads with sabres and broadswords, there is scarcely a brawl or a fight in the country, in which blows are not inflicted on all the bumps of the cranium. And yet no one has observed the disturbance of any spinal faculty, unless it be those of seeing and hearing; nor have either patients or spectators been aware of any difference in the mental effects of the blows, according to the quarter of the head on which they fell. If they struck the eye or ear, to be sure, the man grew blind or deaf. But if they struck anywhere else, he merely reeled, or fell, or perhaps vomited, but was conscious of no permanent cessation in the functions of any particular mental power or propensity. A soldier struck in the eyes, may cry out, 'I am now dark for life! O my precious eyesight!' But if hit hard on the organ of *veneration*, he is never heard to exclaim, 'There! my religion is clean gone! I care nothing now for God, or the captain!' A tender father, wounded on the organ of *philoprogenitiveness*, feels no sudden disregard for his children. A miser, well banged on the organ of *acquisitiveness*, does not instantly become careless of his money. Neither is the coward, whose large bump of *cautiousness* has been half beaten in by ruffians, in any degree cured of his timidity."

But it is said, that, being furnished with double sets of the organs, one of them may be knocked in, and yet the other continue to operate. So a man has two eyes, and yet his sight is impaired, when one of them is beaten out. A person deaf on one side, is perfectly conscious of a defect in his hearing. Something analogous to this should, at all events, take place, when one member of a phrenological pair is disabled; and it should be just as common to hear a friend complaining, that he had not been able to reason on the left side of his head, or to crack a joke on the right, the whole winter, as it is now to hear him say, that he cannot smell with the right nostril, or see with the left eye.

If the brain is the organ of the mind, in the sense of the phrenologists, it is hard to see how it can receive such multiform injuries, and

yet the mind continue its operations.[1] The late Dr. Thomas Brown of Edinburgh says: "There is not a single part of the encephalon, which has not been injured or destroyed, without any apparent change of the intellectual and moral faculties." My own impression is, that wounds on the head are not more likely to affect the mind, than equal injuries in some other parts of the body. If a severe blow on the head suspends thought and animation, a like blow on the breast will do the same. Neither the heart, the liver, nor the lungs can undergo more extensive lesions than the brain has sometimes endured, without deeply affecting, if not destroying, the functions of life.

We have already admitted that the brain may be, and undoubtedly is, in *some* sense, the organ of the mind. The mind has to do with it continually, in its connection with the body. It is likely that the mind has *more* to do with the brain and the nervous system, than with any other part of the body. But that the brain is, in the strict sense of the phrenologists, *the organ of the mind;* that "by the play of its medullary fibres, or the action of its globular elements, or by any other mechanical or chemical operation, it enables the mind to *think*, to *reason*, or to *love*, is a position which has never yet been proved, and is not likely to be by any further progress of our knowledge." We may safely dismiss, then, this first phrenological proposition, and proceed to a consideration of the second, viz. that, other things being equal, the *strength*, the *vigor* of the mental faculties, will be in proportion to the size of the brain.

This proposition, it will be seen, is not a legitimate inference from the last. Allowing the brain to be the organ of the mind, even in the sense of the phrenologists, it will not follow that the size of the brain is the proper measure of mental strength. Why may not a moderately sized brain operate as effectively and vigorously, as one of larger dimensions?

But the proposition is, that the size of the brain is the measure of mental strength, *ceteris paribus*, other things being equal. Now we insist that, for the practical phrenologist, this *other things being equal* has no right to be inserted here. The truth is, other things never are equal; and the inequalities, the differences, whatever they may be, do not appear on the outside of the skull. One brain may be of

[1] Instances are recorded, where sudden injuries of the brain seemed rather to strengthen, than impair, the mental faculties. A son of the late Dr. Priestly, whose intellect was feeble, fell from the window of a two-story house, and fractured his skull. From this time, his intellect was greatly improved.

a finer texture than another, or of a more exquisite structure, or of greater or less activity; but how is the feeler of heads to be satisfied of this? He cannot lay open the living brain, and look in upon its contents. All he can learn is, its size and shape, as indicated by the size and shape of the skull. This *other things being equal* was evidently thrown in here, as also in a following proposition, only as a *postern*, a means of escape for the operator, in case of palpable mistake and failure. The phrenologist examines two persons' heads, and decides that their characters are much alike, when, in fact, they are very different. On being told of his mistake, he replies at once: "Other things, then, are not equal. Some of the faculties of the one are more active than those of the other; or are not so well balanced by opposing faculties." But, Mr. Phrenologist, how do you know this? Not, surely, by the size and shape of the skull. For the skulls of these two persons, you say, are much alike. "It *must* be so," he adds, "else phrenology is not true." The presumption, then, is, that phrenology is not true.

Having thus shown that the *ceteris paribus* has no right to stand in the proposition before us; that it can answer no purpose, except as a scape-goat for the blundering operator; we shall forthwith dismiss it, and examine the point in question on its own merits. Is the size of the brain the measure of mental strength and power? Is the vigor of the faculties in proportion to the dimensions of the cranium?

This, it will be seen, is a simple question of fact, and must be decided accordingly. Mr. Combe and the phrenologists affirm that it is so. Other writers and philosophers affirm the contrary.

The statues of the ancient heroes, we are told, appear with large heads; thus indicating that, in the judgment of antiquity, a large head betokens intellectual greatness. But in opposition to this, we have the recorded opinion of Aristotle, the greatest physiologist of all antiquity, that mental ability is indicated by a *small* head.

The late Dr. Thomas Brown says: "We have known a large cranium with very great dullness of the intellectual and moral powers; while in the skulls of many of our friends, we have known all these powers condensed, like concentrated ether, in a small compass." Dr. Gordon of Edinburgh says: "There is no physician or anatomist, who has been much accustomed to the examination of the human brain after death, who does not *know* that the assertions of Drs. Gall and Spurzheim on this point are groundless. Intellect of every degree and of every kind, and inclination of every variety, are found combined with brains of all sizes." Dr. Sewall says: "We shall

find as many men distinguished for intellectual power, with heads of a small or medium size, and as many with large heads possessing a feeble intellect, as the reverse of these." The Christian Spectator says: "Something besides weight and dimensions of brain is necessary to constitute a man of sense and capacity. There is something in the *quality*, as well as quantity, which requires to be considered," and this cannot be judged of from the outer appearance. "Though a man should have a head as large as a tub, and it were well filled with that soft substance which anatomists call brain; yet, if said brain were made of coarse or unfit materials, the owner would be far less distinguished for wisdom, than folly. And in reference to such a person, the practical phrenologist could utter nothing but lame apologies, or downright falsehoods, an alternative to which, if we mistake not, he is often driven."[1]

Mr. Combe urges that idiots invariably have but little brains. But to this the Princeton Reviewers reply: "We have seen idiots whose heads were of a very respectable size; and some, in whom this member was *uncommonly large*. The heads of many such have been examined after death, and no symptoms of disease in the structure or functions of the brain have been discovered."

Mr. Combe further says: "The brain of the child is small, and its mental vigor weak, compared with the brain and mental vigor of the adult." In reply to this we may state, what every anatomist knows to be true, that the brain of a child is much *larger*, in proportion to the whole body, than that of the adult. "At birth," according to Dr. Tiedman, "the brain is, ordinarily, one sixth of the total weight of the child. At two years of age, it is one fourteenth; at three one eighteenth; at fifteen one twenty-fourth; and in the adult period, i. e. from twenty to seventy, it is generally within the limits of one thirty-fifth to one forty-fifth, differing according to the degree of corpulency in the subject."

Dr. Warren of Boston, who has had as great opportunities for dissecting the brains of literary and intellectual men, and of comparing them with the brains of others in the lower walks of life, as any anatomist in this country, says, "that, in some instances, a large brain has been found connected with superior mental powers, but that *the reverse of this is true in about an equal number of cases*. One individual, who was *most distinguished* for the variety and extent of his native talent, had, it was ascertained after death, an uncommonly small brain."[2]

[1] Chris. Spec. for Dec. 1834, p. 533. [2] In Princeton Essays, Vol. II. p. 393.

Dr. Tiedman gives the following as the result of his observations: "The brain of a female weighs, on an average, from four to eight ounces less than that of a male." Is the capacity of the female for thought, for feeling, for affection, for sentiment, so much less than that of the male? Who that has any respect for womankind believes it?

Dr. Tiedman further says, in contradiction of what phrenologists have often asserted, that "there is *no perceptible difference* in the average weight or size of the brain of the negro, and that of the European; and *no difference at all in the interior structure.*"

It is well known that some tribes of our American Indians, when this country was discovered, were much more refined and civilized than others. This, in particular, was the case with the Peruvians and Mexicans. But Mr. Schoolcraft tells us that "the comparatively civilized Peruvians possessed a brain no larger than that of the Hottentot or New Hollander, and *far below the more savage hordes of their own race.*" Again, he says: "The brain of the Indian, in his savage state, is *much larger than that of the half-civilized Peruvian and Mexican.*"

We think we may here dismiss our second proposition, viz. that *the size of the brain is the measure of mental vigor and power.* The weight of evidence is decidedly against it. It is, as we said, a mere question of fact, and the facts are open to every observer. So far as our own observation has extended, we should say, positively, that nothing certain can be gathered from the size of a person's head, as to the strength of his intellectual and moral powers.

We pass now to the third proposition announced, which is as follows: The brain is a congeries of organs, — Mr. Combe says thirty-five, Mr. Fowler reckons near a hundred,[1] — each commencing at the base of the brain, and extending upward and outward, in the form of an inverted cone, to the surface. Each of these organs is affirmed to be double, being similarly situated on each side of the head.

The proper proof of this statement, and the *only* proper proof, must be furnished by *anatomy*, in the anatomical structure of the brain. It will not do to infer such a proposition, *à priori*; or to assume the truth of it, because it is needed to help out a favorite hypothesis. If true, it can easily be demonstrated by the dissector's knife; and until thus demonstrated, it has no claim to be regarded in any other light than that of mere assumption. What then says the

[1] Eighty-three are numbered on Mr. Fowler's chart. He speaks of several which are not numbered. See Fowler's Phrenology, p. 66.

anatomist to the doctrine of from thirty-five to a hundred distinct organs, running from the base to the surface of the brain, like so many inverted cones? He says that he can find *not one of them;* no, *not one.* Indeed, it is not pretended by phrenologists that a single trace of any such organs is to be discovered, in the internal structure of the brain. The brain is composed of several parts, separated from each other by grooves more or less deep; but these convolutions have not the slightest correspondence, either in size, position, or form, with the organs of the phrenologists. In thousands of instances, the human brain has been subjected to most rigid examination. Chemical tests of all kinds have been applied to it, and the microscope has been called in to aid in the scrutiny; and yet there has been nothing found to warrant the belief, or even to create a surmise, that the organs of the phrenologist are there. Hence, we are warranted in affirming that they are *not* there. Of their existence, there is not one particle of proof, that kind of proof, at least, which we have a right to demand, and without which no reasonable person ought to be satisfied.

But it is not enough to say that we have no proof, in the internal structure of the brain, of the organs of the phrenologist; the indications of its structure all point the other way. Thus the different parts of the brain, even the different lobes or hemispheres, are closely connected by cords and bands (called by anatomists *commissures*), thus indicating the essential *unity* of the entire mass, and that it is destined to perform its functions, not in separate portions, but as a *whole.*

Then it must be remembered that the two sides of the brain are not *solid masses.* They contain extensive cavities, called ventricles. Now when the supposed cones or organs, in their progress inwards, arrive at these ventricles, what happens? Are the organs truncated above, to resume their course below? Or do they circumnavigate the cerebral caverns, winding around them their tortuous way, towards the point for which they are destined? These are difficulties which phrenologists seem not to have thought of. At least, they have made no attempts to remove them.

We are told, indeed, that since the mind exercises from some thirty to a hundred different faculties, there *must* be different organs by which they operate, whether we can discover them in the brain, or not. But does the mind exercise from thirty to a hundred different faculties? And if it does, is it necessary to suppose that every mental faculty must have a separate cerebral organ? These are fair ques-

tions. They are important questions in their bearing on the subject before us. But the consideration of them leads to our next phrenological proposition, which is as follows: Each of these from thirty to a hundred organs in the brain, is the instrument of a distinct faculty, propensity or sentiment of the mind; and no mental operation can be performed but by its appropriate organ; also, in proportion to the size of any organ (other things being equal) will be the strength of the faculty that works by its means.

The "other things being equal" in this proposition, we dispose of as before. It has no business here, except as a subterfuge for the balking, blundering operator. He can judge of the size and shape of the head. If there are bumps or cavities, he can discover them. But his phrenological researches can go no further. Whether things are equal, or unequal *within* the skull, he can never know, till the skull is opened.

Our previous propositions have confined us chiefly to the *material* part of the man. The present introduces us more directly to the mind. It opens with the startling announcement of an almost indefinite number of distinct mental faculties; Mr. Combe says thirty-five; but by the help of animal magnetism, Mr. Fowler has discovered more than eighty; and he thinks that the number may be still further increased. He calls them "*independent* faculties, each of which exercises a distinct class of functions." They are *so* independent, that the improvement or deterioration of any one, has no effect upon the rest. Is it true, then, that the mind has such a number of distinct and independent faculties?

In considering the subject of cerebral organs, under the last proposition, we said that the only proper proof of such organs must be found in the anatomical structure of the brain. So the only proper proof of mental faculties must be found within the mind itself. It will not do to infer, *à priori*, what these faculties *ought* to be, or *must* be. We must look within ourselves; observe the phenomena; classify them as accurately as possible; refer each class to its appropriate faculty; and so come to a knowledge of the different faculties of the mind. This is the true, inductive method of inquiry and proof, the only method to be at all relied on.

Pursuing this method, the most approved metaphysicians of our own times have been led to consider the mind under *four* general departments or faculties; the *sensational*, the *intellectual*, the *emotional*, and the *voluntary*. To the sensational, is to be referred the different impressions made upon the mind through the external

senses; to the intellectual, the various workings of the understanding or intellect; to the emotional, the emotions and feelings generally; and to the voluntary, the different exercises of the will. All the phenomena of mind, it is believed, may be referred to the one or the other of these classes; or, in case of *complex* mental operations, to two or more of them; and, consequently, these four great departments or faculties of the soul are all that is needed, or that can be discovered. If any think that this is simplifying the matter too much, and choose to regard the intellect as comprising two faculties, the *perceptive* and the *reflective;* we will not object.

To the classification of the phrenologists, we have two objections. In the first place, it is *defective*. Some of the universally acknowledged powers of the mind, it entirely discards. According to Mr. Chenevin, endorsed by Dr. Spurzheim, "phrenologists entirely reject the humdrum faculties of *perception*, *memory* and *imagination*, which mental philosophers have been so long discussing." The powers of *association*, *judgment* and *taste*, are treated in the same way. And what is worse, in their enumeration of faculties, they leave out entirely the great moving power of the *will*. It is not among them. Look over your phrenological bust or chart, with all its array of hieroglyphics and figures, and you will not find it. According to these philosophers, man has no such faculty as will. But who that is conscious (as we all are) of choosing, refusing, resolving, purposing, preferring, willing, thousands of times every day, can accept such a statement as this? Who does not know that he has the power of choice, of free choice, of responsible choice, or, in other words, that he has *the faculty of will?*

But a more serious objection to the classification of the phrenologists is, that it is enormously *redundant*. They make distinctions, where there are none. They refer mental affections to different faculties, which belong to the same. For example; the power of recollection is manifestly *one*, on whatever subject it may be employed. But Mr. Fowler refers "the recollecting of things by their shape," "the recollection of places," and "recollecting when things occurred," to three distinct faculties of the mind.

How much difference is there between "the ability and disposition to imitate the ways of others," and "mimicry"? Yet these are referred to two distinct faculties. One would think that "the sense of moral obligation," and "a sense of obligation and duty towards God," were identical. Yet these, again, are referred to two distinct faculties. It would be hard to tell the difference between "aspiration

after eminence," and a "desire to excel." But these, we are told, belong to different faculties. Until the days of phrenology, our bodily appetites had always been classed together. But Mr. Fowler dissents from this. The "disposition to drink" when one is thirsty, and the "relish for food," are referred to separate faculties. So also the *natural affections*, such as parental, filial and connubial love, have always been reckoned in the same class. But these Mr. Fowler refers to three distinct mental faculties. And, as though this were not enough, he adds a fourth, entitled "pure love between the sexes." To point out the difference between "pure love between the sexes," and "connubial love," might puzzle the brain even of a phrenologist.

Other instances of making distinctions without a difference, or of referring the same things to different faculties, are the following: Garrulity and tattling; the love of ourselves, and of our neighbor; the love of life, and the dread of death; ambition, and the love of power; recollecting recent transactions, and remembering the scenes of childhood. We might instance more of these undiffering differences, or unfounded distinctions; but these, surely, are enough. Classifying things after this manner, we do not wonder that Mr. Fowler should make a hundred mental faculties. He might make five hundred or five thousand just as well. If we need one faculty for recollecting places, and another for recollecting things by their shape, and another for recollecting when things occurred; why not others for each and all of our ten thousand recollections? If we need one faculty with which to love our wife, and another our parents, and another our children; then why not others for all the different objects of our love?

But it is needless to waste words on so plain a matter. The doctrines of numerous, cone-like cerebral organs, and of as many mental faculties to operate through these organs, are part and parcel of the same theory. We have shown that the former part of the theory — that pertaining to the organs, is mere assumption, taken up and held, not only without proof, but against all appropriate evidence. We now see that the latter doctrine is in the same predicament. The scalpel and dissecting knife have refuted the former. A correct mental philosophy is fatal to the latter. Not a trace of the hundred or more cerebral organs has any anatomist been able to discover; and the hundred or more mental faculties to operate through these organs, have equally eluded the search. Indeed, every student, who pursues the subject candidly, intelligently, and in the right direction, *knows positively* that these alleged faculties are not there. He

knows, therefore, that the claims and assumptions of phrenology, on this point, cannot be true.

It increases the difficulty of supposing such a multitude of mental faculties, that they are all represented (as before remarked) to be *distinct* and *independent* faculties. They are so distinct as to be almost, and perhaps quite, inconsistent with the unity of the human mind. They are so distinct, according to Mr. Simpson, that "the exercise of one faculty will only improve that faculty, and is not adapted to improve any other. It would be as unreasonable," he says, "to attempt to sharpen the hearing, by exercising the eyes, or the touch, or the smell," as to improve one mental faculty by working another. And yet who does not know, in direct contradiction to these statements, that almost any sort of mental application imparts strength to the *whole* mind; just as exercising the arms or the legs diffuses vigor and elasticity through the entire frame?

It is claimed as an advantage of this doctrine of numerous distinct mental faculties, that it helps to explain some peculiar phenomena of mind; for example, those of dreaming, somnambulism and insanity; also the fact, that different persons have a genius, an aptitude, for different pursuits. To all this we have two replies to make. In the first place, advantages such as these, if they are all that they claim to be, can do nothing towards supporting a theory, which is contradicted, as this is, by the plainest facts. But we deny, secondly, that phrenology has any advantages over the more common views of mind, in explaining the phenomena in question. As to the facts connected with sleep, dreaming, somnambulism, etc., we are not sure that these admit of a full explanation, on any known theory. Some of them seem to us to be unexplained mysteries. But sure we are, that they can be explained *as far*, and *as well*, on the common theory, which supposes the mind, the *whole* mind, to be peculiarly affected by a certain periodical state of the body, as by adopting the phrenological theory of numerous faculties and organs, some of which are asleep, while the others are awake, keeping watch over their slumbering comrades, and meanwhile playing all sorts of fantastic vagaries.

And as to a *genius*, an *aptitude* for particular pursuits, why may not this be as well accounted for, on the ground of an original difference of constitution, or of something peculiar in the state of the *one* mind, as by supposing a great variety of independent faculties and organs? We think it may be much better explained on the former theory, than on the latter.

And with regard to partial insanity, this is not the insanity of one faculty, while all the rest are in perfect health; but it is a diseased action of the mind, the whole mind, in relation to some one object, subject, or class of subjects; thus contradicting, rather than confirming, the phrenological notion of a great variety of faculties and organs.

The main argument for the existence of these faculties and organs is derived, as it should be, from *observation*. The organs, it is said, are apparent on the outside of the skull. If fully developed, there is a protuberance; if deficient, there is an indentation. These may be seen by the eye, or felt by the hand, of the operator; and from them he is able to judge of the character of the individual. This brings us to our fifth and last proposition, to which we are now to direct attention.

And, first, we remark, that phrenologists are not quite agreed as to the character, or even the number, of the several organs. Doctors Gall and Spurzheim differed as to the *character* of some of the organs, and Mr. Combe differed from them both. Speaking, for example, of *concentrativeness*, Mr. Combe says: "Dr. Gall conceives it to be connected, in animals, with the love of *physical elevation;* and in man, with *pride* and *self-esteem*. Dr. Spurzheim observed it to be large in those animals and persons who seemed attached to *particular places*, and was inclined to call it *inhabitiveness*. But from a number of observations, the faculty appears to *me* to have a more extensive sphere of action than that assigned to it by Dr. Spurzheim."

As to the *number* of the organs, the original projectors of the science spoke, first, of thirty-three, and afterwards of thirty-five or six; but more recent discoveries have increased the number to near a hundred. Now facts such as these are adapted to cast doubt upon the whole subject of practical phrenology. A science of such importance as this is alleged to be, ought to be more fixed and definite in its details.

We remark, secondly, that the appearance and anatomical structure of the head is not in accordance with the doctrine of organs, as laid down by the phrenologists. Let me adduce a few examples, chiefly from the works of Sir William Hamilton, who is acknowledged to be one of the greatest philosophers in Europe.

Since all the organs are said to be double, and precisely similar on each side of the head, it follows that the two sides of the head must be similar. Most certainly, they *ought* to be, according to this theory, and phrenologists have often affirmed that they are so. And yet it is certain that they are not. "The opposite sides of the cranium,"

says Sir William Hamilton, "are very rarely symmetrical; often they are widely different. Neither have the convolutions of the two hemispheres of the brain any reciprocal symmetry, but differ remarkably from each other in figure, connection, situation, length and breadth." How is all this consistent with there being two perfectly similar sets of organs on the two sides of the head?

The cerebellum, situated at the lower and hinder part of the cranium, is the seat of what phrenologists call *amativeness*, i. e. sexual love and desire. It is not developed, they tell us, till the age of puberty, and is always proportionally larger in the male than the female. In opposition to all this, Sir William Hamilton affirms (and in this he is sustained by other anatomists), that the cerebellum attains its proportional size almost in childhood, *many years before puberty*, and is commonly larger in the female, than in the male.[1]

It is an admitted fact, that the religious sentiment is stronger in females, than in men. Phrenologists account for this by saying, that in the female cranium, the organ of *veneration* is more fully developed. But Sir William Hamilton assures us that the very opposite of this is true. This organ, he says, is much *less*, on an average, in women than in men; less, even in proportion to the smaller size of their heads.

It is well known that the *perceptive* faculties are much more active in children, than the *reflective*. And as the former are placed by phrenologists on the lower region of the brow, and the latter higher up, so they tell us that the lower region is much *larger*, in proportion, in childhood than in later years. But Sir William Hamilton affirms, and we think correctly, that the heads of children are distinguished by a *greater* development of the higher region of the forehead, than of the lower; directly the *opposite* of the teachings of phrenology.

Phrenologists make the forehead the seat of the intellectual faculties, those by which man is chiefly distinguished from the brutes. Accordingly they tell us, that the *anterior* portion of the brain is much more fully developed in man, in proportion to the hinder part, than in any other animal. But recent investigations have shown that this is not the case. "That part of the cerebrum," says the British and Foreign Medical Review, which is most developed in

[1] According to Dr. Carpenter, "the cerebellum is the organ for combining and regulating *voluntary* muscular actions, especially those concerned in locomotion and in maintaining the equilibrium of the body." See British and Foreign Medical Review, Vol. XXII. p. 530.

man, in comparison with other animals, is *not the anterior*, but the *posterior*;" directly the opposite, again, of what the phrenological hypothesis requires (Vol. XXII. p. 502). We cite these examples for the purpose of showing, how easy it is for phrenologists to twist and pervert the facts of science, to suit their own hypothesis, and thus impose both on themselves and others.

Our third remark relates to the immense difficulty, amounting to an *impossibility*, of locating the several organs, and determining their relative size and influence, so that anything certain can be learned from them as to the character of individuals. At the outset of this inquiry, it must be kept in mind, that nothing at all was known as to the situation of any one of these hundred organs; and that the only means of determining their relative position was by a compound observation of characters and skulls. An individual was selected, who was noted for some particular trait of character; and now, out of the hundred protuberances or depressions which appear upon his skull, that which is the true cause of his peculiarity must be discovered, by a process of comparison with other heads. But what an incalculable, impossible labor must this one of *locating* the organ be! "Any algebraist," say the Princeton Reviewers, "who will undertake to solve a problem, involving thirty-five" (*alias* one hundred) "different equations, and each containing as many unknown quantities, will need no other refutation of phrenology."

But this process accomplished, we have settled the position of only *one* organ. There are, shall we say thirty-four or ninety-nine, more? The labor of location, therefore, is but just begun. One hundred different faculties, we will suppose, are given, to determine, by observation, the signs of each of them upon the cranium. Now the possible permutations of one hundred different quantities surpass all our powers of conception or imagination. They amount not only to millions, and billions, and trillions, but to more than all of these multiplied together. The difficulty of proving that any particular *one*, out of this almost infinite number of possible permutations, is actually marked upon the skull, and *where* it is marked, is so great, that we may, without presumption, pronounce it insurmountable. Ages upon ages of observation would be necessary to verify and establish any particular hypothesis. Meanwhile, phrenology could not be entitled to assume any higher character than that of a lucky guess.

But the question of location does not present the whole difficulty of the case. Suppose the situation of the several organs to be ascertained; we have now to determine their relative influence by their

size. But size includes three elements, length, breadth and thickness; and how are these, or either of them, to be ascertained, upon the living subject? Who can tell, to a hair's breadth, how far it is from the surface of any given skull to the medulla oblongata, at the base of the brain, where the organ is said internally to terminate? Or who can measure exactly the square contents of the outer surface of the organ upon the skull? For the boundaries of these are not dotted out there, it must be remembered, as they are upon a phrenological chart. Their respective limits are altogether indefinite, and in most cases imperceptible. Every man can satisfy himself of this, by simply passing his finger along the arch of his eye-brow, where are placed, we are told, no less than five organs, and by observing whether there are any lines, or marks, by which these organs are separated one from another.

But even this does not present the whole difficulty of the case. Mr. Combe tells us that it is not the *absolute* size of the organs, or their size in reference to any standard head, which determines the predominance of particular talents and dispositions; but their size *in proportion to others in the same head.* Here, then, is a new difficulty to be solved. The whole number of organs in any particular head must be examined, their sizes estimated, and the proportions of each to each determined, before the relative significance of any one of them can be ascertained.

But if all these difficulties were overcome, there are still others which are insurmountable. It has been proved by anatomists, that the size of the head without is no measure of the quantity of brains within; because the skulls of some persons are *eight times thicker than those of others.* Some skulls are only one-eighth of an inch in thickness; others are an inch thick; and between these extremes, the thickness of skulls varies indefinitely. All this has been demonstrated, in the dissections of Dr. Sewall, and other anatomists. Here now, we will suppose, are two heads presented for examination, the size and outer dimensions of which are the same. The examiner can perceive no difference at all. Of course, he is bound to say that the characters of the two individuals are much alike. But it is ascertained, after death, that one of these skulls is *eight times thicker than the other;* and that the volume of brains belonging to the thick skull is less by one half (as it would be) than the volume of the other. What now becomes of the first formed decision? If phrenology is true, the characters of these persons are *not* alike, but very different. The one with the thick skull cannot have half the mental vigor and power of the other.

Again; anatomists have discovered not only that human skulls differ very considerably in point of thickness, but that the outer and inner surfaces of the skull are not always *parallel to each other*. "Our anatomical readers know very well," says Dr. Gordon, "that there are often considerable depressions within, where the corresponding surface without does not exhibit the slightest appearance of projection, but is quite flat, or even hollow; and that there are often large prominences without, where there are no corresponding cavities within." "I can show numerous examples," says Dr. Sewall, "in which there is a marked protuberance externally, but no corresponding concavity within. In one skull, we have the organ of *philoprogenitiveness* very full, but it is occasioned only by an increased thickness of the bone at that part. In another, the organ of *causality* is very prominent; but, so far from finding a corresponding concavity within, the inner plate of the skull presents a plain surface. In other cases, we find considerable indentations within, where there is not the slightest corresponding projection without." It follows from these statements, that, when the phrenologist discovers a protuberance on the living skull, he can determine nothing certainly as to the cause of it. It may be occasioned by a fulness of the brain at that point, as he supposes; or it may result (as it often does) from an increased thickness of the bone.

Anatomy has made us acquainted with still another fact in craniology, which must be utterly confounding to the phrenologist. We refer to the *sinuses* or *cavities* between the outer and inner plates of the skull. These cavities occasionally appear in different parts of the head, but are always found in the anterior and lower portion of the frontal bone, directly over the eyes; a place where several of the more important phrenological organs are said to be located. In one of his plates, Dr. Sewall presents us with a horizontal section of the skull of an individual, "with whom," says he, "I was well acquainted. He was an athletic, laboring man, who became intemperate, and died at the age of thirty. During his life, I frequently remarked, that he had what would be called by phrenologists a fine head. His eye was deeply ensconced under a full, projecting brow, and the organs of *form*, *size*, *weight*, *color*, *order*, *number*, *individuality* and *comparison*, were uncommonly well developed. His *locality* was enormous. Upon the principles of phrenology, we should have pronounced him a Rubens in painting, a Humboldt in arrangement, and in *form*, *size* and *weight*, a Wren, a Douglass, or a Simpson. The developments of *comparison* and *individuality* would have

placed him by the side of Dean Swift, or the Earl of Chatham; while his *locality* represented him as fully equal to Columbus, Newton or Sir Walter Scott." So a phrenologist would have judged of him by the appearance and shape of the front part of his head. "But what do we find upon an examination after death? We find the frontal sinuses to extend quite over the organs of *individuality*, *form*, *size*, *weight*, *color*, *locality*, *order*, *time* and *comparison*. The two plates of the skull are separated, in some points, to the distance of an inch, and the intervening cavities are so capacious as to contain an ounce and a half of liquid."

This, to be sure, was an extraordinary case; extraordinary, we mean, as to the size of the cavities. But the frontal sinuses vary, in point of size, almost indefinitely; and no one can tell, on the living subject, how large, or how small, they may be. Hence, no one can tell, from merely looking at a man's forehead, or feeling of it, how much brain, or how little, he may have beneath it. The space may be chiefly filled up with brain; or there may be concealed cavities large enough to hold a gill.[1]

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[1] The frontal sinuses constituted one of the topics in dispute, between Messrs. Spurzheim and Combe on the one hand, and Sir William Hamilton on the other, in their controversy of 1828. The phrenologists maintained the following propositions, and Sir William Hamilton the counter propositions. Sir William pledged himself to prove his counter propositions to the satisfaction of any competent judges whom his opponents should select.

"*Proposition* 1. Young and adult persons have no cavities between the tables of the frontal bone. The real frontal sinuses occur only in old persons, or after chronic insanity.

Counter Proposition. The absence of the sinus in young or adult persons, so far from constituting the universal law, is a rare, if not a doubtful, anomaly.

Proposition 2. Before the age of twelve or fourteen, the frontal sinus never, or almost never, exists.

Counter Proposition. Before this age, the sinus is frequently, if not generally, present.

Proposition 3. The frontal sinuses are rarely to be found in women.

Counter Proposition. These cavities are rarely absent in the female cranium, even more rarely than in the male.

Proposition 4. The sinus, when present, betrays its existence and extent by an irregular elevation of a peculiar character, constituting a bony crest, or ridge, or blister.

Counter Proposition. There is no connection between the existence and extent of a sinus, and the existence and extent of any such elevation as my opponents speak of. Either may be present without the other; and when both are present, they hold no reciprocal proportion, in their dimensions, or in their figure.

Proposition 5. In ordinary cases, the sinus extends over only two organs, or at most, partially affects a third.

Other difficulties in deciding upon the contents of the head, from its mere outward size and shape, are presented by the *temporal muscle*, that which is principally concerned in talking and chewing, and the motions of which may be seen and felt near the temples. This muscle varies very considerably in size, being twice as large in some persons, as in others. "It covers wholly, or in part, the organs of *destructiveness, constructiveness, acquisitiveness, secretiveness, cautiousness, ideality, number* and *time*." Hence, it is impossible to form a correct estimate of the size or development of these organs, by an examination of the living head.

But the practical phrenologist, if he would be thorough and faithful, encounters other and still greater difficulties. A considerable part of the outer surface of the skull does not admit of being seen or handled at all, upon the living subject. It is entirely secluded. We refer to that part which lies at the base of the brain, where the head rests upon the neck, and which is covered by the muscles, sinews and bones of the adjoining parts. Are there no organs situated here? And if not, why not? Or, if there be organs, what are they? Who can answer these questions, until the head is taken off, and the base of the skull exposed to view?

If now we turn back, and review the statements which have just been made, as to the immense difficulty, in the first place, of locating the several organs, and then of determining their relative size and influence; indeed, the absolute *impossibility*, growing out of the anatomical structure of the head, of doing this, upon the living subject, with any considerable degree of accuracy; we shall be satisfied that no confidence can be placed in the decisions of the phrenologist, as to the characters of those who pass under his hands. He may scrutinize the outer surface of the head as closely as he pleases; he may note all its protuberances and indentations; but if, as Dr. Sewall and many others have demonstrated, these are no certain index to the size or shape of the brain within; then how little, even on his own principles, can he know! How little should he undertake to tell! He may be shrewd at guessing; in some instances, he may guess right; and when he fails, he may assign some plausible excuse for the blunder. And the astrologist, or the soothsayer, may do as much. But as to real, accurate, scientific *knowledge*, the one has about as much claim to it as the other.[1]

Counter Proposition. In very ordinary cases, the sinus covers a much larger proportion of the supposed organs, and frequently affects a third part of the whole."

[1] Spurzheim allows it to be difficult, and in some cases impossible, to deter-

But this brings us to the grand argument in favor of phrenology, derived from *observation* and *fact*. Phrenologists are confident that they can, and do, determine the characters of individuals by the size and shape of their heads. And we do not at all question their sincerity. Persons are very apt to believe, according as their interests and their wishes dictate. That they guess right in some instances is very probable; and these instances are all recorded and paraded in their books. But they are not so careful to record their failures; nor will others be likely to make any such record for them. *Shrewd guessing* is as strong a phrase, as from our own observations, we could in conscience apply to their decisions.

We know a minister of the gospel, whose head was examined three times, by three different phrenologists, in the course of a year; and neither two of them agreed together. We once knew a gentleman, a druggist, now deceased, who was strongly inclined to believe in phrenology. He submitted his head for examination several times; but obtaining, in every instance, a different account of himself, he gave over the science in despair. The same experiment has been tried upon the Editor of the British and Foreign Medical Review. "Three extremely diverse accounts," he says, "have been given of our own developments, by three well-known phrenologists, in the course of a few months." Vol. XXII. p. 523.

Some years ago, two lecturers in Bangor came up to the Theological Seminary, and contracted with the students to examine all their heads. They did so; and the result, when disclosed, could hardly be called a good Yankee guess. In several instances, there was a total failure. One young man was said to have the organ of tune very large, and to be a natural musician, who had never been able to sing at all. Some two or three were pronounced very diligent and successful scholars, who had never had such a judgment passed upon them before.

A man of our acquaintance, who is an incessant talker, and who is proverbially careless as to his worldly affairs, submitted his head for examination in public. The examiner was one of our most distinguished American phrenologists. After feeling of the subject's head

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mine the size and shape of the brain, from the shape of the skull. See his Phrenology, pp. 124, 125. Mr. Combe makes the same acknowledgment. See Elements of Phrenology, p. 17. All agree that nothing decisive can be determined as to the characters of *aged people*. Thus Dr. Andrew Combe says: "No positive inferences can be deduced from the external configuration of the skull, in advanced life." See Phrenological Journal, Vol. IV. p. 393.

a moment, he commenced by saying, "This is a man of few words." He felt another moment and said, "I find *caution* peculiarly developed here. The subject is very cautious in the management of his worldly business." We tell the story, as we heard it from the individual himself.

Even Dr. Spurzheim was not always accurate in his decisions. We quote the following examples from the British and Foreign Medical Review (Vol. XXII. pp. 523, 525): "Dr. Spurzheim was requested to examine the heads of two young ladies, twin-sisters, who so closely resembled each other in person, that the wearing of a cap by one of them was necessary to enable even their parents to distinguish them. At the same time, they differed considerably in point of character. The capless young lady, having undergone the Doctor's manipulation, left the room, put on her sister's cap, and returned for a second scrutiny, which was made under the impression that the other sister had presented herself; and *an extremely different statement of her character was then given.*" This instance, says the Editor, we give on the most unquestionable authority.

Again, this writer says: "We know of an instance in which Dr. Spurzheim pronounced the organ of *number* to be deficient in a lad, who was at that time known as *the calculating boy*, and who is now an engineer, distinguished for his readiness at computation. And we have known the *absence* of the organ of color to be stated, by an eminent London phrenologist, as the only remarkable point about the head of a man, who was possessed of such powers, as a modeller, as to be able to produce an *exact colored representation*, by the aid of memory alone, of any object to which his attention had been directed."

We select the following cases from the Lectures of Dr. John A. Smith. "There was, at the college where I was educated, a pupil, of whose physical formation you will have an accurate idea, when I state that the students in mathematics used to write on the walls: 'What is a line? G. M.'s body. What is a point? G. M.'s head.' This last was so small and round, that hats, being imported in those days in what were called nests, that is, one within the other, Mr. M. was in the habit of selecting the innermost hat; and it was as perfectly circular when laid aside, as when first put on. Yet this gentlemen labored under no mental deficiency, and, with some eccentricity, was endowed with talents much above the common order.

"There resided in the same neighborhood a Mr. C., whose head was so diminutive, and so globular, that it was often, in sport, compared to a turnip. And the similitude, I assure you, was very strik-

ing. Yet Mr. C. was distinguished for good sense, and had no mental peculiarities either positive or negative.

"I have long been acquainted with a Mr. J., whose head is remarkable for its bulk. There is a prodigious projection of the parietal eminences, known as the organ of *caution*, *wavering*, *doubt*. The intellectual powers of this gentleman are respectable, nothing more; and the characteristic trait of himself and family is *courage*.

"Again; I have known a person, the posterior part of whose head formed so straight a line with the back of his neck, as to be an object of remark and derision. Yet in this total absence of *philoprogenitiveness*, love of children was a striking feature in his disposition. In this case, we have the sentiment without the organ. In the one last mentioned, we had the organ, but not the sentiment." For these cases we are indebted to Dr. Smith.

The skull of Voltaire has been recently exhumed and examined; and it is found, not only that his head was small, but that he had the organ of *veneration* developed to a very extraordinary degree. This must have prompted him to reverence superior beings, and most of all the Deity. Those who know anything of Voltaire will judge, whether this is a just description of his character.

A few years ago, there was a clergyman living in Scotland, who was equally distinguished for his amiable disposition, his gigantic powers of mind, and the great moral influence which he exerted upon the world. As it happened, he had the organ of *destructiveness* very largely developed. The phrenologists, not knowing how else to dispose of him, insisted that his inherent disposition to murder was manifested in his mighty efforts to destroy *vice*, and break down every system of error. It was thus that he gratified his propensity for blood.

The Princeton Reviewers say: "We have known many excellent mathematicians, who had no projection at the outer angle of the eye, where the organ of *number* is placed; and also many very worthy and harmless persons, who had alarming developments of the organ of *destructiveness*."

The Christian Spectator says: "We have often observed heads well formed phrenologically, the intellectual region being fully developed, when, at the same time, the intellect was rather weak than strong. That such cases do actually and not very rarely occur," these Reviewers add, "we think no man, though but a stupid observer, can deny."

Such cases have often fallen under our own observation. We re-

collect now two families, one of them a numerous family, all of whom are distinguished by large heads, and height, prominence, and breadth of forehead. Yet none of them are at all distinguished for intellectual vigor and power. The largest head, and the highest forehead, which we at present remember, stands on the shoulders of a very worthy mechanic, who knows enough to work his trade, and keep his dollars, but is not distinguished for anything besides.

The practice of moulding the heads of children into various shapes was once prevalent among most of the Indians in North and South America. At present, it is restricted to a few cognate tribes in Oregon, and parts adjacent. The process, as now practised, is thus described by Mr. Schoolcraft: "Soon after birth, the child is placed in a box or cradle, the bottom of which is made soft with tow or moss, from which it is seldom removed, during the first year. The back part of the head lies on a flat board, while at the same time another board is brought over the forehead, and bound firmly down upon it. In this way the head is flattened before and behind, while the top shoots upward, in shape like a wedge, or a sugar-loaf, fitting the space into which it is compressed. When the child comes to manhood, — and it is only the *males* that are served in this way, — he is taught to turn his face upward, and throw his head back, thus causing what would otherwise be an upward projection, to protrude backwards to a very unnatural extent. The top of the head is now flat, in almost a right line from the eyebrows to the end of the projection behind. Hence, the name applied to them, *Flat Head Indians.*" It is obvious that this barbarous process must make sad work with the organs, both before and behind, and indeed in every part of the head. On phrenological principles, these Flat Head Indians ought to possess some very peculiar and strongly marked traits of character. Yet Mr. Schoolcraft assures us that this is not the case. "The process," he says, "neither diminishes the natural volume of the brain, nor appreciably affects the moral or mental character of the individual." These Flat Head Indians are the same shrewd, vindictive and persevering hunters and warriors, with the other aborigines of our country.

We need not quote more authorities, or pursue this discussion further. We have examined the five propositions at first announced, which are confessedly the fundamental pillars of phrenology, and find every one of them unsupported. They are not sustained either by reason or fact. "It is a strange *delusion*," says Sir Charles Bell, and in this we entirely agree with him, "that would lead some men to

believe, that, in the outward configuration of the skull, by which I mean the forms which have relation to the organs of sight, smell and voice, and those spines and prominences which have respect to the strength of the skull, or to the attachments of muscles, they see indications of particular properties of the mind, or the organs of certain propensities."

[To be continued.]

ARTICLE II.

PROF. EDWARDS'S LIFE AND WRITINGS;[1] WITH SELECTIONS FROM HIS FRAGMENTARY THOUGHTS.

The readers of the Bibliotheca Sacra need no formal introduction to the Life and Writings of Professor Edwards. The Review itself, enriched as it was from its establishment by the fruits of his studies and his careful supervision, is emphatically one of his writings; and it has already presented a sketch of his life and services from the same hand that has prepared the present extended Memoir.

These volumes will be most welcome to those — and they were not few — who had intimately known and loved the character they exhibit; to more who had learned to revere and rejoiced to be guided by, his spirit and his teachings, and to more still, who may desire to understand something of the calm beauty and power of that mind and life, within whose influence they had never themselves been brought. It is sad to think that they contain the *last* words from one whom we remember as so fit to teach, the last thoughts from a mind so trained, so full, so just, and a heart so sensitive and sympathizing, yet so strong and self-restrained. But it is even so, and we turn, mournfully but thankfully, to gather whatever can still be preserved to us of the life and labors of the departed Christian scholar.

The Memoir, we are glad to find, is enriched with copious extracts from the letters and journals of Prof. Edwards, beginning with his

[1] Writings of Professor B. B. Edwards, with a Memoir by Edwards A. Park. 2 vols. 12mo. Boston: John P. Jewett & Co. 1853.