

ga

THE
PHILOSOPHY
OF
PHRENOLOGY
SIMPLIFIED.

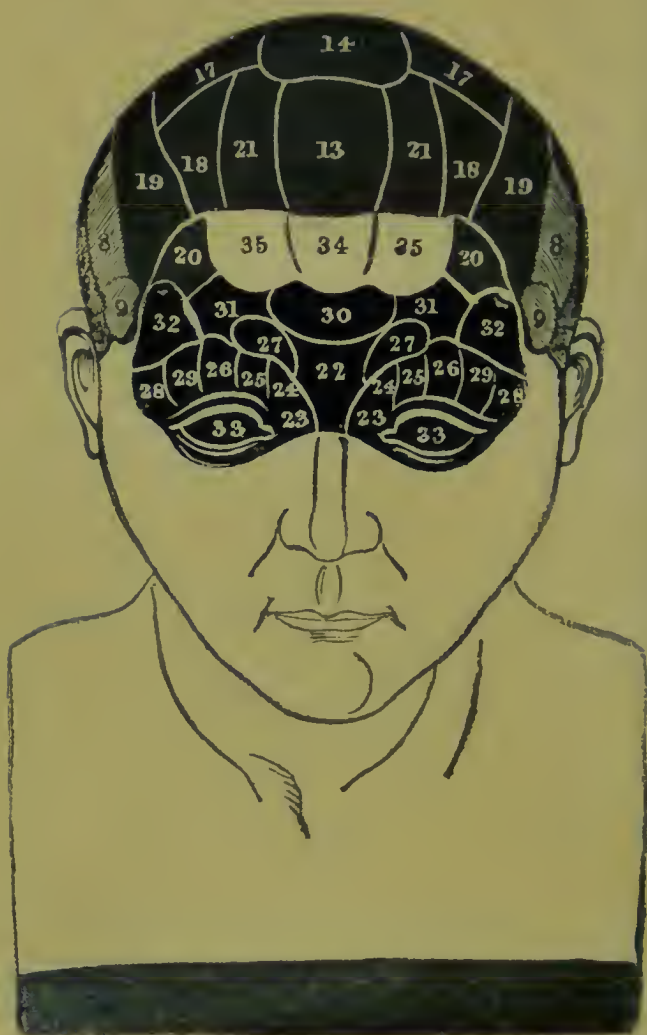
BY A MEMBER OF THE
PHRENOLOGICAL AND PHILOSOPHICAL SOCIETIES OF
GLASGOW; &c. &c.

GLASGOW :
W. R. M'PHUN, 86, TRONGATE;
N. H. COTES, 139, CHEAPSIDE, LONDON.

MDCCCXXXVI.

318368





TO
THE MEMORY OF
GALL.



P R E F A C E.

IN the following pages the writer has confined himself more to the principles than to the details of Phrenology, and he has aimed at simplicity and perspicuity of style rather than elegance of diction. Every student of Phrenology easily gets acquainted with facts relating to the situation, form, and even some of the uses of the organs ; but the philosophic Phrenologist looks also to principles, for without this kind of knowledge his views must be empirical, and destitute of that comprehensive character which leads to useful practical results. *Facts* he knows are only the insulated materials of which a science is built up, while *principles* are the uniting media that impart solidity and durability to the whole structure.

Phrenology is calculated to produce most important effects upon society ; and the more widely a knowledge

is diffused of the principles of Phrenological science, the sooner will these effects be realized.

Should this little work tend to produce a spirit of inquiry into the subject of which it treats, the object for which it is published will be effected.

CONTENTS.

INTRODUCTION.

Definition, - - - - -	1
Causes of the Opposition to Phrenology, - - - - -	1
Many important Discoveries have met with Opposition, -	2
Previous to the Discovery of Phrenology most discordant Opinions entertained regarding the corporeal Seat of the Mind,	3
History of the Discovery of Phrenology, - - - - -	3
Gall, Spurzheim, - - - - -	6
Succeeding Phrenologists. - - - - -	7

CHAPTER I.

The Brain the Organ of the Mind, - - - - -	9
Some popular Objections to Phrenology answered, - - -	16

CHAPTER II.

The Brain not a single Organ proved, - - - - -	23
The Mind displays different mental Powers, - - - - -	24
Diversity of Form in the Brains of different Individuals, -	25
Diversity of Talents, - - - - -	26
Partial Idiocy, and partial Insanity, - - - - -	29
Dreaming, - - - - -	30
Anatomy in Harmony with Phrenology. - - - - -	31

CHAPTER III.

Comparative Anatomy of the Nervous System favourable to Phrenology,	37
Zoophytes,	38
Molluscos Animals,	39
Articulated Animals,	39
Fishes,	41
Reptiles,	41
Birds,	41
Quadrupeds,	42
Facial angle of Camper,	43
Argument in Favour of Phrenology from Camper's Principles,	43
Argument from the Process of Development of the Brain.	44

CHAPTER IV.

Nervous System of Man,	46
Nerves,	47
Ganglia,	48
Plexuses,	48
Spinal Marrow or Cord,	52
Medulla Oblongata,	55
Cerebellum,	56
Cerebrum.	58

CHAPTER V.

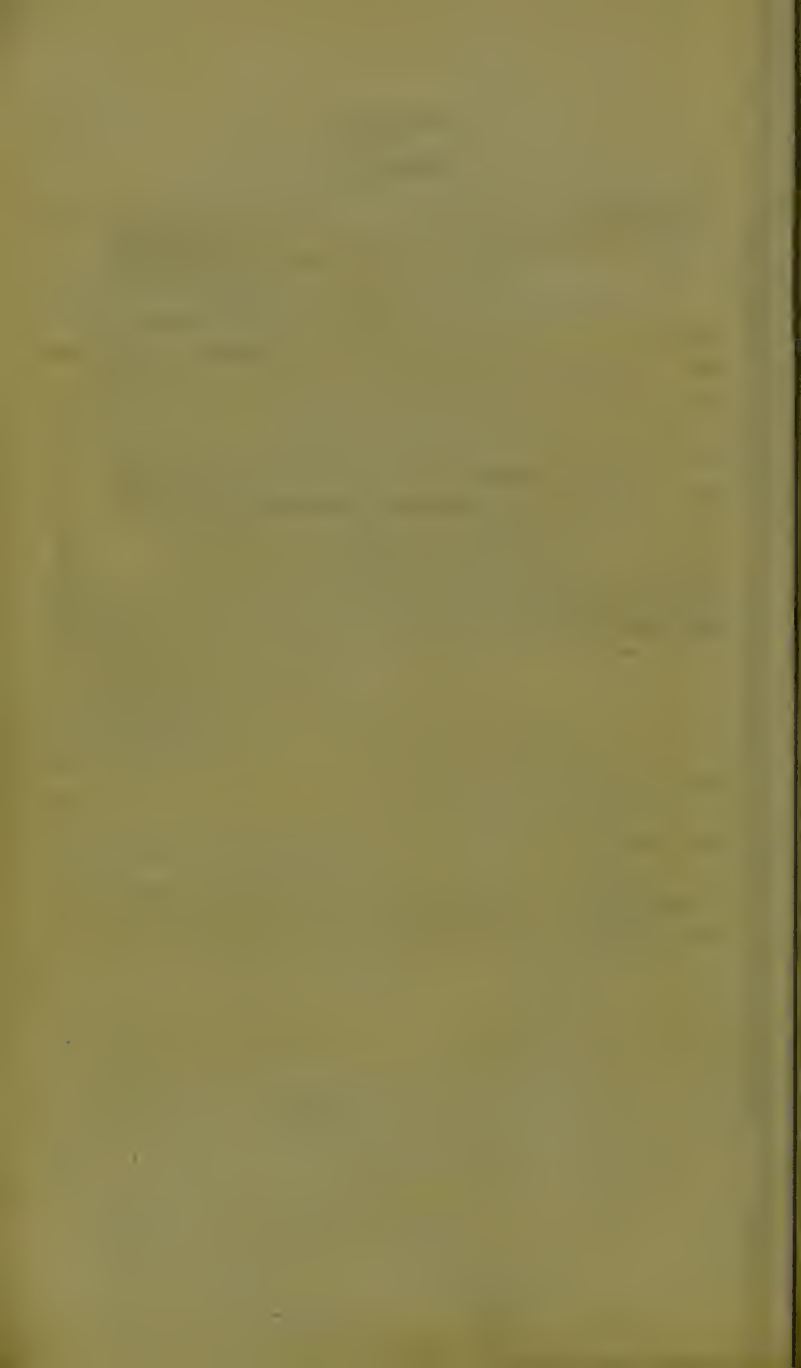
Phrenological Nomenclature,	63
Fundamental Powers,	65
The Essence of the Mind an improper Subject of Investigation,	69
Short Notification of the Fundamental Functions of the Phrenological Organs, and Abuses to which some of them are liable,	73
Size of the Organs,	80
Activity of the Organs,	98
Temperament,	91
Combination of the Organs,	95
Materialism.	97

CHAPTER VI.

On Insanity,	98
Proximate Cause of Insanity corporeal,	99
Corporeal Agents produce Insanity,	103
Insanity hereditary,	100
Different Kinds of Insanity,	100
Principles upon which the Treatment of Insanity is founded,	104

CHAPTER VII.

On the Principles of Education, - - - - -	108
Principle. I Education does not confer new powers either mental or corporeal, but merely improves those already implanted by nature, - - -	108
II. All the powers of the mind cannot be improved to an equal degree in any individual, - - -	117
III. The improvement of any one power of the mind does not affect the strength or energy of any of the other mental powers, - - -	118
IV. The intellectual powers which are naturally strongest in any individual should be culti- vated to a greater degree than those that are weak, - . - - -	119
V. Education to be effective must be practical, -	124
Advantages of Phrenology, - - - - -	136
Practical Examination of the Head, - - - - -	139
Explanation of the Plates, - - - - -	141



DESCRIPTION OF FRONTISPIECE.

OUR coloured engraving shows the *mapping*, as it were, of the various divisions of the skull, marked and numbered in the present state of the science of Phrenology.

We have only given a front view, and, therefore, the animal compartment cannot be seen, which occupies the base of the brain, reaching, in the occipital region, about half way towards the top of the head, and at the sides, rising a little above the top of the ears. It does not so extend to the front of the brain, as to constitute any portion of the forehead.

Directly over the animal is placed the moral compartment, occupying the entire top or roof of the brain, and upper parts of its sides. It is shaded with purple.

The knowing compartment occupies the base of the brain in front, from side to side, and reaches to about the middle of the forehead or a little higher. It is shaded in the engraving with blue.

The reflecting lies immediately over the knowing compartment, forming the more elevated portion of the head. The spaces in the engraving are white.

In the other engravings of the smaller mapped heads, the situation of *all* the organs is indicated according to the following table.

TABLE OF THE PHRENOLOGICAL ORGANS.

AFFECTIVE.

I. PROPENSITIES.

1. Amativeness.
2. Philoprogenitiveness.
3. Inhabitiveness.
4. Adhesiveness.
5. Combativeness.
6. Destructiveness.
- † Alimentiveness.
7. Secretiveness.
8. Acquisitiveness.
9. Constructiveness.

II. SENTIMENTS.

10. Self-Esteem.
11. Love of Approbation.
12. Cautiousness.
13. Benevolence.
14. Veneration.
15. Firmness.
16. Conscientiousness.
17. Hope.
18. Wonder.
19. Ideality.
20. Wit or Mirthfulness.
21. Imitation.

INTELLECTUAL.

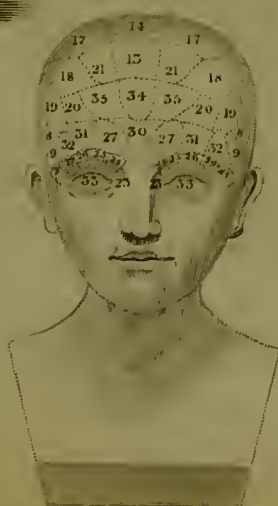
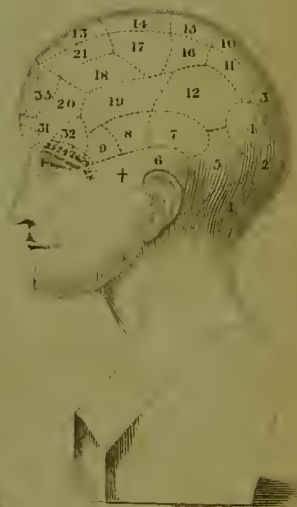
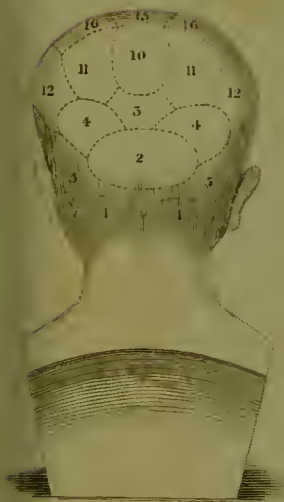
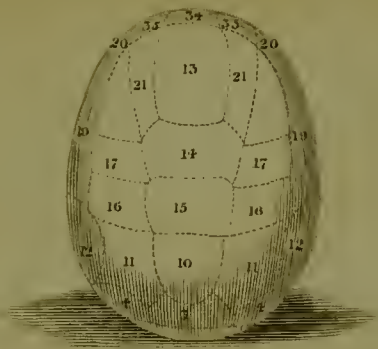
I. PERCEPTIVE.

22. Individuality.
23. Form.
24. Size.
25. Weight.
26. Colouring.
27. Locality.
28. Number.
29. Order.

30. Eventuality.
31. Time.
32. Tune.
33. Language.

II. REFLECTIVE.

34. Comparison.
35. Causality.



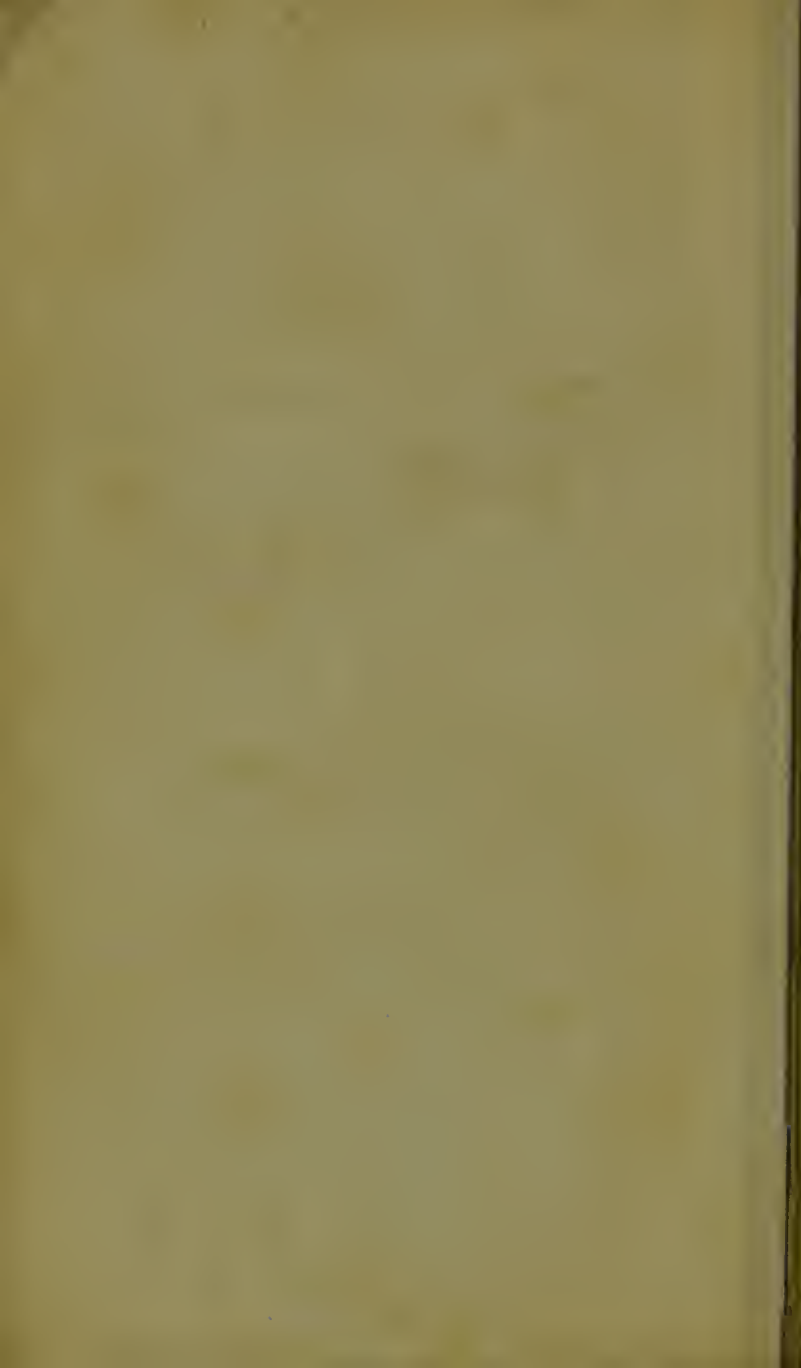


Fig 1.

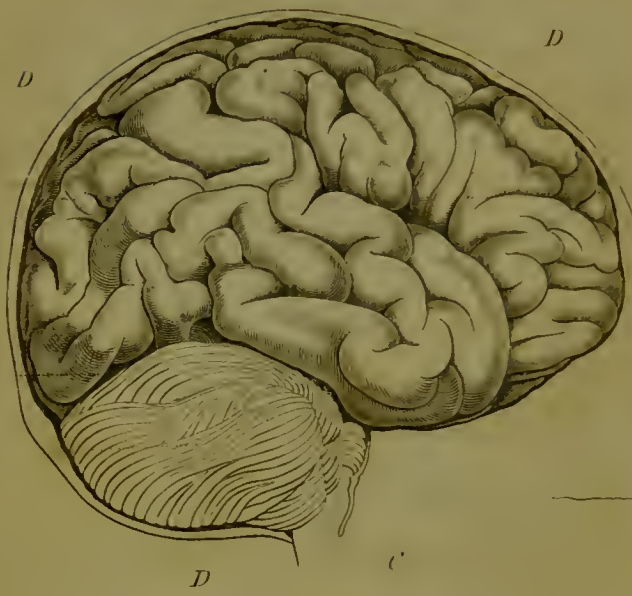
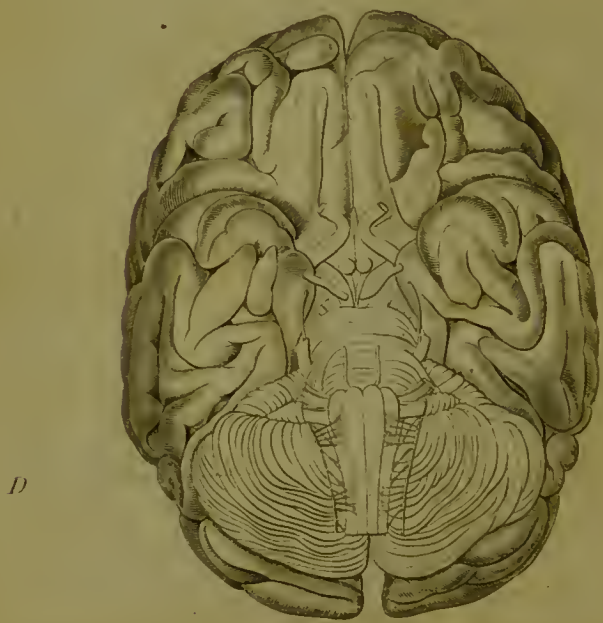


Fig 2.



EXPLANATION

OF THE

PLATE OF THE BRAIN.

IN the preparation from which fig. 1st is taken, the right half of the skull is removed, and a *side view* is consequently obtained of the parts that lie within the cranium. Occupying the greatest part of the skull, we observe the *cerebrum* A, A, A, (presenting numerous convolutions). These convolutions lie immediately under the thin membranes that line the cavity of the skull. The form, size, and direction of the convolutions, seem to vary in different portions of the mass, and form important parts of the phrenological organs. These organs, it must be remarked, are not confined to the convolutions, but extend from the *medulla oblongata* C, or top of the spinal marrow, to the convolutions which they also include.

Below, and at the back of the cerebrum, we find the *cerebellum*, or little brain B, which differs remarkably in structure from the cerebrum. Instead of the convoluted, which appertains to the cerebrum, it presents a *laminated* structure; the laminae, or plates, so arranged that their margins are turned to the circumference of the mass.

In fig. 2d, the *base*, or lower surface of the brain, is represented, and besides the *nerves* which are there found attached, a view is obtained of the three lobes of the cerebrum. A, the *anterior* lobe; B, the *middle* lobe; C, the *posterior* lobe. In this *inverted* state of the brain, the *cerebellum* D, covers nearly altogether the *posterior* lobes, but by referring to fig. 1st, the true position of these parts will be comprehended. E refers to the *medulla oblongata*, or the *top* of the spinal marrow.

From fig. 1st, a view may be obtained of the manner in which the brain fills the skull. D, D, D, represents the thickness of the skull as seen after a longitudinal section has been made from the nose to the hind head. It will be observed, that the cerebral mass fills completely the cavity of the skull, and the skull, like the rind of an orange, or the shell of an egg, indicates, with great accuracy, the form and size of the contained materials.



THE
PHILOSOPHY
OF
PHRENOLOGY SIMPLIFIED.

INTRODUCTION.

Definition.—Causes of the Opposition to Phrenology.—Many important Discoveries have met with Opposition.—Previous to the Discovery of Phrenology most discordant Opinions entertained regarding the corporeal Seat of the Mind.—History of the Discovery of Phrenology.—Gall, Spurzheim.—Succeeding Phrenologists.

PHRENOLOGY is the science that treats not only of the mental powers, but also of the relationship which exists between these powers and certain corporeal conditions. In this last particular, chiefly, it differs from all other systems of mental philosophy, and, at the same time, pre-eminently surpasses them all. Many of our theories of the mind may be characterized as philosophical dreams, and, like dreams, are remarkable for their incoherency and darkness ; while Phrenology has the freshness of reality stamped on its forehead, and, unlike the older theories, can be rendered subservient in many ways to the improvement of the human race.

It is to be regretted that many who oppose Phrenology do so without due consideration. Many appa-

rently object to it because it runs counter to their preconceived notions, of the correctness of which they have never once doubted : many oppose it because the criterion of mental capacity which it establishes is not sufficiently flattering to themselves : many raise their voices against it because the mass of mankind, who know nothing of it whatever, do not believe in it ; and many laugh at it because it is more easy to laugh than to reason. With these causes in full operation, it is a matter of surprise not that Phrenology has made so little progress, but that it has made so much. But it must succeed. It is a science based on immutable truth, and has, therefore, the seeds of immortality in itself.

It is a curious and interesting fact, that almost every important discovery in science and philosophy has met with neglect or strong opposition. Pythagoras was banished from Athens, and Anaxagoras imprisoned for promulgating novel doctrines. Was not Democritus denounced as insane, for attempting to discover the cause of madness by dissections ? Was not Socrates, for demonstrating the unity of the Deity, compelled to drink of the poisonous cup ? and were not many who excelled in the physical sciences, during the fourteenth century, burned as sorcerers ? The truth or falsehood of any doctrine must be estimated only from its intrinsic qualities, and not from the kind of public reception it may have at first obtained. The doctrine of the earth's motion round the sun, is now generally assented to, yet Gallileo, the author of this doctrine, was cast into prison, and the doctrine opposed by the most enlightened and influential of the times. The discovery of the circulation

of the blood too, a discovery which did more for the advancement of medical science, and consequently, for the happiness of the human race, than any other in ancient or modern times, was maliciously opposed, and Harvey, the discoverer, stigmatized as an enemy to morality and religion. With these examples before us, we cannot be surprised that Phrenology should have had its own share of abuse; it has been opposed in every possible manner. The learned as well as the ignorant have united in deriding it. Argument and wit have been conjoined to deery its pretensions, and even malicious and wicked insinuations of its dangerous tendencies have not been neglected to secure its overthrow; yet it has triumphed over every effort to put it down, and the more it is opposed, the more assuredly will it triumph—error only is afraid of the light—truth never shuns discussion nor loses by investigation; and the more carefully Phrenology is examined, the more ardently it will be embraced, and the importance of its doctrines recognised and acknowledged.

Previous to the discovery of Phrenology, not only were the most discordant opinions entertained by philosophers regarding the powers of the mind, but what may appear still more extraordinary, unanimity did not prevail regarding the corporeal seat of the mental operations: some indeed believed the mind to reside in the brain,* but others supposed its habitation to be

* Among these we may make honourable mention of Hippocrates, who says, that “From *the brain only* proceed pleasure, and joy, and laughter, and sport, as well as griefs, anxieties, sorrows, and weeping. By it we are wise, and understand, and see, and hear, and appreciate. By it we distinguish what is pleasant and what is disagreeable, and by

in various less noble parts of the body. Drelincourt and his followers, for example, allocated the mind in the cerebellum; Descartes and his disciples in the pineal gland; Aristotle in the heart; Buffon in the diaphragm; Van Helmont in the stomach. Indeed there is scarcely a vital organ in the whole body which has not been viewed as the exclusive resting place of the mind. These opinions have fled like phantoms before the light of day. Phrenology has had the merit of exposing their absurdities. Truth is always valuable for its own sake, and the establishment of the fundamental truth in Phrenology, that all mental manifestation takes place through the brain, is calculated to lead to conclusions of unspeakable importance to the human race.

It is scarcely forty years since the doctrines of phrenology were first publicly promulgated, yet notwithstanding the extraordinary opposition it has had to contend with, it has made its way into almost every part of the civilized world. It is known even in Asia. In America many learned men have written in its behalf. In different parts of Europe many Phrenological Societies have been formed; and in this country do we not find it taught as a branch of liberal education in many of our seminaries of learning? do we not find men, known both to science and to literature, pressing forward in its

it the same things do not please us under all circumstances. By it we are insane and delirious, experience terrors and fears, partly by night and partly by day; do not recognise those who are with us; lose our habits, and forget our experience. All this we suffer from the brain if it is not healthy; wherefore, I say, that the brain is the messenger and interpreter of intelligence and wisdom.”—*De Morbo Sacro*.

support, and the most able and respectable medical and literary periodical publications of the day ably advocating its cause, and elucidating its principles? The discovery of Phrenology is a new era in the history of the human mind. To Dr. Gall mankind is indebted for the discovery; and the discovery, it must be remarked, was purely the result of observation, not of reasoning. Dr. Gall was born at Tiefenbrun in Suabia, on 9th March, 1757. Even when a boy he was noted for quick perception and talent of observation. He remarked when at school, and afterwards when he had entered the University, that all his class fellows who had a strong verbal memory had prominent eyes, and was inclined to suspect that these two circumstances held an important relationship. Had he proceeded no farther in his investigations, this observation of his would have been soon forgotten; but he fortunately conceived the idea, that if a memory for words can have any external sign, the same might be the case with the other intellectual powers. He looked for these signs in the head where they had not previously been suspected to exist, and in process of time he was convinced that he had found external characters which indicated talents for painting, for music, for mechanical arts, and for remembering places. He became afterwards acquainted with some individuals who were remarkable for the energy and particular determination of character, and he found particular parts of their heads to be very largely developed. From such cases he was led to look for signs of the *moral sentiments* in the head, and the more he examined, he found the correctness of this general position unfolding itself.

He abandoned the theories of philosophers, from whose vague speculations regarding the powers of the mind he could gain no assistance, and devoted himself exclusively to the observation of nature. That he might extend his sphere of observation, he frequently visited schools and colleges, got admission into prisons, houses of correction, and hospitals for the treatment of the insane, and procured introductions to private individuals conspicuous for peculiarity of talent. The heads of all he carefully examined ; and after a series of observations, arrived at the belief that he had discovered the particular conformations of head, which indicated *certain* dispositions and intellectual powers. Dr. Gall has been accused of first framing a theory, and then attempting to mould nature to his speculations ; but no accusation can be more unfounded. The first phrenological idea that entered the mind of Gall was the offspring of observation, and every subsequent discovery which he made was the result of numerous observations and cautious inductions. Phrenology is not a theory that was manufactured in the closet, and brought to the light of day in a finished state. No—it first appeared like so many detached and isolated facts ; and after the facts were satisfactorily established, it was wrought into an interesting system of philosophy.

In the year 1806, Dr. Spurzheim became the assistant and associate of Dr. Gall, and to him Phrenology is not only indebted for an extension of its boundaries, but in some measure, also, for the systematic and philosophical aspect which it at present displays. With

Dr. Spurzheim, the writer of these pages had the honour of being personally acquainted ; and the more he had an opportunity of knowing him, the more he was convinced of the philosophic character of his mind. Dr. Spurzheim had obviously investigated human nature with a most observant and critical eye, and few individuals could bring into the investigation more sagacity or intellectual profundity ; his manners besides were simple and unaffected, and candour and love of truth his predominating characteristics. To him Phrenology is indebted for much of the progress it has made in this country. With inextinguishable zeal and ceaseless industry, he travelled over the greater part of Europe, explaining and inculcating the new doctrines, and leaving every where behind him indubitable evidences of the triumph of truth. He may be viewed as the father and apostle of the new philosophy in Britain ; for had he not combated personally and so successfully as he did, the opposition which Phrenology first experienced, phrenological truth might have been left to make its own way ; and unless truth is known it can neither be believed nor turned to any practical advantage.

After sojourning for some years in this country, he repaired to America, where he terminated a life devoted to Phrenology.

Great though the merits of Spurzheim be, we cannot agree with those who would attempt to raise him to an equality with Gall. The glory of the discovery is due to Gall alone ; and all the merits of Dr. Spurzheim, transcendent though they be, are in comparison with the discovery, only of secondary importance. Gall

was the great luminary from which all the succeeding phrenologists have derived all their lustre.*

In discussing this subject we shall, First, attempt to prove that the brain is the material organ of the mind. Secondly, that the brain is not a single organ, but a congeries of organs, through which the mind displays a plurality of powers. Thirdly, shall shortly notice the *function* of each organ, and the abuses to which it may give rise ; and, Fourthly, point out the practical benefits to which a knowledge of Phrenology will conduce.

* Although this last observation is literally true, yet it must be stated that Phrenology has been much advanced by the observations and labours of other philosophers. Among these, Mr. Combe stands pre-eminent ; and although he has neither the genius of Gall, nor the profundity of Spurzheim, he has done more than either in extending and popularizing the science. Like Socrates, he has had the merit of drawing philosophy from the clouds, and adapting it to the ordinary affairs of human life.

CHAPTER I.

The Brain the Organ of the Mind.—Some popular Objections to Phrenology answered.

It is the opinion of some philosophers, that the mental powers are not dependent upon the body. But if there is a shadow of truth in such an opinion, Phrenology must fall to the ground. But, independently of the fact that mental manifestation is never evinced without corporeal parts, do we not uniformly find the mental powers increase and strengthen with the growth and energy of the body, and with the decay of the corporeal system, dwindle and disappear. No man can unbiasedly contemplate the dawning of intellect in the child, the full expansion of the intellectual powers in middle age, and the dotage and mental imbecility which characterize the advanced periods of life, without arriving directly at the conclusion, that the peculiarity of mental condition is dependent on the peculiarity of the corporeal state. But is it the whole body or a part of it that is so intimately connected with mind? To such a question we are enabled to give a decided and satisfactory answer. The human body consists of an assemblage of organs, each of which has its separate and determinate function. Besides the organs which we consider necessary for

the manifestation of the mental powers, there are others which experiment and observation prove to have been formed for very different purposes. We have organs of digestion, absorption, circulation of the blood, respiration, secretion, motion, sensation, voice, and reproduction. It would be obviously absurd to suppose that any of these organs is directly concerned in the manifestation of the mind, and this conclusion is strengthened by the following considerations:—

1st. These organs have their ascertained functions, which have no relationship to the phenomena of mind.

2dly. Many of these organs may be removed from the body without impairing the mental faculties; and,

3dly. Those which cannot be removed without destroying life are found existing in the fullest development in many of the inferior animals whose mental capacities are of the lowest order.

Phrenologists believe that the BRAIN is the material organ of the mind; and they believe this because they think the fact is unquestionable, or may be proved as satisfactorily as any other doctrine in physiology. Some opponents of Phrenology have, however, questioned the truth of the position, and asserted that we have equal reason for believing the other vital organs to be organs of the mind, as we have for arriving at that conclusion regarding the brain.* We cannot think, they say, without the lungs or heart any more than without the brain, *ergo*, the heart and lungs are mental organs as well as the other. Such a conclusion, if not illogical, is at least inconsistent with the known opera-

* Edinburgh Review, No. 88.

tions of the animal economy. By the same kind of argument we may prove the heart to be a *respiratory* organ, for by removing it from a living animal, respiration instantly ceases ; nay, by similar logic we may prove that all the vital organs are united in performing one function—indeed any function that may be condescended upon, for by destroying one vital organ all the others immediately cease to act. The man, however, who has studied the laws of the animal economy knows that though all these organs are linked together and conspire to effect one great end, the continuance of life, he also knows that each organ serves a determinate purpose in the living system, for which purpose it was formed and for no other. The lungs, he knows, are a respiratory and the stomach a digestive organ. He knows also they are as necessary for our existence as the air we inhale and the food we digest, but he would no more ascribe intelligence to these organs than he would ascribe intellectuality to the air or food. But it is far different with regard to the brain. Throughout the whole of nature, so far as our observation reaches, and in philosophical argument we dare not proceed farther, mind and brain are never found disunited. Wherever we find brain there also we find mind, and in proportion to the development of the brain, do we find a corresponding development of intellectual power. There are no exceptions to this general law. What are we to think, then, of those cases adduced by the opponents of Phrenology, in which the brain is said to have been lost without affecting the intellectual powers. They are just as worthy of credit as the exploits of the renowned Baron Munchausen, or the picturesque ina-

ginings of the "*Arabian Nights*." It is to me surprising that any man can be found who is so credulous as to believe them.

" The times have been
That when the *brains* were out the man would *die*,
And there an end : but *now* they *rise* again
With twenty mortal murders on their crowns
And push us from our stools : This is more strange
Than such a murder is."

Shakspeare insinuates that it is a strange matter for a man to live without brains, and Shakspeare is undoubtedly right ; but the opponents of Phrenology in contempt of this high authority, maintain that nothing is more common. We have been somewhat puzzled to account for the existence of such an opinion, and after much cogitation, have come to the conclusion that it is rather attributable to error of judgment in the opponents of Phrenology, than incorrect observation. Observing, probably, with how small a quantum of brains they themselves have not only contrived to live, but to live comfortably, they have drawn the conclusion that they could live equally well without brains altogether ; and although some may be ready to acquiesce in the justness of such reasoning, still, viewing the subject phrenologically, their argument is obviously as unsubstantial as the vacuity of their brainless crania. But to return to the subject more immediately before us, it is only necessary to observe that the cases alluded to are unworthy of credit ; they have not even the semblance of genuineness, and not a single medical man of the present day would be so foolish as to confide in them.

That certain parts of the brain have been lost, and the person afterwards recover, with the use of his intellectual faculties, cannot be doubted ; but this can be satisfactorily accounted for without affecting the fundamental principles of Phrenology. The brain is *double*, and all the organs of which it is composed are arranged in pairs, like the organs of sensation. We may lose an eye, but vision still remains, or an ear without hearing being destroyed ; so likewise, although an organ of the brain be injured, or even lost, if its fellow of the opposite side remain unaffected, the function of the organ must necessarily remain. But is there any case on record on which both organs have been destroyed, and the functions attributed by Phrenologists to the parts, afterwards continue ? There is not one.*

That the mind is directly connected with the brain, we indisputably prove from the effects of *cerebral diseases*, and *injuries* of the brain upon the intellec-

* "I will not insult the understanding of my readers," says Dr. Elliotson, "by showing that we have no authentic instance of the real absence of brain in the cranium of a being possessed of a mind. In most cases where the mind is *said* to have been vigorous, when the state of the body at large, or of the brain alone, rendered the perfect performance of the cerebral functions improbable in the eyes of the relators, I believe the mental power has been greatly overrated ; that because the individual merely talked collectedly, he was imagined sufficient for the exertions of his best health.

"The part of the brain affected by disease, may have been one whose function is not intellectual, but merely relating to the feelings, or may have related to mental faculties whose state was not noticed by the narrators. In truth, the narrators give us no satisfactory account of the feelings and intellectual powers of the patient, nor of the exact portions of the brain affected ; nor could they, being unacquainted with Phrenology ; and they also forget that the cerebral organs are double."

—*Human Physiology*, 5th Edition, p. 37.

tual powers. Inflammation of the brain is uniformly attended with delirium. So long as the inflammation is in an acute state the delirium continues, and when it terminates in an effusion of serum or pus, which exerts a deleterious pressure upon the brain, the intellect is overpowered and ultimately annihilated. However striking such facts may be, we have still more convincing illustrations from the effects of depressed portions of the skull. If a portion of the cranium is beat down upon the brain, that instant sensibility and consciousness cease, and as soon as the brain is freed of this incumbrance its functions are restored, sensibility and consciousness return. Cases of this kind have fallen under the observation of almost every surgeon, but probably the most remarkable case on record is that related by Sir Astley Cooper. A sailor, he tells us, fell from the yard-arm of one of his majesty's ships as she was about to sail from the Mediterranean to Gibraltar. The poor fellow was taken up in a state of total insensibility. During his passage to Gibraltar, he evinced no symptom of sensibility farther than moving occasionally his finger, or projecting the point of his tongue from his mouth. In this log-like state he was regularly fed and freed of his involuntary discharges till he arrived at Gibraltar. There he remained for a month in the same torpid state under varied plans of medical treatment. In process of time he returned with the ship to England, and thirteen months from the accident was carried in the same state of absolute insensibility into Deptford. From Deptford he was carried into St. Thomas's Hospital, London, and placed under the care of Mr. Cline. This eminent surgeon

found a portion of skull depressed, to which he attributed all the symptoms. He raised it up, and mark the effects of the operation. The bone was no sooner elevated than the patient sat up, gazed around him, and in a short time began to speak. He supposed he was just ready to sail for Gibraltar, and the thirteen months which elapsed between the accident and the performance of the operation, was a blank in his mental history which appeared to him only an instant of time. Will a piece of bone pressing upon any other organ produce corresponding effects upon the mind? The ribs have been thrust in upon the lungs and heart, and the bowels have protruded from their cavity, and been subjected to great degrees of violence, while the mind unaffected within its citadel, has beheld with calmness and serenity the ravages of the outward storm; but let the *brain* be seriously affected either by internal or external causes, let the brain be the seat of the commotion, and the mind cannot remain undisturbed, it is hurried along with the tempest—maddened it may be into fury, or laid prostrate and overwhelmed.

From these and numerous other facts of a similar kind which can be adduced, it appears to be satisfactorily established that the brain is the organ of the mind; and if this cannot be denied, Phrenology has at least some foundation in nature. The man who admits that the brain is the organ of mind, is virtually a Phrenologist; for he cannot stop here, he must go farther and admit, that the state or condition of the brain must influence the mental powers. We admit the correctness of the general principle, that the state or condition of an organ has necessarily an effect upon

the function of that organ, and we dare not in logical correctness refuse our assent to the principle when applied to the brain. The eye is the organ of vision, and we unhesitatingly admit that a well formed and sound eye are indispensable to perfect vision. Muscles are organs of motion, and we never doubt for a moment that different degrees of muscular development are concomitant with different degrees of muscular power. If the state or condition of an organ then affects the functions of that organ, it follows necessarily that the development and other conditions of the brain will affect the mental manifestation.

There are many physiologists who admit, in a general way, that the brain is the organ of the mind, but who object to the phrenological view of the subject that the brain is a *congeries* of organs, through which a plurality of mental powers are manifested. If the mind, however, manifests a plurality of mental powers, and if the brain be that part of the body through which these powers are displayed, it is *a priori* probable that the brain is not a single organ. It would be far more consistent for the opponents of Phrenology to deny any connexion between mind and brain, than to admit that connexion and yet consider the brain as a single organ, capable of manifesting a diversity of mental powers. What would we think of the man who would run into the absurdity of attributing all our sensations to the operation of *one* external organ of sensation, yet are not the various feelings and powers of the mind as different from each other as seeing, and hearing, taste, smell, and touch? We are conscious that our impressions from external objects are different in kind, and observation has proved

that we have a corresponding diversity of external organs ; we are also conscious that the mind manifests a plurality of powers ; is it not therefore probable that nature has allotted for the manifestation of these powers a corresponding diversity of cerebral organs ?

But have we as much reason to believe in the existence of the mental organs as in those of the external senses ? To this question I would answer that the evidences on which the existence of both kinds of organs rests, are precisely of the same character. The organs of sensation no doubt obtrude themselves more upon our observation than the other. From their external situation, insulated state, and peculiarity of structure, they cannot be overlooked or confounded, but how do we determine that they are organs of sensation ? By observation only. Now, it must be remembered, that by the same means we can discover the organs of the brain.

It has been said that if the organs of the brain exist, the mind must be *conscious* of their existence, and that anatomical investigation would set the matter at rest ; and it has been still farther remarked, since the mind is not conscious of their existence, and since anatomical investigation leaves the matter still in doubt, such organs can have no existence save in the imagination of the phrenologist. The argument is deserving of consideration ; but it is more plausible than solid. That the mind has no consciousness of acting through the instrumentality of cerebral organs, we admit ; but the conclusion cannot be legitimately drawn from such premises that *the organs* do not therefore exist, for the mind is not *conscious* of the existence of any corporeal

organ which it uses. That we *know* that the mind uses such organs is incontestable, but knowledge and consciousness are very different things, though frequently confounded. Knowledge is something which the mind acquires by experience, and consciousness the capability which the mind possesses of attending to its own perceptions. Now we know that we see with the eye, because we have acquired this knowledge by a multitude of observations; but in the early periods of life, before these experiments have been made, we see, and hear, and receive impressions from the external objects that surround us, without our knowing that the impressions are received through an external organ at all. And even in the most educated and expanded state of the mind, though the mind may reason on the nature of the impression, the mind is no more conscious that the impression is made on an external organ, than it is at the moment of birth. In *seeing*, for example, the impression is made on the optic nerve, but how few know of the existence even of that nerve. All sensations are produced through the medium of the nerves, but do we all know the situation even of the nerves, and if we cannot indicate the locality even of such organs, it is absurd to say that the mind is conscious of their operations. If this reasoning can apply to the external senses, the existence of which is so palpable, can we admit that a non-consciousness of the operation of the internal organs is a proof of their non-existence?*

* At the same time we have an obscure internal feeling that almost amounts to consciousness, that the mental operations are carried on in the head. We never suppose for a moment that we think with the stomach or foot; when we wish to recall any thing to memory we instinctively apply our hand, not to the chest or abdomen, but to the

But if these organs exist, have we not only to remove the osseous and membranous envelopes which nature has thrown around them, and they would at once be apparent? But on exposing the brain, we meet only, it is said, with a number of *cerebral convolutions*, not differing much either in size or external conformation, and not arranged into different pieces with nice insulating lines of circumvallation, as we find portrayed on the phrenological crania, and not finding the cerebral parts arranged, as they in their wisdom expected, the opponents of phrenology have come to the conclusion that whatever these convolutions may be, they are clearly not organs of the mind. But may not this conclusion be too hastily drawn? Were we to reason in the same way regarding many other parts of the body, we would unquestionably fall into error. Nerves of sensation and motion resemble each other more than any two convolutions of the brain; yet motion and sensation are functions as different as any two powers of the mind. These nerves are not only similar in form and structure, but they are also bound together and surrounded by a common sheath or envelope. What would we think of that physiologist who would contend, from these circumstances, that nerves are all of one kind? We would say that he has yet to learn the rudiments of physiology, and that he has promulgated a doctrine which experiment and observation have confuted.

head. The language in common use to designate mental conditions arises from this cause. We say that a stupid fellow is a *blockhead*, a numskull, has no *brains*, is *addled*, &c. We say also that a clever person is *long-headed*, *strong-headed*, has a good *head*, has *some brains*; that a silly volatile being is *light-headed*; and a madman is *wrong* in the *head*, or not right in the *upper storey*.

Erroneous though the principle be which would lead to such conclusion, yet the opponents of Phrenology have all along been acting upon it, when contending against the plurality of the cerebral organs. They have proceeded upon the principle that *similarity* of structure indicates *identity* of function, but the unsoundness of the principle is triumphantly displayed by a reference merely to the nerves of motion and sensation.

Again, the intestinal canal is a continuous, musculo-membranous tube, extending from the mouth downwards, and from the manner in which its different parts are coiled upon each other, presenting, like the brain, a number of convolutions ; yet however continuous and similar are all the parts of this tube, we never doubt the existence of distinct organs. One part of the tube is an organ of deglutition, another of chymification, a third of chylication, and a fourth of fœcification. Reasoning, like the opponents of phrenology, that because these parts are neither different in structure, nor insulated like the external senses, we must come to the absurd conclusion that they are not distinct organs. There is nothing then in the phrenological doctrine at variance with anatomy. The structure and arrangements of the cerebral organs may not be such as might *a priori* be expected ; but who could tell *a priori* what would be the structure of an organ of the mind ? nay, who could tell *a priori* what would be the structure of any organ ? We cannot *calculate* the structure of an organ from its function, or the function from any given structure. There is nothing in the structure of the optic nerve that would lead us to the conclusion that it is an organ of vision, or of the auditory nerve that it is

the essential part of the organ of hearing. When the function is once discovered, we can then generally find an adaptation of the means to the end, a correspondency between the structure and function ; but a knowledge of structure alone will not necessarily lead to a knowledge of function. Were it otherwise, the discovery of the function of every organ would be simultaneous with the discovery of its structure, and we would long ago have found out the uses of the spleen, the thyroid, and the thymus glands, the supra-renal capsules, the vermiform process of the cœcum, &c., the functions of which are still problematical.

If the function of an organ, then, cannot be discovered by a knowledge of its structure, how can it be discovered ? By experiment or observation. Phrenologists endeavour to discover the functions of the cerebral parts by observation, and seeing our knowledge of the functions of the external senses has been obtained in this way, they do not despair of arriving at an equal degree of certainty regarding the functions of the internal organs.

But are not the internal organs altogether beyond the reach of observation ? Are they not surrounded with bone, covered still farther with a certain depth of soft parts, and as if nature wished to thwart all such investigations, has she not shrouded them in still greater darkness by the luxuriant drapery of hair which she has surmounted to the whole ? Is it not, therefore, clear that though the organs existed, as indicated by Phrenologists, that they never could be discovered in the living state, and that Phrenology would thus be reduced to a dead letter, or at best fitted for the closet speculations of the physiologist ?

In reply to this popular objection it must be remarked that the brain gives the form to the head, and whatever may be the thickness of the cerebral envelopes, they never impart a shape to the head materially different from that of the brain. The brain, it is particularly to be observed, is the first part of the head that is formed, and the skull is moulded round the delicate organ. It is not the skull that gives the form to the brain, but the brain that gives the form to the skull, and whatever peculiarity of conformation the former may possess, is uniformly and necessarily imparted to the latter.

After the middle period of life, indeed, the *frontal sinuses* expand, or in other words, the tables of the skull at the lower part of the forehead separate, and thus form two cavities which communicate with the nostrils. The formation of such cavities, however, cannot take place without protruding to a certain extent the outer table of the skull, and thus a prominence is formed for which we have no corresponding cerebral development. I am surprised at the importance which has been attached to this fact by the opponents of Phrenology. They seem to view it as a triumphant refutation of the whole science, as if these sinuses altered the general configuration of the head. But if the fundamental principles of the science can be proved to be well-founded, the existence of these cavities must be viewed only as a difficulty in the practical application of the science, and a difficulty which a little experience will enable us easily to overcome. It cannot invalidate Phrenology as a science; for if the cerebral organs are there, such cavities can

neither increase nor diminish the internal power ; they only add a little to the difficulty of ascertaining it. These nasal cavities do not exist at the earlier periods of life, and cannot at these periods affect our judgment regarding the cerebral development. And even when they do exist they can easily be recognised, and the requisite allowances made in calculating the size of the cerebral organs.*

CHAPTER II.

The Brain not a single Organ proved.—The Mind displays different mental Powers.—Diversity of Form in the Brains of different Individuals.—Diversity of Talents.—Partial Idiocy and partial Insanity.—Dreaming.—Anatomy in Harmony with Phrenology.

HAVING thus attempted to prove that the brain is the organ of the mind, and endeavoured to obviate some of the objections which lie at the threshold of our investigation, we are now prepared to enter a little farther into the subject, and to consider the grounds on which the plurality of the cerebral organs rest. I might prove the truth of the phrenological doctrine, generally and consequently, of the plurality of organs on which Phrenology is founded, by appealing to experience and observation, for these are the tests to which it will ultimately be referred. But as this line of argument would be considered unsatisfactory by many, I shall attempt to prove the existence of the organs of the

* It is an interesting fact that some of the organs over which the sinuses lie were discovered in boys, and, consequently, before the sinuses were developed.

brain from certain facts and observations which all, or almost all, admit.

1st. It cannot be doubted that the mind displays a plurality of powers. All metaphysicians in explaining the phenomena of the mind proceed upon this supposition; and to show how little guided they have been by correct principles we have only to observe the diversity of opinion that exists upon the subject; some enumerate only three such powers, as sensation, memory, and judgment; others add attention, imagination, association of ideas, and some reckon up more than twenty fundamental powers. Of the correctness of such views I do not at present speak. I only state these facts to show that all metaphysicians admit that the mind displays more than one power, and if we have established the fact that the mind manifests its powers only through the medium of the brain, it follows that a plurality of mental powers can only be manifested through a plurality of cerebral organs.

2d. There is no internal organ of the body that assumes such a diversity of form in different individuals as the brain.

The liver, for example, may vary in size in different individuals, but in the healthy state, generally speaking, all its parts bear the same relative proportion to each other. But it is far otherwise with the brain. Besides the immense variation of size in the whole brain in different individuals, we find an equal, if not a greater, diversity in the proportions of the subordinate parts. Many have the anterior* lobes small, while the middle* and posterior* are greatly developed. On the

* See Plates 3 and 4.

other hand, not a few are found with the middle or posterior lobes small, and the anterior ones in the greatest development. Some have the greatest portion of brain at the base of the skull, while others have that part narrow, and the most expanded portion at the top of the head. Besides these differences of form in the great outlines of the head, there are others of a subordinate character which are no less remarkable. Each convolution of the brain may be developed in different degrees, and thus the in calculable varieties of form in the human head can easily be accounted for. Sometimes a single convolution arrives at the maximum of development, while those in the vicinity are only of a moderate size; the part thus superiorly developed assumes invariably a certain form, and gives a characteristic prominence to the skull over that part of the brain, which the experienced eye can easily discover. Are these diversities of form of no consequence? Is it immaterial at what part of the cerebral mass the greatest development is found? Will a man with a small forehead and an expanded hindhead think as profoundly as the man whose greatest proportion of brain is in the forehead? No man who has studied nature carefully can answer these questions in the affirmative. Look at the head of a man of a grovelling and sensual character and you will find the greatest part of brain behind the ear. Compare the head of such a character with another of an opposite description, and the difference will at once be apparent. The intellectual character has always a large proportion of brain before the ear, and a beauty thus appertains to such a head which can never be imparted to the other.

The Grecian and Roman sculptors were celebrated for their nice imitation of nature, but the heads of their gladiators and philosophers are always represented differently, and in strict conformity with phrenological principles. They had never heard of Phrenology, yet they never once violated its principles, because its principles are founded in nature, and they took nature only for their guide.

The opponents of Phrenology have insinuated that Dr. Gall first mapped out the skull into so many compartments, and then tried to mould nature to his speculations; but this is not a correct reading of the history of Phrenology. Dr. Gall, on the contrary, as we have already shown, first observed a correspondency between particular mental powers and particular prominences or particular conformations of the head, and it was only after repeatedly observing the concomitancy between the power and the conformation that he *held* the relationship as inseparably connected. Phrenologists maintain that Gall's observations are correct. Their experience coincides with his, and they challenge any one to adduce an instance in which the power exists without the cerebral development.

3d. The diversity of talents among men, and the existence of partial talent in individuals, can only be explained satisfactorily on the supposition of a plurality of mental organs. I am aware that the peculiarity of talent and disposition in mankind has been attributed by metaphysicians to the *circumstances* in which they were placed. The mind of the infant has been compared to a sheet of white paper on which any kind of character may be traced. You may train up a child,

they say, to be a poet, or a painter, or a musician ; or you make him as you please either remarkable for every good and amiable quality, or for every low and degrading vice. But are these views of human nature consistent with experience ? Are there not some individuals who cannot be made poets, or painters, or musicians ? and are there not individuals who have evinced from their earliest years amiable tempers and dispositions of mind, and others who exhibit every thing the reverse ? If all children have not the same temper and disposition at birth, to what is the difference to be attributed ? Not surely to circumstances, for they have not had time to operate, but to something in themselves. If circumstances can form the intellectual and moral character of man it is clear that they can only do so either by creating mental powers, or affecting in some particular way the powers which have been already given him by nature. That circumstances can draw forth talents we admit, but that they can create mental powers is so inconsistent with observation that we cannot believe it. If circumstances can create powers, why can we not make an idiot a philosopher ? We naturally say that *that* is impossible ; they have not the capacity, and the co-operation of all the circumstances on earth cannot impart the talent or capacity to them. All talent is inherent, never the result of external causes. Favourable circumstances will, no doubt, do much to improve or render available talents that already exist. They can do no more ; but they can obviously never make them.

We all admit with Horace, that “*poeta nascitur non*

fit;" but if this maxim is just with regard to the poetical talent, it is equally just with regard to talent of every other kind. If talent be inherent then, and the brain a *single* organ, by means of which the mind manifests its powers, it follows that a man who is remarkable for any one talent should be equally remarkable for every other. But we know that there are men who show a talent only in one way, and who beyond their own province are perfect fools. Is the man who excels in poetry necessarily a good mathematician? or the mathematician necessarily a great poet and orator? To maintain that because a man excels in one pursuit he must necessarily be capable of excelling in every other, is just as preposterous as to maintain that because a man sees well he must necessarily hear, and have all the other external senses in equal perfection. That some men have a variety of talents is unquestionable; but the majority of mankind possess only moderate mental powers, and among these how often do we find an individual who displays in a degree which astonishes every one, a particular talent. Even a talent of this kind has been evinced by idiots, whose mental powers were otherwise so weak that they could not comprehend the meaning of the simplest proposition. It is evident then, that mental powers exist in the same individual, at the same time in various degrees of strength and in various degrees of aptitude for improvement; and, as the brain is the part of the body through which the mind manifests all its powers, it follows incontrovertibly, that the brain cannot be a single organ, else all its powers would be manifested

in an equal degree, but must be an aggregate of parts, or a congeries of organs, each part or organ manifesting a particular power.

4th. The plurality of the cerebral organs may be deduced from the existence of partial idiocy and partial insanity.

No system of mental philosophy except the phrenological can explain satisfactorily the two conditions of the mind called *idiocy* and *insanity*. To say that the one is mental imbecility and the other mental derangement, affords no explanation, nay it leads to the supposition that the *essence* of the mind is affected. But while Phrenology leads to no such dangerous conclusion, it enables us satisfactorily to explain these two very peculiar conditions of man. Idiocy always arises from a defective organization or development of the brain, and insanity always from diseased cerebral structure. If the whole brain be defective in its organization or development, the idiocy is complete; or if the whole brain be diseased, as in inflammation or excessive intoxication, the insanity is complete; but idiocy and insanity are often partial, and there is no way of explaining such phenomena satisfactorily but on the supposition of a plurality of cerebral organs. Some idiots have shown a talent for music, others for imitation, others for calculation, and others for constructing mechanical instruments; and it is well known that many persons are insane on *one* subject only. If the brain was a single organ, through which the mind manifested all its powers, these mental phenomena never could occur; for, if the brain was sound, all the powers would be equally manifested, or if dis-

ceased, all the powers would be equally affected. But as some of the mental powers in these instances are strong and others weak, some of them affected and others unaffected, it clearly follows that all the parts of the brain cannot be in the same state, or the brain is not the organ of thought. If we are forced to admit this, we must also admit that the parts of the brain in these different or opposite states are parts through which different powers are manifested, and we thus arrive directly at the conclusion of a plurality of cerebral organs.

5th. The plurality of the cerebral organs may be proved from the phenomena of dreaming. During *sound* sleep we are quite unconscious of existence, and when this takes place the whole brain is in a state of inactivity or torpor. All corporeal organs require rest; and during the repose of the brain the mental powers are enveloped as in a thick cloud. But the sleep is often partial, or as we say, disturbed by dreams. We seem to ourselves to be engaged, it may be, in furious or deadly combat, or as peacemakers, soothing the ruffled spirits of others, and tendering our warmest sollicitudes for a reconciliation. We may seem engaged in some complex and harassing calculation, or in reading some interesting work of literature or science. Or the imagination may take wing and carry us into Elysian fields, where the eye delights to rest on the enchanting scene, and the ear to be regaled with the songs of the birds of paradise. These may be viewed as specimens of simple dreams; but dreams are frequently much more complex, and generally the more complex, the more incoherent and inconsistent they

become. The dream may consist of a grotesque assemblage of misshapen images and extravagant ideas, and of the most whimsical and foolish acts; yet all will appear to the dreamer as right, and it is only after we awake that we laugh at the ideal medley. If we were to think during the day as we dream at night, we would be fit for a madhouse; yet these different states of the mental operations are solely owing to different conditions of the brain. If the brain was in the same state during a dream as when awake, we would dream rationally and coherently. But as this is obviously not the case, we must come to the conclusion that at these two periods the state or condition of the organ is different. If the brain were a single organ, it is quite clear that we could never dream; for if the organ were asleep there would be total unconsciousness, and if awake our ideas would be rational and connected; but admit the existence of a plurality of cerebral organs and the difficulty vanishes. We could then suppose one or more of such organs awake, while the rest were asleep, and the waking organs executing their functions while the others were in a state of torpidity or repose, and we would thus have ideas and feelings corresponding with the functions of the waking organs. Every dream and every modification of dream may, on this principle, be accounted for; and we can explain this curious mental phenomenon satisfactorily on no other.

6th. *Anatomy* leads to the conclusion of a plurality of cerebral organs. Although *Anatomy* and *Physiology* are intimately connected, and reciprocally assist each other, yet, it must be remembered, that *Physio-*

logy is capable of shedding a much stronger and clearer light upon the structure, than the structure upon the function ; and in many organs the intimate structure cannot be learned till the uses are ascertained. Besides the investigation of structure, there are two modes which physiologists usually employ in the investigation of function. One by experiment on the living subject, torturing and forcing, as it were, nature to yield her secrets ; and the other by a careful notification of the effects of diseased structure upon the function.

These are the plans indeed which physiologists generally adopt, in investigating the functions of any organ ; and they are the only means in the majority of cases which can be resorted to with any rational prospect of success.

Of these two methods, the latter is generally more to be depended upon than the former, and the former is more applicable to organs of a simple structure than those which are complicated.

The functions of the brain have been attempted to be elucidated in both of these ways ; but only with partial success. The experimental method has led to inconsistencies and contradictions, and the observations and investigations of pathologists to no decided result. Indeed it is exceedingly probable, that neither of these modes of investigating function is applicable to the brain, for from the very constitution and structure of the cerebral mass a part can scarcely be injured or affected with disease, without other parts being simultaneously or secondarily influenced.

Under these circumstances, it is a matter of congratulation, that another and more successful mode of

investigating the functions of the brain was instituted by Gall.

Dr. Gall by a series of observations made on the living human head, arrived at the conclusion that every species of feeling, emotion, and intellectual operation, not only emanates from the brain, but also that the degree of development of the different parts of the brain indicate (under certain limitations) the degree of strength of such feelings and powers. Dr. Gall maintained that the signs of our mental constitution could be seen in the living head; and surely there is nothing unphilosophical in such an idea; nay, the idea that such signs exist somewhere in the body is prevalent throughout society. Is not physiognomy founded upon this very principle? and every one admits, that from the form, and more particularly from the expression of the countenance, many important conclusions may be deduced regarding the state or condition of the mind. The signs of Gall and those of Lavater are no doubt different. They are both, however, corporeal signs of a mental condition, and what reason have we to think that the signs of Gall are less valuable than those of Lavater. We have no reason to think so, for the signs of Gall have a direct reference to the part of the body through which mental manifestation flows; while those of Lavater are at best connected with parts that are only secondarily related to the mental operations. The mode of investigation thus proposed by Gall, is founded on the principle, that the size and form of the brain can be discovered during life; and it is scarcely necessary to say that this position is consistent with the fact. The brain itself is no doubt hid from our view; but its protecting

bony incasement is moulded upon the organ so as to indicate with an accuracy sufficient for every practical purpose, the quantum and configuration of the contained material. Here then is the first point of connexion that subsists between Anatomy and Phrenology, and so far they unquestionably harmonize.

An important connexion subsists, in the second place, between the structure of the brain itself and the phrenological system. Phrenology inculcates that the mind displays a multiplicity of powers; and as it is a fundamental principle in the science that the mind can be manifested only through an organic apparatus, we legitimately conclude, that a multiplicity of powers requires for their manifestation a corresponding number of organic parts; but reasoning alone on such a subject is unsufficient to convince. The question recurs: are these organic parts to be found? If such parts cannot be demonstrated, their existence is not to be assumed; but fortunately for Phrenology they can be easily demonstrated. The brain is the most complicated organic structure found in man; and the most cursory glance at the arrangement of its parts leads at once to a conclusion at variance with *singleness* of structure. Without referring to the immense size of the organ in man, compared with that of other animals, we have only to observe the first grand division of the mass into cerebrum and cerebellum, or great and little brain—the division of each of these into two nearly equal and symmetrical portions—the division again of each half of the cerebrum into three lobes, the anterior, middle, and posterior, and the still more minute division of each of these lobes into numerous convolutions. All these

parts thus separated to a greater or less extent, are observed on the most cursory examination ; and when we enter upon a more minute investigation of its internal structure, we find every thing harmonizing most beautifully with the principles of Phrenology—the brain is formed essentially of soft and plastic *fibres*, which diverge from the medulla oblongata, or top of the spinal marrow, to the convolutions. Here then we have undoubtedly a plurality of parts, and what reason have we to suppose that these parts are incapable of separate, and to a certain extent independent functions. The fibrous structure of the brain is directly and beautifully in harmony with Phrenology, for we have in such a structure all the necessary elements of a plurality of organs ; the fibres are not only exceedingly numerous, but they vary in length, direction, and consistency. We cannot tell how these fibres are connected in the process of thinking ; but knowing as we do, that mental manifestation cannot be evinced without them, it would be absurd to suppose that circumstances which affect these fibres, such as length, direction, and number, would have no effect upon the mental state. The muscular system furnishes us with a strong analogical argument in favour of this view. Analogies, are not always to be trusted, but in such a subject we have no other mode of illustration ; and a corroboration of our views from other departments of anatomy, is not to be despised. The muscular system of the human body consists essentially of fibres of a particular kind, that are endowed with a property of contracting or shortening themselves ; and we see that length, direction, and relative situation of these fibres, tell materially upon the

effects they are capable of producing. Influenced by these circumstances, what diversified and even opposite effects appear! Modified by these circumstances, muscular fibres may produce flexion, extension, adduction, abduction, rotation, and circumduction, of a limb. These are no doubt various and opposite effects produced by the action of similar muscular fibres: have we not good reason to suppose then, that the fibres through which mental manifestation emanates, may by difference of length, direction, or situation, be so affected as to conduce to most important differences of mental constitution and state?

The places assigned by Gall to the respective organs, both absolutely and relatively in the brain, is not only an indirect proof of the plurality of the cerebral organs, but of the truth and beauty of Phrenology as a science. It is to be remembered that Gall did not manufacture a theory; he proceeded upon the Baconian system of observing and noting facts; he compared the developments of particular parts of the head with the characters of individuals as displayed in their actions; and he arrived at the conclusion, that particular conformations of head were always concomitant with particular talents or particularity of mental powers. We do not at present speak of the accuracy of these observations; we merely wish to state that a fact was noted at one time regarding the forehead, at another time regarding the hindhead, and at a third time regarding some other region of the brain; there was no preconceived order or system in the observations he made. These observations depended upon circumstances which were contingent, and yet what system of the mind

exists in which order and beauty are more conspicuous! Without adverting to Phrenology as a metaphysical system independently of the organs, does it not impart a strong probability of the truth of Phrenology, that notwithstanding the erratic mode in which the organs were discovered, we find no unnatural mixture or jumbling of the organs; those of the same kind are in general found in juxta-position, or in other words, we find them allocated in the most scientific and systematic manner? While we find, for example, all the intellectual powers in the *forehead*, the sentiments are found exclusively in the *upper region* of the head, and the propensities in the *lateral, lower, and posterior* regions only. Had the organs been fabricated, the method of investigation pursued by Gall would have led to a chaos of confusion, but as order and harmony reign not only in the great subdivisions, but also in the subordinate groupes of the different organs, we may safely conclude that such organs are not factitious but founded in nature.

CHAPTER III.

Comparative Anatomy of the Nervous System favourable to Phrenology.—Zoophytes.—Molluscous Animals.—Articulated Animals — Fishes.—Reptiles.—Birds.—Quadrupeds.—Facial angle of Camper.—Argument in Favour of Phrenology from Camper's Principles.—Argument from the Process of Development of the Brain.

THE phrenological doctrine receives strong countenance and support from comparative anatomy. It has long ago been remarked, that as animals rise in

the scale of intelligence, their brain becomes the more developed. This is strikingly displayed in the vertebrated animals, but not confined to them. A short reference to the nervous system of both the invertebrated and vertebrated animals will place the subject in a clearer light. Mr. Lawrence* has remarked, that the visible fabric of the brain differs most widely in quadrupeds, birds, fishes, insects; and that there is an equal difference in their intellectual phenomena, appetites, and instincts, every [variation in construction being accompanied, he says, with a corresponding modification of function. This is the phrenological doctrine; and that the subject may be clearly understood, we shall give a brief outline of the comparative anatomy of the nervous system.

In the lowest orders of animals, *Zoophytes* for example, no nervous system is discoverable. In animals of this kind, indeed, voluntary motion may be perceived, and we must therefore suppose that a nervous system of some kind exists; but as no distinct nervous apparatus can be detected, it is probable, as Cuvier has remarked, that the nervous matter is equally diffused over the whole body. This kind of nervous system has been called the Molecular by M'Leay, each molecule being analogous to a ganglion, or centre of sensation. It is unnecessary to observe, that such animals display little mind; they exhibit, however, great tenacity of life, and by division may be increased indefinitely.

The actions of the *acephalous mollusca*, which rank a grade higher in the scale of being, are simply vital

* See his *Lectures on Comparative Anatomy*, p. 109.

and of course automatic. Such animals are destitute of the senses and voluntary locomotion, both sexes existing in the same animal, which is usually protected by a shelly encasement. Such is the condition of the oyster, whose nervous system presents neither great development nor complexity; it has neither brain nor spinal cord, but two ganglia, one at each extremity of the animal, and these are the sources of its visceral nerves.

Still higher in the scale of being, though belonging to the same class, we find the *cephalopodous mollusca*, as the cuttle-fish, and the *gasteropoda*, as the snail; and to note the remarkable change which the addition of a head, imperfect though it be, imparts to these animals, we have only to compare their instincts with those of their *headless* brethren. The cuttle-fish can elude the pursuit of its enemy by a very cunning-like contrivance; and the snail we know displays amorous propensities, and actions resulting from these propensities, of a very peculiar kind. Both display the rudiment of a brain, which in the cuttle-fish is bi-lobed, and of a crescentic form in the snail. These animals, indeed, have no proper spinal cord, but in the cuttle-fish the nervous cord which encircles the gullet is probably the analogous part.

Crustaceous animals, *insects* and *worms*, agree not only in their general form, but in the arrangement of their nervous system. The bodies of these animals are divided into segments, each segment having, to a certain extent, a vitality of its own. The nervous system of these animals consists of a brain—a nervous collar which surrounds the gullet, and a medullary cord consisting of a series of ganglia, one occupying

each segment of the body, and connected by a double row of nervous internodes. From these ganglia arise the nerves of the senses, and of the vital and voluntary powers. *Insects* are tenacious of life to a great degree, and are remarkable for their powers of motion: the last of these effects may be accounted for from the relative great size of the ganglia of the spinal cord; and the first from the well-known fact, that, as we descend in the scale of being, the nervous system is less concentrated in a particular region of the body, but diffused in such a manner that every part has nearly the same degree of vitality. The *development* of the nervous system in some insects is peculiarly interesting. The observations of Dr. Herold have thrown much light on this part of physiology, and which lead to conclusions favourable to Phrenology. With great care he traced the gradual changes that take place in the nervous system of the common cabbage butterfly, from the time it obtains its full size to its assumption of the *imago*. These changes were found to consist principally in the progressive shortening of the nervous internodes, and consequent approximation of the ganglia—in the obliteration of some of the nerves—in the amalgamation of two or more ganglia—in the union of the first ganglion with the brain—in the union of two ganglia at the expense of one or two others—and, lastly, in the lobes of the brain which formed an angle with each other becoming horizontal. These are, no doubt, remarkable and necessary changes; and why necessary? Because the animal is about to change its character, and a corresponding change of nervous system is indispensable. Had the nervous system of

the insect undergo no change when such an obvious change in the powers and habitudes of the animal had been effected, we might have drawn a conclusion unfavourable to Phrenology. But all these changes are in harmony with the phrenological system. Change of structure must always precede a change of function ; and we find here a series of important changes, without which the necessary muscular, sensitive and instinctive powers could not have been imparted. In the vertebrated animals the nervous system is exceedingly complicated, but its *outlines* are the same in fishes, reptiles, birds and quadrupeds. These animals have all the grand divisions of the nervous system as in man, but their brain differs most remarkably from that of man in size, form and complexity.

The brain in fishes is in a mere rudimentary state, more developed in reptiles, still more in birds, and in quadrupeds it has attained an approximation to the human brain.* In the heads of all animals there are

* " In insects, fish and amphibia, the nervous masses contained in the cerebral reservoir are still divided into several distinct masses. The greater part of these are not integrant parts of the brain properly so called ; they are ganglia from which arise the nerves of smell, hearing, sight, &c. The two hemispheres properly so called, are situated behind the two ganglia of the olfactory nerves, and are the more complicated as the *industrial instincts* are more numerous ; the cerebellum in these animals generally forms a hollow bag, sometimes placed horizontally, sometimes folded together.

" In birds the two hemispheres are now more considerable, although distinct convolutions cannot be discovered. The cerebellum still consists only of its middle or fundamental part ; but already appears composed of many rings placed side by side.

" In the small mammalia, the shrew mouse, mouse, rat, squirrel, weasel, &c., convolutions are not yet to be seen ; but as they exist in other larger rodentia, the beaver, kangaroo, &c., we may suppose that they exist also in them.

two parts, the eranium and face. The one contains the brain, and the other lodges the principal organs of sensation, particularly the organs of sight, smell, and taste. If these organs are greatly developed the greater is the size of the face, and the greater its relative proportion to the eranium. On the contrary, the larger the brain the greater must be the capacity of the cranium, and the greater its proportion to the face. On these principles a large cranium and a small face indicate a large brain with a restricted development of some of the external senses, but a small cranium and a large face is admitted by all physiologists to indicate the opposite character. So much have physiologists been persuaded of these facts, that they have laboured for centuries to discover some criterion by which the

“ In the larger mammalia, the cat, polecat, marten, fox, dog, ape, the convolutions are more distinct and numerous, but their form varies according to the species.

“ In the dolphin, elephant, and man, they are more numerous and deep than in the beaver, kangaroo and cat, and their form and direction varies essentially with the species.

“ In all the mammalia, the cerebellum possesses, besides the middle or fundamental part, two lateral parts which are more or less complex according to the species.

“ The number of the integral parts, or of the convolutions of the brain, varies also in the different *species* of the mammalia; in some the anterior lobes of the hemispheres are larger or more elevated; in others again, the inferior parts of the anterior lobes are nearly wanting. The middle lobes and the other convolutions present similar varieties.

“ In this way the integrant parts of the brain augment in number and development as we pass from a less perfect to a more perfect animal, till we arrive at the brain of man, who, in the anterior and superior region of the frontal bone, possesses several parts of which other animals are deprived, and by means of which he is endowed with the most eminent qualities and faculties, with reason, and the feeling of religion, and the existence of God.”—*Gall*, Vol. II. p. 364.

proportion of brain and consequent proportion of intellect could be discovered in living animals. Camper was the most successful of these inquirers, and his principles, so far as they go, are consonant with Phrenology. If a line be drawn from the upper jaw by the side of the nose over the most prominent part of the forehead, it will form an *angle* with another line drawn horizontally from the nostril to the opening of the ear. This is the celebrated facial angle of Camper. The angle varies with the form of the brain. It is more obtuse or open as the forehead advances, and with the retreating of the forehead it is the more acute.

The facial angle of the *Horse* in this way,

measures	23°
	Ram,	.	.	.	30°
	Dog,	.	.	.	35°
	Ourang-Outang,				56°
	European Adult,				85°

While phrenologists admit, to a certain extent, the justness of Camper's principles, they know that his plan is defective. It cannot indicate particular talents. The phrenological system, however, has this great superiority, that it leads to a just estimate both of the general powers of the mind and of the peculiar talents and dispositions of the individual. Camper's views are so far phrenological that they not only imply the brain to be the organ of the mind, but they even imply that the *anterior part* of the brain is more intimately connected with the intellectual powers than the others. Camper's measurements refer only to the anterior parts of the brain, and his general conclusions regarding these parts are not inconsistent with Phrenology. But

will any such measurements of the developments of the *lateral* and *posterior* parts of the brain lead us to a just conclusion regarding the sagacity of the animal or the intelligence of man? By no means. No physiologist has fallen into the absurdity of supposing this. But does it not follow, that if we cannot estimate the intelligence of the individual from the lateral and posterior parts of the brain, as well as from the anterior, that all these parts cannot be concerned in the same function? We have, therefore, different parts with different functions, or, in other words, a plurality of organs in the brain. This conclusion receives a still stronger confirmation from the history of the *growth* and *development* of the brain in the human being. The human brain undergoes a series of changes in its progress to completion. In the early periods of foetal life it exhibits the form and all the characters of that of a *fish*. In process of time it assumes the appearance of the brains of a *reptile*. By an addition of matter it is afterwards assimilated to the brains of *birds*. By a farther addition it takes the form of the *quadrupedal* brain, and after passing through gradations corresponding with the gradations in the mammiferous animals, it attains the character peculiar to *man*.* If the form and development of the brain were of no consequence, why all these extraordinary changes? Nature does nothing in vain; and if great intellectual capacity could have been manifested through a brain as simple as that of a fish, would not a brain of that simple organization have been imparted to us? But even among the inferior animals the brain varies with their endowments.

* See Tiedemann, on the Development of the foetal Brain.

The fish is lowest in the scale of vertebrated animals, and it possesses, as we have hinted, a brain of the simplest form. Reptiles rank higher in the scale of being than fishes, and have a greater development of the cerebral organ. Birds have propensities and powers which are not found in the reptile tribes, and have a corresponding increase in their brain. Quadrupeds are admitted to be far superior to birds in those instincts which approximate to human reason, and in them we find a cerebral form and development which we look for in vain in the less exalted classes. In all the inferior animals, the cerebral lobes are in a rudimentary state, or at best, developed in a slight degree ; but in man they are at a maximum of development, and, it is needless to say, that in him the intellectual powers are in corresponding pre-eminency. From these facts we are entitled to draw the conclusion, that the brain is not a single organ ;—that different parts of it have different powers ; for when certain parts are small or defective, certain powers are weak or non-existent, and with the development of the part the power appears. Besides, as man has all the parts of the brain which exist in the inferior animals, as well as many other peculiar to himself, we are led to the conclusion, that he must exhibit not only all the feelings which exist in the lower tribes, and other powers which they do not display ; but also, that those parts of the human brain which exist in the inferior animals must be the seat of animal propensity, and those parts which exist only in man the seat of powers purely moral and intellectual. Such conclusions are neither forced nor hastily drawn. They flow purely from the facts which comparative anatomy furnishes,

and form, at the same time, an adamantine basis on which phrenological science may be erected.

CHAPTER IV.

Nervous System of Man.—Nerves.—Ganglia.—Plexuses.—Spinal Marrow or Chord.—Medulla Oblongata.—Cerebellum.—Cerebrum.

THE *Nervous System* of Man is remarkably complicated, yet a short description of the different parts that enter into its formation may not prove uninteresting even to the general inquirer. All the parts of this system may be classified in the following manner :—1st. Some of these parts are arranged into *cords* called *nerves*, which ramify or branch into all the textures of the body. 2d. Others are collected into knots termed *ganglia*, which differ in form, size, consistency, and colour. 3d. Others are aggregated into masses, as in the brain and spinal cord. The nervous cords or *nerves* are seen frequently to unite, separate, and unite again, so as to form intricate networks called *plexuses*; and from these, nerves are seen to run off to supply organs at a distance. Even *ganglia* and *plexuses* intermix and form a still more intricate assemblage of parts. It is exceedingly difficult to discover the *uses* of all the individual parts of the nervous system. At the same time, we should endeavour to ascertain their use. It is, indeed, of some moment, that we can distinguish nervous matter of vegetative from that of phrenic life; but this is not enough: our energies should be directed to discover the uses of *all* the parts of the nervous system. The

subject is of the deepest interest ; but it can only receive at present a very general consideration. And,

First—Of the cords we usually denominate nerves.
 —Nerves are cords of a white or whitish colour, the consistency and solidity of which vary in different parts of the body. They are composed of fibres which are connected by cellular membrane, and surrounded still farther by a sheath of the same texture called *neurelema*, which imparts considerable firmness to the texture, and prevents the separation of its constituent parts. The fibres can be easily seen either by slitting up the sheath which surrounds them, or by cutting a nerve across, and examining the section. The fibres are placed parallel with each other. The intimate structure of such fibres, however, is not known.—Some have described them as tubular, and even pretended to have injected them, while others maintain that they are solid ; some consider them so elastic as to be capable of vibrating, while others insist that they are soft and inelastic, and incapable of performing their function upon the principle of a vibratory motion. Many view them as prolongations of the brain and spinal cord, and consequently as formed of matter similar in every respect to the white cerebral substance, while others reject this view of the case and maintain that they are formed of something essentially different. We are as yet ignorant of the intimate structure of the nerves, and cannot, therefore, determine the mode in which they perform their functions. We know, indeed, that every nerve essentially consists of two parts, one exterior, protecting and containing, and which is formed of condensed cellular membrane ; and a second, interior,

contained or functional ; but the precise character of this indispensable part of the nerve has not yet been discovered.

These cords not only differ so far that some are engaged in vegetative and others in phrenic functions ; but amongst the nerves of phrenic life, diversities of structure and function are apparent. We find not only nerves of motion and sensation, but each of these classes has been found to present modifications of function worthy of attention. Sir Charles Bell has discovered, that, besides the motive nerves of the general system—those that place the muscles under the control of the will—there are *superadded* nerves of a similar kind which he calls *respiratory*, because they ramify upon the muscles concerned in the process of respiration, and associate and combine the muscles on which they ramify in the performance of the respiratory function.

Among the nerves of *sensation*, too, we know that some are adapted for communicating general sensibility to the skin, and all the other textures, and others for imparting powers inherent in the four special senses, those of taste, smell, hearing, and sight.

We know from *observation* and experiment, that nerves differ in function. The mode in which they perform their functions are hid from our view, and the observation is applicable not to the nerves only, but to all the textures by which vital and intellectual operations are performed.

Second.—Of the nervous Ganglia and Plexuses. The nervous swellings or enlargements called ganglia, are found in determinate situations, but they differ remarkably in form, size, and colour. As we have

already hinted, they are found in connexion with the nerves both of vegetative and phrenic life. Dr. Spurzheim says they are composed of two nervous substances, the white or fibrous, and the gelatinous or pulpy into which the white is plunged. This opinion is controverted by Serres ; and Scarpa, who has written particularly upon the structure of these bodies, describes them as consisting of a congeries of nervous threads, most of which are scarcely perceptible, and all continuous with the nerve or nerves above and below the ganglia. According to Scarpa, then, the nervous cord when it enters the one extremity of the ganglion begins to be separated into its component fibres, which diverge and form intervals, between which delicate cellular tissue is interposed, and that these filaments are subsequently collected at the opposite extremity of the ganglion, where they are continued into the other nerve or nerves. Our own experiments and observations would lead us to prefer the conclusion of Scarpa, yet the opinion of Spurzheim derives much plausibility from the fact that one or more of these ganglia take the place of the brain in the invertebrated animals, and under these circumstances would require to be composed at least of the grey and white cerebral matter which is known to enter into the brains of the higher animals. At the same time from repeated examinations of this texture, we would be inclined to describe each ganglion to consist of the three following parts. 1st, An exterior covering which varies in thickness in the ganglia of phrenic and vegetative life ; 2d, A number of minute nervous filaments ; and 3d, A quantity of cellular tissue by

which these filaments are connected, and which constitutes the principal part of the ganglionic mass.

Various opinions have been entertained regarding the use of the ganglia. Some view them as brains or centres of nervous energy; others as parts that withdraw the nerves which pass through them from the influences of the will; and others, along with Spurzheim, that they are essential parts of the nerves to which they belong, originating nervous fibres and serving as points of communication between different nerves, as well as probably aiding in the evolution and distribution of the nervous fluid, a fluid which is supposed by many to exist, although it has never yet been a subject of demonstration. The ganglia appear to us to effect two purposes, to be inlets of nutrition to the nervous filaments, and modifiers of the action of nerves. The first of these objects is effected by the extended surface, which the ganglion presents for the entrance of blood-vessels, and the second from the change of relationship which the nervous fibres experience in their transit through the ganglia, a change which may be compared to the change of relationship which takes place to a great degree in the formation of a plexus.

A *plexus* is formed by the mutual communication and subsequent separation of two or more nervous cords. The plexus is sometimes simple and formed in the manner above stated, sometimes much more complicated, when we find a greater degree of plaiting or interlacing, and generally the greater the number of cords that enter into the plexus, the crossing and interlacing is the greater. Some of the plexuses are situ-

ated at the exterior and others in the interior of the body. Some are formed by nerves of vegetative and others of phrenic life. They resemble in this respect the ganglia, and probably ganglia and plexuses differ in nothing essential. This opinion receives some support from the fact that ganglia are found occasionally to take the place of plexuses and *vice versa*; and that one of the ganglia (the Gasserian), at the posterior root of a compound or spinal nerve always assumes the plexiform character, that it may probably accommodate itself more easily to the form of the surrounding textures. Ganglia and plexuses seem chiefly useful as organs of sympathetic union, collecting the nervous fibres and cords from various organs, and thus combining these organs in sympathetic unity. What the structure and use of ganglia in the invertebrated animals may be, is not easy to determine. Analogy would lead us to the belief that the superior ganglia at least of such animals are modifications of brain, as these ganglia always enter into the formation of their heads, and differ as remarkably in form and magnitude as the instinctive powers of such creatures differ.

Third.—Of the Cerebro-Spinal axis. This part of the nervous system is contained within the cranium and vertebral canal, and displays great diversity of parts and complication of structure. We may divide it into four portions. 1st, The spinal marrow or cord. 2d, The medulla oblongata. 3d, The cerebellum; and 4th, The cerebrum. The first and second of these divisions are remarkable for their external smoothness, the third for its *luminated* appearance, and the fourth for its *convoluted* structure. In the spinal cord and medulla

oblongata, the *grey* cerebral matter is enclosed in the *white*; and in the cerebellum and cerebrum, the grey matter both covers the white and is plunged in various ways into its substance.

1st. *Of the Spinal Cord.* The spinal cord is an irregular cylindrical mass that extends from the crossing of the pyramidal bodies, which is nearly opposite the foramen magnum of the occipital bone, to the inferior margin of the first lumbar vertebra, and consequently occupies only the cervical, dorsal, and a small part of the lumbar regions of the spinal canal; the remaining part of the canal being occupied by the *cauda equina*, or nerves which connect the pelvic extremities to the lower part of the cord.

We cannot wait to notice the beautiful adaptation of the spinal cord to its surrounding apparatus, or show how exquisitely the spine, its external incasement, is not only calculated to protect the nervous prolongation within, but to perform opposite and apparently inconsistent actions, upon the due performance of which however, not only the well-being of the spinal cord itself, but of almost every other part of the body depends. We can only afford time to refer to the structure and uses of the spinal cord itself. This is the least complicated of all the parts of the *cerebro-spinal axis*. It consists of two columns of white nervous matter united together in the mesial line of the body, and inclosing a central column of grey matter of a very peculiar form. The whole mass is perfectly symmetrical, and divided by an abdominal and dorsal fissure or groove into two equal or nearly equal parts. The *lateral* longitudinal grooves referred to by Soemering

and Portal we have never been able to discover. We are persuaded they do not exist. This is the opinion of Spurzheim, and many other modern anatomists ; and we beg to direct particular attention to the fact, as we intend to deduce from it a physiological conclusion. The spinal cord is not of equal thickness throughout. Spurzheim says its thickness at every part bears a uniform relation to the magnitude of the nerves that proceed from it, and consequently that it is thickest at the points where the nerves of the upper and lower extremities pass off. Each column of the cord has two sets of nerves inserted into it, one into its dorsal, the other into its abdominal surface. These are usually called the dorsal and abdominal *roots* or origins of the spinal nerves ; although Serres and Geoffroy St. Hillaire, have clearly demonstrated that these nerves *arise* from the various organs of the body, and are *inserted* into the spinal cord. The experiments of Bell and Magendie, have also proved that the dorsal roots or insertions with their ganglia are nerves of common *sensibility*, and that the anterior insertions belong to nerves of *motion* only. These facts have led many physiologists to the conclusion that the spinal cord is an organ of motion and sensation, but in what respects it differs from the functions of the nerves inserted into it, they have not attempted to explain. Dr. Spurzheim says, that it is, 1st, the *origin* of the spinal nerves ; 2d, an apparatus that contributes to muscular and sensitive powers ; and 3d, a means of communication between the cerebral operations, the sense of touch, the power of motion in general, and

the functions of vegetative life collectively. With the first of these views it is impossible to concur ; it has been proved to be erroneous. The nerves are *inserted* into the spinal cord, but cannot be said, in correct language, to arise from it. That the cord contributes to muscular and sensitive power is probably true, but at the same time is a gratuitous assumption. Injuries of the spinal cord affect indeed both muscular motion and sensibility, but it has not yet been proved, how much of the effect induced is attributable to the state of the spinal cord itself, and how much to the nerves inserted into the cord, and which are necessarily affected by injuries or diseases of that part. Spurzheim admits, with the more accurate anatomists, that each lateral half of the cord consists of a single column of nervous matter, to which both nerves of motion and sensation are attached ; he supposes the column formed by a nervous ribbon rolled upon itself ; but, if this description is accurate, does it not border on the absurd to suppose that this single roll of nervous matter should be the seat of two such distinct functions as motion and sensation ? The spinal cord appears to be merely an instrument of *communication* between the nerves of motion and sensation, and the brain the seat of the intellectual operations. Did time permit, we think we could prove the correctness of this opinion by a reference to the effects of compression—the nerves below the point of compression only being uniformly affected, and never the nerves between the point of compression and the brain. When the spinal cord at the upper part of the neck is compressed the animal instantly dies, and we know that

it dies, not from the *direct* effects of the lesion, but from the paralysis superinduced upon the nerves, below the point of compression, and more particularly from the paralysis of the respiratory nerves. These nerves are cut off from the influences of volition, the respiratory muscles consequently do not act, and death necessarily and immediately ensues. But if the spinal cord were *directly contributory* to muscular and sensitive power, is it not more than probable that it would show this power under these circumstances? If these nerves really receive a supply of nervous power from the spinal cord, what hinders that supply from being continued when a slight compression is made at the upper extremity only of the organ? It would be exceedingly difficult to give a satisfactory answer to this question; but if we admit that the spinal cord is only an organ of communication or connexion, all difficulties vanish, and we have at once a simple explanation which can account for all the attendant phenomena, both in a state of health and disease.

2nd. *Of the Medulla Oblongata.*—The medulla oblongata is often viewed by anatomists as nothing more than the upper extremity of the spinal cord, and differing in no respect from the lower part of the prolongation, except in a slight difference of form, and a greater degree of bulging or protuberance. The medulla oblongata, however, is an organ in some respects essentially different, though in connexion with the former. It is more complicated in structure than the body of the spinal marrow, of which it may be said to constitute the capital or top. It consists of

six eminences or columns of cerebral matter, three on each side ; these are the *pyramidal, olivary* and *restiform* bodies, by the union of which a distinct mass is formed, which lies within the cranium, and is in connexion with nerves, like the spinal cord itself, and capable besides of being traced upwards into the substance of the cerebrum and cerebellum. It seems, therefore, to have functions in common with the spinal cord, and others which cannot be said to appertain to that part of the nervous system. The medulla oblongata is undoubtedly an organ of communication and connexion between certain nerves and the brain, and constitutes besides the formative or commencing fibres of the cerebrum and cerebellum. This last mentioned opinion is not purely hypothetical, it is derived from observation. The medulla oblongata exists before the brain ; it consists of bundles of fibres which are found to extend upwards with the development of the cerebral organ. There can be no doubt that the medulla oblongata consists of bundles of fibres ; there can be no doubt that these bundles increase in length from below upwards, and there can be no doubt that these bundles can be traced into the cerebrum and cerebellum, and that they enter into the structure of these parts.

3d. *Of the Cerebellum.*—The cerebellum is situated in the lower and back part of the cranium, under the posterior lobes of the cerebrum, a dense membrane intervening to ward off the pressure of the superincumbent mass. The cerebellum is of an elliptical form, the long diameter stretching horizontally and at right angles to the mesial line of the body. Like all other parts

of the nervous system, it is symmetrical, its middle line corresponding with the mesial line of the body, and dividing the whole mass into the right and left hemispheres, which have been still farther divided by some anatomists into lobes, and these lobes into laminæ. It is foreign to the present discussion to enter into a minute examination of all the processes that are found upon the external and internal surface of this division of the brain. It is sufficient at present to state that the *cerebellum* consists of grey and white cerebral substance, the grey covering the exterior of the whole mass, and found also in the interior. This last constitutes the ganglion of the cerebellum, a nucleus of grey matter which is brought into view, by making a vertical incision at the junction of the internal with the two external thirds of the cerebellic hemispheres. The white or fibrous matter of the cerebellum is continued from the corpora restiformia of the medulla oblongata and meeting with the grey ganglia, it proceeds strengthened and reinforced, and enters into the formation of the laminæ. This constitutes the *diverging fibres* of the cerebellum. Another set of fibres are described by Gall and Spurzheim as arising from the laminæ, and which enter into the formation of the *pons varolii* or *tuber annulare*. These are the *converging fibres* of the cerebellum, which meet in the mesial line and form a commissure which always bears a relation to the size of the cerebellar hemispheres.

The cerebellum is not a simple portion of cerebral matter. It is highly complicated, and probably is the seat of more than that feeling indicated by Gall. This is a supposition which appears more than pro-

bable from the following considerations :—1st. The magnitude of the cerebellum. 2d. The complicated character both of the external and internal structure of the part. 3d. The successive additions made to it during its development. 4th. The diversity of form and complication which exist in the cerebella of lower animals. And, 5thly. The fact that injuries that affect *one* part *only* of the mass, produce effects on the generative organs. There can be no doubt that part of this organ is the seat of the instinct of propagation. What the functions of the other lobes may be we cannot tell, and it is useless to conjecture.

4th. *The Cerebrum*.—This is the largest, most complicated, and most important part of the nervous system. Occupying six-sevenths at least of the cranial cavity, it chiefly contributes to the size and form of the whole head, and deserves consequently particular consideration. Some have maintained that the form of the head is dependent upon the skull rather than upon the brain, but the most undoubted evidence exists of the erroneous nature of such a conclusion. The brain, we know, is not only formed prior to the skull, but every modification of form and size of the cerebral organ, and parts within, influence in a corresponding ratio the form and size of the osseous encasement.

The *form* of the cerebrum has been represented as nearly the same in *all brains*, but the idea is fundamentally erroneous. There is a *similarity* undoubtedly among different brains, but nothing more; and it may be questioned if two brains have been ever found precisely alike. We find not only differences in the great outlines, some being long and narrow and others short

and broad—some being large and massy in the superior region and narrow below—while in others an opposite configuration is visible, the greatest mass being at the base of the brain, and the least at the top ; but remarkable differences are also discoverable in the relative size of the anterior, middle, and posterior lobes, and in the relative size of the different convolutions. The cerebrum has indeed a form which may be said in a general way to appertain to all brains ; but the modifications of that form are infinite, like the diversity of character that exists in society. The *general* form may be said to be oval when viewed from above, the smaller extremity of this oval being turned forwards. It is divided by a deep fissure into two nearly equal and symmetrical parts, termed hemispheres, the fissure giving lodgment to a dense membrane which separates the hemispheres, and prevents the one from gravitating upon the other in the varied lateral motions of the head. The two sides of the cerebrum are united in the *centre* at different points, but at the anterior and posterior extremities they are completely separated. The superior, lateral, inferior, and commutual surfaces of both hemispheres of the cerebrum are remarkable for the number of ridges and depressions, or in other words, for the *convolutions* found on every part of the external surface of the organ. The *internal* surface is smooth and so disposed as to form cavities or chambers called *ventricles*, which secrete a serous fluid ; but the use of such chambers and the fluid they secrete is not known. In the ventricles, the *internal processes* of the brain are best seen ; but without waiting to describe these processes, it may be stated that they are

not viewed as phrenological organs. They are believed to be, some of them, ganglia or organs of reinforcement, and others organs of cerebral communication and connexion.

Gall viewed the brain as composed of two sets of fibres—the diverging and converging. The first, he says, are capable of being traced from the pyramidal and olivary bundles of the medulla oblongata, through the great ganglia, to the convolutions which they principally form ; and the second from the grey matter upon the surface of the convolutions to the mesial plane of the brain, where they form by their convergence the commissures. Whether the structure of the brain, as indicated by Gall and Spurzheim, be substantially correct is yet problematical. Some of their views have been proved to be correct ; but it remains to be proved, whether others are equally well founded.

Phrenology leads us to draw conclusions from the *form* of the brain regarding the functions of the individual parts ; and these conclusions, if true, can never be affected by any subsequent discovery that may be made of the intimate texture of the organ. Gall's primary phrenological observations were made previous to the knowledge he ultimately arrived at, of the structure of the brain. But these observations are still admitted to be correct, and they will remain correct whatever notions we may entertain regarding the structure. Gall's phrenological conclusions were not drawn from any supposed anatomical structure. His conclusions were the result of close and accurate observations, and of observations relating entirely to the *form* of the

brain. So long, then, as we can prove a relationship between the configuration of the brain and the character of the mental powers, the intimate structure, in determining the truth of this relationship, can at best be only of secondary importance.

Every part of the brain exists at the period of birth, yet at that period it is unfit for exercising its functions. It is larger at that period than in many of our intelligent animals, yet the mind of the infant is a perfect blank. We are bound to believe, therefore, that quality rather than quantity of brain is the cause of this peculiarity. It is destitute of the necessary consistency or cohesion, and a certain consistency of fibre seems indispensable for vigorous action. In tracing the brain from birth to the period of old age, we can gain little assistance even from those who have devoted their attention to this very subject, for they have generally proceeded upon the principle that the brain is a single organ. All their observations, therefore, respect the general length, the breadth, or the average proportions of such parts as the cerebrum and cerebellum, or the proportions of the cerebrum and cerebellum to some of the internal processes. If we would exclude any from this general animadversion, it would be the Wenzels. For twelve years they were engaged, and under most favourable circumstances, in investigating the structure of the brain, and they have given the result of their experience in a book remarkable for minute and elaborate detail.* The general result of their investigations is, that some parts of the brain increase most in size before

* De Penitior. Struct. Cerebri.

birth, others between birth and the seventh year, but that all the parts of the cerebral organ have acquired, at the seventh year, their full dimensions, and suffer no alteration in this respect afterwards.

These facts, founded as they are on accurate observation, do not affect in the slightest degree the fundamental principles of Phrenology, for Phrenologists have all along drawn a broad line of demarcation between the effects of size and of energy of an organ. And although it has been proved that the brain attains nearly its full size at the seventh year, it has not been insinuated that its organization is perfected at that period. We know, indeed, that the brain is much softer at the seventh than at the twenty-fifth year. It is obvious, therefore, that after the brain has attained its full size, internal changes are still in operation; and these changes are as necessary for the full manifestation of the intellectual operations as that of the full external development itself. Besides, the measurements of the Wenzels do not lead to the conclusion, that the cerebrum and cerebellum are exactly of the same size, and much less of the same form, in all individuals—quite the reverse. They found the greatest disparity in these respects; and, consequently, the heads of children of seven years of age differ as much from each other as at later periods of existence, and are fitter subjects of phrenological observation, than the heads of the more advanced in life. The history of Phrenology speaks strongly in favour of this opinion, and Gall seems to have been peculiarly attached to the study of Phrenology on the heads of young persons. The brain at that period is less concealed; the skull, muscles, and integuments,

are extremely thin; the frontal sinuses are not then developed; and as the brain is then fully formed, it is clear that every thing concurs to render our ideas of the configuration of the whole brain, and of the relative size of the individual parts more accurate, than at the advanced periods of life.*

CHAPTER V.

Phrenological Nomenclature.—Fundamental Powers.—The Essence of the Mind an improper Subject of Investigation.—Short Notification of the Fundamental Functions of the Phrenological Organs, and Abuses to which some of them are liable.—Size of the Organs.—Activity of the Organs.—Temperament—Combination of the Organs.—Materialism.

MANY object to the phrenological nomenclature. The names of some of the organs, it may be admitted, are

* To those who have not examined carefully into the matter, the statement in the text may appear startling or incredible, and the palpable increase of size of the *head*, which takes place after the seventh year, may seem a decided refutation of the allegation. But it must be remembered that the increase which takes place after the period above mentioned, is easily accounted for from the growth of parts *exterior* to the brain. In the child at that period, the cerebral *envelopes* are extremely thin; they afterwards become thicker and thicker by an increase of skull, of fat, of muscle and of skin: the additional growth of these parts accounting most satisfactorily for whatever increase of size the head may have attained. Some phrenologists believe that the organs grow from the effects of mental exercise even after a very late period in life, and easts of the same individuals at different periods of their lives are adduced in support of the supposition. In all such cases which the writer had an opportunity of examining, the increase was obviously external, for the *face* had increased in the same proportion. After attaining full growth, the brain, like the eye, neither increases nor diminishes in size; its consistency or density may vary, but we have no reason to believe that any change takes place either in its form or size.

by no means fascinating ; but if the *thing* is correct we ought not to dispute too much about the terms in which it is conveyed. The founders of the system had difficulties to contend with which only few can appreciate ; and surely we can bear with them a little should they have imposed upon us names which are not strictly conformable to the genius of our language. At the same time, the terms are formed upon a principle more philosophic than may at first sight be imagined. The terms characterizing the *propensities* are derived from a fundamental word, which is usually sufficiently plain. Take constructiveness for example. The fundamental word is *construct*, the meaning of which is perfectly obvious. To the fundamental word, *ive* is added, which indicates the power of producing, and *ness* is still farther added, which expresses an abstract state. The vocable *ous* is used in some instances to characterize a *sentiment*, as cautious, conscientious, and *ness* is added, as in the former instances, to point out the abstract condition. At the same time, the names of many of the sentiments, and of all the intellectual powers, are formed of common terms, such as *love of approbation*, *self-esteem*, *hope*, *form*, *colour*, *order*, *comparison*, &c. To these terms no serious objection can be made ; they are expressive, and can never be misunderstood. The phrenological nomenclature, however, has given birth to no small merriment among those who cannot look beyond the surface of things. Such terms, it is said, are too outlandish for common use ; but where is the science without its technicalities. Anatomy, chemistry, botany, and mineralogy, are full of them ; but shall we despise, reject, or laugh at those sciences,

merely because the nomenclature may not be to our liking. The weakness of the objection is rendered still more apparent, when we remember that out of 35 or 36 technicalities, three-fourths of them are found with precisely the same import in all our standard English dictionaries. The few remaining terms are, no doubt, to a certain extent, *new*; but so are the ideas they are made to represent. Even of these few, four are compounded of the common English words, adhesive, acquisitive, constructive, ideal, to which no objection can rationally be made. Four are compounded of words less purely English, but still of words in use. These are *amative*, *concentrative*, *combative*, and *secretive*. The only term in phrenology, derived exclusively from a foreign language, is *philoprogenitiveness*, a term which is no doubt rather uncouth as an English word; but which expresses more powerfully the meaning intended to be conveyed, than any other term which can be employed. It may even be conceded to the opponents of phrenology, that the phrenological terms, like the technicalities of every science, are harsh and unwieldy; but, notwithstanding, they are neither illogically compounded, nor unphilosophically applied.

It is of the utmost moment in investigating the phenomena of mind, to ascertain what mental powers are *fundamental*. Philosophers have hitherto attempted to arrive at this wished for result solely by reasoning, but have they been successful or attained unanimity upon the subject? Have they not arrived at as many different conclusions as the number of investigators? They have besides erred in generalizing too much. They have referred all the actions of

animals to something they call *instinct*, and the thoughts and actions of men to *intellect*. One bird as soon as it is hatched runs into the water, and they say that it does so by instinct. Another sings by instinct. Others migrate by instinct. Some animals make provision for the winter by instinct. Now, though we shall not call in question the propriety of such a term, can we suppose that *one* condition of the brain will explain all these various instincts. If we do not admit that animals have positive knowledge, we must both admit that they have determinate instincts; and that these powers, whatever they may be, are alone the gifts of nature. All the actions of men have been referred to intellect; but though intellect is necessary for the successful prosecution of human affairs, yet can it be explained how one man can excel in painting and not in music; how one man may possess a nice taste for music, and exhibit no talent for mathematics or poetry; or how a man may be a natural orator, and excel neither in poetry nor mathematics? This diversity of talent, I am aware, has been attributed to the peculiarities in the mental constitution, and the opinion is so far just; but it is not sufficiently explicit. Men are born with intellects or understandings which differ materially from each other, so that there are particular kinds of understandings as there are of instincts among the inferior animals; and Phrenology demonstrates that each kind of understanding has a particular instrument for its manifestation.

Dr. Gall attempted to compare the parts of the brain with the powers of the mind as inculcated in

systems of philosophy. But he could arrive at no satisfactory result. He then compared the developments with the *actions* of men, and he had soon reason to congratulate himself on his success. And is it not an undoubted fact that some men show a disposition to certain actions from their earliest childhood ; some to music, some to drawing, some to calculation, and some to constructing mechanical instruments, &c. The ancient philosophers maintained that all genius is inherent ; nay they went farther than this, they advocated the doctrine that every idea is innate. But the phrenological doctrine is exceedingly different. Phrenologists maintain that the dispositions of mankind are innate, in the same way that the power of locomotion or vision is dependent on organs that are born with us ; but as we cannot foretell what kind of muscular movements may take place, or what things may be seen, neither can the ideas which may arise in the mind be foretold, as they depend on circumstances which are contingent.

Phrenologists admit those powers of the mind to be fundamental, which exist in one kind of animal, and not in another : which differ from or are not proportionate to the other faculties of the same individual ; which appear or disappear earlier or later in life than other faculties ; which act or rest singly, and which may singly preserve their proper state of health or disease.* Now if the phrenological doctrines be tried by these tests, they will not be found defective. Not one

* See Combe's System.

of the powers which Phrenology has developed can be dispensed with, or its place supplied by any other power.

A question extremely interesting and intimately connected with this point arises. Is mind itself simple or is it compound? Metaphysicians and philosophers generally admit it to be simple, and that the various powers which it displays are but so many states or conditions of the same indivisible essence. The feeling of personal identity which we generally experience under every state of being, would naturally lead us to this conclusion, and the majority of phrenologists are of that opinion. But many entertain very different views. The question cannot be decided by observation. We do not know in what the essence of *matter* consists, and it is far more difficult to dispel the thick darkness which veils the essence of the mind. At the same time the argument drawn from personal identity is far from conclusive, as individuals have occasionally become insane on that subject, and on no other. Such persons lose all consciousness of their past and proper personality, and imagine themselves different persons altogether, while in other respects they feel and think correctly. Now, if the feeling of personal identity arose from the unity, indivisibility or singleness of the essence of the mind, how could that *feeling* be lost while the powers of the mind remained entire. But if we admit that the mind consists of an aggregate of powers, we could easily suppose that one of these powers could supply the feeling of personal identity, and be lost and recovered like any of the other powers.

Curious cases of this kind are on record.* They seem to lead to the inference that the feeling of personal identity is a primitive mental affection connected with a cerebral organ, and hence liable separately to disease. At the same time many eminent phrenologists entertain the opposite opinion; among these we might mention the Rev. Dr. Welsh, who argues strongly for the individuality of the mind, the thoughts and feelings of which alone, he supposes, are manifested through the organs of the brain. Fortunately in studying Phrenology we are not called upon to decide concerning the essence of the mind. It is to the powers and faculties of the mind only that we have to direct our attention; and observation has enabled us to decide that every primitive propensity, feeling and intellectual power, is connected with a cerebral organ. What the mind may be, stripped of this mortal coil, we cannot say. We have no experience of it in that state; and instead of entering upon such a fruitless speculation, it is better, as Dr. Welsh has remarked, to follow the precept of the poet, to "Wait the great teacher death, and God adore."†

Phrenologists investigate the powers of the mind in connexion only with the brain, and thus simplify mental philosophy by reducing it to a branch of physiological science.

They, however, admit two great orders of mental powers, *Feelings* and *Intellectual Faculties*. Although usually confounded by philosophers, these two kinds of mental powers are essentially different. Man is said to

* See Medical Repository, for 1816.

† See Combe's System.

be a reasonable being, and although the observation is just to a certain extent, yet are all his actions the result of reason? Are not many of his actions such as reason cannot approve? Is he not frequently influenced by feelings alone, and feelings which are purely of an instructive character? Are there not such feelings as sexual desire and parental attachment? But are *they* the result of reason? Do we not find them in powerful operation even in the inferior animals? and asserting occasionally their independent character in man, by rising in awful activity even when reason objects, or is absent as in sleep? I think we must admit this, and if we do, we admit, at the same time, the correctness of the phrenological classification of the mental powers into *feelings* and *intellect*. Many are inclined to admit that the brain is connected in some inexplicable manner with the purely intellectual powers, but they refer the feelings to other organs, as the heart, liver, stomach. Hence they speak of a good head, a bad heart. But is the heart the seat of the moral feelings? If it were so, or if the moral feelings spring from it, or any other organ except the brain, we would find these feelings in a higher degree than in man, for these organs are larger and of a finer organization in some of the mammiferous animals, as in man. Phrenologists maintain, that all the feelings have their seat in the brain, and that it is more easy to prove the connexion between the feelings and certain parts of the brain, than to show the connexion between the intellect and that organ. The Feelings have been arranged into two genera, Propensities and Sentiments. The first are those feelings which give impulses to act in a certain determinate manner, as the

sexual, the parental, &c.; and the second are those which modify the propensities, as self-love, religious feeling, benevolence, &c. All the propensities are feelings strictly of the animal kind, and common to man and inferior animals. The sentiments are feelings of a higher description. Some of them are found existing to a certain degree, in a few of the inferior animals, but the greater part of them are peculiar to man. The organs of the Propensities are situated at the posterior and inferior part of the brain, and when such parts of the brain are more largely developed than the others, the individual in whom such a conformation exists, is unfit for any thing great or noble. His happiness lies entirely in animal gratification; and he attempts to gratify these feelings, reckless of the peace or happiness of others.

The organs of the Sentiments are situated at the crown of the head, and when very fully developed, impart a benignity and grandeur to the individual which is never found in conformations of a different kind. All artists who have studied nature know this, hence we find them giving the requisite elevation to the heads of characters famed for moral and religious qualities. But could they represent such a character as Shakspeare's Caliban with such a conformation? If they did, they would shock our ideas of natural consistency. Caliban could only be properly represented with a forehead, "villanously low," or if we gave him a different conformation, we would change his character; he would no longer be Caliban. The sculptor, the portrait, and historical painter, can appreciate the truth of these observations. They have studied practical

Phrenology, without knowing, it may be, that there is such a science. Their works, indeed, are so many phrenological illustrations, and the closer they copy nature, the more truly phrenological they become.

The powers purely intellectual, have been arranged by phrenologists into two kinds. 1st, The knowing, or perceptive powers, or those faculties which enable us to form ideas of physical objects and their qualities and, 2ndly, The reflective powers, or those faculties by which we compare and judge. The organs by which these powers are manifested, are situated in the forehead, and it has long ago been remarked, that with the development of this part of the brain, the intellectual powers are the stronger. The *organs* of the knowing faculties are situated at the lower and middle parts of the forehead : and those of the reflective faculties, at the uppermost part of the forehead. We seldom find these two great sets of organic parts equally developed. In the majority of mankind, the lower part of the forehead is the larger. Hence, we find the majority of mankind, better adapted for observing and collecting facts than for reasoning correctly, or drawing just conclusions from the facts with which they are acquainted. When the upper part of the forehead is the most protuberant, the individual so constituted, is fond of reasoning. He is apt to generalize too much. The knowing organs being comparatively less developed, dry facts have to him no attraction. Every fact and every event excites his reasoning power. On a single fact he will erect a theory. He reasons profoundly, but his reasonings are too speculative to be useful. When both knowing and reflecting organs are fully

developed, and in nearly an equal degree, the individual so constituted has the best possible intellectual conformation. He gathers with avidity, knowledge from every quarter. He reasons also profoundly, but facts are the foundations of his reasonings and inductions. Such a conformation exists in an eminent degree in Lord Brougham ; and need I say, that his character is such as phrenologists would expect from the conformation ?

SHORT NOTIFICATION OF THE PRIMITIVE FACULTIES OF THE
MIND AND THEIR ORGANS.

ORDER I.—FEELINGS.

GENUS I.—PROPENSITIES—COMMON TO MAN WITH
THE LOWER ANIMALS.

THE organs of the propensities are situated at the *back* part, at the *sides*, and at the *base* of the brain. We might thus make a threefold division, which would assist materially in recollecting them. Those organs that lie fairly in the back of the head are the three following :—1st. Amativeness, which is situated lowermost of the three, and which imparts a breadth and prominency to the upper part of the *neck*. 2d. Philoprogenitiveness, which lies immediately above the former, and usually, in the female, constitutes the most prominent part of the hind-head ; and 3d. Inhabitativeness, which lies immediately above the last, midway

between it and the part of the head where the hair turns backwards.

1.—AMATIVENESS.

Use.—Produces sexual love. *Object*.—The propagation of the species. *Abuses*.—Fornication, adultery, incest, and other improper, illegitimate, and criminal modes of gratification. Its *inactivity* produces passive continency.

2.—PHILOPROGENITIVENESS.

Use.—Produces love of offspring, and affection for young and tender beings. *Object*.—Preservation of offspring. *Abuses*.—Pampering and spoiling of children, and excessive sorrow for their loss. When *inactive*, it produces carelessness for children.

3.—INHABITIVENESS.*

Use.—Imparts a feeling of attachment to, and a desire of permanence *in, place*, and probably confers also the power of fixing and rendering permanent our ideas and emotions. *Object*.—Self-preservation in inferior animals, as it induces them to select places best adapted for their organization. *Abuses*.—Aversion to the active duties of life, home sickness, a brooding over morbid mental impressions.

The organs of the propensities situated at the *side* of the head, extend in a line (with one exception) along the lower part of the cranium, from philoprogenitiveness to the outer side of the socket of the eye. Two of

* Concentrativeness.—*Combe*.

these organs lie behind the opening of the ear, two immediately above that opening, and two before it. The organs that lie before and behind the ear are nearly on the same level, the one placed before the other. The two that lie above the opening of the ear are so disposed, that the one is placed over the other.

Adhesiveness lies by the side of *Philoprogenitiveness*, and *Combativeness* betwixt *Adhesiveness* and the opening of the ear. Of the two situated exactly over the opening of the ear, the lower one is *Destructiveness*, which is surmounted by *Secretiveness*. Immediately before *Destructiveness* we find *Acquisitiveness*; and still farther forward, and a little lower, near the outer part of the eye in the temples, we find *Constructiveness*.

4.—ADHESIVENESS.

Use :—Attachment to persons. *Object* :—Friendship and society arise from it. *Abuses* :—Attachment to worthless or improper persons; inconsolable grief for the loss of a friend. Its *inactivity* produces carelessness about others.

5.—COMBATIVENESS.

Use :—Tendency to oppose and attack. *Object* :—Defence, intrepidity, courage. *Abuses* :—Love of disputation and contention, quarrelsomeness. Its *inactivity* predisposes to peaceableness, and aversion to wrangling.

6.—DESTRUCTIVENESS.

Use :—Tendency to destroy. *Object* :—The destruction of whatever is noxious for self-preservation,

and the killing of inferior animals for food. *Abuses* :—Irascibility, cruelty, murder, tendency to torment, harshness, severity, &c. Its *inactivity* gives rise to passive meekness.

7.—SECRETIVENESS.

Use :—To *conceal* our thoughts or actions from others. *Object* :—To prevent our involuntary thoughts and emotions from being exposed to public view. *Abuses* :—Quizzing, cunning, deceitfulness, lying, &c. When *inactive*, it predisposes to simplicity of manners.

8.—ACQUISITIVENESS.

Use :—The tendency or desire to *acquire*. *Object* :—To provide for future wants. *Abuses* :—Excessive worldly-mindedness, selfishness, avarice, theft, &c. Its *inactivity* leads to a carelessness for property.

9.—CONSTRUCTIVENESS.

Use :—Imparts the desire and tendency to construct. *Object* :—To induce all endowed with the feeling to protect themselves from the inclemencies of the weather, and from other dangers. *Abuses* :—Construction of whatever may have an injurious tendency, or any thing from improper motives.

The organs of the Propensities that lie in the *base* of the brain are beyond the reach of observation in the living subject ; accordingly, phrenologists have not yet arrived at any decided conclusion regarding the fine-

tion of these organs. Some suppose that the organ of the *love of life* is situated in some part of the middle lobe—an opinion, we conceive, at best only probable. It is more than probable, however, that the instinct for food emanates through some other part of the inferior surface of the middle lobe. This instinct has been denominated Gustativeness, or Alimentiveness, which, when large, imparts a swell to the head at the temporal arches before and a little below the opening of the ear. In the phrenological busts it is marked with a cross.

GUSTATIVENESS.

Use:—Imparts the desire for food. *Object*.—To enable the animal to select food best adapted for its organization. *Abuses*:—Inordinate desire for the pleasures of the table, gluttony, drunkenness. Its *inactivity* disposes to temperance in eating and drinking.

GENUS II.—SENTIMENTS.

The organs of the Sentiments are situated in the superior region of the brain, and, when large, impart both a breadth and elevation to that region of the head. Their exact situation must be learned from the *bust*. It may be stated, however, that these organs are all double, as in every other part of the brain; but that those in the middle line of this region, from their proximity, (although in different hemispheres of the brain,) are figured on the busts as if they were single. Four of these organs lie along the middle line of the head, and when examined from behind forward, hold the following order:—1st. Self-esteem, which lies far-

theſt baek, and immediately before and above Inhabitiveness. 2d. Firmness. 3d. Veneration, which corresponds with a line drawn over the crown from the one ear to the other. 4th. Benevolence, which extends from the last-mentioned to the upper part of the forehead. By the sides of these the other organs of the sentiments are found allocated in the following manner :—By the side of Self-esteem we find the Love of Approbation ; and by the side of this last, and a little more anteriorly, the organ of Cautiousness, which corresponds with the centre of ossification of the parietal bone, and a certain distance around that point. By the side of Firmness, Conscientiousness is situated. By the side of Veneration, Hope and Wonder are found. Lying a little to the side, and stretching farther forwards than Hope, and by the side of Benevolence, we find Imitation ; and at the outer and lower margin of which Ideality is found, bounded in front by Wit.

The organs of the Sentiments differ from those of the Propensities, not only in situation, but in function. The Sentiments are feelings of a refined kind, the exercise of which is accompanied with an emotion ; but no emotion attends the exercise of the Propensities. The Sentiments have been simply arranged into—1st. Sentiments common to man, with some of the lower animals ; and, 2d. Those proper to man.

Some have viewed it as a prostitution of the term *Sentiment*, to apply it to any instinctive power of an inferior animal. But there are gradations in inferior animals. The higher of these animals display feelings of a less gross kind, and which, in a more exalted

state, form an important feature in humanity. The sentiments which exist in some of the higher inferior animals, are in a simple and weak state; but in man they burn with a brilliancy that imparts a warmth and lustre to his moral nature.*

I. SENTIMENTS COMMON TO MAN AND SOME ANIMALS.

10.—SELF-ESTEEM.

Use:—Imparts a love of self. *Object*:—To enable man to prize, and to turn to the greatest advantage, all his powers. *Abuses*:—Egotism, conceit, pride,† disdain, love of power. Its *inactivity* disposes to humility.

11.—LOVE OF APPROBATION.

Use:—Desire of the good opinion of others. *Object*:—To induce that conduct in man which will render him generally agreeable or pleasing to *society*. Emulation arises from it. *Abuses*:—Excessive thirst for praise, vanity,† ambition, &c. Disregard of the good opinion of others arises from its *inactivity*.

* Aristotle asserts, that a part of divinity is bestowed on man only of "all animals," but afterwards modifies the expression, and says, "or most of all animals." See Part. Animal, l. ii. c. 10, as quoted by Dr. Elliotson in his Human Physiology.

† The following *contrast* of the proud and the vain man, drawn by Gall, affords a beautiful proof of the philosophic acumen and literary taste of the founder of the phrenological system:—

"The *proud* man is imbued with a sentiment of his own superior merit, and from the summit of his grandeur treats with contempt or indifference all other mortals; the *vain* man attaches the utmost importance to the opinions entertained of him by others, and seeks with eagerness to gain their approbation. The *proud* man expects that man-

12.—CAUTIOUSNESS.

Use:—To impart fear. *Object*:—To induce a tendency to *shun* the dangers and evils with which we are surrounded. It forms an essential element in a circumspect and prudent character. *Abuses*:—Cowardice, unfounded apprehension, despondency, melancholy, &c. Its *inactivity* produces absence of fear.

13.—BENEVOLENCE.

Use:—It imparts the desire of the *welfare* of others. *Object*:—Places man in relation with other sentient beings, and conduces much to their enjoyment and happiness. *Abuses*:—Prodigality, profusion, too great a facility of temper. Its *inactivity* predisposes to neglect of charitable objects.

II. SENTIMENTS PROPER TO MAN.

The *organs* of such sentiments do not exist in the inferior animals. These organs, therefore, are characteristic of humanity, and impart feelings of morality and religion. They give elevation and dignity to our moral nature, and fit us for the purest pleasures and the noblest destinies.

14.—VENERATION.

Use:—To impart the tendency to respect or veneration. "The kind will come to him and acknowledge his merit; the vain man knocks at every door to draw attention to him, and supplicates for the smallest portion of honour. The proud man despises these marks of distinction which on the vain confer the most perfect delight. The proud man is disgusted with indiscreet eulogiums; the vain man inhales with ecstasy the increase of flattery, although profusely offered and by no very skillful hand."

rate. *Object*:—To hold men, as members of society, in bonds of closer fellowship, and forms an essential ingredient in religious devotion. *Abuses*:—Servility to superiors in rank or authority, love of the antiquated, superstitious awe. The *inactivity* of the organ produces want of respect to men, and coldness in religious exercises.

15.—FIRMNESS.

Use:—Imparts *fortitude*. *Object*:—Enables us to *bear up* under *evils* and misfortunes which cannot be avoided or overcome. *Abuses*:—Obstinacy, infatuation. Its *inactivity* produces feebleness of purpose, fickleness, and inconstancy.

16.—CONSCIENTIOUSNESS.

Use:—Imparts a desire for justice. *Object*:—It fits men for respecting the rights of each other, and forms them for social intercourse. *Abuses*:—Excessive refinement in our views of duty, remorse for actions which are innocent or of no moment. Its *inactivity* leads to forgetfulness of duty.

17.—HOPE.

Use:—Imparts the expectation of future good. *Object*:—It induces men to look beyond the present moment, and anticipate and prepare for futurity. It is an important element in faith. *Abuses*:—credulity, absurd expectation, love of scheming. Its *inactivity* produces a carelessness of the future.

18.—WONDER.

Use:—Imparts the *love of Novelty*. *Object*:—Induces an *interest* and *delight* in what is new or extraordinary, and thus acts as a stimulant to the knowing and reflecting powers. *Abuses*:—Love of the marvellous, belief in witchcraft, ghosts, or in any thing supernatural. Its *inactivity* produces a disrelish of the marvellous, and predisposes to a preference of the probable and real.

19.—IDEALITY.

Use:—Imparts the love of the beautiful and sublime. *Object*:—It leads us to appreciate the indescribable beauties of the works of nature, and to pant after superior excellence in works of art. It is an essential element in poetry and other departments of the *fine arts*. *Abuses*:—Excess of enthusiasm, preference of the gaudy and glaring to the useful: tendency for the imagination to carry captive the judgment. Its *inactivity* produces a homeliness of character.

20.—WIT.

Use:—Imparts the feeling of the ludicrous, and forms an essential element in the mental constitution of such geniuses as Shakspeare, Rabelais, Voltaire, or Cervantes.

21.—IMITATION.

Use:—Imparts the desire and capability of imitation. *Object*:—To assist in expressing with more effect the natural language of all our faculties, and enable us to imitate works of nature and of art.

Abuses:—Slavish imitation of others. Its *inactivity* produces mannerism.

ORDER II. INTELLECTUAL FACULTIES.

GENUS I.—EXTERNAL SENSES.

SIGHT, HEARING, SMELL, TASTE, TOUCH.

Uses:—To bring the animal that possesses them in *communication* with the external world.

That all our ideas are derived from the external senses is one of the oldest opinions in philosophy. That these organs of the senses are great *inlets* to knowledge cannot be doubted ; but it is quite clear that the organs themselves merely receive impressions—they do not form ideas ; for the formation of ideas the impressions must be transmitted farther than the senses. Physiologists *now* agree that such impressions are transmitted to the brain, which is said to be the *common sensorium*, and that the mind there takes cognizance of the impression, or, in other words, forms an idea. According to this view, then, the brain is admitted to be necessary to the formation of ideas, else why should the mind not be affected by the organ of sensation without the intervention of the brain. The brain is necessary, then, for the origin of all our ideas, even according to this principle, and the question naturally suggests itself, whether is it more probable that the *same* portions of cerebral matter should be the parts through which different kinds of ideas should be formed, or that different portions of the brain should

be allotted for this purpose. The brain is admitted to be necessary in some way or other to the elaboration of every idea. This is a conclusion which cannot be denied. It is as capable of demonstration as any fact in physiology, and it has already been demonstrated. Now, with this admitted fact fully before us, whether is it, *a priori*, more likely that the same parts should elaborate different kinds of ideas, or that for the formation of every different kind of idea there should be a different part? Take it any way the anti-phrenologists choose, the probability is against them. If they admit that the brain is the material organ of the mind, they admit that the mind cannot think without that organ, even though the external senses are perfect, and as the powers of the mind are various and different, it is more than probable that each power has a particular cerebral part for its manifestation.

THE FOREHEAD.

The organs situated in the forehead have been a stumblingblock to the unobservant. Such individuals cannot conceive that so many organs could be congregated in so small a space. But the convolutions of the brain are there equally numerous; and a little study will enable any one to become acquainted with the situation of all the organs. To facilitate our acquaintance with this interesting part of Phrenology, we may view the forehead as consisting of three *ranges* of organs—a *lower*, a *middle*, and a *higher*. In the lower and middle, the organs of the *knowing* faculties are situated; and in the highest, those of the *reflecting*. With *three* exceptions, the organs of the facul-

ties that perceive the *existence* and *qualities* of external objects are situated in the *lower* range, side by side, and in the following order:—1st. Individuality, which is situated between the eyebrows and over the root of the nose, and Form, Size, Weight, Colour, in immediate succession along the course of the eyebrow—*Form* lying rather at the side of the root of the nose than in the eyebrow, and the others corresponding with about the two inner or nasal thirds of the eyebrow or orbitary arch.

The organs that perceive the *relations* of external objects, are situated partly in the *lower* range, but principally in the *middle* one. Three of such organs only are situated in the *lower* range. These are Order, Number, and Language; the two first mentioned occupying the outer third of the arch of the eyebrow—*order* by the side of *colour*, and *number* still nearer the temples at the extremity of the orbitary arch, rounding off the arch and descending a little by the side of the eye. *Language* is situated *behind* all the organs of the lowest range, over the back part of the *roof* of the orbit or socket of the eye, and is beyond the reach of observation; but as it rests upon the back part of the roof of the orbit, it depresses the part of bone upon which it rests, and thus protrudes, more or less, the eyeball itself. We look, therefore, to the prominence of the eye for the *sign* of the size of the organ.

The knowing organs of *relation* are situated in the middle range of the forehead; Eventuality immediately above Individuality, in the very middle of the

forehead ; and *locality, time, and tune*, extending in suecession outwards, in the order now mentioned, to the temples.

The organs of the Reflective Faculties surmount all the others in the forehead ; Comparison in the middle immediately above Eventuality, and Causality by the side of Comparison, and bounded towards the temples by Wit.

GENUS II.—KNOWING FACULTIES WHICH PERCEIVE THE EXISTENCE AND QUALITIES OF EXTERNAL OBJECTS.

22.—INDIVIDUALITY.

Use:—Imparts the power of *observing* and *remembering* specific *individual existences*, without reference to the uses, qualities, or relations of such existences. It is an indispensable ingredient in a genius for physical science.

23.—FORM.

Use:—Imparts the talent of observing and remembering the *configuration* of bodies, and is necessary to the successful cultivation of many of the imitative arts.

24.—SIZE.

Use:—Enables us to observe and remember the *dimensions* of bodies.

25.—WEIGHT.

Use:—Gives the talent of appreeiating, observing,

and remembering the resistance and momentum of bodies, and forms an essential element in the genius for mechanics.

26.—COLOUR.

Use:—Communicates the talent of perceiving and remembering colours, and is essential to the painter, and all in whom a nice discrimination of colour is required.

GENUS III.—KNOWING FACULTIES WHICH PERCEIVE THE RELATIONS OF EXTERNAL OBJECTS.

27.—LOCALITY.

Use:—Imparts the power of observing and remembering the *relative position* of bodies; is essential to the landscape painter, topographer, geographer, astronomer, and surgical anatomist, and those requiring a nice discrimination of the relative position of things.

28.—NUMBER.

Use:—Confers the power of observing and remembering the *number* of objects; imparts the talent of calculation; is indispensable to a genius for arithmetic, algebra, logarithms, and all sciences conversant with simple numbers.

29.—ORDER.

Use:—Communicates the talent of observing and remembering the *arrangement* of objects, and confers an aptitude for methodical arrangement.

30.—EVENTUALITY.

Use:—Imparts the power of observing and remembering events or occurrences of every kind, and conduces to the talent of practical detail in the affairs of life.

31.—TIME.

Use:—To enable us to perceive and remember *duration*, or the relation which one thing bears to another in time. It forms an element in the musical talent.

32.—TUNE.

Use:—Imparts the power of perceiving and remembering melody. The musical ear depends upon it; and without which, however acute the *organ of hearing* may be, no musical talent can exist.

33.—LANGUAGE.

Use:—The power of perceiving and remembering the *signs* of our ideas. It takes cognizance both of natural and artificial language, and forms an element in the philological talent.

GENUS IV.—REFLECTING FACULTIES WHICH COMPARE, JUDGE, AND DISCRIMINATE.

These are the highest faculties of the mind, and which pre-eminently distinguish man from the inferior animals, and enable him to control and mould to his will with facility and power the whole of the animal creation.*

* "Sanctius his animal mentisque capacius altæ
Deerat adhuc, et quod dominari in cetera possit,
Natus est homo."

34.—COMPARISON.

Use:—Gives the power of discovering resemblances, differences, analogies, either among things or ideas, and disposes to the use of figurative language.

35.—CAUSALITY.

Use:—To trace the relation between cause and effect, and the dependencies of phenomena. It imparts a clear conception of logical consequences, and constitutes the principal element in the talent for abstract and *metaphysical speculation*.

Phrenologists calculate the power of the organs of the brain by their size, and when the organs are large, no difficulty can be experienced in discovering them. But is *size* the *only* indication of power in an organ? by no means; size is one condition of an organ and a most important one, but phrenologists also take into account the *activity* of the part; the opponents of phrenology forget this, and hence the errors into which they fall; they will tell you that with phrenologists, *size* is every thing; they will then bid you look at the fleetness and bottom of a race horse, compared with the slow and clumsy movements of the gigantic and unwieldy cart horse, and ask triumphantly if size is of any consequence? but the example now referred to is not a fair one; the race horse is of a different breed from the cart horse; all its parts, independently of its muscles, conspire to give it fleetness;

Or to use the words of Milton, when referring to the creation of man—

“Two of far nobler shape, erect and tall,
God-like erect, with native honour clad,
In naked majesty, seemed lords of all.”

but to place the subject fairly before us, we ought to compare the effects of size, in two individuals of the *same kind*; if we see two cart horses of very unequal size, are we not certain that the larger one is most powerful? and do we not know that among race horses, those in which certain muscles are developed in a greater degree than others, are always the speediest? Among men the same law holds good; pugilists know that a man of ten stones weight, can never be a match for one of fifteen stones. The man of fifteen stones may indeed, from disease or certain other causes, be weaker than the other, but this can never prove that size is of no consequence; for, all things being equal, the larger man will necessarily be stronger than the smaller. This remark applies to every organ of body, and why should the brain* be viewed as an exception?

* "Willis has described the brain of a young man imbecile from birth; its volume was scarcely one-fifth part of that of an ordinary human brain. M. Bonn, professor at Amsterdam, has two little crania of idiots, and the brain of an imbecile who reached his twenty-fifth year, and was so stupid that he was shown for money as an African savage, &c. I have observed heads equally small in many living idiots from birth. All these crania and heads are thirteen or fourteen inches in circumference, and eleven or twelve inches from the root of the nose to the occipital foramen. With from fourteen to seventeen inches in circumference, and from about ten or twelve from the root of the nose to the occipital foramen, we have more or less stupidity—a more or less complete incapacity to fix the attention upon one object—uncertain or transitory feelings and passions—confusion of ideas. Heads of eighteen or eighteen and a half inches in circumference are still small, although they permit a regular exercise of the faculties; they possess but a sad mediocrity of talent—a spirit of servile imitation—an extreme deficiency of seizing the relationship between cause and effect—a want of self-government, and often few desires. Still some qualities or faculties may be considerable, because particular organs may be greatly developed, forming a striking contrast with the mediocrity of the rest. But as we approach large brains, we see intellectual faculties of greater mag-

In calculating the power of an organ, *activity* or internal state as well as size is attended to, and this must be particularly remembered in calculating the power of the cerebral organs. The activity of an organ may depend upon a variety of causes—on original organization or temperament,* on health, on exer-

nitude, till we arrive at heads twenty-one or twenty-two inches in circumference—the dimensions at which men obtain the height of intelligence.”—*See Gall*, Vol. I., p. 196, and Vol. II., p. 322.

* In endeavouring to ascertain the activity of the intellectual powers in any given case, the *temperament* of the individual should be carefully noted. The term *temperament* is another word for original constitution, and although the constitutions of men vary with the individual, and consequently vary *ad infinitum*; yet it has been found practicable to reduce the temperaments of men into a few divisions. Phrenologists generally admit only of four primary or fundamental temperaments, viz.; 1st, The nervous; 2d, The sanguineous; 3d, The bilious; and 4th, The lymphatic. In some individuals the temperaments are *pure*, in others they are *mixed*, and the mixture may exist in various degrees. The nervous, for example, may exist with the sanguineous, or with the bilious, or with the lymphatic; or, there may be a mixture of any three of the temperaments, or, a mixture in various degrees of all the four. The pure or unmixed temperaments may be thus described.

The *nervous temperament* is indicated by delicacy and irritability of frame. The skin is soft and fine, and not thickly covered with hair; the muscles and bones rather slender, and the muscular motions quick and lively.

The *sanguineous temperament* is indicated by a florid complexion, blue eyes, light hair. The skin soft, the superficial veins large, the pulse full and frequent, and the body round and plump.

The *bilious temperament* is known by a complexion of a swarthy or leaden hue, dark eyes, coarse black or brown lank hair, slow pulse. The bones are large, the muscles wiry, and the countenance sombre and melancholy.

The *lymphatic temperament* is distinguished by light hair, light or grey eyes, a pallid complexion. A weak soft pulse, a cold skin, and a torpid state of all the functions. The countenance is soft, heavy, and unmeaning. Of these temperaments the nervous imparts *quickness* of mental manifestation; the sanguineous *energy*; the bilious *durability*;

ercise. All these circumstances operate on corporeal organs of every kind, and there is besides one which is peculiar to the cerebral—the mutual influence of these organs. Exercise alone has a wonderful influence in affecting the power of an organ. We observe this every day in the muscular system. A muscle when kept for some time in a state of inactivity becomes soft and flabby, and incapable of energetic contraction, but let the same muscle be inured to regular exercise, it becomes firmer and redder, and much more powerful. Such is an exemplification of activity in contradistinction to size, in an organ of motion. But may not mental exercise affect in some way the organization of the brain? It is possible that it may render it denser by the greater quantity of blood which is carried to the brain during the process of thinking, and we may have thus actual power imparted, although no increase of size be discoverable. But the energy or activity of an organ can only be imparted in this way to a limited degree; and consequently, where great power is wanted great size is indispensable. This observation applies to every other organ of the body, and why should we suppose that the organs of the brain are exceptions to the general law?

It is a common but very erroneous opinion, that all brains, or what is the same thing, that all heads are alike. The heads of men differ as much as their faces; and all know that two faces have never yet been found perfectly alike. The varieties of form in the human

and the lymphatic *torpidity*; circumstances which must never be forgotten in estimating the character of any individual.

head are, indeed, infinite; hence we can easily explain the infinite diversity of character that exists in society. Compare the heads of members of the same family, and amidst the family resemblances which exist in all, you will be astonished at the striking individual differences. Compare, again, any one of these with others of a different family, and you will not only perceive the difference, but be able to say in what the difference consists. If you extend, then, your sphere of observation, you will soon be convinced that there are national as well as family peculiarities. The English head can easily be distinguished from the French head, and the French and German from the Turkish or any other. All travellers admit this; and the numerous collection of skulls and casts of the heads of individuals of different nations which now exist, has set the matter at rest. There can be no doubt, then, that there are individual, family, and national peculiarities of head, and are we to suppose that these differences of form are unproductive of differences of character? Glance for a moment at the forms of the Caucasian, Mongolian and Ethiopian heads, and then endeavour to draw such a conclusion. To what conclusion would the history of these varieties of mankind lead regarding the forms of their heads? Would it lead a phrenologist to the conclusion, that the form of the negro head is as fine as that of the Caucasian? By no means. History tells us that the Ethiopian has always been in a state of extreme barbarism,* while the Caucasian varieties have

* Individual instances exist among the negro tribes of exalted moral and intellectual endowments, but these are exceptions, and are uniformly accompanied with superior development of the brain.

uniformly displayed high intellectual powers, and from time immemorial been the promoters and depositaries of human knowledge. The doctrines of Phrenology would lead at once to the conclusion, that the Ethiopian head must be greatly different in form, greatly defective, compared with the Caucasian. We know, indeed, that the negro head approaches to the monkey form, and that the negro brain is less developed than that of the Caucasian; that the anterior lobes are strikingly defective, and that consequently no circumstances short of an entire change of cerebral form, could make the negro equal to the Caucasian. There is an endless variety of form in the human head, and to satisfy himself on this point, the reader might first consult the writings of Cuvier, and particularly the first volume of his *Animal Kingdom*, in which the forms of the heads of the three grand varieties of mankind are particularly described; then he might turn to Blumenbaeh's plates of the *crania* of different nations. Having thus satisfied himself that there are national varieties of head, let him direct his attention to those of his own nation—to those that surround him. Let him more particularly observe the heads of different families, and after he has familiarized his mind with such diversities of form, he will then be prepared to observe and distinguish the peculiarities of form that appertain to the heads of members of the same family; for amidst the family resemblances which always more or less exist, he will uniformly find decided and palpable differences.

The student of Phrenology should not only acquire a knowledge of the individual organs and their functions,

but he should frequently view them in combination, and calculate the effects of the combination of organs in the formation of character. This is one of the deepest subjects connected with Phrenology. We can only wait to notice the manner in which the subject should be investigated. In estimating the character of an individual, the student should first observe the relative proportions of the Propensities, Sentiments, Knowing and Reflecting intellect. If any of these grand divisions greatly predominate, no difficulty will be experienced in arriving at a decided general conclusion. If the Propensities exclusively predominate, brutality of conduct will be the result; if the Sentiments alone bear the sway, the amiable qualities will abound; if the Knowing organs are in similar circumstances, talents of observation will be the consequence; and should the Reflecting organs be exclusively developed, the person so constituted will be deemed a visionary. After he has thus examined the great outlines of the head, the student should next observe which of the organs are largest in one or more of the above subdivisions, for a direction will be given to such organ or organs from the more predominating *regions* of the brain. For example, if the basilar region be very large, although *one* of the sentiments be well developed, that sentiment will receive a hue and tincture from the predominance of the propensities, and even all the knowing and reflecting powers will bend in these circumstances under the dominion of the propensities, or run in the direction of these lower powers. When the coronal region is high, and *one* of the propensities, such as destructiveness, large, the lower

organ will be robbed of its fierceness, and modified by the softening and benign influences of the superior powers. The intellect, under these circumstances, is drawn as by a celestial influence to direct its energies so as to gratify these sublime feelings of our nature. When the intellect again is large, and the propensities and sentiments small, energy and fine feeling are withdrawn, and a mental constitution formed, but ill adapted for this "breathing world." The intellect requires the impelling power of the propensities and sentiments even to do justice to itself, and the propensities and sentiments equally require the guidance of enlightened intellect. The best combination is that in which all the regions of the head are equally and well developed, or if any region should predominate, it is that of the Sentiments, as these impart moral and religious dispositions, which conduce more to the well-being of man than Intellect itself.

In estimating the character of any individual, we should note also the relative size of each of the organs, and calculate the influence which they reciprocally have upon each other. This is by far the most difficult part of the subject, and for the performance of which no rules can be condescended upon. It must be left to the sagacity of the student, and can only be accomplished by high *intellectual endowments*.

Phrenology, it has been said, cannot be true, because it leads to materialism, and thus undermines the principles of morality and religion. It is to be regretted that the opponents of phrenology should have recourse to such a subterfuge in shape of argument—a subterfuge that savours so much of ignorance and bigotry. Phreno-

logy leads to no such conclusion. The venerable founders of the system disclaim such an inference, and many able and enlightened ministers of religion rank amongst its champions, and who would be the last to advocate any doctrine that would lead to such a conclusion. We all admit that the eye is the organ of vision, and that without the eye the mind cannot see. But do we allow that the belief of such a doctrine leads to materialism? Certainly not. We all admit that the mind may exist after the eye is destroyed, although it cannot see without such an organ ; so we admit that the essence of the mind may exist after the brain is destroyed, although that organ is necessary in the present state of things for the mental manifestation. It is not Phrenology, but the *contrary doctrine* that leads to a dangerous conclusion. The anti-phrenologist cannot account for mental aberration of any kind without assuming a principle that leads to a most appalling conclusion. In insanity, for example, he says the mind is deranged. But can the mind become so affected? Can that pure ethereal being, that emanation of Deity itself, that incomprehensible existence whose aspirations rise above all sublunary things, and whose desires are as boundless as eternity—can that being become deranged? If we answer this question in the affirmative, we state in so many words that the mind can become diseased, and if liable to disease it clearly follows that it may die. But Phrenology leads to no such conclusion. Phrenology draws a broad line of demarcation between the organ of the mind and the mind itself, and it is obvious that what may be predicated of the one does not necessarily apply to the

other. There is nothing in Phrenology at variance with the consoling doctrine of the mind's immortality ; for though the organ of the mind perish, the mind itself may not only survive, but even, (to use the words of Addison,)

“ Flourish in immortal youth,
Unhurt amid the war of elements,
The wreck of matter, and the crash of worlds.”

CHAPTER VI.

On Insanity—Proximate Cause corporeal—Corporeal Agents produce it—Insanity hereditary—Different Kinds of Insanity—Principles of Treatment.

IF Phrenology is true it should explain the phenomena of mind both in a state of health and disease. Now, it is well known, that it can afford this explanation. Insanity in all its forms is dependent on a peculiar condition of the brain, and the establishment of this fact will argue strongly in favour of Phrenology. If insanity is a disease of the mind itself, as many suppose, then Phrenology has no foundation in nature ; or if it be attributable to the direct influence of demons, as was long believed and inculcated, then Phrenology is little better than a dream, and medical science necessarily as inefficacious in the treatment of such disease as the divining rod of the enchanter. But to obviate such conclusions, such absurdities, it must be said, it is only necessary to show that insanity in all its forms is dependent on certain corporeal states—that insanity

is a corporeal disease, and may be curable or incurable according to the circumstances of the case, like every other corporeal disorder, it is scarcely possible to form an idea of a disease purely intellectual. Every disease with which we are acquainted depends upon some structural derangement of the organ affected. There is no disease purely functional. The function of an organ depends altogether on the structure ; and to speak of the function of an organ being affected without a previous change of some kind in the structure, is fraught with the greatest absurdity, it is to contend that the function may exist without the structure ; or, in other words, that an effect may exist without its cause. Now, in diseases of the mind, is the structure of the mind affected ? is there any thing that can be called structure in the mind ? has the mind parts and proportions ? For, unless it has parts to be affected, how could a disease exist ? Many who speak of a disease of the mind, contend also for the mind's ethereality and indestructibility ; but are not the two opinions obviously at variance ? If the mind is liable to disease, it is also liable to die ; and are all those who contend for the existence of mental disease, prepared to impugn the consoling doctrine of the soul's immortality ? Phrenologists, at least, do not acquiesce in such a proposition. Phrenologists maintain that in insanity, the corporeal instrument of the mind alone is affected ; and they conceive what may be predicated of the organ is not necessarily applicable to the agent that uses the organ.

That insanity is a corporeal disease may be deduced from the following considerations :—first, agents that

produce their effects upon the body only, produce it. Every thing that affects the organization of the brain, either directly or indirectly, influences the manifestation of the mind; a blow which depresses a portion of the skull annihilates for a time the power of thinking, and the elevation of the broken piece of cranium restores the mind to its wonted powers; inflammation of the brain is uniformly attended with delirium, and with the removal of the inflammation the delirium ceases; insanity may also be induced by the improper use of intoxicating liquors; aliments and drinks have an influence on the morals—many medicines have the same effects: now, do not these agents act only on the body; do aliments or medicines act on the mind? No; they act only on the corporeal organization, and hence those peculiar states of the mind that are induced are dependent on the corporeal condition.

Secondly. Insanity is a hereditary disease. The hereditary nature of insanity is a fact so obvious and generally admitted, as scarcely to require either illustration or proof. If proof were demanded, I would refer not only to the opinion of mankind generally, but to men whose days and nights have been devoted to the investigation of the disease, and who are unanimously of opinion that it may be transmitted from generation to generation. In corroboration of this view Haslem relates ten cases, to one only of which we shall at present advert. In detailing the history of an inmate of a madhouse, he says, that the patient's grandfather was mad, but that there was no insanity in his grandmother's family. The father of the patient was occasionally melancholic, and had one raving

paroxysm—his mother's family were sane. The same patient had a brother and five sisters—now, mark the effect of the disease upon them: his brother, Haslem says, has been confined in a madhouse, and all his sisters have been insane—with the three youngest the disease came on at parturition. It is also well known that the longer insanity has existed in any family, and the greater the number of generations that have been affected, the more liable is the disease to appear. Foderé has observed, that among Cretins children of the first generation are only a little disposed to the disease, but if such children intermarry with other Cretins, it appears much more frequently; and if three generations of such children consecutively intermarry, the disease, he says, is a certain and inevitable event. In the same proportion, he informs us, the probability of hereditary insanity lessens by intermarrying successively with healthy persons. These are facts with which all are familiar; but if they prove any thing they prove the corporeal nature of the disease in question. They cannot be explained by referring the disease to the mind itself; for, is the immaterial and immortal existence we denominate mind transmitted by generation? if we are not assured on this point, we cannot be certain that peculiarities of mind can be so transmitted. It is an incontestable fact, however, that corporeal peculiarities may be transmitted by generation. Gout, scrofula, phthisis, apoplexy, are hereditary diseases; the stomach, heart, lungs, liver, brain, and every other organ, participate of inheritance. We can distinguish family brains as well as family feet, family hands, and family faces; and when peculiarities

of talent and disposition display themselves in certain families, and are transmitted from father to son through a series of generations, is it not more just and philosophical to ascribe these to the peculiarities of the corporeal organs which can undoubtedly be transmitted, than to some peculiarities of the intellectual principle with the nature of which we are totally ignorant? But it is not by reasoning only that we deduce the corporeal nature of insanity. We see it arising from causes which produce other corporeal complaints, and presenting symptoms which every one must admit have a reference to corporeal organs only. These symptoms are headach, pain over the eyes, stricture and numbness across the forehead, dizziness, noise in the ears, and dilatation or contraction of the *pupils* of the eye; symptoms which, though no other existed, would lead every medical man to suspect a morbid condition of the brain; and, after death, is that condition not found? Were we to answer this question simply in the affirmative, or bid you rely upon the authority of some eminent phrenologist whose opinion we could cite, you might be inclined to receive the enunciation with that distrust which any *ex parte* statement naturally carries along with it. But to place the subject most impartially before you, we would refer to the work of Dr. Abercromby on the diseases of the brain—one of the latest and ablest works upon the subject. Dr. Abercromby is no phrenologist, yet his work is calculated to do Phrenology some service. The dissection of 133 cases is given in that work; and, with the exception of two or three obscure cases from which no conclusion can be drawn, they lead irresistibly to the conclusion.

that disease of the brain is uniformly attended with mental alienation, and mental alienation with cerebral disease. In all these cases, the cerebral disease and mental affection hold the relationship of cause and effect ; and were our experience on this subject greater than it is, we could infer from the state of the mind the precise state or condition of the cerebral organ.

From reasoning and observation, then, the proximate cause of insanity must be considered as corporeal. The mind, in this state, is no more diseased than in the derangement of the five senses or of the organs of voluntary motion. In all diseases of the organs of sensation, the proximate cause is not looked for beyond the corporeal organs. In palsy, cramp, tetanus, &c., the cause is not looked for in the mind, but in the instruments by which the will is propagated and voluntary motion produced. Ought we not to reason in the same manner regarding the internal organs? Indeed, too much attention has been paid to the moral and metaphysical causes of insanity ; while the corporeal, unquestionably more within the sphere of our observation and comprehension, have been overlooked—almost totally neglected. If insanity is a disease purely mental, it should be cured by reasoning ; but will ratiocination effect a cure? If so, why should medical men interfere? Should not the insane rather be intrusted to the divine and metaphysician as formerly ; but who would be so foolish as trust a serious case of insanity to this mode of treatment? “ The good effects,” says Haslem, whose practical knowledge of insanity was very extensive, “ the good effects which have resulted from exhibiting logic as a remedy

for madness, must be sufficiently known to every one who has conversed with insane persons, and must be considered as time lost." In opposition to these views, it has been urged that insanity may be cured by *moral* treatment alone ; and if this be admitted, how can the fact be reconciled with the corporeal nature of the disease. It must indeed be admitted that the *soothing* plan of treatment, which is the medical name for the *moral*, is often highly efficacious, and is now, we are happy to find, the method of treatment usually adopted in this country. But this concession does not overturn the fact of the corporeal nature of insanity, for the moral treatment is beneficial in almost every corporeal disease. Many diseases of the heart are cured by this plan alone. In inflammation of the eye, we exclude the light from the inflamed organ, we keep the patient on low diet, and avoid every cause of excitement, and the inflammation may be overcome ; but is the disease not seated in a corporeal organ ? In inflammation of the brain, the moral, or soothing plan, is uniformly had recourse to ; but because the inflammation may subside by these means, are we to conclude that inflammation of the brain is not a corporeal disease ? Now, insanity is a *symptom* of a diseased condition of the brain, depending primarily, in the majority of cases, on a greater or less degree of inflammatory action ; it cannot be surprising then, that a plan of treatment which wards off from the diseased organ every species of excitement should be productive of beneficial consequences. It would be surprising indeed, were it otherwise. Enter into any of our best conducted hospitals for the insane, and after attending

to the practice most successfully employed, say whether it accords or not with the corporeal nature of the disease. Will you find the patient bound hand and foot and thrown into a dungeon till his senses return, or chained to a stake and lashed into a sense of duty or obedience to his merciless overseer? No; you will find the patient treated upon different principles; you will find leeches applied to his temples, his head shaved and covered with a blister, the secretions of his bowels improved by appropriate alteratives, his nervous system soothed by hyoscyamus, opium, and other anodynes, and the wants and comforts of the patient attended to, as far as may be consistent with his general safety. This plan of treatment is applicable only to a corporeal disease; it presupposes an affection of the head, a disease of the brain; and it would be more philosophical, in speaking of insanity, to call it a disease of the brain, than to use an appellation which is so liable to mislead, and which at best indicates but one symptom of the morbid affection. Had insanity always been denominated a disease of the brain, or been viewed as of this character, would the heart-rending scenes which at one time were of daily occurrence in every madhouse, ever have been witnessed? or, when entering these abodes of wretchedness, would human ears ever have been assailed by the clanking of chains, the resounding lash of the whip, and the reiterated yells of the miserable outcasts, writhing under a blind but systematic medical torture? Had the grand fundamental principle of Phrenology been known, that the brain is the material organ of the mind, a man could no more have been scourged or

mutilated for being insane, than for labouring under diarrhœa or dysentery; he would have been viewed only as an object of deep commiseration, and means resorted to with some rational prospect of benefit. The knowledge of a disease is admitted to be half its cure, and if we can point out the seat even of any obscure disease, we have made an important advance to its successful treatment.

It may be urged that medical science is not indebted to Phrenology for this view of the nature and treatment of insanity. If such views, however, existed before the introduction of Phrenology, they had little influence on medical practice. In none of our standard medical authorities is it decidedly stated that the brain is the organ of the mind. It is only since Phrenology was promulgated, and a force of evidence produced which bore down all opposition, that the position has been generally admitted. But Phrenology has not only led us to seek for the cause of insanity, where alone it is to be found, in the corporeal organs, it has also enabled us to explain the endless variety of phases through which it passes, and modifications which it assumes. How curious, and according to the old philosophy, how perplexing, are some of the symptoms of insanity! A person, for example, may be insane on one subject or one set of subjects, and perfectly rational on every thing else; and some idiots even exhibit remarkable talents in a particular way. "By an inexplicable singularity," says Foderé, "some of these individuals (Cretins) endowed with so weak minds, are born with a peculiar talent for copying paintings, for rhyming, or for music." He knew several, he says, "who

taught themselves passably to play on the organ and harpsichord, others who understood, without ever having had a master, the repairing of watches and the construction of some pieces of mechanism." He adds, "that these powers could not be attributed to the intellect, for the individuals not only could not read books, but could not comprehend what was said to them." A man may be insane on love, or religion, or on as many different subjects as there are primitive powers of the mind.

It has been already stated that insanity is not a disease, but a *symptom* of a disease, or of numerous diseases, and a symptom which can only be removed by taking away the pathological cause inducing it; or, in other words, by changing the state of the brain on which it depends. Insanity bears the same relation to the brain that irregularity of pulse bears to the heart, and as a deranged condition of the pulse cannot be cured without removing the disease from the heart, neither can mental manifestation be improved without a change of the state of the brain. These phrenological views of the subject may be illustrated still farther by comparing insanity to a central point, from which lines diverge in every direction; all the lines have this in common, that they communicate with the central point, but each line has also a separate and independent existence. If one line alone be affected, the disease would correspond with partial insanity, but if all the lines be affected it would correspond with complete insanity; the mental phenomena could thus easily be supposed to vary with the lines affected. Substitute *organs* for *lines*, and a perfect idea may be

formed of the phrenological doctrine of insanity. When one of the organs of the brain is affected with disease, the insanity is partial, and the degree of insanity will depend on the number of organs affected. From this view of insanity, how easily it enables us to explain every attendant phenomenon, and what a power Phrenology is capable of imparting in the discovery and treatment of cerebral diseases.



CHAPTER VII.

ON THE PRINCIPLES OF EDUCATION.

Principle 1st. Education does not confer new powers either mental or corporeal, but merely improves those already implanted by nature.

2d. All the powers of the mind cannot be improved to an equal degree in any individual.

3d. The improvement of any one power of the mind does not affect the strength or energy of any of the other mental powers.

4th. The intellectual powers which are naturally strongest in any individual should be cultivated to a greater degree than those that are weak.

5th. Education to be effective must be practical.

Advantages of Phrenology.

I. THERE is no living being with which we are acquainted susceptible of education to the same extent as man, and the reason of this is found in the great superiority of man's natural endowments; for education, it is to be particularly remarked, does not confer new powers, either mental or corporeal, but simply improves those already implanted by nature; this position,

though to us perfectly obvious and incontrovertible, is not generally admitted. It will be necessary, therefore, that we enter upon its full examination, and that the subject may be placed in as strong a light as possible, we shall refer first to the effects of education upon the *Vegetable Tribes*; secondly, upon the *Inferior Animals*; and thirdly, upon *Man*.

In what, we would ask, does the education or culture of a plant consist? Is it not in imparting to it its proper nourishment, in placing it in the most favourable circumstances for appropriating the nourishment imparted, and in obviating those external causes which tend to its injury? By attending to these circumstances the plant will grow, bear fruit, and display in full vigour the energies of its nature; but you can force it to do no more. You cannot by any mode of culture change the nature of a plant. No mode of culture could, for example, convert a plum-tree into an apple-tree, or make the poppy, which secretes opium, distil the juice of the grape. Culture can produce no such changes on vegetables; it may give addition of size; it may modify or heighten the fragrancy or savour of the vegetable or its productions, but cannot alter the intrinsic character of any individual vegetable substance.

In the education of *inferior animals*, in the next place, the same principle applies. We may affect or modify the character of such animals by education, but we cannot change their natures. We cannot, for example, impart the dispositions of a carnivorous animal, to that of a herbivorous, or *vice versa*. We can tame, no doubt, the most furious of animals, but this training does not impart any new power, but merely decreases

or strengthens, modifies or changes, the direction of powers which previously existed. The taming of a wild animal is effected by exciting in the first place its fears, so that it may be completely overawed, for without this no subsequent step in the treatment could be availing. After the trainer has imparted a sense of his invincible superiority upon the animal by a frequent recurrence to such means as are found adequate to the purpose, his next step consists in repressing and keeping in a state of quiescence, those natural instincts and dispositions which have a tendency to show themselves; which may be effected, partly by keeping the animal in a state of due subordination, and partly by excluding those circumstances which can excite the dispositions we wish to overcome; and lastly, he must excite and keep in constant activity, those kindly feelings which exist to a certain extent in all animals, and which show themselves occasionally in their most furious state. It is an undoubted fact, that in the inferior animals, as well as in man, propensity of every kind is increased by exercise and weakened by disuse; so that even in the Lion, if we could lull for a great length of time those passions which naturally agitate and convulse his frame, we would insensibly rob the animal of his furious nature, and assimilate it to other animals less furious and consequently more manageable and docile, but do we by these means change his inherent dispositions? Is the mild and inoffensive lion that has been encaged for years and subjected to the mastering hand of man, a totally different being from him who ranges in the forest in all his shaggy terrors, and appals by his thunders the animal world

around him? The one is educated as far, it may be, as his nature will permit; but the animal has received no new instinct, and all its old are still lurking within it, and liable to break forth by the operation of every exciting cause.

In taming or educating an animal of an opposite character from the lion, a hare, for example, though we must proceed upon similar principles, yet the application of these principles must vary with the natural character of the animal; as timidity in the hare is the overwhelming feeling, great care would be necessary to diminish its intensity, for till this was accomplished the education of the creature could not be proceeded with; but strong though the feeling be in that animal, it may, to a great extent, be overcome; the intensity of every animal feeling is increased by circumstances which excite the feeling, and weakened by what represses and keeps it in a state of inactivity. In the example referred to, the timidity would be diminished by placing the animal for a long time in situations where it could suffer no injury, and at the same time experience frequent acts of kindness; it is in this way only that the feeling of timidity in an animal would be partially overcome.

But in the training of animals it may be said that more can be effected than the weakening or softening down of certain feelings; we can teach them something positive; we can make them learn what is foreign to their natures; we can impart, in a word, new dispositions and powers. Can we not, for example, train a dog to discover game without injuring or devouring it, and thus to act contrary to the im-

pulses of its nature? Can we not impart the elegant accomplishment of dancing to bears and horses, and can we not learn parrots, starlings, and magpies to speak, and is not speech admitted by philosophers to be the prerogative and glory of the human race? These allegations may seem to demand some explanation. In training a dog for a particular purpose we have, in the first place, to accommodate ourselves to the particular instincts and dispositions, as well as the inherent sagacity of the animal we wish to train. A bull-dog, for example, could not be trained to the duties of the shepherd's dog, nor a greyhound to those of the setter or pointer. We can easily train any dog to perform a certain set of acts, but how comes it that all dogs cannot be trained equally to the same pursuits? If the education of dogs consisted in imparting to them new instincts or corporeal powers, all surely could be taught to the same degree, for every thing would depend on the trainer, the reception of the power not being dependent, in any degree, on the animal; it must, according to the supposition, come from the trainer; nay, if the supposition was correct, a sheep or any other animal might be raised to the same degree of sagacity and usefulness as the shepherd's dog, an idea not only inconsistent with all experience, but manifestly absurd. That dogs, bears, and horses may be made to dance, to a limited extent, is unquestionable; but this attainment is not the result of the superaddition of any power, either corporeal or mental. Dancing essentially consists in moving the feet in a particular manner, but all these animals could move their feet as soon as they were brought into the world; and the young foal frisking

around its dam in the pasture field displays more varied and elegant movements than all the more measured steps of the circus dancing-horse. The one is like a finished gallopade, while the other is a miserable caricature of something like the *Highland Fling*. It is particularly obvious, therefore, that in teaching a horse to move his limbs in a particular manner, we confer no new power upon the animal, we only give a new direction to a power which formerly existed. But this remark cannot surely apply to speech. No inferior animal in its natural state speaks, but by education can we not make them display this power? and if so, the power is capable of being imparted; and if any new power can be imparted by education, the argument we are labouring to support must fall to the ground. But we are prepared to show that no animal but man can, in the proper acceptance of the term, be taught to speak. Parrots, starlings, magpies, and a few other animals, *imitate*, indeed, a certain limited number of articulated sounds; but this is not speech. Before a being can be said to speak, it must comprehend the meaning of the words it uses. But do these animals know the import of any word, or have we the means of imparting the necessary intelligence to them? We undoubtedly have not. So long as the intelligence is wanting, they cannot, upon any sound principle, be said to speak; for speech is essentially the communication of ideas, and the articulate sounds we use are merely the signs or symbols of these ideas. The signs are nothing in themselves, it is the ideas we are taught to associate with them gives them value; but as in the inferior animals there is no perceptible relationship between the

sign they may be taught to use, and the *thing signified*, there can be no speech. In educating the inferior animals, we must first study their *inherent* dispositions, and improve them, and turn them to the purposes we may require. If we proceed upon the principle of imparting *new powers*, either corporeal or instinctive, our efforts will be unavailing: nature cannot be changed.

If these observations are applicable to the inferior animals over which we have such unlimited power, we may draw the same conclusions regarding the education of *man*. Many men who have received the best education which influence and money could procure, have after all, remained consummate fools; and many who have had little or no assistance, have by the sheer force of their genius astonished mankind by their powers. Shakspeare, Burns, Mozart, and many others that could be mentioned, are of this last description. If education is every thing in eliciting the powers of the mind, as some have supposed, why are not all educated individuals as great in poetry as Shakspeare? and why are all men not equal in mental power and mental acquirements? Is the difference which unquestionably exists, attributable to the difference of degree in the education of individuals? Are the talents of men found to bear a uniform relationship to the ratio of their education? Do members of the same family, who are educated as nearly as possible in the same manner, and to an equal degree, never display diversities of mental power? and if they do differ in mental capacities, to what is this attributable? It cannot be to education, but to something in themselves.

In every department of nature, variety is the predominant characteristic. In the grass that covers the face of the globe, two *blades* cannot be found perfectly alike. Two objects in nature have never been in this state, and what reason have we to think that the *mind* is an exception to this law? Do not the varieties of mental conformation continually force themselves upon our observation? These varieties are found at the moment of birth as well as at death. It is evidently an ordinance of nature. No circumstance with which we are acquainted, can produce an equality. An equality of corporeal stature and strength might as reasonably be expected.

Is education then of no use to man? Far from it. Although education cannot do every thing, it can effect much. Man possesses a greater number of inherent moral and intellectual powers than any other animal; all these powers are susceptible of improvement, and it is the object of education to give a proper direction to these powers, and to raise the moral and intellectual status of the individual to the highest point of which his nature is capable. If the intellectual powers, however, are naturally very weak, no education can render them strong; and if they have been naturally very strong they will remain so even without education. Education can *improve* the powers of man, but not to an indefinite extent. The man who has naturally a weak verbal memory, may improve it by education, but never to the extent of an individual who has that power naturally strong. If the reflecting powers of an individual are naturally weak, no system of training can render that individual pre-eminent in

metaphysical or abstract speculation. By education his powers will be improved, but under no circumstances could he be made to equal a Locke, a Newton, or a Bacon.

It is painful to observe the absurd and contradictory opinions entertained by men who have pretensions to the character of philosophers, regarding the mind and the effects of education upon it. One compares the human mind in its natural state to an uncultivated field, and education to the ploughing or preparing of it for the seed; another compares education both to the ploughing of the field and sowing of the seed; while a third likens the human mind to a garden full of weeds, and education to the uprooting of the noxious productions. Were we permitted to speak metaphorically on the subject, we would say that the human mind is a garden full of natural plants; and that although education consists in the cultivation of these plants, yet it must be remembered, that the cultivation of one plant does not affect the luxuriance or growth of any other. Or we would rise higher in the regions of metaphor, and compare the human mind to a diamond which, in the natural state, might be mistaken for a common mineral, but from which the hand of the artist, like the efforts of the teacher, can remove asperities, and draw forth latent and resplendent excellencies. What polishing does to the diamond, education effects upon the mind, but no more; it draws out and improves talents; it polishes, but never changes the inherent character of man. It may be considered, therefore, an incontrovertible axiom in philosophy, that education cannot

impart new powers, but can only improve, and that to a limited degree, the powers originally conferred by nature.

II. All the powers of the mind cannot be improved to an equal extent in any individual.

This position is not only a natural conclusion drawn from our knowledge of the mental constitution of man as indicated by Phrenology, but is also supported by daily experience. It is an incontrovertible fact, that individuals experience great difficulty in acquiring some kinds of knowledge, while in other departments of literature or science, they make rapid progress ; they feel instantly at home, and experience in such studies nothing but delight. But even admitting that man is born with all the mental powers equally strong, which is not the fact ; to preserve them all in an equal degree of strength, the same degree of exercise or culture would require to be given them all ; but the smallest consideration will lead to the conclusion that this is impracticable. Who has the requisite time or corporeal strength even for such a species of training ? To train one power to the highest degree of which it is susceptible, our undivided attention is often required ; but how could undivided attention be given to one power, if all the other powers of the mind must be attended to in an equal degree ? Suppose you wish to cultivate that power of the mind we call number, or calculation. If you devote your attention exclusively to arithmetical or algebraical subjects you would attain greater eminence in these departments of science, and improve the mental power on which that eminence depends, than if we were to attempt to cultivate also the fourteen remaining intellectual powers. If these

observations are well founded, we ought not to attempt to cultivate all the powers of the mind to an equal degree, and any system of education founded on such a principle will lead to nothing but disappointment.

III. The improvement of any one power of the mind, does not increase the strength or energy of any other mental power.

This principle of education flows directly from the phrenological doctrine, that the mind displays its powers through different organs, each organ being susceptible of action and repose independently of the others. The common opinion seems to be at variance however with the above position. A boy sent to school to cultivate his mind, is first taught to read his native language. After he has attained a knowledge of this indispensable preliminary, he is sent, it may be, to the grammar school, where he consumes four or five years in learning the meaning of a few Latin or Greek words ; he has now got what is called a grammar-school education ; in the estimation of some he is an educated boy, and his friends suppose that because he understands a few words of Latin and Greek his mind is cultivated—he is fit for any thing. But this training is calculated to cultivate only one of the powers of the mind, the power which phrenologists call *Language*; and to show that the other powers are not improved by such a course of training, we have only to observe the effects of this training on the general character of those who are subjected to it. Do we not every day observe young men who have uniformly stood foremost among their fellow-students, both at schools and colleges, who have shown the greatest aptitude in

learning languages, who have even displayed great philological powers, and whose mind, so far as Philology is concerned, may be said to have received the last polish from the hand of the artist, have yet, in the ordinary affairs of life, and in other departments of science, displayed the greatest imbecility? We do not wish to disparage philological attainments, for the successful cultivation of some professional pursuits they are indispensable; but their importance ought not to be over-estimated. And those who believe that in learning the meaning of words all the powers of the mind are cultivated, over-estimate the advantages of cultivating a verbal memory, and fall, besides, into a most pernicious error. Do the best philological scholars make the best arithmeticians, musicians, or artists? Or do they explore, with equal success, the facts and abstractions of physical and metaphysical science? They do not. Among these departments of art or science, there is nothing alike: for their successful cultivation, therefore, other powers of the mind are required; and it would be as absurd to suppose that a training up of one power would strengthen or affect any other power, as it would be to imagine, by improving the organ of touch or taste, we must necessarily render more acute the organ of hearing.

IV. The intellectual powers which are naturally strongest in any individual, should be cultivated to a greater degree than those which are weak.

If man could cultivate all his powers to the high degree of which they are capable, and all to an equal extent, the very reverse of this proposition ought to be our rule of practice; but so long as the various intellectual powers

of the same mind confessedly differ in power, it would obviously be absurd to endeavour to reduce them to one standard ; we could only effect our purpose by weakening the stronger powers, and would thus necessarily lower the intellectual status of the individual. The majority of mankind display partial talents, or talents of a particular kind only. Some display a single talent only ; and though great in reference to that talent, are weak and imbecile in regard to every thing else. The character of the man is generally estimated from his most predominating talent ; and if that talent exist to an extraordinary degree, he may be viewed as a prodigy among his fellow-men. Did we, however, reduce in such a case all the powers of the individual to an equality, as we cannot raise the lower powers to an equality with the higher, we would necessarily reduce the higher to an equality with the lower, thus obviously lessening the value of the whole character ; and any system of education founded on such a principle must deteriorate, but cannot exalt the character either of individuals or nations. Look at the blasting effects of the application of this equalizing principle on the state of India. By the institution of the *castes*, every individual must follow after the occupation or profession of his forefathers. Taste and talent are there never consulted ; these are made to bend to external circumstances ; genius is consequently cramped ; industry paralyzed ; every motive to individual and national improvement withdrawn ; and a soporific mixture thrown, as it were, upon the intellectual activities of the community. Let, however, the institution of *castes* be demolished ; let the arbitrary restrictions that press down that immense

population to the dust be taken away ; let the talents of every man have free scope, and we shall soon find the character of the whole people improved ; genius asserting its natural and inalienable superiority, and shedding a refinement and glory over an amiable, though benighted people. In this country it is far otherwise : all are free, the lowly peasant equally with the high born-prince can follow the bent of his genius ; and where talent or genius shows itself, it is certain of encouragement.

As man cannot cultivate all his powers equally, it is surely better that he should cultivate those which he can turn to some account, than by unavailing efforts endeavour to excel in something for which he was never designed by nature. How ridiculous it would be for an individual paralytic in the lower limbs to choose the profession of dancing ; but would it not be equally absurd for an individual destitute of musical talent, to follow music as a profession ; or an individual who could not discriminate colours, to wed himself to the profession of painting. When talent is naturally weak, it may by cultivation be rendered stronger ; but no education can compensate it for natural deficiencies ; and hence when any power of the mind is very weak, the cultivation of the power will never lead to any satisfactory result, and time will be lost in the effort, which might have been beneficially employed in training some of the other powers more susceptible of improvement. As no human being can excel in every thing, why should not every one confine his attention to that department of art or science most congenial to his nature ? But how are we to discover

the talents or genius of the individual? In two ways First, In observing the natural bias or inclination of the individual; and, secondly, by following the light which Phrenology throws so broadly and steadily upon the subject. Many will acquiesce in the justness of the first of these observations, who would smile at the idea of determining the profession of an individual by the form of his head; but to those who have studied phrenological science, there is in such a position nothing either unphilosophical or impracticable.

If it be admitted that the brain is the only part of the body through which mind is displayed—and the position cannot be disputed, it is a fact on which all physiologists agree;—if it is admitted, then, that the brain is the organ of the mind, it must also be admitted, that any modification of the organ will affect the mental manifestation. A similar observation applies to every other organ of the body, and we have yet to learn that the brain is an exception to the general law. Now, size and form are important modifications which affect the functions of every organ; and why should we imagine that these modifications can have no effect upon the functions of the brain? We know that they have a most decided effect; and Phrenology tells us what these effects are. Supposing, in the next place, that those who display particular talents are remarkable for particular cerebral conformations, is it absurd to suppose that such conformations could be recognised, and the talents coexistent with the conformations predicated? If this view of the case be objected to, then we are entitled to ask, what is the cause of the mental imbecility in the heads of idiots or

new-born children? Is it attributable or not to the state of the brain? Can a case be adduced with decided idiotic conformation, in which the intellectual powers have been displayed even in a moderate degree? No such case is to be found—the thing is physically impossible. You might as well expect the imperfect eye of the mole to equal in visual power the keen and piercing eye of the eagle. No human being with such a brain can be intelligent. We have at least never seen such a phenomenon, and what reason have we to believe in the possibility of such an occurrence? But does it not follow, that if the form of the head which appertains to the majority of idiots can affect the mental manifestations, other conformations must produce other effects? and is it absurd to suppose that these effects could be ascertained? It is now generally admitted, that the brain at the forehead is the seat of the intellectual operations; and if this opinion be well founded, is it not obvious that a small development of forehead must be incompatible with intellectual greatness, else what is the use of the brain at all? It is now also admitted, that a large development of the posterior and lateral parts of the brain may exist with a small anterior development; and that as the intellectual power corresponds with the magnitude of the forehead only, the lateral and posterior parts of the brain cannot be concerned in the manifestation of the intellectual powers. Now, Phrenologists assert that observation leads them not only to the conclusion that the mental feelings and intellectual powers occupy different divisions of the brain, but they maintain, likewise, that observation has enabled them

to condescend on the precise parts of the brain which are the seats of the different feelings and intellectual powers. Now, suppose you wish to test the truth of these observations you must appeal to nature, and observe particularly whether the power is ever seen without the development, or if this mode of experiment appears unsatisfactory, you will find that the power may be predicated from any given development. Phrenology may be tested in both of these ways, and in both it will be found true to nature. Since, then, the external configuration of the head leads us to a satisfactory knowledge of the talents and mental constitution of individuals, there can be no great difficulty in assigning to each individual the mental status to which he is entitled, or in directing the attention of individuals to those pursuits in which they are calculated to excel.

V. Education to be effective must be *practical*. Man, surrounded as he is with natural objects, is capable only of investigating successfully the existence, qualities, phenomena, and relations of these objects; he has powers adapted for such investigations, but for no others. He should attempt then the investigation of no subject beyond the range of his faculties, for the investigation can lead to no beneficial consequences. Many delight in *pure metaphysical* speculations; but to what advantage can such speculations be turned, they are in themselves of no value; and if we concede that they may be indirectly useful in strengthening the reflective powers, it is upon some such principle as if we would approve of tight-rope dancing as an excellent exercise for the muscles, while the same end could be more

usefully and safely attained by persevering with energy in our regular and lawful employments. Every department of human knowledge consists of two parts—of simple *facts*, and of conclusions or *deductions* from facts. Many men are better adapted for collecting facts than for reasoning soundly or drawing just conclusions from the facts with which they are acquainted. Phrenology can not only explain most satisfactorily the causes of these two different qualities of mind, but can indicate with accuracy the individuals in which one or other quality predominates. Science, it may be repeated, essentially consists of *facts*, and inferences from facts ; and Phrenology explains the reason of this, and shows its harmony with the arrangements of nature, by demonstrating that man has powers of *two* kinds only, one kind for appreciating *facts* both physical and mental, and another for reasoning, or drawing conclusions or deductions. Phrenology inculcates that the intellectual powers of man are of two kinds—the knowing and reflecting. This is the phrenological doctrine, and it harmonizes most beautifully with what we find to be the essential nature of all science. If science consisted of something more than *facts* and *reasonings*, of something which the powers of the mind, as indicated by Phrenologists, could not appreciate, then there would be a gap, a fatal defect in the phrenological system ; but we find no such imperfections in the new philosophy. It accounts most satisfactorily for every mental phenomenon, and is, at the same time, in universal harmony with the objects and operations of nature. In calling the new philosophy to our aid in the cultivation of the mental powers, we obtain principles of education

applicable, first, to the whole human race ; and, secondly, to the mental peculiarities of individuals. We know that all mind emanates from the brain ; we know also, that at the early periods of life, man is better adapted for observing facts than for reasoning upon them ; and we know that at such periods of existence the knowing organs are in a greater activity than the reflecting. Nature herself then points out the tract which ought to be followed. It is clear that the knowing organs should be called into exercise before the reflecting. Did we, however, reverse this order of nature, by attempting to train a child to reason before he had called the knowing organs into operation, and by their operations stored the mind with important facts, we would err as egregiously as if we would attempt to teach a child to dance before it could walk ; to sing before it could speak ; or to eat the most solid aliment before its teeth had been formed.

Look at the plans of education in vogue at present in many of our Universities, and say if they accord with rational or consistent principles. Suppose a young man enters our universities to be trained up to the *sacred* profession, he must attend a certain number of classes, and according to a determinate order. He enters the University by the door of the Latin class ; he walks next into the Greek ; then he passes into the Logic ; the Moral Philosophy classes now open to receive him ; and after a profound training, it may be, in the subtleties of dialectics, and intricacies of metaphysical speculation, he is thought fit for entering the Natural History and Natural Philosophy class, where he may become acquainted with the objects and phenomena of

external nature. Students of the sacred profession (who were afterwards reputed useful and effective preachers), have even been known to have studied no department of science save languages, logic, moral philosophy, and systematic divinity; who were totally ignorant of the elements of physical science; who could give no rational explanations of the operations of physical nature; who uniformly ascribed the operations to the *direct* interposition of the great First Cause. And it is always thus: ignorance and superstition go hand in hand, and the more ignorant a man is of physical science, the more superstitious he will necessarily be. We do not object so much to the sciences which are taught in our universities, as to the order in which they are taught. We object particularly to the pre-eminence given to abstract and metaphysical speculation, to the partial, almost total exclusion of the physical sciences; and the objection is not made on speculative grounds, but from the following considerations. First, A knowledge of all that appertains to metaphysics is less useful to mankind than a knowledge of physical science. Secondly, The great majority of mankind can excel in some of the physical sciences, while comparatively few attain eminence in metaphysical pursuits: and Thirdly, The arrangement of studies objected to is inconsistent with every sound principle of education, as it places that which is difficult before that which is easy, instead of the more rational way of commencing with what is most simple, and leading the mind by insensible gradations into that which is more intricate. We do not expect much ratiocination from a child. A child given to abstract reasoning would excite our astonishment,

but we are not surprised at a child that it is curious and observant, for all children are so. A child easily gets acquainted with objects that surround him; with *people*, with *inferior animals*, with *household furniture*, with articles of *dress*, with *persons*, with *places*. Varied and extensive knowledge of this kind is accumulated with astonishing rapidity. An ordinary child in the first six years of his existence acquires a knowledge of as many insulated facts as are found in any of our physical sciences, and there can be no doubt that the facts of any of these sciences could be communicated even to very young children, provided proper plans of instruction were adopted; provided, in other words, their education were of a practical character. There is a natural tendency in the minds of all children to acquire facts, and the pure and simple facts of physical science differ in nothing essential from the facts or existences which meet our daily observation. The child, however, gets quickly acquainted with the objects that surround him, while he moves tardily on with his task in natural history, chemistry, geography, botany, or any other of the natural sciences. And the reason is, that in the one case he obtains a practical knowledge of the objects that are around him; every thing he practically examines makes a strong and lasting impression on his mind, whereas by studying physical sciences through the medium of books or lectures only, as is too frequently the case, a feeble impression is produced upon the mind. If a child were induced to engage practically in the prosecution of such studies, he could as assuredly be made as easily acquainted with every important fact connected with such sciences,

as he could be made to distinguish an orange from an apple, a piece of rock-salt from a piece of loaf-sugar, or gooseberry jam from currant jelly or marmalade. Every part of physical science conversant with material objects must be subjected to the scrutiny of the external senses ; the more such objects are scrutinized, the better will they be known, and the more lasting will be their impression on the mind. All education, then, should be practical ; theoretical education is education only in name.

But how is the education of man to be effected ? in what *order* are the powers of the mind to be exercised ? For a satisfactory answer to these questions recourse must be had to Phrenology, for no other system of philosophy can lend the smallest assistance in solving the important problem. Phrenology, however, demonstrates, First, That the brain in the forehead is the seat of the intellectual operations. Secondly, That the brain in its progress to maturity undergoes certain changes of form : and Thirdly, That these changes take place, according to fixed and established laws. In training, then, the intellectual powers of a human being, we ought to be guided generally by the order in which the powers appear. Now we know that the lower part of the forehead is always sooner developed than the upper, and we ought therefore to cultivate those connected with the lower before those of the upper. In the forehead we find three ranges of organs, the lower, middle, and upper.* If all the organs in the lower region were nearly equally developed, then they might be cultivated in the order in which they are situated,

* See page 84.

commencing with Language and Individuality, and proceeding outwards to Number. The order of nature in educating a human being is here apparent. The first departments of knowledge which a child should be taught, then, are languages or the meaning of words, more particularly its own language. The facts of natural science, such as chemistry and natural history, or those parts of these sciences which in after-life he may turn to some account. He should also at an early period engage in *drawing, painting*, and the elementary parts of *numbers* or of *arithmetic*. These may be taught during the first fourteen years of a child's existence. From the fourteenth to the twentieth year he may cultivate the powers connected with the second range of organs; these are, eventuality, locality, time, and tune. Or to express the same idea in ordinary language, between the fourteenth and twentieth year, besides entering more fully into those parts of natural science which had formerly occupied his attention, he will be able during this period to engage in the study of history, geography, chronology, and music; and after the twentieth year, when the upper range of organs attain their full development, he may engage in the more abstract departments of science; in moral and political economy, and the investigation of principles, whether applicable to *science* or to the arts.

Phrenology is not a speculative science. It explains not only all the greater phenomena of mind, but accounts for the dispositions, feelings, the peculiarities of intellect, and the tendencies to particular kinds of action or of conduct which individuals display. It also throws, as we have seen, a broad and steady light

upon the general principles of education, upon the education of individuals, and on the means of improving eventually the whole human race. It lays the axe to the root of the fallacies, that man is the creature of circumstances ; that all men are naturally equal ; and that all the powers of the mind are susceptible of indefinite improvement. It demonstrates, that as all the mental phenomena are dependent on the brain, that external circumstances can no more change the talents and disposition of individuals, than they can change the organization of the brain ; and that until such a transformation takes place, these positions must be erroneous. It shows that all men are not naturally equal, for no two brains are found precisely alike ; and that the doctrine of the indefinite improvability of man cannot be true so long as the brain is an organized mass, and like every organized body susceptible of growth, maturity, and decay. Phrenology is not only calculated to give us a clear insight into the workings of the human mind, but it enables us also to render the mental powers available to the possessor.

It must be admitted that the majority of mankind are possessed of *partial* talent. A man that can excel equally in every department of art and science, does not exist. His existence is a physical impossibility. But even admitting the possibility of the case, a question arises, whether it would be more PRUDENT to cultivate one or a few of these powers to the degree of which they are susceptible, or to attempt to cultivate all the powers and attain only a mediocrity in each. Had Paganini, for example, attempted to excel in mathematics, metaphysics, poetry, painting, languages, &c.

as well as in music, would he have stood so pre-eminent above his compcers? He probably would not have been known beyond the city of Genoa, in which he was born. The powers of man are limited, and it is better that he should do little and *that* well, than that he should attempt to do much and do nothing successfully. Now, is it a matter of little moment that Phrenology should be able to point out what powers of the mind are capable of the most successful cultivation in any individual? Is it nothing that whole years of unavailing efforts should be saved? that the child from his earliest infancy should be directed into the path in which his own happiness is to be found, and in which he can most successfully promote the happiness of others? Nobody will doubt that if Phrenology can lead to this end, that it is capable of effecting much good; and every one acquainted with Phrenology also knows that the talents of any individual can easily be recognised, and their relative power consequently easily calculated.

The systems of education inculcated by philosophers, and followed in our schools, are too theoretical to be useful. A book is placed in the hand of a child before it can speak its own language. It is taught to commit to memory passages in prose and passages in poetry. To impart to it correct ideas of morality and religion, it is made to read a treatise on moral duty, and to commit to memory psalms, and hymns, and passages of the Bible. In teaching some of the abstract sciences even the same principle prevails. A young man engages in the study of mathematics, The Elements of Euclid are committed to *memory*, and his mathematical studies are supposed to be successfully terminated. In the

cultivation of every science the same principle to a very great extent prevails. The student who has committed to memory the principal facts in anatomy, chemistry, and the other departments of medical science is considered to be sufficiently qualified to practise. Now, this plan of education leads to the cultivation of one power of the mind at the expense of the others. In all these cases the verbal memory is chiefly cultivated; and he who believes that by cultivating that power all the others are necessarily improved, falls into a common but egregious error. Phrenology leads to a more just conclusion. It shows that the powers of the mind are as independent of each other as the organs of sensation, and who would think of improving, for example, the organ of touch by merely exercising the organ of *vision*. Every power of the mind requires, therefore, to be cultivated for itself.

In educating a human being it is necessary to remember that he is born with Propensities and Sentiments, as well as powers more purely Intellectual, and although it is the principal end of education to improve the intellectual part of man to the highest point of which it is capable, still the *moral* part of his nature is deserving of much consideration. In mankind, generally, the organs of the Feelings are more active than those of the Intellect. They are, consequently, more apt than those of the understanding to run into excesses of various kinds, and to entail misery on all around them. It is clear, then, that the Feelings should be *early* governed and directed. Every feeling, as well as intellectual power, becomes stronger by exercise and weaker by disuse, and this is in harmony with

every organ of the body. Muscles that are frequently employed increase in size and strength, and those which are never brought into operation dwindle and lose their contractile power.

The Propensities should be kept in constant subserviency to the Intellect, while the Sentiments should be cherished by every means which circumstances afford for this purpose. As the *Propensities* are drags upon our intellectual nature, they should be repressed at an early age, and soothed and tamed into due submission to the will; while, as the *Sentiments* impart a high tone of feeling to the character, their power should be directly and indirectly promoted, and, except in certain cases, their activity kept in constant operation. But how is this last to be effected? I answer, by placing the individual frequently in circumstances calculated to call such sentiments into operation. Verbal description may, no doubt, give rise to all the sentiments, but by this method the feeling is weakly excited, compared with *objects* that directly affect the senses. The reading of a tragedy excites less emotion than witnessing its representation on the stage, and the closer the representation mimics the reality the emotion will be the more powerful.

A child may be told to cherish the feeling of veneration, but if you wish him to experience the feeling powerfully you must lead him frequently to the very *act* of devotion, and let him sympathize with the feeling as it displays itself in others. In this way only should the sentiment of veneration be cultivated, and the principle is applicable to the training of all the other powers of the same kind.

But man is a being not only endowed with *Feelings* but with *Intellect*, and the intellectual powers display themselves at a very early period. The knowing organs are first called into operation, as these bring in the pabulum for the action of the reflecting powers. Of the knowing powers, Language and Individuality are among the first that should be cultivated, and the others according to their *relative size*. While cultivating the knowing powers, the reflecting ones should, to a certain extent, regularly be employed ; although in almost all our plans of education, the knowing powers of children are cultivated, to the neglect almost altogether of the reflecting. Children are made to wait till they are fit for a logic or moral philosophy class, before the reflecting powers are brought into action. But the plan is highly objectionable. Every object which presents itself to his daily observation, every subject on which the knowing organs may be engaged, is fitted to call into exercise both comparison and causality ; and the child who has been trained to exercise these organs from his early years, and on subjects of common observation, will, *cæteris paribus*, use them with more effect when he arrives at maturity, and when he directs them to the investigation of truth in science and philosophy. Man cannot become too intellectual ; and as his intellectuality depends on the existence of these powers, they should be early and regularly brought into operation. Yet though all the reflecting organs should be cultivated to the highest degree of which they are capable, the observation is not applicable to the knowing organs. All of these organs indeed should be culti-

vated to a *certain* extent ; but when any are pre-eminently developed, these should be cultivated to the partial exclusion of the others, and the individual so circumstanced should engage in a profession in which such powers are peculiarly brought into operation. In this way individuals will be enabled to follow the bent of their inclination to advance the interests of particular arts or sciences, and conduce, consequently, to their happiness and to the greatest improvement of the human race.

Phrenology is not only calculated to discover the talents of individuals, and to teach us to cultivate with effect talents which exist, but under proper direction it may be made the stupendous instrument of improving the intellectual capacity of the whole human race.

The brain is a part of the corporeal frame, and subject to the same laws that regulate the development of every other corporeal organ.* The corporeal part of man is under the same system of laws which governed the formation, the growth, and decay of the corporeal

* The purely *physical* part of the education of man is of paramount importance ; but has not been sufficiently insisted upon by many of our best writers upon Education. The more, however, Phrenology is studied, the more will its importance be appreciated. As a part of the body, the brain must rise and fall with the varying health of the system ; and the improvement of the corporeal system generally must necessarily raise the healthy condition of the brain. We can only advert at present to the subject ; but it is one full of interest. When the ancients spoke of the "*mens sana in corpore sano*," they spoke with their accustomed wisdom ; and it is obvious, that so long as the animal part of our constitution is linked with the mental, the training of the one must form as essential an ingredient as the education of the other.

parts of animals generally. To prevent animals from degenerating, and to enable them to attain the highest perfection of which their natures are capable, we require to improve not only the corporeal powers of individuals, but by attending to certain well known laws, we can improve or deteriorate the whole breed. How are our race-horses so superior? How can we form kinds of dogs which will differ so much from each other in instincts and corporeal powers? Can the character of these animals be changed by *education alone*? Other conditions are required, and by attending to these conditions, the requisite changes can be effected. Man is no exception to the general law; but he seems to think that he is, for while he devotes so much time to the improvement of the various races of domesticated animals, he never seems to suspect that by acting on similar principles his own progeny could be improved. Every peculiarity of corporeal conformation is transmitted from generation to generation. Family *heads* are to be found, as well as family talents and dispositions; and if we improve the character of the former, then we will assuredly affect in the same ratio the character of the latter.

The majority of mankind, it is to be regretted, do not take this view of the subject. In forming matrimonial alliances, many men are influenced by motives of which, as intellectual beings, they ought to be ashamed. A man who marries purely for money, who is captivated by a fine foot, an elegantly formed ankle, a slender waist, or a languishing eye, is rarely himself intellectual;

and *intellectuality* will seldom be the predominating characteristic of his children.

“What is the blooming tincture of the skin
To peace of mind and harmony within ;
What the bright sparkling of the finest eye
To the soft soothing of a calm reply ;
Can comeliness of form, or shape, or air,
With comeliness of words or deeds compare ?
No ! Those at first the unwary heart may gain ;
But these, these only, can the heart retain.”

PRACTICAL EXAMINATION OF THE HEAD.

BEFORE referring to the engravings, it may not be useless to point out the mode in which a practical examination of a head should be made. The first thing to be attended to, then, is the absolute size of the head; for a large head, *cæteris paribus*, always shows more power than a small head. The head should next be viewed as divided into four regions, an anterior, a posterior, a superior, and an inferior. The relative size of the anterior and posterior may be seen by extending a line from ear to ear over the crown of the head; and the superior and inferior regions may also be compared by a line which encircles the head on a level with the middle of the forehead, or, more correctly, by a circular line drawn at the level of Causality, Caution and Inhabitiveness. The effects produced by the predominancy of any of these regions have already been adverted to (see page 95.) It requires, however, to be stated, that that part of the brain that lies anterior to the ear is not *all* concerned in intellectual function—a part of it is formed by the *middle lobe* of the brain, and consequently a part of it is the seat of feeling. The size of the anterior lobe must be calculated from the breadth and elevation of the forehead. On the heads of Hare and the Rev. Mr. M. the line A B, or the *oblique* line, insulates the intellectual part of the brain; and the *horizontal* line is drawn between

the seat of the sentiments and propensities. After a knowledge has thus been obtained of the great outlines of the head, the relative size of the organs in each region must next be observed; and repeated experiments and observations will soon enable the majority of Phrenologists to arrive at just conclusions upon this part of the subject. The eye and hand are better measurers both of form and size than callipers or any other instrument, and should be made to supersede every such instrument. In forming an estimate of the comparative size of the organs, Phrenologists observe, first, the elevations and depressions when such exist upon the head, and secondly, the extent of space between the site of the organ and the opening of the ear. The ear is referred to because it is nearly opposite to the *medulla oblongata*, or part from which the fibres of the brain commence and radiate to the convolutions which are situated immediately under the cranium;—the longer the fibres, generally speaking, the larger the organ.



Pope. Mar. 17



Man

EXPLANATION OF THE PLATES.

IN these plates, the heads of four well known characters are represented; two in which the Intellectual and Moral departments of the brain predominated, and two in which the very opposite conformation existed, and what is the conclusion that would necessarily be deduced from these forms? Would not a Phrenologist at once indicate intellectuality and all the moral and religious qualities from the former, and every low and degrading vice and atrocity from the latter.

The head of Hare shows a decided preponderance of the propensities over the moral sentiments and intellectual powers, and his acts were such as to fill every well constituted mind with horror and disgust. In the engraving, Hare's head is in profile, and consequently an imperfect idea can only be formed from it of the size of the moral sentiments, for the *breadth* of the upper region cannot be seen; but in the *cast* of his head this part is narrow as might have been expected.

In the head of Pope Alexander VI. we have still a worse conformation. The whole head is thrown backwards in the direction of the basilar region, which is prodigiously large, with a lamentable deficiency of the forehead and upper regions. At the very first glance,

a Phrenologist would conclude that the character was grossly bestial, without a redeeming amiable quality. And what was actually his character? Let history tell.*

In the Rev. Mr. M. there is not only a considerable development of brain before the ear, but it rises high in the coronal region; thus indicating, phrenologically, great endowment of moral and religious feeling, and respectable intellectual powers. His character corresponded accurately with his developments.†

In the head of Melancthon we have the *beau ideal* *

* "Pope Alexander VI. This disgrace to the papal chair, whose family name was Borgia, was born at Valencia, in Spain, in 1431, and succeeded Pope Innocent VIII. in 1492. His life was a series of crimes. By his concubine Vannzzi, he had five children, worthy of such a father, and of these Cæsar, the most infamous, was his favourite. In all his political connexions he was treacherous, beyond the usual measure of treachery in politicians. The pontifical claims to supremacy lost nothing in his hands. It was he who divided between the Spaniards and Portuguese the recently discovered realms of America, by drawing a line from pole to pole, a hundred leagues to the westward of the Azores, and assigning to the former people all the realms to the west of it, and to the latter all those to the east. This hateful pontiff died in the year 1503; and is said to have fallen, by mistake, a victim to poison, which he and his son Cæsar had prepared for others."—*Davenport's Dictionary of Biography*.

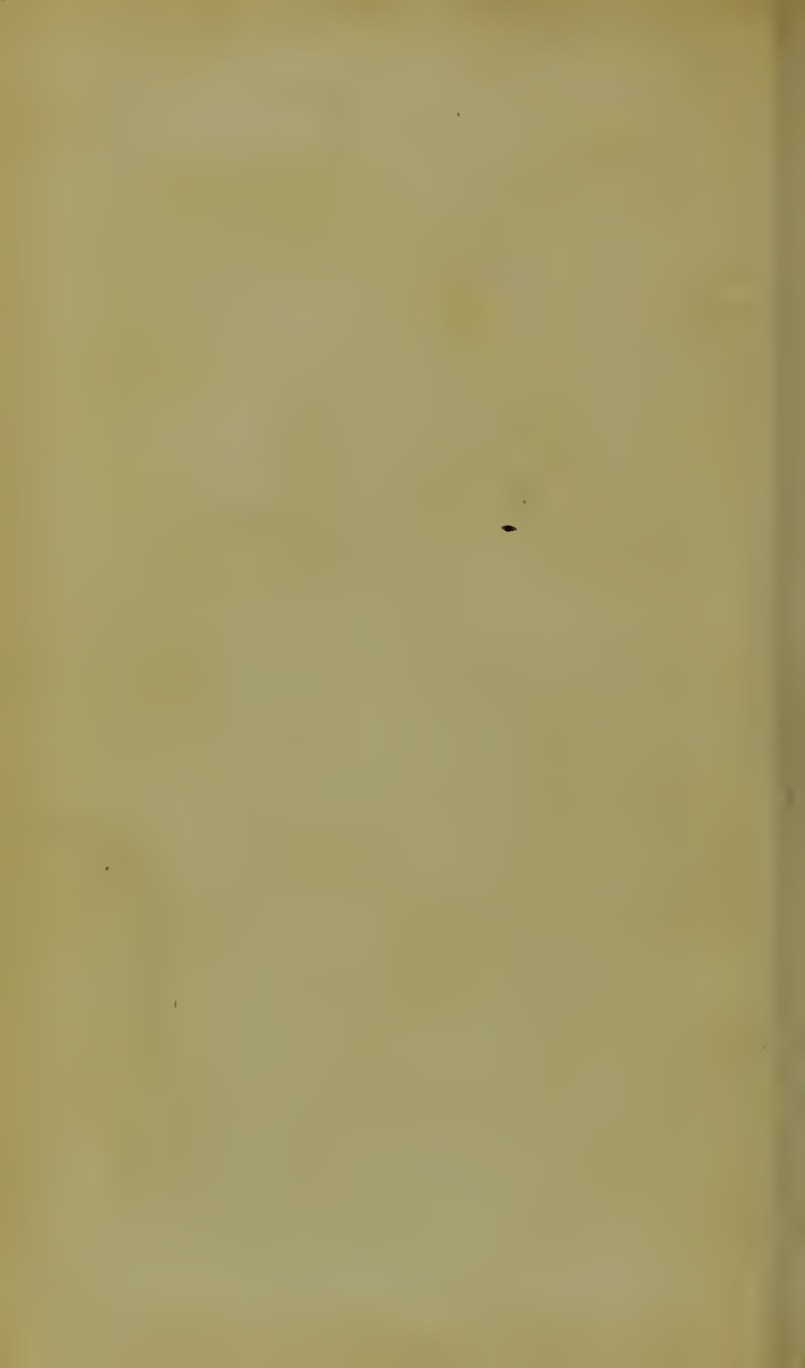
† "Mr. M. is stated, by his medical friend, to have been upwards of thirty years a minister in a Baptist congregation, and that he was first brought up to the trade of watch-making, but which he soon abandoned for pursuits more congenial to his tastes and inclinations. By great application he became a scholar and a man of considerable learning. Besides, his medical friend spoke of him in terms of the highest respect; as a minister, esteemed by all his congregation; as a man, of most exemplary conduct, and of the strictest integrity, who showed great care and economy in the management of his own affairs."—*Phrenological Journal*.



Mathematician.



Rev. d. 11. 11.



of phrenological development. The forehead is splendid—"the front of Jove himself." The coronal region towers to a magnificent height above the ear, and the posterior and basilar regions, so far as they can be observed, are comparatively small. This conformation would indicate, phrenologically, profound and comprehensive intellect, pure and elevated moral sentiments, with mildness of disposition: and observe how his character corresponded.*

* "Philip Melancthon, a celebrated Protestant reformer, was born, in 1497, at Bretten, in the Palatinate. His real name was Schwartzerde, or Black Earth, of which Melancthon is a translation. He studied at Witttemberg and Tübingen; and, in 1518, was appointed Greek professor at Wittemberg, where he became the friend of Luther, and a convert to his doctrines. To the diffusion of the new doctrines he powerfully contributed; but he displayed a moderate and conciliatory spirit, which was displeasing to the more imperious Luther. The Confession of Augsburg was the work of this reformer. Even his theological enemies respected the virtues, the talents, the learning, and the mild temper of Melancthon. He died at Wittemberg in 1560. His works form four folio volumes."—*Davenport's Dictionary of Biography*.

Spurzheim* thus describes the head of Melancthon:—"It is the brain of an extraordinary man. The organs of the moral and religious feelings predominate greatly, and will disapprove of all violence, irreverence, and injustice. The forehead betokens a vast and comprehensive understanding, and the *ensemble* a mind the noblest, the most amiable, and the most intellectual, that can be conceived." "Never was any man more civil and obliging, and more free from jealousy, dissimulation, and envy, than Melancthon; he was humble, modest, disinterested in the extreme; in a word, he possessed wonderful talents, and most noble dispositions. His greatest enemies have been forced to acknowledge that the annals of antiquity exhibit very few worthies who may be compared with him, whether extent of knowledge in things human and divine, or quickness of comprehension and fertility of genius, be regarded. The cause of true Christianity derived more signal advantages, and more effectual support from Melancthon, than it received from any of the other doctors of the age. His mildness and

* Phrenology in connexion with Physiognomy.

charity perhaps carried him too far at times, and led him occasionally to make concessions that might be styled imprudent. He was the sincere worshipper of truth, but he was diffident of himself, and sometimes timorous without any sufficient reason. On the other hand, his fortitude in defending the right was great. His opinions were so universally respected, that scarcely any one among the Lutheran doctors ventured to oppose them. He was inferior to Luther in courage and intrepidity, but his equal in piety, and much his superior in learning, judgment, meekness, and humanity."

THE END.

POPULAR WORKS

PUBLISHED BY

W. R. M'PHUN, 86, TRONGATE, GLASGOW;

N. H. COTES, 139, CHEAPSIDE, LONDON.

SOLD BY ALL BOOKSELLERS.

I.

Dedicated to the Hon. James Ewing, Esq., M. P.

M'Phun's Guide through Glasgow,

Neatly bound in pocket Size, 2s. 6d.

Pocket Map of Glasgow,

In a Case, 1s., in Sheet, 6d.

"THESE issue from a press in which we are more immediately interested than those of Mr. Knight and Mr. Valpy. They are published in Glasgow by the house of M'Phun—a name which was associated with the diffusion of much cheap and useful knowledge throughout Scotland, long before the Society whose labours we have noticed above did exist. So wonderful a city in its progress and magnitude deserved a well-informed and trust-worthy guide; and such a guide Mr. M'Phun has furnished. It is enriched with a very neatly engraved plan of the city, a view of the city, and prospective elevations of its principal buildings."—*Dumfries Times*.

"This is an exceedingly useful and respectable little Work. * * Numerous as have been the publications of Mr. M'Phun, this is undoubtedly one of the best of them."—*Dumfries Courier*.

"This is a neat and well-executed little volume. From the distinct and graphic manner in which M'Phun's Guide is written, we can confidently recommend it to every one who desires an acquaintance with the lions and localities of Glasgow."—*Edinburgh Evening Post and Scottish Literary Gazette*.

"M'Phun's Guide through Glasgow is a beautiful little volume."—*Glasgow Chronicle*.


THE HORSE, THE DOG, AND THE COW.

' FIFTH EDITION. (Making 5000 Copies.) '

*Printed on a very large sheet to hang upon the wall, 1s. 6d. ;
on stout pasteboard, 2s. or folded in a neat case
for the pocket, 2s. 6d.*

Small's Veterinary Tablet,

Being a Concise Account of the Diseases of Horses, Cattle and Dogs, with their Cause, Symptoms and Cure ; to which are added numerous valuable Recipes.

 The very flattering reception which this work has met with from the public and the press, is the best proof the Publisher can give of its "meriting," as he originally announced, "the attention of all proprietors of domestic animals."

"The work is quite original, portable, and valuable ; and if there be a jockey, groom, cow-keeper, cattle-dealer, or dog-fancier, who shall not possess a copy of it before this day three months, all we say is—*let not that man be trusted.*"
—*Liverpool Standard.*

"Of the many cheap and useful things which Mr. M'Phun has published, this is perhaps the cheapest and most useful. It is the best specimen of much information comprised in small compass we ever saw."—*Dumfries Herald.*

"The diseases, causes, symptoms, and cures, are arranged in different columns; and being of prompt and easy reference, the sheet cannot fail to be highly useful to numerous persons having interest in the classes of animals to which it refers. Rules are also given for distinguishing the ages of horses, and for blood-letting, and other external operations, which, as the author has very properly avoided technicalities, will be easily comprehended by farmers and others who may have occasion to put them in practice."—*Aberdeen Journal.*

"It is not too much to affirm it is the most concise system of Veterinary Surgery that has yet been offered to the public."—*Scots Times.*

"Here we have at one view in fact, the useful essence of all that has been written or practised on these subjects, and Mr. Small, the author, though little in name, has succeeded most admirably in a great undertaking, and for the small price of half-a-crown."—*Bell's Life in London.*

Price 1s. 6d., 2s. bound.

The Mother's Pocket Medical Guide;

Or a Treatise on the Physical Education and Diseases of Children. Compiled for popular use, from the writings of Drs. Eberle, Dewees, Burns, Ryan, Kennedy, and others. By a Physician.

Part I.—OF THE PROPHYLACTIC & PHYSICAL MANAGEMENT OF CHILDREN.

Chap. I. Of the conduct of mothers during pregnancy. 1. Of the Diet during pregnancy. 2. Of Dress and exercise. 3. Of Moral Influence. 4. Of Blood-letting. Of the Breasts. 6. Of Parturition.—Chap. II. Of the Management of new born Infants. 1. Of Washing and Dressing. 2. Of the Dress.—Chap. III. Of the Food of Infants. 1. Of the employment of Nurses. 2. Of Artificial Nursing.—Chap. IV. Of Exercise. 1. Carrying. 2. Walking.—Chap. V. Of Air, Temperature, and Nurseries.—Chap. VI. Of Weaning.—Chap. VII. Of Cleanliness, Washing and Bathing.

Part. II.—OF THE DISEASES OF CHILDREN.

Chap. I. Of Syncope, Asphyxia, and Imperfect Respiration.—Chap. II. Of the Meconium.—Chap. III. Of the Tongue-tie.—Chap. IV. Of Inflammation of the Breasts and Navel.—Chap. V. Of the Jaundice of Infants.—Chap. VI. Of the Retention, Suppression, and Difficulty in voiding, and Incontinence of the Urine.—Chap. VII. Of Teething.—Chap. VIII. Of Diabetes, Erysipelas, Thrush, Ulceration of the Mouth. 1. Diabetes. 2. Erysipelas. 3. Thrush. 4. Ulceration of the Mouth.—Chap. IX. Of Colic.—Chap. X. Of Constipation and Vomiting. 1. Constipation. 2. Vomiting.—Chap. XI. Of Diarrhœa. 1. Fœculent Diarrhœa. 2. Bilious Diarrhœa. 3. Lienteric Diarrhœa. 4. Chronic Diarrhœa.—Chap. XII. Of Intestinal Worms.—Chap. XIII. Of Ophthalmia. 1. Purulent Ophthalmia. 2. Scrophulous Ophthalmia.—Chap. XIV. Of Cholera.—Chap. XV. On Croup.

The Pocket Medical Guide, and the Mother's Pocket Medical Guide.—Mr. McPhun has become celebrated for bringing out cheap and useful publications of this sort; and none more useful than the two now before us could well have been given to the public. The contents are arranged on an excellent plan, besides being in a form which includes much practically useful information in a small space, and they are astonishingly moderate in price.—*Aberdeen Journal*.

The Highlands of Scotland

Embellished with Plates, and illustrated with Maps of the Western Coast, including the Hebride Islands.

Price only 2s. 6d.

The Scottish Tourist's Steam-Boat Pocket Guide;

Being an account of all that is worthy of the Stranger's notice in the Western Highlands and Islands of Scotland.

“No tourist in search of the picturesque among the noble and romantic scenery of our Western Highlands should be without a copy of this admirable little publication, which contains a greater mass of valuable and interesting information, regarding the West of Scotland, with its splendid rivers, lochs, mountains and isles, than was ever compressed into such diminutive bounds before. We look upon the small size of this Pocket Guide as one of its best recommendations, and we cordially agree in the following observations which we extract from the preface:—

“‘The truth of the adage—“a great book, a great evil,”—is seldom more deeply felt than when one is travelling. In such circumstances an ordinary octavo, or even a fashionable duodecimo, is often found to be an exceedingly troublesome companion. No tourist can comfortably ‘take the road’ with a book in his pocket exceeding snuff-box dimensions. Under this conviction we have arranged our materials in the smallest convenient form. The limits we have prescribed to ourselves have indeed imposed upon us a necessity for great condensation and brevity, yet we are not aware that we have, in a single instance, withheld any really useful information from the tourist; nay we have sometimes, it will perhaps be thought, used a Cicerone’s privilege, and anticipated more questioning than some who may place themselves under our guidance, feel inclined to put us to.


“But although ‘brevity is very good,’ and particularly in works which are to be consulted while we are engaged in a pleasure trip, and are more desirous of using our eyes in contemplating the beauties of nature than in reading the lettered page, it is, nevertheless, necessary that the notices given, if brief, should not be meagre. Mr. M’Phun’s book is however just what it should be in this respect. In few words it says much, and, small as it is, it contains everything which the traveller would wish to know.

“The volume is dedicated to the Royal Northern Yacht Club, and is embellished with three well executed engravings, representing some of the most interesting scenes on the Clyde, while its value is increased by two maps of the part of Scotland referred to in the text. — *Greenock Intelligencer.*

The Pocket Guide to Domestic Cookery.

BY A LADY. To which are added,
Instructions for Trussing and Carving, with Plates.

Third Edition, much improved. To this Edition has been added an entire chapter on *Preserves*, thus making the work *the cheapest, most complete, and most concise* treatise on Cookery extant. The price is, as formerly, only 1s. 6d. sewed, and 2s. bound.

 *Not a single recipe is given in this volume that has not been practised by the Authoress.*

CONTENTS.—Chap. I. Instructions for Marketing.—II. Preparations and General Rules for Cooking, Trussing, &c.—III. Directions for Carving.—IV. General Remarks on Dinners and Suppers.—V. Made Dishes.—VI. Soups, Gravies, &c.—VII. Fish Dishes.—VIII. Pastry.—IX. Puddings, &c.—X. Cookery for the Sick.—XI. Miscellaneous Receipts.—XII. Miscellaneous Recipes—Observations on Preserves.—XIII. Observations on Pickles.

The great defect in the numerous manuals of Cookery, which at present divide the public favour, is their bulk and price. Neither of these objections apply to the present work; although it will be found to contain all that is really and most practically useful to the good and economical housewife. It has been the object of the authoress to supply all the requisite information for keeping a well-ordered kitchen and furnishing a respectable table, without perplexing the young housekeeper with a useless variety of recipes, and a multitude of details, which, even when not entirely frivolous, may at all times be best left to individual judgment, experience, and convenience.

“Mr. M’Phun, of our neighbouring city, is one of the most indefatigable guides that is anywhere to be found. If we err, it is certainly no fault of his. He has supplied us with one of our best Guides yet published to the Lions in the ancient city of St. Mungo; with a guide in the purchase of horses; with a Guide to Mothers, how to take care of themselves and their tender offspring; with a Guide to preserve our health, after we are old enough to take care of ourselves. He lately presented us with a Guide to Stenography; and now, out he comes just in the nick of time with a guide on a more important topic than all the rest put together—a Guide to Cookery! Like the rest of Mr. M’Phun’s Guides, this is a pocket one, and worthy it is of a place in the pocket of every lady in the land, who has any concern in the important business of Cookery.”—*Paisley Advertiser*.

Price 1s. 6d., neatly done up,

The Pocket Medical Guide ;

Being a Popular Treatise on Diet and Regimen, Cold and its effects, and the Use and Doses of Medicine ; the whole selected from the latest and best authorities, and carefully adapted for the use of families and non-professional readers.

CONTENTS.

PART I.—ON DIET AND REGIMEN.

Introduction—Chap. I. General Anatomy of the Digestive Apparatus. 1. Of the Alimentary Canal. 2. Of the Glands subservient to digestion. 3. Of the connexion between the digestive and other functions.—Chap. II. Of Hunger and Thirst.—Chap. III. What is the natural Food of man?—Chap. IV. Of Alimentary Substances. 1. Aliments derived from the Vegetable kingdom. 2. Aliments derived from the Animal kingdom. 3. Of Condiments. 4. Of Drinks.—Chap. V. Rules for taking food.—Chap. VI. Of Indigestion.

PART II.—ON EXPOSURE TO COLD AND ITS EFFECTS.

Chap. I. Of Cold in general.—Chap. II. Of the diseases caused by exposure to cold. 1. The direct consequences of exposure to cold. 2. The indirect consequences of exposure to cold ; Fever, Catarrh, Influenza, Cough, Asthma, Consumption, Inflammation of the Larynx, Croup, Inflammation of the Lungs, Sore Throat, Rheumatism, Diarrhœa, Chilblains, Ophthalmia.—Chap. III. Of the means whereby the bad effects of exposure to cold may be avoided.

PART III.—ON THE USE AND DOSES OF MEDICINE.

Art of prescribing medicines—Laxative medicines, Emetics, Anodynes, Astringents, Tonics.

“A book that no family in town or country ought to be without.”—*Kilmarnock Journal*.

“This, though a small, is a very useful manual. The editor evinces aptitude in the art of condensation, and the publisher, Mr. M‘Phun, a laudable proneness to exemplify in book-making one of the very best maxims promulgated by the disciples of Bentham—the *maximum of utility in the minimum of space*.”—*Dumfries Courier*.

AN INDISPENSABLE WORK IN EVERY COUNTING-HOUSE.

Dedicated to ALEXANDER GOODSIR, Esq.

Secretary to the British Linen Co's Bank

The Merchant's and Banker's Commercial Pocket Guide;

Being a Manual of the Principles of Banking, Broking, Fairs, Foreign coins, Foreign Exchange, Insurance, Market Prices, Public Funds; and commercial Transactions in general.—Price 1s. 6d. sewed, 2s. Bound.

From the Tyne Mercury.—"The title almost sufficiently expresses the vast utility of this little, cheap, and elegant work, *** and all this in a volume not a quarter of an inch thick, and in size 5 inches by 3! When so much of value is contained in so small a compass, and to be had at a very reasonable rate, well may we consider these the times of economy and usefulness."

From the Belfast Northern Whig.—"This is a little volume which every person connected with commercial pursuits should possess. The publisher deserves well of the public for this and several other popular works in which cheapness, convenience, variety and accuracy are admirably combined."

From the Glasgow Chronicle.—"No young man in a counting house ought to be without it."

From the Scotsman.—"This is an exceedingly neat and useful little work. It is judiciously compiled, and its matter so judiciously condensed, that though exceeding small it contains a very great deal of useful and even interesting information on all the established and fundamental institutions, rates and the usages of the mercantile system."

From the Edinburgh Evening Post.—"This is one of the most useful and best executed little works of a practical kind we have ever met with."

From the Dundee Chronicle.—"Mr. M'Phun has done good service to the mercantile interest by the publication of this pretty little volume, which carries with it ample evidence of having been compiled with the greatest care."

VI.

The FIFTH EDITION, in Foolscep 8vo. Price 6s.
Boards, of

The Anatomy of Drunkenness;

By ROBERT MACNISH, Author of "The Philosophy of Sleep," and Member of the Faculty of Physicians and Surgeons of Glasgow.

CONTENTS.—Chap. 1. Preliminary Observations. 2. Causes of Drunkenness. 3. Phenomena of Drunkenness. 4. Drunkenness modified by Temperament. 5. Drunkenness modified by the inebriating Agent. 6. Enumeration of the less common Intoxicating Agents. 7. Differences in the Action of Opium and Alcohol. 8. Physiology of Drunkenness. 9. Method of curing the Fit of Drunkenness. 10. Pathology of Drunkenness. 11. Sleep of Drunkards. 12. Spontaneous Combustion of Drunkards. 13. Drunkenness Judicially considered. 14. Method of curing the Habit of Drunkenness. 15. Temperance Societies. 16. Advice to inveterate Drunkards. 17. Effects of Intoxicating Agents on Nurses and Children. 18. Liquors not always hurtful.

"This little book is evidently the production of a man of genius. The style is singularly neat, terse, concise, and vigorous, far beyond the reach of any ordinary mind; the strain of sentiment is such as does infinite honour to the Author's heart; and the observation of human life, by which every page is characterized, speaks a bold, active, and philosophical intellect. As a medical treatise it is excellent; and to those who stand in need of advice and warning, it is worth a hundred sermons."—*Blackwood's Magazine*.

"If every man addicted to this dreadful vice could be induced, in some lucid interval, to read this volume with attention, it would go far to put him out of conceit with the practice. If his own observation and experience had not taught him what a complicated evil drunkenness is, this volume would at least bring to his remembrance many things which it is of the greatest importance he should know before he is for ever ruined."—*Entertaining Press*.

VII.

SECOND EDITION,

In One Volume Foolscap 8vo., Price 7s.

The Philosophy of Sleep;

By ROBERT MACNISH, Member of the Faculty of Physicians and Surgeons of Glasgow.

CONTENTS.—Chapter 1. Introduction. 2. Sleep in General. 3. Dreaming. 4. Prophetic Power of Dreams. 5. Night-Mare. 6. Day-Mare. 7. Sleep-Walking. 8. Sleep-Talking. 9. Sleeplessness. 10. Drowsiness. 11. Protracted Sleep. 12. Sleep from Cold. 13. Trance. 14. Waking Dreams. 15. Spectral Illusions. 16. Reverie. 17. Abstraction. 18. Sleep of Plants. 19. General Management of Sleep.

“The Second Edition has been enriched with many important additions; in particular a long chapter on Spectral Illusions—one of the most interesting portions of the work. We have seldom met with a work more worthy of a place in every well-furnished library. It will interest equally the reader for amusement and the philosophical thinker.”—*Edinburgh Phrenological Journal*.

“This is one of the most interesting and delightful volumes we have for a long time met with. It is full of amusement and instruction. Over its details is thrown that luminousness which alone flows from original genius.”—*Edinburgh Evening Post*.

“We have been captivated by the eloquence—we had almost said the poetry of its descriptions; and, on the whole, we must say that we consider it to be one of the most valuable and amusing books of philosophy we have met with for this long time past.”—*London Medical Gazette*.

“A work which will be perused with interest and delight. It may be considered the most valuable contribution which philosophy, poetry, and physical science in agreeable combination, have lately made to the illustration of the study of man's nature, viewed in close alliance with his ‘being's end and aim.’”—*Edinburgh Weekly Journal*.

THIRD EDITION, Price 2s. 6d.

With the Scotch Law regarding the Sale and Warranty of Horses.

Advice to Purchasers of Horses ;

Being a Short and Familiar Treatise on the Exterior Conformation of the Horse, the Nature of Soundness and Unsoundness, the Laws relating to Sale and Warranty, with Copious Directions for Discovering Unsoundness prior to purchase.

By J. STEWART, Veterinary Surgeon, and Professor of Veterinary Surgery in the Andersonian University.

"The buyer hath need of a hundred eyes,
But the seller of only one."

"Persons who have occasion to buy or sell horses would derive much instruction from this little manual, which treats of the exterior conformation of the horse, the nature of soundness and unsoundness, and the laws relating to sale and warranty, with copious directions for discovering unsoundness prior to purchasing. The author is a scientific man, and his work is popularly written, and likely to be useful."—*Leeds Mercury*.

"This Manual, though of small size, is far from being of small value, and cannot fail to be useful not only to farmers, innkeepers, and others engaged in posting, but also to every one who may have occasion to purchase a useful and serviceable horse. If a person make himself master of the maxims it contains he will be fully prepared to select a sound animal, as well as to detect and prevent the imposition of ordinary horse-dealers. It also contains an exposé of the laws relating to sale and warranty of horses, which cannot be too well known, because to borrow the motto of the work, 'the buyer hath need of a hundred eyes, but the seller of only one.'"—*Stirling Journal*.

"This is a well-composed and useful little volume."—*Agricultural Journal*.

"We would recommend no person to purchase a horse without having previously purchased and perused Mr. Stewart's book of advice."—*Glasgow Chronicle*.


"This is an exceedingly useful little volume, which every Tyro in the art of horse dealing should lose no time in becoming possessed of."—*Dumfries Courier*.

XV.

Seventh Edition, neatly done up in pocket size, Price 1s.

A Catechism of Phrenology,

Illustrative of the Principles of that Science. By a Member of the Phrenological Society of Edinburgh.

 This Work contains all that is requisite for the information of the General Reader on Phrenology. All the leading Facts and Principles of the Science are fully detailed, and the whole is illustrated with Engravings.

“The utility of this manual is unquestionable, for whatever progress the science it is intended to illustrate may be making, it is evident that its study should not be entirely omitted even in the most general education. The arrangement of the work is admirable. The utmost perspicuity prevails in every page. The public may be assured of its high claims to their attention, from the facility with which the principles of the science are unfolded before them; from the philosophic tone in which the subject is treated, and from the unassuming, modest manner in which its appeals are made.”—*Alexander's East India Magazine*.

“This is a brief Manual of Phrenology, in the form of a Catechism, intended for the use of individuals who cannot bestow much time or money on the study of it. It combines accuracy, clearness and brevity, and is scrupulously correct in doctrine.

“After describing the different organs, the work contains ‘general questions,’ in which the effects of education, temperament, size, combinations, &c., are discussed. It contains a neatly engraved copy of the Edinburgh Phrenological bust; and, on the whole, is a commendable and useful publication. *It is neatly printed, and sold very cheap.*”—*Edinburgh Phrenological Journal*.

XVI.

A Brief History of the Protestant Reformation.

New Edition, with Corrections and Additions, in One Vol.
Price 4s. Boards.

In a Series of Letters addressed to WILLIAM COB-
BETT.

IX.

Now Ready, Vols. I. II. and III., 8s. each.

The Scottish Pulpit,

Containing a Body of Original matter, nowhere to be met with in quality so superior, and at a price so very reasonable. The Sermons are by the most eminent living Divines of the Church of Scotland; and, for the most part, have either been furnished by the authors themselves, or corrected by them before appearing in print.

SCOTTISH PULPIT, Vol. III.—“ We hail the appearance of this volume with much pleasure. The extensive sale which the work enjoys, and deservedly enjoys, is a favourable symptom, or rather a gratifying proof, that feelings of christian piety still exist to an encouraging extent in our land. It would very greatly benefit society were such writings to become much more prevalent, and take the place of those, which under the name of politics or political economy, and under the pretence of teaching the art of Government, are souring men’s minds, and rendering them turbulent, discontented, and unhappy. It signifies very little for a man to have his head stuffed with crude undigested knowledge, which he probably will never have an opportunity to apply; but not so with the knowledge here communicated, because it is such as deeply interests every man, not only in his passage through this transitory scene of life, but in future and endless ages. The present volume contains upwards of 70 sermons, some of them by the most eminent ministers of which Scottish Ecclesiastical Literature can boast, while others are, from pens, whose owners, though not yet perhaps much known to fame, are in the fair way of obtaining it, if the sermons, under notice, be fair criteria of their merits. The volume, in addition to its other properties, is very handsomely printed. It is, moreover, embellished with a portrait of the late Rev. John Geddes, of whom a memoir is given. We recommend the volume, not as one worthy of a single perusal, and then to be laid aside and forgotten, but as one that may be perused and re-perused with increasing pleasure and increasing profit.”—*Paisley Advertiser*.

“ The third volume of this excellent body of practical theology is completed; and its merits, we think, are even greater than those of the volumes by which it was preceded. There is a marked improvement in the style of the sermons,

and to account for the superiority is not difficult. The utility of the work is now established, and clergymen, appreciating its merits, and knowing its extensive circulation, select with care the sermons they wish to appear in its pages. The Scottish Pulpit is a publication in which Christians of every denomination are interested. With party it has nothing to do. The diffusion of Christianity is its object, in a mode cheap, convenient, and elegant. In this age of cheap publications the idea of furnishing two sermons for *twopence* seemed to be merely the speculation of an ardent mind. The attempt, however, pleased the religious public—the variety of the work continued to excite attention—its substantial matter ensured approbation, till, from ranking as a weekly production, it has assumed the loftier station of a standard publication of practical divinity. Nor is this strange. The sermons generally are, what such productions should be, calculated to improve the understanding and affect the heart, and from the peculiar circumstances under which they are furnished, they have an unction which few printed sermons possess. This publication, therefore, has just claims for general diffusion. Is the Christian fond to possess a sermon of his beloved minister? In the stillness of the Sabbath evening does he wish a work suitable for that day, and in unison with his feelings? Does the father, in the domestic circle on that evening, require a publication to instruct the minds of his household, and improve their hearts? Is the Christian, in the seclusion of a sick chamber, desirous of spiritual comfort?—to all these classes, how diversified soever their circumstances, the Scottish Pulpit is peculiarly adapted. The religious sailor, will find this work most suitable for a spare hour on Sunday. It will remind him of *home*, of his duty to himself, to his neighbour, and to his God. The pious shipmaster, who assembles his crew for religious purposes on Sabbath, would consult his own interest, and the spiritual welfare of those for whom he is deeply responsible, by adding to his religious exercises a selection from the pages of this work. We heartily recommend this publication to the patronage of the religious public; known, its merits will be acknowledged; and we are proud to have this work associated with the literature of Scotland. It is worthy of her press and of her pastors; and the publishers merit the warmest thanks for the manner in which the Scottish Pulpit has been conducted, and we sincerely trust their past and continued exertions will be fairly appreciated.”—*Greenock Advertiser*.

XX.

The Church of Scotland Magazine.

CONTENTS.—1. To Readers and Correspondents:—Union of Orthodox Seceders with the Church of Scotland—Protestantism—Atheism—The Union of Infidels with Voluntaries—To the Editor of the Record—Missionary Biography—Psalmody—Revenues of the Church of England.—2. Scripture Evidence in Favour of Establishments. By J. E. Gordon, Esq., late M.P. for Dundalk—No. 2. The Patriarchal Dispensation.—3. Extension of the Church—St. Andrew's Church, Ramsbottom, Lancashire.—4. Extracts from Distinguished Writers.—5. Church Property not Originally the Exclusive Property of Roman Catholics.—6. Dissenting Endowments.—7. Voluntary Church Principles both of a Revolutionary and Infidel Nature.—8. Present Condition of the Established Church.—9. Notices of Books:—The Expediency of a Secure Provision for the Ministers of the Gospel—Speeches delivered at a Meeting held at Arbroath—Wisdom of the Secession Magazine—Memoir of the Rev. Elias Cornelius.—10. The Church of Scotland, the Friend of Freedom.—11. Voluntary Denouncement and Reverence for Scripture.

“ We are pleased with the whole series of this new periodical, so admirably adapted to the times in which we live, and long wanted by the Church in Scotland. It is conducted with great talent; and in addition to its other merits, has unanswerable claims upon public patronage from its cheapness. It is sold at Sixpence! No clergyman of the Church of Scotland, therefore, and no lay member of that Church who has any regard for the venerable Establishment, has any excuse if this periodical do not appear on the breakfast table as regularly as the months come.”—*Liverpool Standard*.

XXI.

America at One View.

On a very Large Sheet, beautifully printed at the Glasgow University Press, Price 1s. 6d., or varnished on canvass and roller, Price 6s. 6d.

Bell's Statistical Sheet Atlas of the United States of North America.

X.

NEW Edition, Corrected, First Series complete, Five Volumes 8vo. Price £2.

The Glasgow Mechanics' Magazine.

Great pains have been bestowed upon the present Edition of this work in its progress through the press. Articles of temporary interest have been excluded, and in their place has been substituted such matter as will always prove useful to the man of science, thus rendering the work one of permanent utility on every subject connected with Science and the Arts.

"However much we have been led from time to time to speak in admiration of the work of a similar kind to this now Publishing in London, we cannot help expressing our opinion as still higher of the Glasgow Mechanics' Magazine. It appears to be conducted by a set of practical men, who understand well what they are about, and who are well calculated to execute the task they have undertaken. The plates are all engraved on copper, and in a manner not inferior to the most expensive Scientific Journals now publishing. All the London cheap Periodicals have only got wood engravings, which do not and cannot show the minute lines of Machinery half so well as a copperplate engraving."—*Leeds Mercury*.

XI.

TWENTY-SEVENTH EDITION.

The Scottish Martyrs.

In Two Large Volumes 8vo.,

Biographia Scoticana:

Or a Brief Historical Account of the Most Eminent SCOTS WORTHIES, Noblemen, Gentlemen, Ministers, and others, who Testified or Suffered for the

Cause of the Reformation in Scotland, from the beginning of the Sixteenth Century to the Year 1688; originally collected by John Howie of Lochgoin; now Revised, Corrected and Enlarged, by a Clergyman of the Church of Scotland. and Enriched with a Preface and Notes, by WM. M'GAVIN, Esq., Author of "The Protestant," &c.

Volume I. contains Memoirs of the Lives of the Worthies.

Volume II. contains the "Last Words and Dying Testimonies," "Cloud of Witnesses," "Naphtali," &c. &c.

—To those who are already in possession of the first volume of this work, the second will be found an indispensable requisite, as without it the book is incomplete, and is deficient in by far the most important and interesting portion of the Biography of the Scottish Reformers.

"This is by far the best edition of this most remarkable work that has ever seen the light. He is not worthy the name of a Scot, who can be indifferent to the story of these immortal champions."—*Evangelical Magazine*.

"We hail with pleasure this new and greatly improved Edition. The external appearance is very creditable to the Publisher, and we have no doubt his well-meant zeal in publishing an improved edition of a work that must ever be dear to pious minds, will meet with the encouragement which it unquestionably deserves."—*Edinburgh Christian Instructor*.

XII.

SECOND EDITION OF THE NEW GAELIC DICTIONARY.

Now ready, in one handsome Octavo Volume, dedicated to his Grace the Duke of Gordon, Price 21s.

A Dictionary of the Gaelic Language,

Containing many more Words than the Quarto Dictionaries; with their significations and various meanings in English; illustrated occasionally by suitable Examples and Phrases, and Etymological Remarks. The first Part contains Gaelic-English, the Second English-Gaelic, which are given much fuller than in any of the Quarto

Dictionaries. By the Rev. Dr. M'Leod, Campsie, and the Rev. Principal Dewar, Aberdeen.

"The Rev. Drs. M'Leod and Dewar are already advantageously known to the public as eminent Gaelic Scholars, and we think their Dictionary promises fair to extend their reputation as benefactors to the Highlands. * * * The present publication will have all the advantages of an abridgment from the Society's large work, with some peculiar to itself, as being to a considerable extent ORIGINAL. Many new words are added, and new phrases are given, especially with regard to the changes effected upon the word by prepositions, prefixes, and affixes, which are very common in Gaelic. To the Highland Student and the Highland Minister it is unnecessary to recommend it, since we know that by them such a work has been long wished for; and a slight glance at the present will be sufficient to convince them of its value."—*Edinburgh Literary Journal*, Dec. 1829.

"We have now the complete work before us, and we are much pleased to find that, instead of cause to retract, we have rather to add to the praise we formerly felt it our duty to bestow on the labours of Drs. M'Leod and Dewar."—*Ibid.* Jan. 1831.

XIII.

The Gaelic Messenger.

Conducted by the Rev. Dr. M'Leod of Campsie, assisted by a numerous circle of Celtic Scholars. Complete in 2 Vols. in Boards, price 6s. 6d. each, or with the Sermons 8s. each Vol.

"This is truly a literary curiosity. A periodical in the language of Ossian. We congratulate our Highland countrymen in particular, and the friends of knowledge and civilization in general, upon the appearance of this excellent Miscellany."—*Edinburgh Literary Gazette*.

XIV.

The Notation of Music Simplified;

Being the Development of a System, in which the Characters employed in the Notation of Language are applied to the Notation of Music. By Alexander Macdonald.

XXIV.

In one Volume 12mo. with an Engraving of the Arms of the Incorporation of Bakers, Price 5s.

The Practical Baker and Confectioner's Assistant,

Being a Comprehensive View of every thing relative to the Baking of Loaf and Fancy Bread, on both the Ancient and Modern Systems; with a great variety of Practical Receipts in Pastry, Confectionary, Candies and Preserves, Cordials, Wines, &c. ; and the various methods of making Artificial Yeast. By John Turcan, baker.

"Moreover, this book is a perfect repository of every thing relating to the subject, which he has undertaken to discuss. The whole mystery of baking and confectionary is fully laid open; and by the simple and judicious directions laid down, any one may practise for himself the operations of these universally interesting arts. We doubt not that the work will be found highly useful to the trade; and we dismiss it with every wish for that success which it so well deserves."—*Edinburgh Evening Post*.

XXV.

In Monthly Numbers, Price 2d.

The Child's Magazine;

Or, Tales for the Nursery.

By MRS. M'GREGOR, Author of "Maternal Duty," &c., &c.

XXVI.

Neatly Printed in Pocket size, Price 6d.

The Casquet;

A Collection of the best Songs in the GAELIC LANGUAGE. Selected by James Munroe.

"It contains as much closely and neatly printed matter in Gaelic, for Sixpence, as we have ever seen offered for the same money in English."—*Scots Times*.

XXVII.

M'Phun's Edition of the Scotch Reform Act.

Price Threepence.

This is the most accurate and most comprehensive of all the Abridgments of the Act yet published.