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M O R A L

AND

INTELLECTUAL SCIENCE:

APPLIED TO THE

ELEVATION OF SOCIETY.

BY GEORGE COMBE, ROBERT COX, AND OTHERS.

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*I remain My dear Sir  
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Geo. Combe*

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## ADVERTISEMENT.

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THE high position occupied by GEORGE COMBE as an author, and the great demand for his recent writings, by his friends and admirers in America, together with a hope of still farther advancing the sublime and elevating system of Mental Philosophy, to which his life has thus far been devoted, are a sufficient guarantee for the presentation of this selected volume. Although the regular publication of the Quarterly Phrenological Journal is about to be suspended in Edinburgh, we shall, by the advice of the editor, publish the most valuable papers which have appeared in that, instead of publishing a fac-simile edition, as was first proposed. This course seems much the most desirable and satisfactory to all with whom we have conversed on the subject. Our readers may, therefore, expect an ECLECTIC, which will comprise the most valuable, as well as the most recent papers that may be issued from the European press on this subject. We intend to avail ourselves of every possible facility to present the reader with a volume that will make his soul rejoice. It will possess REAL merit, and be a treasure in itself. Besides the portraits of distinguished Phrenologists, it



will contain such other illustrations as may be conducive of a more precise and accurate course of scientific investigation. In this respect, subsequent numbers will be more complete. We have now in course of preparation plates and engravings, with suitable admeasurements and rules, by which the student may arrive at mathematical accuracy in determining the relative power possessed by any individual. It will also contain illustrations and facts, on the application of Mesmerism as a remedial agent, in all the common diseases, as well as to the more important departments of medical science, including surgical operations without pain to the patient. PHRENOLOGY will be considered in relation to HUMAN RIGHTS, showing its bearings on legislation, as well as on moral, political, and self-government. It will advocate religious liberty, and the MORAL, PHYSICAL, AND INTELLECTUAL ELEVATION OF SOCIETY.

S. R. WELLS,

PHRENOLOGICAL CABINET,  
131 Nassau st., New York, January 1, 1848.

# MORAL AND INTELLECTUAL SCIENCE.

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## NATIONAL EDUCATION.

BY GEORGE COMBE.

THE public appear to be now nearly unanimous on the point, that the people SHOULD BE EDUCATED ; but considerable differences of opinion exist as to WHO should be charged with the duty of educating them—the state or individuals ? also, whether combined religious and secular instruction, or secular instruction alone, should be given by the schoolmaster, leaving religious instruction to be supplied by the parent and priest ? To communicate my views distinctly on these points, I find it advisable to begin with the very elements of the subject.

In the arguments generally maintained on these questions, certain views of the nature of man, of the origin and objects of society, of the powers and duties of government, and of the connection between practical morality, secular prosperity, and religious belief, are assumed by the various writers as settled doctrines, concerning which their own opinions are unquestionably sound ; when, in point of fact, no adequate consideration has been bestowed on these topics, either by them or by those to whom they address themselves, and no common views in regard to them are definitely assented to by either. When the postulates of a discussion are thus involved in obscurity, and apprehended differently by different individuals, harmony in the conclusions is impossible. However widely, therefore, the reader may differ from some of the opinions now to be stated, few, I hope, will doubt the advantage of elucidating these fundamental points of the question.

This world, then, appears to me to be a vast theatre constituted for exertion ; in which enjoyment is the natural consequence of industry, morality, and intelligence ; and suffering, that of ignorance and sloth. The constitution of the world—physical and moral—that of the human mind and body, as well as the relations between them, are fixed and determinate ; and man becomes prosperous and happy in proportion to the degree in which his social institutions and personal conduct harmonize with these unchangeable elements of nature. Each individual of the race is born ignorant of every thing ; but capacities are bestowed on him to learn all that is essential to his welfare. The mighty machinery of nature, physical and moral, is constantly revolving within him (in his own mind and body), and around him ; and he cannot by possibility avoid experiencing its influence. To be prosperous, he must adjust his conduct and position to its action, and he cannot do so unless he know it : learn, therefore, he must, or suffer. Education means teaching the individual what it concerns him to know relative to his own constitution and that of the moral and physical world in which he is destined to live and act ; and it includes TRAINING him to habits of action suitable to that destination.

The importance of teaching knowledge is evident ; but the necessity for TRAINING is less understood. It arises from the dependence of the mind, in this world, on physical organization for its powers of acting. The brain is the material instrument by means of which the mind acts, and it consists of a variety of parts, each connected with a special mental power. It is subject to the same organic laws as the other parts of the body. If we should confine a man, for the first twenty years of his life, to a dungeon, without exercise and employment, we should find, on bringing him into the active world of light and life, that he could not see distinctly, could not judge correctly of the distance of objects by their sounds, could not walk steadily, and scarcely could make any exertion with his arms and hands. The cause of his defects would be found in the circumstance, that his organic structure had been left feeble and undeveloped through want of exercise ; and that his various senses and muscles (which, although distinct in themselves, are all framed to co-operate and assist in

prosecuting general aims) had never been accustomed to act in combination. Such a being, therefore, when first introduced into active life, would be helpless, bewildered, and unhappy.

The uneducated and untrained peasant is in a similar condition in regard to his mental organs. Not only is he ignorant, but his mental organs are dull, feeble, and incapable of continued exertion; and he, therefore, cannot think continuously, or act perseveringly. We may give him instruction, but it does not penetrate into his inactive brain, and it is not reproductive of thought and action. I have occasionally hired into my service individuals who had not learned to read and write, and the effects were most conspicuous. The ears heard, and the eyes saw, and the understanding appeared to comprehend; but I soon discovered that the comprehension was imperfect and inexact, that the RETENTION was momentary, and the power of reproduction, combination, and modification, almost NIL. I lately conversed with an engineer and machine-maker who employs 120 workmen, and he told me that he had repeatedly taken into his workshop uneducated and untrained laborers, with a view to teaching them some simple processes in his trade, but had found that the lesson of yesterday was not retained in the mind till to-day; that no spontaneous suggestion presented itself, even when circumstances rendered it evident to a trained understanding; and that their labor, in consequence, was without value in any skilled department of art. Their muscles had been trained to act, almost without the direction of their brains; and beyond labor which muscles could execute independently of intelligence, they were powerless.

Such is the intellectual condition of uneducated man. But the intellect constitutes only a small, although an important portion of the mind: man is endowed, besides, with moral sentiments and animal propensities, depending, like his intellect, on cerebral organs for their powers of manifestation. Each organ is more or less capable of action in proportion to its size, temperament, and the TRAINING which it has received. In a rude and uncultivated condition of the intellect, the moral sentiments are left without stimulus and direction. These sentiments produce the emotions of benevolence and venera-

tion, and the love of justice. Prosperous external circumstances, generally speaking, are favorable to virtue. A man steeped in poverty and pressed by personal want, finds his selfish faculties excited, and lacks both moral and physical means for practicing the benevolent virtues. One buried in ignorance cannot exercise a well-directed and enlightened veneration; and one in whom all the finer, higher, and disinterested powers of the mind are dormant, cannot be expected to comprehend the dictates of truth, or to practice the principles of justice.

But the third class of faculties, the animal propensities, are not equally quiescent in the uneducated individual; because, on their prompt action the preservation of life and the supply of our bodily wants has been made by nature immediately to depend. Their external objects, which act as their stimulants, everywhere abound. The struggle for food, raiment, and shelter, in which the uneducated man is, in the general case, constantly engaged, calls forth his Combativeness and Destructiveness, his cunning and his obstinacy, into abiding activity; it TRAINS THEM to vigor, and renders them prompt to action.

Such, then, is uneducated man, in his general condition. I speak, of course, of average individuals; for there are persons born in all ranks of life whose inherent superiority of mind enables them triumphantly to surmount every adventitious obstacle to their development and elevation. These, however, are few in number; and, as nature has rendered them, in a great measure, independent of social aid, they do not form the objects of our present consideration.

Let us next consider society, and its origin and objects. I regard society as the direct offspring of the inherent faculties of man. Some species of animals are gregarious—that is to say, have received from the God of Nature certain feelings which render the presence of their kind agreeable to them—and to this category belongs man. Many of our faculties have intelligent beings for their direct objects, and all of them are adapted to a condition of social life. Not only so, but also the grand outlines of the social state of man are determined by the fiat of the Creator. Individuals differ NATURALLY in bodily strength and in mental energy; and in these differ-

ences a foundation is laid for diversities of social rank and condition—for the existence of the rich and the poor, of the governing and the governed. In order correctly to understand human nature, therefore, we must regard man as an *INDIVIDUAL* being, seeking his happiness in the gratification of his faculties ; but high in the list of these we must place his social powers, which are as certainly inherent parts of his mental constitution as the most important of his selfish feelings.

GOVERNMENT springs from the social faculties. Living in the social state, necessarily implies that there are interests and duties common to all the members of the tribe. Gregarious animals place sentinels to warn the herd or flock of dangers, and choose leaders to guide them. Among men, the ruling power, in its proper form, consists merely of certain members of the associated mass selected by the rest to attend to the common interests of the whole, and to enforce the reciprocal duties incumbent on the individual and the community. General consent of the members selects the rulers, and lends them the power of the social body to execute their functions. History tells us, indeed, that, in many states, strong and energetic individuals have constituted themselves masters, and transmitted their power to their descendants, irrespective of the will of the community ; whence notions have grown up of the governing power being a right inherent in certain individuals, independently of the will of the people ; but these were usurpations disavowed by reason, and such claims are not now made by the rulers of any constitutional state, and certainly not by the Government of England.

In determining what are the rights of individuals, and what the powers of Government, our best guide is the nature of man. Man subsists necessarily as an *INDIVIDUAL*. He has received from his Maker certain powers of action and enjoyment, and been placed in a world adapted to his constitution. He has a right, therefore, derived directly from God (who called him into existence, and provided the world for his reception), to the full enjoyment of all his powers and capacities, but under two restrictions : first, that he shall not transgress the laws which Divine wisdom has established in his own and in external nature for their regulation ; and, second-

ly, that he shall not convert his individual enjoyments into sources of annoyance to his fellow-men, who, from the necessity of his and their being, must live with him in society. God, in his government of the world, enforces the first restriction by punishing the individual with loss of health for abuse of his corporeal functions, and by misfortune and misery for neglect or abuse of his mental powers. The duty and the right of government is to enforce the second restriction, viz., to see that the individual, in pursuing his own happiness, does not invade that of his neighbors.

These premises enable us to draw certain conclusions regarding the right of our rulers to interfere in the education of the people. In the first place, it follows from them, that if any man chooses to renounce all connection with, and dependence on, society—to go forth from the haunts of men, and neither live among them, accept their aid, nor tender them his contributions, physical or mental—he has an undoubted right, so far as society is concerned, to indulge ALL his faculties in his own way, because he commits no offence against society, and causes it no injury. He commits, indeed, a great offence against his own nature, which the Creator expressly designed for social life; but Nature herself, without the interference of man as an avenger, has provided ample punishment for that offence, by the deterioration of his social nature, and the deprivation of all social enjoyments consequent on solitude. Betake himself to what solitude he will, he cannot escape out of the presence of God, or withdraw himself from the influence of His laws, which are woven into the texture of his body and mind, and inscribed on every breath of air and every foot of ground. By their means, the Creator will inflict on him the precise kind and degree of punishment which his conduct merits, and which will best serve to recall him to a due estimate of the privileges which he contemns.

But when an individual prefers to avail himself of the advantages of living in society—of the physical protection which other men's skill and courage afford—of the social pleasures which their intelligence and attainments present—and, above all, when he claims their sympathy, support, and relief in sickness and in old age (which every man living in society virtually does)—he becomes bound to perform his duty to it



in return ; and society acquires a right to enforce the performance of that duty, as the fundamental condition on which it allows him to reap the benefit of its institutions and arrangements.

What, then, are the duties which the individual owes to society ? His first duty, in compensation for the advantages it confers on him, is, obviously, to pursue bodily habits calculated, according to the laws of organization (which neither he nor society can alter), to preserve himself in health, that he may not disable himself for his allotted sphere of action, or diffuse disease by infection around him. It is on this principle that society has the right to enforce the ordinary regulations of police in towns. It ordains every citizen to put forth from his dwelling all refuse and noxious substances, and employs men to collect them and carry them away. This is not done in the country, because there, individuals who neglect this duty injure only themselves and their domestic dependents. The same principle will authorize the enforcement of still higher hygienic regulations in towns ; and, in point of fact, the statute 9th and 10th Victoria, c. 96, recently passed, authorizes the magistrates of towns, on receiving a certificate signed by two duly-qualified medical practitioners, "of the filthy and unwholesome condition of any dwelling-house or other building," to COMPEL the person complained of to abate the nuisance within two days. But I may go further in the same direction. The individual who claims the benefits afforded by an advanced and intelligent state of society, is bound to qualify himself, according to the endowments bestowed on him by Providence, for acting his part in that society well. In a society which is moral, he has no right to continue publicly immoral ; because this is not only offensive, but directly injurious to his fellow-men : he is not entitled to remain ignorant and untrained ; because, in that condition, he is incapable of performing his due part in the grand social evolutions, the beneficial results of which he claims a right to share. On what principle of reason or justice can an individual say, "I decline to undergo the fatigue and discipline necessary to render my brain active, in order to fit myself for skillful labor, and for applying my labor to the best advantage ; I decline to learn to read and write ; I decline to be instructed in, or to



conform my conduct to, those conditions in the physical and moral world, which, by the ordination of God, are productive of prosperity and happiness ; and I decline to regulate my conduct by what you call the laws of morality and reason. All this I decline, because I am a free and independent man, and because it would be irksome to me to submit to such training, instruction, and restraint. Nevertheless, I claim the right to throw myself, with all my incapacity undiminished, all my ignorance unilluminated, and all my passions unregulated and untamed, upon the bosom of society. I insist that its members who HAVE cultivated THEIR faculties, and reaped the natural rewards of that cultivation, in the possession of morality, intelligence, and wealth, shall bear the burden of my incapacity, of my recklessness, and of my follies ; that they shall minister to me when sick, feed me when my unskilled labor, in competition with their skilled labor, does not suffice to supply me with the necessaries of life ; and that they shall provide for my wife and children when I sink into a premature grave."

This embodies, not a rhetorical, but a LITERAL statement of the demand which the untrained and uneducated laborer, who denies the right of society to insist on his being trained and educated, makes on his fellow-men ; and I leave those to defend it who abet him in that denial. The man who claims the benefit of a poor-law, actually demands from society all that I have now mentioned ; and, unquestionably, we are entitled to say, " Before you claim ignorance as your birthright, you must show your emancipation from the laws of God, which connect want with incapacity, misfortune with ignorance, misery with immorality, and disease and premature death with habits of filth, sloth, and intemperance." If the man admits that he continues a subject of the Divine government (and, unless he be mad, he will not dispute this point), he cannot, with any show of reason, contest the right of society to train and instruct him to that degree which shall render him a moral and intelligent agent, fit to play his part in the society of which he claims to be a member.

The question here presents itself, WHAT KIND and DEGREE of knowledge has society a right to insist on its members acquiring ? The principle already stated will enable us to

answer this question. The individual has a right to the most perfect freedom of thought and action in regard to every thing which does not, directly or indirectly, affect the welfare of other men. To come at once to the grand point of controversy on the subject of national education, society has a right to insist that he shall be instructed and trained in whatever is necessary to fit him for the discharge of his duties as a member of the community in which he lives ; but in all beyond this, the individual has a right to unbounded liberty of self-determination as to what he shall learn and what he shall not learn. He has no right to continue filthy in his habits, because this may induce disease, and infect his neighbors. He has no right to continue grossly ignorant ; because, in this state of mind, he is unfit to regulate his passions—to act with a rational regard to his own and the public welfare, in the circumstances in which he is placed—and, also, to apply his natural powers in that kind of labor by which alone he can subsist in a society composed of intelligent and skillful men, on whom he has no right to throw the burden of his incapacity. But he has a perfect title to decline to study poetry, or rhetoric, or painting, or sculpture, if these be distasteful to him ; because his remaining ignorant of these accomplishments can carry no direct harm to his fellow-citizens. In the former category—that of things which he is bound to learn, because his ignorance of them is injurious to society—we place a knowledge of moral duties ; and in the latter, I rank those religious doctrines, the foundations of which rest EXCLUSIVELY on supernatural communications.

I recognize explicitly the importance of RELIGION to the welfare of society, and to that of the individual. Active religious feelings dispose a man to venerate and submit himself to those moral and physical laws instituted by the Creator, on which his own happiness and that of society depend. They prompt him also to adoration and gratitude—emotions highly influential in the right ordering of human conduct. But under the head of what is generally called religion, are included doctrines and precepts which God has already enforced on our acceptance by the clear order of nature in this world, and other doctrines of which the human understanding, unenlightened by revelation, is incapable of gaining a competent know-

ledge. In regard to the former, nature and Scripture coincide, and speak one and the same language ; whereas nature is silent, or so obscure as not to be practical, in regard to the latter. It appears to me, that government, as a secular institution, has a right to insist that its subjects shall be instructed in every species of knowledge, and trained to every mode of action, which directly affects the welfare of society, and which is prescribed as a duty, equally by Scripture and by the natural laws of the body, of the mind, and of the external creation.

The laws of health, industry, and morality, are thus enacted by the Creator, and are universally prevalent. In Christian Europe, in Mohammedan Asia, and in Pagan Africa, the individual who neglects cleanliness, who lives in bad air, and indulges in vicious habits, ruins his health, whereby he may become a focus of infection, and incapacitate himself for the discharge of his social duties ; he who is ignorant and reckless of the moral law becomes a scourge and affliction to his fellow-men ; and he whose intelligence is so limited that he is incapable of acting successfully a part in the social evolutions amidst which he lives, is in constant danger of becoming a burden on their industry, and of throwing on them the evil consequences which God has attached to his ignorance and incapacity.

The religious sentiments are inherent and important elements of the human mind : they act with great energy, and lead to stupendous consequences of good or evil, according as they are well or ill directed. It appears to me that they may with great advantage be directed toward the support and enforcement of God's laws written in the book of creation, as well as of those written in the Bible. This opinion is entitled to the greater weight, when it is considered that no law is laid down to man in the Bible for his guidance in temporal affairs, which is not inscribed as clearly in the book of nature ; and that, in point of fact, it is the support which the Scriptural precept receives from the agency of nature that renders it practical. The Scripture, for example, commands temperance in all things ; and it can be demonstrated that, according to the laws of organization, intemperance in food ruins the health ; intemperance in drinking incapacitates the mind ; intemper-

ance in ambition blinds the understanding and leads to ruin ; intemperance in study exhausts the brain and deranges the mental functions ; and so forth. In my work on "the Constitution of Man," I have given illustrations of this doctrine ; and in my lectures on "Moral Philosophy," I have endeavored to show that the Ten Commandments are as clearly inscribed in the natural constitution of man, as on the tables of stone delivered to Moses ; and these are only examples which might be multiplied to the full extent of Scripture-teaching relative to temporal affairs.

The principle now stated—that Scripture precepts regarding temporal duties cannot become practical, unless supported by the order of nature—deserves consideration. It goes deep into the merits of secular and religious education. Suppose, for example, that the order of nature had connected health, mental energy, and temporal prosperity, with *INTEMPERANCE*, and that the Scriptural injunction, "Be temperate in all things," had rested solely on the authority of Scripture, and its only sanction had been the announcement of eternal punishment as the *FUTURE* consequence of disregarding it—what chance would the cause of temperance have had for success in this world ? Obviously, very little. This conclusion is supported by the fact, that the plainest precepts of the Bible continue to this day to be utterly disregarded in practice by individuals and nations who believe unhesitatingly in their divine authority, but whose understandings have not yet discovered that they are supported, also, by the order of nature. The precept, for example, "Love thy neighbor as thyself"—"all men are thy neighbors"—directly involves the principles of free trade ; but its practical application was resisted, and continues to be resisted, by individuals and nations who admit its divine authority, but do not yet perceive how its practical application can be rendered compatible with their temporal welfare. The "League" succeeded in carrying this principle into practical effect, only by convincing the English people that the order of nature was such that they might safely obey the precept, not only without temporal injury to themselves, but with positive advantage. Then, and not till then, they yielded obedience to what the Scripture had commanded them to do for eighteen hundred years, but commanded them in vain.

As a contrast, I may notice the Scriptural precepts, "I say unto you, that ye resist not evil; but whosoever shall smite thee on thy right cheek, turn to him the other also; and if any man will sue thee at the law, and take away thy coat, let him have thy cloak also." Matthew, v., 39, 40. The constitution of the human mind does not sanction these precepts when understood in their literal sense. Nature has bestowed on us a love of life, and a sentiment of self-respect, which render injuries and insults disagreeable; she has added sentiments of Benevolence, Veneration, and Conscientiousness, which proclaim that the infliction of injury and insult is wrong; but, as she foresaw that some men might disregard these moral restraining powers, and become aggressive, she added combative and destructive propensities to the mind—one of the legitimate uses of which is, to repel, by force, unjust attacks on our persons and our rights. The law of nature, therefore, is, that injury and insult MUST BE RESTRAINED—by moral influence if possible, but if not, by physical force—and, accordingly, the words of Scripture have been practically thus interpreted, and those sects who have endeavored to act on their literal meaning, have not succeeded in commending their principles of non-resistance to general acceptance.

If the constitution and arrangements of nature in which our secular duties are inscribed, and by means of which they are enforced, were presented to the understandings of the young as divine institutions—and if their sentiments of Wonder, Veneration, and Conscientiousness were trained to admire, reverence, and obey them—these duties would, in their minds, become PRINCIPLES OF RELIGION, as well as of morality and prudence. Their practical efficacy would be increased by the combined forces of the understanding, of the moral sentiments, of the religious sentiments, and of the selfish principles of our nature, all co-operating; for, when all these were satisfied in regard to their divine authority and practical utility, they would naturally unite toward their enforcement. No doctrines or precepts, relative to secular duties, that rest upon and are addressed to the religious sentiments exclusively, or even chiefly can operate with an equally powerful and beneficial effect. If they do not satisfy the understanding, or

the moral feelings, or the selfish elements of the mind, they lose in practical efficacy in proportion to the faculties which they leave uninterested. The Christian religion abounds in precepts which rest on all these foundations, and hence its practical power. The superstitions of the ancient world, and of modern heathenism (however deeply they may excite and interest the religious sentiments of their votaries), fail to satisfy the understanding, and the moral sentiments, and to promote the temporal happiness of their believers ; and hence their practical inefficacy for good. They are disowned by nature, and cannot yield the fruits of purity, prosperity, and peace.

So far, therefore, from the divine laws in regard to secular rights and duties having their only foundation in Scripture, the proposition should be modified to the effect, that they all have a foundation, also, in nature ; and that it is their conformity to, and enforcement by, the order of nature, which renders them practical. And this seems to authorize the conclusion, that the state has a right to teach the practical doctrines of natural religion recognized in Scripture, to all.

Let us now consider the question, Has the state a right to educate all the faculties of man ? We have already answered that it has a right to train and educate every faculty to the extent to which its action is necessary to enable the individual to discharge his social duties, and no further. It is entitled to train Veneration, for example, to respect and yield obedience to every natural law which directly affects the welfare of the social body ; but has it a right to **FORCE** men to embrace and venerate any doctrine which has its issues only in a future state of existence ? Society, such as we see it, does not exist beyond the grave. Therefore, only individuals, in their individual capacities, are concerned in matters of eternity ; and on this subject, their birthright is entire freedom of opinion and judgment.

The depth and magnitude of that interest is sufficient to secure an extent of teaching of this class of religious doctrines up to the full demands of the faculties ; but no amount, however unlimited, of such teaching, necessarily implies or secures instruction in temporal duties. Assuming that the Roman Catholic clergy of Ireland have taught their people,



during the last century, religious truth sufficient to secure their eternal welfare, it is certain that they have not instructed and trained them, to an equal extent, in that knowledge of this world and its laws, which produces prosperity and happiness. It is this latter species of knowledge which it is the right and the duty of the state to provide for the people; because the absence of it, as we now see and feel in regard to Ireland, aggravates all natural calamities, and impairs all natural blessings, to the great damage, not only of the individuals whose training and instruction has been neglected, but of every member of the community who has sympathies to feel for human suffering, or a purse to provide for their removal.

It is often argued, however, that the voluntary efforts of the individual members of society afford a better means for the supply of education for the whole people, than any compulsory arrangements of the state; and, hence, it is denied that the state has a right to educate its people.

There is a practical fallacy, however, in the manner in which this question is generally submitted to our consideration. In every free country the state is merely the representative of the general power (physical, moral, and intellectual) of the country. It is not a distinct and independent being, that can exist and act in spite of the will of its members. Any system of military defence, of police, of law, and also of EDUCATION, which the state can establish and maintain in this country, must be approved of by the intelligence of the empire. Nobody contends that the government has a right, despite of the will of the people, to seize on public education. All that is maintained is, that the government may do the work better than individuals; and our security against the abuse, by government, of its delegated powers, lies in the control which the individual members of the community are capable of exercising, through the elections and the press, on the conduct of Parliament and the executive. We do not leave the defence of the country and the police of our great towns to the voluntary action of individuals; because the majority of society is agreed that these objects can be better accomplished by committing them to the state. And the case will be the same in regard to education. Its direction cannot be assumed by the government until the majority of the pub-

lic become satisfied that it is best fitted to conduct the operations. The capricious or negligent administration of the means of public defence, or of police, would endanger the welfare, not only of those who erected themselves into the voluntary managers of them, but of those who differed from their views, and considered their course of action unwise and detrimental; and it is on this principle alone that parliament gives to the executive the right to take the administration of these affairs into its own hands. In like manner, whenever the majority of society shall become satisfied that individual teachers, sects, and incorporations, have so neglected or mismanaged public education, as to endanger the welfare of the state, they will (without limiting the right of individual action in so far as this is compatible with public safety) provide public institutions for the better accomplishment of this important end.

Has such a case actually occurred? In answering this question, it is necessary only to look at the mental condition of the inhabitants of these islands to discover that education has hitherto been grievously neglected and mismanaged. The extent of ignorance, vice, helpless incapacity, crime, and suffering, which abound, and which are more or less referable to the low physical, moral, intellectual, and religious training and instruction of the people, is a point of too painful certainty to be disputed. This fact itself is sufficient to warrant men of reflection in requesting and empowering the state to try whether it cannot manage education better. But other and solid reasons may be discovered for the failure of the voluntary efforts which have hitherto been made for the education of the people, and which may tend to justify us in committing it in future to the government.

The kind of instruction which it is the direct interest of society to communicate, is that which relates to God's laws and mode of administration of man's temporal condition. The statesman placed in an elevated position, and entrusted with the welfare of all classes, sects, and individuals, has natural advantages for discovering what these laws are, for appreciating their social importance, and for applying them, which no private individual, sect, or class, can enjoy. He is in a position to discern, with a keener eye and a surer sagacity,



what instruction is equally beneficial to all, than the man in the crowd surrounded by objects which contract his vision, and invaded by interests which bias his judgment. I say that, *CETERIS PARIBUS*, the statesman is better able than the individual citizen to direct beneficially this complicated and difficult branch of the public interest. Besides, his ear is open at all times to the admonition of individual wisdom, and his conduct is subject to the unlimited control of the parliamentary constituencies.

I am prepared for the charge being made, that this is a proposal to constitute infidelity the basis of national education: because natural religion, even when coincident with and sanctioned by Christianity, is regarded by some minds as tantamount to infidelity. But I deny that teaching the precepts in which the order of creation and Scripture coincide is infidelity. Those who contend that it is so, forget that in this view God himself would be the author of a great system of infidelity; for the whole Jewish dispensation was one which had its sanctions exclusively in its temporal consequences. No futurity was revealed to the Jews;\* but no one proposes to exclude the teaching of the Scripture doctrines relative to eternity. All that is recommended is, to provide for the teaching of these to the children of each sect, according to the views and wishes of their parents, at separate hours, and by separate teachers from those engaged by the state. Let us view the consequences of acting ON DIFFERENT principles.

Most churches and religious associations avowedly consti-

\* The supernatural portion of the Jewish Dispensation related chiefly to the nation in its national capacity, and in the opinion of some Christian sects it is continued to the present day. These sects regard the existence of the Jews as a distinct people, unamalgamated with the races among whom they are dispersed, as a standing miracle. But we do not perceive the personal conduct of the individual Jewish men and women whom we know, to be now regulated by supernatural acts of divine administration; and is there reason to believe that even before the dispersion, a miracle was resorted to, in order to reward or punish each private Jew who obeyed or transgressed the commandments? If a future state was not clearly revealed to the Jews, and if their personal conduct was not formerly, and is not now, regularly rewarded or punished by supernatural acts in this life, it seems to follow that, in their individual capacities (when not reached by the statute law), they were, and are, left under the ordinary administration of the laws of nature; and if so, on what principle can education in these laws be called "godless?"

tute belief in certain religious doctrines, the chief importance of which is their efficacy as means for securing happiness in a future life, as the indispensable conditions on which they will teach that knowledge which relates to this world alone. But as many individuals differ regarding these points, the condition of believing them excludes thousands from their schools, while the state cannot afford to allow any of its children to be barred out from secular instruction. This is one reason why the state should be entrusted with the charge of secular education for the benefit of all.

Again, certain sects regard belief in the dogmas accredited by them as the only stable foundation, not only for religious, but for secular education; and, on this account, claim the exclusive control of schools. If this were the actual fact, their pretensions would be irresistible. But there is an important error in this assumption, because, as already maintained, there is no practical precept in the Old or New Testament relating to human conduct in this life, which is not contained also in the book of nature, and enforced by the natural order of Providence; and I repeat, that it is their conformity to, and enforcement by nature, which really give to Scriptural precepts their practical efficacy. Before some sects will receive a child into one of their schools, his parents must consent to their teaching him—that human nature is disordered by the fall—that all mankind are liable to eternal perdition in consequence of Adam's first transgression—that the Godhead consists of three persons—that Jesus Christ is one of them—and that he atoned for our sins by suffering in his own person the punishment which was due to them. If the truth and efficacy of all the precepts delivered by Jesus Christ, relating to those portions of human conduct in which society is directly interested, depended exclusively on our believing these views of his character and works, these sects would have reason on their side; but, on the other hand, if the practical efficacy of these precepts depends on their conformity to the constitution and order of nature, and not on our belief or disbelief in certain interpretations of Scripture, the case is altered, and it becomes pure tyranny in sectarian men to deny instruction in secular knowledge to children whose parents do not embrace their doctrinal views.

They will probably reply, that they leave parents who do not approve of these doctrines to open schools for their children on their own principles. This, however, is just one of the evils which the advocates of state education desire to avoid. God's natural laws relative to this world are equally applicable to all sects and to all nations, in all times, and they are expounded as such in the Bible. By adopting them as the basis of general education, the state may succeed in having ALL its people trained in one set of PRACTICAL PRINCIPLES, resting on the common basis of the order of nature, and, therefore, admitting of unanimity and cooperation. While each sect founds its secular instruction on the basis of its own interpretations of Scripture, this advantage cannot be obtained; and society is, in consequence, not only rent by religious dissensions, but its power of cooperation for practical improvement is greatly paralyzed. We see the result of this state of things before us at the present time. While discordant sects dispute whose doctrines shall form the basis of secular education, many of the people are allowed to grow up in heathen ignorance, and too many of those who are educated are fierce partizans of peculiar dogmas. This, therefore, appears to me to be another reason for committing secular education to the charge of the state.

We are told, however, that this proposed separation of secular from religious teaching, is "a gigantic system of godless education." With great deference to the excellent individual who uttered these words, the case appears to me in a different light. Apparently, he and his followers who have adopted this opinion, have looked so long and so intently on the Old and New Testaments, that they have lost sight of, or never attentively studied, the record of God's Natural Providence. If, for instance, we comprehend the structure and functions of the nervous system in man, and the vast amount of enjoyment of which it is the appointed vehicle when duly administered, and the extent of suffering which it entails on him when its laws are neglected or transgressed, and perceive that this is the workmanship of God, and that in this structure and its laws He is addressing our Wonder, calling on us to admire—our Veneration, desiring us to reverence—our Conscientiousness, commanding us to obey—and our Intellect, inviting us

to study, prove, and practice what He has revealed; and that He rewards us with health, strength, and enjoyment for obedience, and punishes us with bodily and mental pain and incapacity, and often with death itself, for infringement of his precepts;—THIS IS RELIGION AS WELL AS SCIENCE. How any man of a serious and an enlightened mind can study and comprehend God's natural laws without having his religious sentiments vividly excited, I cannot comprehend. Is it not an abuse of terms to call that education "godless," which refers ALL that it teaches directly to the power, wisdom, and goodness of God himself? In no sense of the words is the study of natural knowledge, in its practical applications, a "godless education;" because it cultivates, trains, and enlarges the self-same faculties, by means of which the grander doctrines relative to man's future destinies must be studied and apprehended.

The opinion that religion and morality are revealed only in the Bible, and that science is "godless," has led to great practical evils. The religious world has, in consequence, too much neglected the teaching of science as the basis of conduct; and the men of science have too much overlooked the religious element with which all science is imbued. One hears in many pulpits God's terrestrial creation, including man himself as he naturally exists, decried and degraded; while, in the halls of science, we may study for years without hearing God referred to as the fountain of the truths expounded, or any practical inferences drawn regarding what they teach concerning his will. Many divines are either too intent upon the truths of Scripture to study and appreciate Nature and her record, or they are jealous of her. There are, indeed, enlightened exceptions to the truth of this remark; but I speak of the general character of pulpit-teaching. The man of science, on the other hand, although not ignorant that he is expounding the "doings of the Lord," is yet too little alive to the practical nature of the truths which he unfolds, as guides to human conduct; and he is also afraid of trenching on the domain of the divine, and perhaps of teaching something which the latter might regard as not altogether doctrinally sound. He will thrill our highest faculties by his descriptions of the stupendous magnitude of creation, and demonstrate to us one

God, and one law, ruling in every sphere. After having stretched our imaginations to their utmost limits, and deeply excited our wonder and veneration by these solemn, gigantic truths, he will direct our attention to the minutest insect, and show us the same power, wisdom, and skill, employed in combining and regulating the minutest atoms of matter to constitute a living and a sentient being. Our souls expand and glow under such contemplations. But here the man of science too generally leaves us. He either does not perceive, or is afraid to announce, how the truths of science bear a direct relation to the human mind and body, and prescribe certain courses of practical action or restraint. Every function of the body and every faculty of the mind has probably received from the Creator a sphere of action as certainly defined and as wisely appointed as is the orbit of every planet. Each is liable to aberrations by the disturbing influence of the other powers; but limits are prescribed to its deviations, and counteracting forces are instituted to draw it back into its normal course. Sound expositions of these laws of mind and body constitute at once science, religion, and practical wisdom; yet how rarely are the teachings of science thus applied! Scientific discoveries are employed with promptitude and vigor to increase wealth, to improve the arts of destruction, and to augment our sources of recreation and amusement (all proper in due season and proportion); but they are too much shut out from the school and the pulpit as rules for human conduct, and themes for human devotion.

It is true that in interpreting the Book of Nature, as in construing the Bible, many difficulties will present themselves that are inexplicable in the present state of our knowledge. They perplex our moral sentiments, and confound our understandings. But we should not on this account reject or undervalue such truths as are clearly revealed in either record. The same Divine Intelligence which appointed the order of nature, constituted the human faculties; and as we meet with no discordant design in those departments of the universe with which we are sufficiently acquainted, we may fairly believe that, in the scheme of creation itself, there is really no incongruity; and that the apparent instances of it which we perceive, will diminish in proportion to our advancing infor-

mation. The aberrations of the planets from their orbits were at one time considered to be incompatible with the permanence of their revolutions, and the solar system was supposed to contain within itself the elements of its own destruction; but advancing science has demonstrated that these aberrations themselves are exemplifications and fulfilments of the laws which regulate the normal movements of the spheres. A profounder conviction, therefore, of harmony, in the design and revolutions of the heavenly bodies, has taken place of the doubts previously raised by imperfect knowledge. If men could be induced to regard the mundane creation in this disposition of mind, science would no longer be called "godless." If they would believe that when God instituted the external world, and the human mind and body, he adapted the one to the other with the same consistency of design and transcendency of wisdom which we discern in his arrangements of the planetary system, we should consider the Book of Nature as replete with instruction, in regard to the objects and employment of all our faculties; and we should call THAT instruction RELIGIOUS.

It is this unfortunate blindness to the essentially religious and moral character of science and its applications, and the fear of infidel consequences, that prompt the Church so doggedly to keep watch over the gates of the universities, and to refuse admission to every man as a teacher, who does not swear to his belief in all her doctrines, not only regarding man's conduct in this life, but in reference to eternity. Nevertheless, a law of faith and practice is written in the constitution of Nature, which men may partially, but can never wholly, overlook. Being woven into the texture of their existence, it forces itself upon their attention, and exacts their obedience. In the ordinary affairs of life, Jew and Gentile, High Churchman and Low Churchman, Believer and Infidel, act upon the same principles of prudence and morals; they view any practical measure as good or bad, according to its influence on their temporal happiness, irrespective of its relations to the different religious creeds which they severally embrace. They act on what is called the principles of "common sense;" the familiar name given to the practical judgments which we form from all that we know regarding nature, animate and inani-



mate, and the course of providence by which this world is governed. This knowledge, traced to its principles, and systematized, is science; and as mankind, both in their individual and social capacities, practice upon it, without reference to its relations to their religious opinions regarding eternity, it is to be regretted that certain religious sects oppose that systematic teaching of it which would render it much more efficacious for good, unless it be accompanied by their religious tenets, which have no NATURAL connection with it. They have succeeded in impressing the public mind with the belief that this science, on which, when unsystematized, they themselves and every one else acts, under the name of the "dictates of common sense," has no solid basis except that which their religious tenets lend to it; whereas, it derives its whole efficiency for good from its foundations being laid in nature; and it is in virtue of the power which it thence derives, that it controls and gives consistency to human action amidst the wildest conflicts of religious creeds.

The extent to which science is banished from the University of Oxford (in which belief in the Thirty-nine Articles of the Church of England is insisted on as the only condition on which her halls can be opened to the student), may be judged of from the following extract from Mr. Lyell's "Travels in America," lately published:—"After the year 1839," says Mr. Lyell, "we may consider three fourths of the sciences still nominally taught at Oxford, to have been virtually exiled from the university. The class-rooms of the professors were, some of them entirely, others nearly, deserted. Chemistry and Botany attracted, between the years 1840 and 1844, from THREE TO SEVEN STUDENTS; Geometry, Astronomy, and Experimental Philosophy, scarcely more; Mineralogy and Geology, still taught by the same professors who, fifteen years before, had attracted crowded audiences, some ten to twelve; Political Economy still lower; even Ancient History and Poetry scarcely commanded an audience; and, strange to say, in a country with whose destinies those of India are so closely bound up, the first of living Asiatic scholars gave lectures to ONE OR TWO PUPILS; and these might have been absent, had not the cherished hope of a Boaden scholarship for Sanscrit induced them to attend." It has been added, that the geologi-

cal professor lectured, during his last course, to a class of **THREE**. What notions of the relative importance of the Thirty-nine Articles of the Church of England, and of God's physical, moral, and intellectual creation, can be entertained by men who place the former so high above the latter in reverence and honor? It is obvious that the idea that the constitution and laws of creation are addressed to the intellect of man as rules for his practical conduct, and stimulants of his devotional feelings, can scarcely have entered into' their imaginations; and still less can they have formed a conception of the fact, that the Christian precepts can become practical in this world only in proportion to their harmony with the constitution of this, in Oxford, despised and neglected nature. Well might Sir Robert Inglis, their representative in Parliament, designate the study of science, apart from the Thirty-nine Articles, a "gigantic scheme of godless education;" for apparently the university considers Nature to be infidel, God's works to be "godless," and only the Thirty-nine Articles and certain kindred studies to constitute religious instruction!

I solicit the attention of the reader to these views, because the present practice is replete with grave injuries to society. The notion that morality and religion rest **EXCLUSIVELY** on the Bible as their basis, has produced something like a divorce, not only between religion and science, but between religion and literature, religion and legislation, religion and history, religion and the drama; and left religion in a kind of ideal desert, from which she issues only to disturb the march of mundane affairs. Generally speaking, a foreigner might peruse the works of many of our standard authors, study our statute-book, and read our plays, without discovering that we possessed any religion at all, except when he met with enactments and controversies directly relating to the Church and the dissenters. He could find no religious principle pervading, animating, blending with, and hallowing, these productions of the human mind. This could scarcely have happened if the constitution of nature and her relations, of which all these works are expositions or applications, had been taught to the nation as of divine origin and enactment. But it is easily accounted for, when we attend to the fact, that a few centuries ago, the knowledge of nature and its laws was even



more imperfectly developed than it now is; that at that time classical literature and theology, relating greatly to a future state of existence, and resting for its evidence, not on nature, but on acts of supernatural power, setting aside its established laws, constituted the chief learning of Europe, and took possession of schools, universities, and the public mind; that this literature and theology have retained their sway over these institutions and society ever since, without cordially inquiring into the moral and religious claims and character of science—without modifying their own tenets into accordance with her increasing lights—without throwing over her the mantle of their refinement and sanctity for her encouragement and protection; but that, on the contrary, they have too frequently vilified, opposed, and paralyzed her, by every means in their power.

The result could not be other than that which we see; Science “godless,” although emanating from, and teaching most eloquently and impressively, the “wisdom of God;” and Religion, by far too powerless in the secular affairs of the earth, because not acknowledging this world’s constitution in its own basis, but substituting in its place doctrines and tenets, the grand object of which is to propitiate an interest in eternity. Religious persons, distressed by the “godless” character of our periodical and other literature, have established rival works, in which they endeavor to blend their doctrinal tenets with secular affairs; but they do not succeed. In point of fact, they place doctrinal disquisitions in juxtaposition with secular knowledge, without uniting them; and for the simple reason, that, as they teach them, they are incompatible. The religious world, especially the evangelical sects, must view nature in a light widely different from that in which they now regard it, before they shall be capable of blending religion and mundane interests harmoniously together.

Another evil attending the prevailing views on this subject, is the very inadequate appreciation entertained by the scientific and literary classes of the strength and importance of the **RELIGIOUS SENTIMENTS**. Debarred by the present state of theology from combining these emotions with their own studies and teaching, they overlook them altogether, and leave them to be wielded as active powers at discretion by the Church

and the religious sects, without troubling themselves about the uses which are made of them, except when they are directed against science and themselves. The consequence is, that theology reaps small benefit from science; and that its stupendous powers are not unfrequently wielded as engines of personal or sectarian aggrandizement by men who retard, instead of advancing, the temporal welfare of mankind. By their blind dereliction of the God of Nature and his teaching, they occasion a vast waste of mind and physical resources, in so far as regards the reclamation of this world. The men of science see this, yet stand by, timid and inactive. They **FEEL** a want of social importance and consideration for themselves and their pursuits; yet so dark are their perceptions of their own splendid position, that instead of going forth in the full confidence and panoply of natural truth, to proclaim the sway of the great God of Nature in every department of human affairs, to teach his wisdom, and to instruct men in his ways, they felicitate themselves on the visit of a prince to one of their scientific meetings, as a certain means of commanding that public homage which they are conscious that they have never yet secured by their own influence over the public mind!

They must seek for consideration through other means. The moral and religious sentiments are the grand levers of civilized society. He who commands them is irresistible; and until science shall discover her own character and vocation—that she is the messenger of God, speaking directly to these sentiments in strains calculated to thrill and rouse them to the most energetic action—she will never wield her proper influence over society for the promotion of their moral, religious, and physical welfare. Never, until she does so, will she take that place in social esteem and veneration which, as the fountain of divine wisdom, she is entitled to possess. Let the scientific world consider the gigantic power of the religious sentiments in sustaining a vast priesthood, under every form of obloquy and depression, and amidst the most appalling poverty, in Ireland; in rearing the fabrics of the dissenting churches in England and Scotland, and supporting a clergy to preach in them; in maintaining numerous schools for education in their own tenets; in rearing colleges and endowing

professorships; in distributing Bibles in every land and in every language; and in sending missionaries to preach in every country of the globe. I honor the men who have made these glorious efforts, and who also, under the guidance of their common sense, have diffused a vast amount of secular knowledge through all ranks of society. Their aim has been pure and elevated, and their means holy, although their knowledge has been imperfect. They have accomplished these mighty ends by wielding the religious sentiments as their lever; yet these emotions, when systematically dis severed from science, cannot have achieved their mightiest conquests over human folly, ignorance, and suffering. What influence, therefore, might not the men of science wield, and what benefits might they not confer on mankind, if they only knew their own position as the expounders and interpreters of the language which creation is ever addressing to these emotions! If they saw that every word which they utter in correct interpretation of nature's constitution and course of action carries the efficacy of divine truth along with it for the advancement of human happiness, how poor would appear the condescending notice of a prince as a means of recommending them to public consideration! But have they not done injustice to the prince? Did he not come among them merely to pay his respectful homage to the truths of science, and without an idea of gracing science by his presence, or of elevating its professors to a more dignified position in the public estimation by his courtesies? Rather let us believe that Prince Albert came to the British Association as the enlightened admirer of the Creator's wisdom revealed in scientific truth, and esteemed himself honored by being admitted into the temple of Nature's God, and into the society of the interpreters of his will.

It may be objected that should men of science endeavor to represent nature as the workmanship of God, and to enlist the moral and religious sentiments (Benevolence and Conscientiousness, Wonder, Hope, and Veneration), by giving a living soul and a practical efficacy to their teaching, they might in one year be under the necessity of recalling, as human error, views and principles which, in the previous season, they had taught as divine truths; and that this would desecrate religion and degrade science. I reply, that penetrating, well-informed,

and conscientious men, in interpreting the Book of Nature, would advance as divine truths only such facts and principles as appeared to them to be fully ascertained; and that, in interpreting the Scriptures, no other or better security against erroneous and presumptuous teaching can be found. When we contrast the conflicting views of Scriptural doctrines which are every day emanating from the press and the pulpit, it is certain that many professors of Christianity are teaching, as divine truths, views which are merely the emanations of their own misguided judgments. But this is an evil inseparable from humanity. In the case of teaching science as divine truth, there would be the advantage that no sect or college could claim a vested right or prescriptive privilege of interpretation, and that religious teaching would advance *PARI PASSU* with scientific research and discovery. Besides, errors would in time be detected and exposed by their consequences. Difficulties may long embarrass us in natural as well as in revealed religion; but as a general principle it may be stated, that in natural religion every doctrine that is sound leads directly or indirectly to beneficial temporal results, and every error to evil consequences. There is a test therefore in this world, by which to try our interpretations of the divine will in natural affairs; and this is a great safeguard against continuing in error. In religious teaching concerning the life to come, no such test exists. When one sect denounces the doctrines of another as "soul-destroying errors," we cannot call in experience to settle their merits until it be too late. From the other world there is no return; and instead, therefore, of God's sacred name and authority being more liable to be abused in teaching natural than revealed religion, the case is the reverse. In inculcating the latter, human presumption, ignorance, and folly have a wider range of action than in teaching the former. The Roman Catholics and Protestants respectively reject each other's version of the Bible as spurious; but Nature speaks one language to all!

Another reason why these views may merit some consideration is, that the Theology which is based exclusively on Scripture, and rejects the alliance of Nature, is actually falling before the progress of science. I have traveled in the United States of North America, in Germany, and Italy, and

held converse with men of cultivated minds in these countries, as well as in the three divisions of the United Kingdom, and I venture to say that the popular Theology, however vigorous, powerful, and triumphant it may appear externally, is in the course of its decline and fall, as no longer suited to an enlightened age. In Germany, the country in which the Reformation originated and from which it spread, and which has since that epoch cultivated Theology in all its principles and aspects, with the deepest research and most unwearied assiduity—evangelical religion, as it is understood in this country, has already fallen, and is no longer the faith of the majority of the people. This has taken place, not through reckless profanity, as in the case of the French Revolution, but in consequence of long-continued investigation and discussion. This fact is known to, and its significance is appreciated by, large numbers of influential men in the higher, middle, and lower ranks of British society. The masters of the prevalent Theology probably know or suspect this to be the case, but do not correctly estimate the nature and magnitude of the forces which oppose them. They know that, far from receiving cordial support and encouragement from statesmen, men of the world, the press, and men of science, they often meet with cold indifference, plausible apologies, or direct opposition. Will they not look into the cause of this untoward state of things? Is it not, that science and reason have produced in the minds of these classes, a silent conviction that the prevalent Theology is not a practical system in this world's affairs? It is something which embarrasses and obstructs their movements, even toward secular good. It is a machinery that is out of order, and cannot be made to work to the advantage of all. Nay, the clergy of the various sects are themselves men; THEIR faculties, too, have been adapted to nature's laws and constitution; and when light is abroad they cannot remain in darkness. The press is daily giving indications that a change is proceeding even in their views; and it is probable that, in a few years hence, only a bold and good spirit will be wanting to shake the theological fabric in this country to the ground, as has already been the case in Germany—and then it will become the duty of enlightened men to reconcile the religion and morality of nature with that of Scripture, to the

infinite advantage of both and of the people. I cordially subscribe to the postulate, that the "Gates of Hell," or error, will never prevail against the Church; but the "Gates of Heaven," or higher and purer, more practical, and more universal views of divine truth, will prevail against all sects and churches which set themselves in opposition to the mighty march of man toward the fulfilment of his moral and social destinies.

An instructive example of the practical results of teaching religious doctrines irrespective of natural science and its applications, is afforded by Ireland; and I shall conclude these remarks by exhibiting a brief outline of the history of her educational efforts and their effects.

The Church of England long wielded the legislative powers of Ireland through the medium of the Irish Parliament, which was composed of Protestants alone, Roman Catholics being rigidly excluded. These legislators apparently embraced literally, and practically acted upon, the Church's views of the nature of man, and held that there could be no beneficial education except that which was based upon religious truth—and, moreover, that their own Church was the sole depository of that truth. They regarded the Roman Catholic faith as fundamentally erroneous, and therefore incapable of affording a sound basis for secular instruction. Under these convictions, the Government of Ireland, "for nearly the whole of the last century, labored to promote Protestant education, and tolerated no other. Large grants of public money were voted for having children educated in the Protestant faith, while it was made a transportable offence in a Roman Catholic (and if the party returned, high treason) to act as a schoolmaster, or assistant to a schoolmaster, or even as a tutor in a private family.\* The acts passed for this purpose continued in force from 1709 to 1782. They were then repealed, but Parliament continued to vote money for the support only of schools conducted on principles which were regarded by the great body of the Roman Catholics as exclusively Protestant, until the present system (the Irish National School System) was established, in 1832."†

\* See 8th Anne, c. 3, and 9th William III., c. 1.

† See Letter from Lord Stanley to the Duke of Leinster, on the original formation of the National Board; dated London, October, 1831.



These words are quoted from the sixth Report of the Commissioners of National Education in Ireland, Sect. 10, p. 135, and are deeply instructive. It was a fundamental error in the Protestant Irish Parliament to entertain the view of human nature which lies at the bottom of these enactments. Man does not possess a single power which is essentially and of "its own nature inclined to evil," as the Church teaches us. On the contrary, there is a legitimate sphere of action for every function of the body and every faculty of the mind; and it is only the abuses of these, through ignorance and unfavorable influences, that constitute error and crime, and lead to misery. There was in man therefore, from the first, and there is now in him, a capacity for education, by the development and right direction of his natural gifts; and both his own constitution and that of the external world are arranged with reference to that development, to render him prosperous and happy in proportion as he pursues it in a right direction, or miserable if he neglects it, or pursues it in a wrong way. Apparently, the Protestant Government of Ireland, being disbelievers in these institutions of Divine Providence, and sincerely convinced that the Protestant religious faith afforded the only basis for a sound education, placed the before-cited enactments on the statute-book; and the consequences are now before us. The diffusion of the Roman Catholic faith in Ireland has not been checked; because sectarian education being in its own nature separable from secular, the priests of that religion continued to instruct their flocks in their own doctrinal tenets, and have reared nearly seven millions of human beings devoted to them in soul and body, and ready to sacrifice every thing that is dear to humanity, including life itself, in their defence. But these statutes effectually prevented the instruction of the Irish people in the great laws of providence on which the acquisition of wealth and temporal prosperity depends, the cultivation of their intellectual powers, and the development of their moral sentiments, on which hang the security of person and property, public tranquillity, and many of the enjoyments and amenities of private life. All this, I say, was deliberately and systematically prevented by Parliament; and we now see a sincerely devotional people (for no candid observer can doubt that the Irish Ro-

man Catholic peasantry are sincerely and deeply devotional) deplorably deficient in mental energy and industry, sunk in the lowest depths of helpless poverty, and, under the sufferings engendered by want, turbulent and murderous, false in covenants, untrue as witnesses, and wild and impulsive in revengeful action. Truly, when viewed in this light, they do seem to realize the orthodox description of human nature; but this is only the dark side of their character. In more favorable circumstances they are kindly, cheerful, affectionate, and respectful to superiors; showing that they still possess the higher feelings of our nature. But how far may not their fearful aberrations and deficiencies have been aggravated by the imperfections of their training and education? Their qualities as a race may present obstacles to their improvement; but this affords no apology for having denied them, for so many generations, the means of secular education, except at the price of their religious faith. By prohibiting the use of the natural means for drawing forth the human powers in the sphere of virtue, the law has allowed them to luxuriate in that of vice; and in the present condition of Ireland, we read the consequences attached by the Author of nature to the neglect and infringement of his laws. We see the *BEAU-IDEAL* of the results of dogmatic teaching, when secular instruction is dissevered from it. In England and Scotland, a higher natural endowment of mind in the people, and more favorable circumstances, have led to the infusion of a certain amount of secular instruction into the schools for religious teaching; but among the Irish peasantry, for many generations, the priest alone was the instructor. Secular knowledge cultivates habits of correct observation of things which exist, of just appreciation of the effects of their qualities and modes of action, and of forethought and consideration regarding the adaptation of our own conduct to their influences. PURELY doctrinal teaching, that is, the cultivation of Wonder, Hope, and Veneration, as the leading emotions, fills the mind with fearful or sublime contemplations and aspirations, having their issues chiefly in eternity; and as these doctrines appeal to faith more than to reason, they do not cultivate habits of exact observation and reflection on this world's laws and constitution. They do not necessarily direct the attention of the



mind to the proper arrangement and administration of secular affairs in conformity with the laws by which they are governed ; but divert it away from them, and concentrate it beyond them in regions of eternal misery, or of glory and bliss. Ireland has been taught according to these principles, and her people are imbued with them ; yet, because this world is an existing reality, instituted and governed by God according to laws adapted by Him to its present condition, and because man has been fashioned by Him in relation to it, and required by his constitution to act in intelligent accordance with its qualities and agencies, and because much of this department of divine teaching has been neglected in the education of the people of Ireland, they present the spectacle of poverty and ignorance, and of crime and misery, which now appals the world. Again, therefore, I venture to repeat, that an important use of the religious sentiments is to lead men to study, venerate, and obey God's secular institutions ; and after they have done their duty in this department, they may be legitimately employed in expatiating in the fields of eternity.

In 1832, as already mentioned, the British Government, moved, not by religious teachers of any sect, but by its own secular perceptions, instituted the existing commission for aiding in a national education of Ireland on different principles. Lord Stanley, then Secretary for Ireland, in his letter to the Duke of Leinster, before referred to, says :—"The commissioners, in 1812, recommended the appointment of a board to superintend a system of education, from which should be banished even the suspicion of proselytism, and which, admitting children of all religious persuasions, should not interfere with the religious tenets of any. The government of the day imagined that they had found a superintending body, acting under a system such as was recommended, and entrusted the distribution of the national grants to the care of the Kildare Street Society. His majesty's present government are of opinion, that no private society, deriving a part, however small, of their annual income from private sources, and only made the channel of the munificence of the legislature, without being subject to any direct responsibility, could adequately and satisfactorily accomplish the end proposed."

He proceeds to mention, that this society, with the purest motives, enforced "the reading of the Holy Scriptures, without note or comment, in all their schools;" and that their efforts to teach the Roman Catholic population proved abortive, because this Church denies, "even to adults, the right of unaided private interpretation of the sacred volume with respect to articles of religious belief." The Roman Catholic clergy "exerted themselves with energy and success" against the system. "The Commissioners of Education, in 1824-5, sensible of the defects of the system, recommended the appointment of two teachers in every school, one Protestant and the other Roman Catholic, to superintend separately the religious education of the children;" "but it was soon found that these schemes were impracticable;" and, in 1828, a committee of the House of Commons "recommended a system to be adopted, which should afford, if possible, a combined literary, and a separate religious education, and should be capable of being so far adapted to the views of the religious persuasions which prevail in Ireland, as to render it, in truth, a system of national education for the poorer classes of the community."

Accordingly, commissioners were appointed, "composed of men of high personal character, including individuals of exalted station in the Church," and "of persons professing different religious opinions;" and Parliament placed funds at their disposal, to execute this beneficent object. The commissioners proceeded to their task in a pure, upright, and enlightened spirit; and their first regulation is, that "the ordinary school business, during which all the children, of whatever denomination they be, are required to attend, and which is expected to embrace a competent number of hours in each day, is to consist exclusively of instruction in those branches of knowledge which belong to LITERARY AND MORAL EDUCATION. Such extracts from the Scriptures as are prepared under the SANCTION OF THE BOARD may be used, and are earnestly recommended by the board to be used during those hours allotted to this ordinary school business." The second regulation is, that "one day in each week (independently of Sunday) is to be set apart for religious instruction of the children; on which day, such pastors or other persons as are approved of by the parents or guardians of the children, shall have access

to them for that purpose, whether these pastors have signed the original application (placing the school under the commissioners) or not." There are still other liberal and judicious regulations for increasing the facilities for separate religious instruction, which I need not quote.

Tried by the principles which I have now laid down, these proceedings were essentially sound. That is to say, there is a vast field of knowledge, physical, moral, religious, and intellectual, relating to this world and its administration, which is independent of all notions concerning the best means of securing happiness in a future state, and which Jew, Christian, and Pagan must equally study, and on which they must equally practice, before they can secure to themselves prosperity on earth; and as the functions of government are limited to the present world, this field is the only one over which it can legitimately exercise any control. These principles were essentially recognized and acted on by the legislature, when it appointed the Irish Board of Education.

They did not, indeed, profess to take up this position, but they approached as near to it as circumstances would permit. The nation consisted of the sects A, B, C, and D, each of which was deeply impressed with the importance of religious instruction, and also of secular education to the young; but A held certain opinions on points of faith, which B, C, and D rejected; B held some opinions, the soundness of which A, C, and D disputed; and so with C and D, each of which had its peculiar views, belief in which it made an indispensable condition of admission to its schools. The consequence of these differences was, that educational effort was paralyzed, and schools either did not exist, or were comparatively empty. The British Parliament solved the difficulty, by leaving all sects and individuals to manage their own schools, and teach their own children in secular and religious knowledge, in their own way; but it proffered a helping hand, in the form of pecuniary aid, to such of them as were willing to open and conduct schools on the principles, secular and religious, in which ALL WERE AGREED. This agreement was secured by placing the schools under commissioners chosen from different sects, each of whom had a veto on teaching any doctrine of which he did not approve. These commissioners were able, liberal,

and enlightened men, and speedily discovered a vast field of solid information, both secular and religious, respecting the truth and utility of which they were unanimous; and they followed out the instructions of Parliament by teaching this to the people. Their books embrace the elements of literature, science, morals, and religion—the latter generally expressed in Scripture language—but they contain few sectarian doctrines.\*

What reception did this wise measure meet with from the Church of England, and many other religious sects? It was decried as infidel and godless, misrepresented, abused, and opposed, in the most unscrupulous and unmeasured terms. In the name of the religion of truth, the grossest misrepresentation was resorted to, in order to excite the public indignation against it. But the excellent sense, truly Christian spirit, and calm temper of the commissioners, with the Archbishop of Dublin, and the Roman Catholic Bishop, Dr. Murray, at their head, meekly sustained and triumphed over every hostile attack; they persevered in the wise and virtuous measures prescribed by Parliament, and their success has been correspondingly great. The following table, extracted from their last report, speaks for itself:

*Table showing the Progressive Increase in the NATIONAL SCHOOLS, and the NUMBER OF CHILDREN in attendance upon them, from the date of the First Report of the Commissioners of National Education in Ireland, to the 31st December, 1845.*

Number and Date of Report.	Number of Schools in Operation.	Number of Children on the Rolls.
No. 1, December 31, 1833,	789	107,042
" 2, March 31, 1835,	1106	145,521
" 3, " 1836,	1181	153,707
" 4, " 1837,	1300	166,929
" 5, " 1838,	1384	169,548
" 6, December 31, 1839,	1581	192,971
" 7, " 1840,	1978	232,560
" 8, " 1841,	2337	281,849
" 9, " 1842,	2721	319,792
" 10, " 1843,	2912	355,320
" 11, " 1844,	3153	395,550
" 12, " 1845,	3426	432,844

\* Among their books is an excellent little work on the "Evidences" of Christianity, which has obtained the approbation of all the commissioners.

This is a triumphant return, and similar principles have obtained similar success in the United States of North America. Although that country is characterized by the greatest variety of zealous religious sects, yet it has established STATE schools, supported by public taxation, and superintended by state-appointed Boards of Education selected from all sects ; in which the elements of secular knowledge and of universal morality and religion are taught, but from which all sectarian teaching is excluded, this being furnished by the parents and pastors of the children at separate hours ; and these schools, too, have SUCCEEDED. There, also, they have been opposed by sectarian men, and reviled as "infidel and godless ;" but nevertheless, they have been successful, and are conferring blessings on the rising generation. Here, then, we have three instructive lessons.

Let us, then, briefly re-survey the history of education in the sister kingdom. The Irish Government first left the Roman Catholic population of that country, for nearly a century, to the influence of religious teaching alone, prohibiting, under the severest penalties, secular instruction from being given to them by the only class of persons from whom they would receive it. Secondly, it tried to connect secular instruction with reading of the Protestant version of the Scriptures, as an indispensable condition ; and its efforts on these two principles egregiously failed. Thirdly, the British and American Legislatures have established schools, supported and controlled by the state, for communicating secular instruction exclusive of all peculiarities of religious faith ; and, in spite of violent and powerful opposition, they have been successful. According to my reading of the order of creation, beneficial results are at once the evidence and the reward of the soundness of the principles by which they are reached.

In the preceding pages, I have endeavored to show that government HAS A RIGHT even to COMPEL its subjects to receive such secular instruction as is necessary to qualify them for the discharge of their social duties ; but I am satisfied that no compulsion would be necessary, and I do not advocate it, till all means of moral persuasion and voluntary influence have been tried, and failed. In the United States and in Ireland, there is no compulsion ; and entertaining, as I do, the fullest

confidence in the might and efficacy of moral means, when honestly and judiciously applied, I am no advocate for the use of physical force to accomplish a moral end. But as the RIGHT AND THE DUTY of the state at all to interfere in education, have been contested by men whose opinions are entitled to the greatest respect, I have considered it proper to grapple with the objection, and sift it to the bottom, to the best of my ability.

I have intentionally avoided details, and, consequently, although I may thereby have left my views on many points imperfectly unfolded, still, it is hoped that enough has been said to start the questions—whether there be, or be not, in the nature of man, and in that of the external world, and in the relations subsisting between them, a fund of instruction emanating from God, enforced by his secular authority, and addressed by Him to the human faculties, calculated to lead us to secular happiness and prosperity, irrespective of every opinion concerning the best means of securing happiness in a future state? whether all Scriptural precepts, relating to this world and its affairs, do not harmonize with, sanction, and support the rules for human conduct, deducible from the constitution and order of nature? and, whether it be not possible to blend the instruction emanating from these two sources in a system of national education? If the answer be in the affirmative, then national education will be practicable by omitting merely the peculiarities of religious belief; peculiarities which, after all, relate almost entirely to forms of Church government, and the means of securing happiness in a future life. If not, national education is now, and will continue to be, impracticable, until all our fellow-subjects are agreed in their religious views, both regarding this world and the next. If the lay members of the community, who concur essentially in the affirmative, will take courage and honestly avow their opinions, they will find that their number is legion, and their power irresistible; and many of the clergy, of all sects, will in their hearts rejoice in the prospect of having the glorious fields of God's natural creation opened up to their people as sources of practical instruction, and of elevating and purifying emotion. All this seems to be attainable under such a scheme of national education as is already in operation in Ireland; and with this every well-wisher of the country may be satisfied.



In conclusion, I may notice a point of much importance, which has not yet been generally considered,\* viz., the relation in which science stands to the prevalent standards of religious belief. Although inquiry into this subject has long been shunned equally by men of science and by theologians, nevertheless, it lies at the threshold of all sound legislation on secular education, and it cannot, therefore, be much longer avoided. The following questions present themselves to our consideration :

1st. Is there an order of nature, or not ? (In the CONSTITUTION OF MAN, and MORAL PHILOSOPHY, I have endeavored to show that there is an order of nature, and to describe some of its leading features.)

2dly. If there is an order of nature, is it adapted with intelligent design to the human constitution, physical and mental, in such a manner as to connect temporal enjoyment with conduct in harmony with that order, and suffering with actions done in opposition to it ?

If the true answers be in the negative, then revelation appears to be the only possible foundation for all sound education. There will be no other.

But if the answers be in the affirmative, then the BEST basis for SECULAR education will be instruction in the order of nature, and in its adaptations to the human mind and body ; for on the observance or neglect of these will essentially depend the temporal well-being or adversity of each individual in this world.

Farther, as the religious sentiments exist in man, and exercise a powerful influence on his actions, it becomes important to inquire into the relation in which religious instruction stands to the order of nature. If there be discord between them, no proper wholesome development of the WHOLE mental and physical powers can be accomplished. If religious doctrines conflicting with the order of nature be taught, there must be deflection from truth and consistency, in the operation of the intellectual, of the moral, or of the religious faculties, to enable them to embrace inconsistencies ; and this weakens the whole mind. It places it in swaddling clothes, and frightens it from advancing boldly in the career of its own natural development. The doctrines of the different sects differ widely



from each other, and hence they cannot all be in harmony with nature. But the order of nature is paramount and perpetual ; and it is mere weakness to shrink from the inquiry here suggested. Consequences of the deepest importance are involved in it ; and, sooner or later, it will force itself on the understanding of the country—and the sooner the better.

If there be an order of nature adapted by God to the constitution of the human mind and body, the government should on no account patronize a scheme of secular education in which instruction in that order is either to be omitted, or made subservient or secondary to sectarian religious teaching. Temporal happiness, either of individuals or of society, cannot possibly advance except in harmony with the order of nature ; and to omit it, as is at present done in many seminaries controlled by religious sects, is worse than to act the tragedy of Hamlet omitting the character of its hero. It is substituting human error (for the sects cannot all be teaching truth) in the place of divine wisdom. The comparatively limited beneficial results which have hitherto followed our educational efforts, are, in my opinion, owing to this substitution. Religious teaching, in so far as it transcends or is not coincident with the order of nature, should be left to the parents and pastors of the children ; the government should, on principle, avoid it, as a source of contention, embarrassment, and weakness, and rely on teaching the laws of nature and their relations, as the stable foundations of secular happiness or misery. The tendency of such a course of public instruction will be to correct all theological doctrines relative to this world which are discovered to be at variance with the order of nature. It appears to me that the practical precepts of Christianity are, to a remarkable extent, in harmony with it ; and that, hence, a system of public education such as that adopted in Ireland, will admit of the order of nature being taught, whenever the different sects become so enlightened as to discover its importance—a consummation which would be the sooner reached, that none of them had the power of substituting their own wisdom in place of that of the Creator.

## PHRENOLOGY:

## ITS NATURE AND USES.

AN ADDRESS TO THE STUDENTS OF ANDERSON'S UNIVERSITY. BY  
ANDREW COMBEE, M. D.

GENTLEMEN—On seeing a stranger present himself before you to deliver a lecture introductory to a course on Phrenology, it will naturally occur to you to ask, Why does he occupy the place which belongs of right to Dr. Weir? The answer to this question will be found in the following brief history of the origin and progress of Phrenology, and of the events which led to the institution of a lectureship on the subject in this university.

From the earliest dawn of science, the attention of anatomists and physiologists, and, I may add, of philosophers also, has been earnestly directed to the study of the brain and the nervous system. Enveloped in obscurity as these important organs were, facts of daily and hourly occurrence, nevertheless, forced the conviction upon the minds of all reflecting men, that, whenever their functions should be discovered, they would be found to fulfil the very highest purposes in the economy of man. Even the most cursory observation was sufficient to show, not only that the brain is the seat and centre of sensation, voluntary motion, thought, and feeling, but that it exercises a paramount, although often indirect, influence over the whole bodily organization. Under the pressure of deep grief, for example, every function is impaired, and the powers of life become more and more enfeebled, till death at last closes the scene, and the individual is said to have died of "a broken heart." Under the influence of the strong passion which accompanies maniacal excitement of the brain, the action of the heart is characterized by unusual violence, the circulation becomes rapid and tumultuous, and the whole system is so instinct with energy as almost to defy restraint. Under the calmer and more equally diffused excitement of

hope and joy, the different bodily functions are raised in tone, and so agreeably stimulated, that all the operations of life are carried on with a vivacity and ease which at once enliven existence, and form the best safeguards against the inroads of disease. A blow on the head, or a powerful narcotic, on the other hand, may, by disturbing the action of the brain, produce absolute insensibility of both body and mind, and lay prostrate the highest genius. The bursts of mental power and extraordinary bodily strength developed during the delirium of fever, or under the use of wine or spirits, form equally striking and instructive examples of the predominant influence of the brain in the animal economy ; and its intimate connection with the mind is perhaps nowhere exhibited with greater clearness, than in the regularity with which the different mental powers become developed and advance through the different stages of maturity and decay, in exact proportion as the brain itself passes from the imperfect development of infancy through its stages of maturity and decay.

These, and similar facts, all leading to the same conclusion, have forced themselves upon the attention of mankind in all ages and countries, and they form the groundwork of the almost universal conviction that the brain is, in some way or other, the seat or organ of the mind. An enlightened curiosity, however, does not stop short at this vague and general proposition—it seeks to discover, farther, under what conditions this association of mind with brain exists. It seeks to know whether, in producing and giving expression to the varied and complicated phenomena of thought and feeling, the brain acts as a whole or as an aggregate of many parts, each subserving a particular sense or faculty. For thousands of years philosophers have labored to penetrate this mystery, but labored in vain ; and yet, in every succeeding age, the constant recurrence of the same phenomena has kept alive in its fullest force the conviction, that the discovery of the functions of the brain and nervous system would be fraught with important advantages to science and to mankind ; both by explaining some of the profoundest mysteries of our being and position, and by affording principles of the highest utility for our future progress and improvement. Under this stimulus, inquiry never became apathetic, even when it seemed

most unpromising. If it failed of success, this was not from want of zeal, talent, or perseverance, on the part of those engaged in it. The failure, as will be afterward pointed out to you by my friend Dr. Weir, arose solely from pursuing methods of research which, because they were founded on a wrong principle, were incapable of leading to success. Not suspecting or perceiving where the error really lay, one physiologist after another either entered upon the beaten path of his predecessors, without attempting to remedy the defects of method which had misled them, or he INVENTED a new THEORY, bearing the impress, not of nature, but of his own imagination, and of course failed, in his turn, to arrive at the truth. The anatomists, also, from no lack of talent, zeal, or industry, but purely from a similar want of a guiding principle, expended their time in nearly profitless labor. Instead of attempting to trace the natural relations of the parts of the brain to each other, they continued for centuries to cut it into slices, and thus DESTROYED, BY THEIR OWN ACT, the very structure they wished to examine—a proceeding, the only parallel to which would be to examine the anatomy of a limb by slicing it transversely like a round of beef! Failing to arrive at any useful result by such destructive methods, they, too, had recourse to their imagination, and enlivened the dryness of their researches by the discovery of supposed resemblances of parts of the brain to natural or artificial objects, and believed that, in giving names significant of these most grotesque resemblances, they were advancing the cause of science. Hence the learned application of the terms NATES and TESTES to the quadrigeminal bodies. Hence the AQUEDUCT of Sylvius, the BRIDGE of Varolius, the WRITER'S STYLE, or CALAMUS SCRIPTORIUS, and other equally unmeaning designations. From the same imaginative source was derived the fancy which gravely seated the soul in the pineal gland. Hence, also, the various "spirits" with which it pleased philosophers, at different times, to fill the ventricles of the brain! In reflecting on all these things, however, let us not give way only to a smile of ridicule or contempt. Seriously considered, these very vagaries indicated the strong and constant desire to arrive at the discovery of truths which were felt to be important. They sprang from no innate love of absurdity, but simply from zeal

and activity of mind operating without a principle to guide them through the labyrinth which they sought to penetrate. If a man, set down in a new country, wanders in a direction the opposite of that in which he wishes to go, it is no proof that he is destitute of the power of motion. The greater, indeed, his power of walking in such circumstances, the farther will he be likely to go astray ; but provide him with a sure guide, and then see how vigorously and safely he will advance ! It is the same with the anatomist and physiologist. Set them down without a guide to study the unknown regions of the brain and nervous system, and the greater their talent, the farther will they be liable, at times, to wander from the way of truth. But once provide them with a guiding principle, and every step will then bring them nearer and nearer to the goal.

The more, indeed, we consider the nature of science and the history of the past, the more manifest does it become, that it has been the want of a sound method of investigation, and not any inherent difficulty in the subject, or any marvelous complexity of function, which has hitherto constituted the chief obstacle to success. Nature's laws and operations rarely remain wholly inaccessible to well directed and persevering inquiry, and they seem to be a maze of confusion and contradiction only when considered in a wrong point of view, or when examined apart from their natural relations to each other. When correctly understood, they generally present an aspect of remarkable simplicity. For a similar reason, many of the plainest of the laws or phenomena of nature appear the very image of incongruity to the untutored savage, who knows not how to trace the principle which binds them into harmonious connection. It is precisely thus with the anatomist of the brain and nervous system. If he has no sound principle to direct him where to begin, and how to proceed, many of his results must necessarily appear to him perplexing, incongruous, and inexplicable. By a lucky chance he may hit upon useful truths, which will remain like landmarks amid the waste of error over which he has fatiguingly wandered ; but he will do little to throw light upon the general scheme of Nature, and will often leave even his surest facts a subject of doubt to those who succeed him, simply because

he cannot present them in harmonious connection with any other ascertained truths.

Here, then, is the source of the barrenness of results which has, in times past, so signally characterized most of the researches which have been made into the structure and functions of the brain and nervous system. False methods of inquiry, and not any insuperable difficulty in the subject, have been the causes of failure; and it is most important that at this your outset in a new study, you should fix your attention strongly on this fact, and satisfy yourselves of its foundation. If the method which Gall has followed be really superior to any hitherto in use, it becomes no longer wonderful that he should have succeeded in unfolding, to a greater extent than his predecessors, not only the real structure of the brain, but many of its most important uses; or that he should have put you in possession of means whereby you may, in your turn, correct his errors, and improve what he and his followers may have left imperfect. I shall, in a subsequent part of this lecture, explain his method; but, in the meantime, remark, that if I shall assign adequate causes for so many centuries of failure by other physiologists, and for the success which has attended the labors of Gall, it will follow, as a matter of course, that any condemnation of his discoveries, by those who have never zealously pursued this method, but derived their knowledge wholly from methods proved to be utterly inadequate, must be held, in the eye of reason, as of scarcely higher value than would be the hostile opinion of any uneducated man regarding any disputed point in modern chemistry, optics, or electricity. Ignorant as such an opponent must be regarding the uses of the brain, it is impossible that he can have any thing except theory or early prejudices to oppose to the facts of Phrenology; and for these I have no respect as sources of evidence. I am as much disposed as any one to yield deference to authority, or to opinions based upon certain and positive knowledge, however much they may militate against my own prepossessions; but where mere opinion is brought against what I know, from direct, careful, and repeated observation, to be CLEAR and POSITIVE FACTS, no matter how eminent the source of the opinion may be, I stand firm and unmoved, because Nature is at my back, and I have the



fullest assurance that she commits no mistakes, and is never inconsistent ; and I know that, on appeal being made, she will be found to speak the same language to-day as yesterday, or as a thousand years ago, and to bear out all I have advanced, if I have really been accurate in my observations.

To place this argument before you in its full force, it would be necessary, if your time permitted, to expose, in some detail, the inherent defects of the different methods of investigation resorted to before the days of Gall. This will be done more fully at a subsequent part of the course, by my friend, Dr. Weir. In the meantime, it will be enough for my purpose to state, that anatomists have tried to discover by dissection the uses of the different parts of the brain ; but unaided examination of structure has never yet been sufficient to reveal the function of an organ ; and, even if it did, the structure of the brain is, or was till very lately, as little known as its uses. We might dissect the optic nerve till the crack of doom, without being enabled, by that means alone, to demonstrate that its use is to convey visual impressions from the eye to the mind. It is by observing the concomitance of the faculty of vision with the existence and development of the nerve, and the effects of its diseases in destroying sight, that we arrive at the discovery of its function. **HAVING ONCE MADE THIS DISCOVERY**, anatomy steps in to confirm its truth, by showing its consistency with the relations of the nerve to the eye on the one side, and the brain on the other : It is the same with the nerve of hearing, with the nerves of sensation and motion, and, indeed, with every part of our bodily structure. We might dissect them all for centuries, apart from observation of the living phenomena, without being thereby enabled to discover their uses. A familiar proof of this is to be found in our still remaining ignorant of the functions of the spleen and thyroid and mesenteric glands, and of parts of the brain itself, of which the structure is now pretty well ascertained. Even the structure of a muscle, plainly as it speaks **AFTER** we perceive its function, does not, of itself, suffice to teach us that its office is to contract. It is by observation of the actual concomitance of contraction and structure that we first ascertain the fact. Dissection may prove the **COMPATIBILITY OF FUNCTION AND STRUCTURE**, after the function is



found out by OBSERVATION, or disprove an alleged function, by showing its incompatibility with WELL-ASCERTAINED structure; but, in the case of the brain, neither of these principles can be very safely applied, because the structure itself is even yet too imperfectly known to lead to positive results; and hence, among those who reject the discoveries of Gall, there is to this hour no agreement whatever regarding the functions of the different parts of the brain—whereas, if structure revealed function, there would be unanimity among them.

Metaphysicians, on the other hand, have attempted to solve the problem of the cerebral functions by the aid of CONSCIOUSNESS; but their failure has been equally signal. So far from revealing to us the uses of different parts of the brain, consciousness does not even reveal its existence. We know that there is SOMETHING within the skull, but we have not a trace of information from consciousness what it is, how composed, or what its form. If it had been possible to discover the functions of the brain by reflecting on the phenomena of our own consciousness, they would not now have continued to prove as great a stumbling-block to the modern as they did to the ancient metaphysicians; and I need only appeal to yourselves, and ask what amount of information you can derive regarding the operation of your own brains, or of any internal function, from consciousness alone. Did consciousness enable any one to anticipate Harvey's discovery of the circulation of the blood? or does it throw any light on the phenomena of digestion or of respiration? None whatever. We know that we breathe and digest, but we are left to find out, by observation, both the manner and the mechanism; and it is the same with the brain. We have a kind of consciousness, that we think and feel by means of our heads; but none whatever that our skulls contain brain, much less of the uses of its component parts, or of its particular uses even as a whole.

The only other channel through which information has been sought, and sought in vain, is the study of the effects of injuries and diseases of the brain, and the effects produced by mutilating the brains of animals. Dr. Weir will, by and by, demonstrate to you the inadequacy of this method also, to furnish the information required. Suffice it for me to say, that it is not amid the suffering of disease, or the general disturb-

ance of system caused by wounds or mutilations, that healthy regularity of function is to be found. Where any part of the nervous system is concerned and suffering is excited, general results become too much mixed up with those which are local, to admit of being properly discriminated; and, accordingly, not one new fact of any radical importance to the physiology of the brain, in its connection with the mind, has yet been demonstrated by this method of inquiry, notwithstanding the many and persevering efforts made in recent times to turn it to account; and, except for the light thrown upon its results from other quarters, many of them would remain before us nearly as destitute of meaning as at first.

Such, then, was the state of the physiology of the brain down to the time of Dr. Gall, and such continues to be essentially its state even now, among those who reject his discoveries. If, therefore, any adherent of the old methods of inquiry should happen, in your presence, to enlarge upon the demerits of Phrenology or the presumption of its disciples, you need be under no alarm for the consequences; you may at once turn the attack against himself, by requiring him to show what he can put in its place. If he has made any discovery of his own of the functions of the brain, he must be a very modest man indeed to hide its brilliancy under a bushel; for, as yet, nobody has claimed any such merit. If, therefore, Phrenology contain ANY PORTION of truth, science can only gain by its candid and unprejudiced examination; and you are interested in exact proportion to the amount of truth which it embodies, in not rejecting it heedlessly or unexamined.

But what, then, you will ask, is this boasted method by which Gall has derived such a rich harvest from a field which others have cultivated with so little success? The answer is simply, that, in investigating the functions of the brain, he has followed the same principle which, applied to other organs, has led to the discovery of their functions, but which, from various causes, had never before been systematically applied to the brain. When the physiologist wished to ascertain the function of any particular organ of the body, he did not rest satisfied with examining its structure, and speculating on the purposes for which that structure seemed in his eyes to be adapted. He began by direct observation, and watched

what kind of function appeared during life as the invariable accompaniment of the presence and action of that particular part; and, by repeated and careful observation, he at last succeeded in discovering the functions. The knowledge thus obtained was afterward verified, confirmed, and completed, by the examination of structure, and the observation of the effects of its injury or diseases.

It was by this method that the liver, for example, was proved to be the secreting organ of the bile, many centuries before its true anatomical structure was ascertained. This fact being once arrived at, its truth was confirmed by observing, further, that bile is met with only in animals in which a liver also is found, and that its secretion varies in amount with the development of that organ, and is affected by its diseases. The same with the kidneys: observation, during life, of the concomitance of organ and function, is the FIRST SOURCE of all our authentic knowledge of the part they perform, in the animal economy; and it is only AFTER having thus ascertained that they serve to secrete the urine, that we become enabled to extend and complete our information, and to trace the true relation of structure to function. Even of the muscles, our knowledge has been acquired in the very same way: we OBSERVE, in the living body, the concomitance of muscular motion with muscular fibre, and thence infer that its function is to execute motion. Here, then, is the very principle which Gall has succeeded in applying to the elucidation of the functions of the brain; and he was led to its adoption by an accidental observation, at school, of the concomitance of a particular kind of talent with a peculiar appearance of the eye, which he found afterward to be caused by the development of a particular part of the brain. At school, at college, and in many other places, and under wholly different circumstances, the same concomitance of talent with development of brain came under his notice so frequently, as to arrest his attention to the probable or possible success which might attend the application of a similar mode of discovering a connection betwixt other mental talents and the developments of other portions of the brain. In this respect, Gall resembled, in no small degree, the illustrious Newton, who, from the accidental fall of an apple at his feet, was led to the discovery

of the law of gravitation. Like Newton, having once obtained the clue, Gall never lost his hold of it as a guide to discovery; and he found it, on trial, to prove like a lamp to his feet, in the investigation of nature.

It was by the persevering application of the method of inquiry which accident had thus suggested to him, and not, as many suppose, by an effort of imagination, that Dr. Gall was at last enabled to place the physiology of the brain upon a solid foundation, by demonstrating, first, that the brain is an aggregate of many different parts, each serving for the manifestation of a particular mental faculty; and, secondly, that, all other conditions being equal, the size of each of these cerebral organs is an index of the power of its function. These two propositions, as will be afterward fully explained to you by Dr. Weir, constitute the distinctive or fundamental principles of Phrenology. The first of them, however, is not new. The impossibility of reconciling actual phenomena with the notion of a single organ of mind has, for many centuries, suggested the probability of a plurality of organs; and it is stated, that, influenced by this incompatibility, the great Haller, among others, "felt a necessity for assigning different functions to different parts of the brain;" just as, for a similar reason, many physiologists felt a necessity for inferring that the nerves of sensation and motion must be different. But it remained for Dr. Gall to DEMONSTRATE the fact of a plurality of organs in the brain; just as it did for Sir Charles Bell to demonstrate the distinction between the different kinds of nerves; and before the conclusion of this course of lectures you will be better able to appreciate the merit and consequences of this demonstration than you are now. At present I need only allude to an objection sometimes inconsiderately made by medical men against the possibility of the existence of any such cerebral organs—namely, that, on looking at the brain, no visible separation between its constituent parts can be detected, such as we see in the organs of the five senses. On examination, the whole force of this objection is found to depend on overlooking the very different nature and functions of the internal and external faculties. The organs of the five senses require to be distinctly isolated from each other, because, from their being the media of communication with the

external world, each requires a distinct apparatus to place it in harmony with the kind of impressions it is destined to receive and transmit to the brain. The eye, for example, being adapted in structure to the rays of light, is unaffected by impressions of sound; and the ear, being adapted to atmospheric vibrations, is unaffected by the rays of light; and hence each of the senses has, and must necessarily have, a specific apparatus for itself, so distinct in its mechanism from that of the rest, as almost to preclude the possibility of the organs being grouped together in close connection with each other. With the organs of the internal faculties, however, no such necessity exists for their absolute separation. On the contrary, their complete isolation would serve only to impede that consentaneity and harmony of action among several of them which is required in almost every mental operation. Accordingly, the objectors forget that, even in the case of the nerves of sensation and motion, where simultaneousness of action is often indispensable to the due regulation of our movements, a still more intimate connection of fibres of different kinds, and performing distinct functions, exists for a similar purpose; and that it was precisely this apparent blending of two sets of nervous fibres which so long misled physiologists to the belief that the nerve was a single organ, consisting of fibres serving equally for sensation and motion. This hasty and erroneous inference was arrived at, in the face of many opposing physiological phenomena, solely because, on examining the really compound nerve, no visible distinction could be traced between its two sets of fibres; but it remained for Sir Charles Bell, in the nineteenth century, to demonstrate their actual existence, and thus to reconcile their structure with the functions which they were ascertained to perform. The objectors forget, also, that a similar peculiarity characterizes the spinal marrow, and was equally the cause of the obscurity in which the distinct functions of its constituent parts were so long involved. In all ordinary circumstances, sensation and motion, irritation and reflex action, are most intimately associated; because the one is the exciting cause, and, in one sense, the director of the other; but on some occasions, and more especially in morbid or abnormal conditions of the system, their distinct and independent operation becomes so evident

as to be explicable only on the idea of a corresponding plurality of nerves.

The very same principle applies to the different cerebral organs which serve to manifest the different primitive faculties of the mind. In most mental operations, associated action of several of the primitive faculties is almost indispensable to the accomplishment of their object; and to admit of this at once consentaneous and combined action of several faculties in themselves distinct, their cerebral organs must be in intimate connection with each other; and, accordingly, such is found to be the order of nature.

But, it may be argued, if the internal faculties of the mind generally act in combinations of a greater or less number, does it not follow that the brain must, as a single organ, serve for the whole of them, instead of each having a part of the brain appropriated to itself? This conclusion, however plausible it may seem, would be as fallacious as the similar inference of the identity of the nerves of sensation and motion, from the general fact of their combined and consentaneous action. It is true that several of the faculties are generally active at the same time; but their elementary distinctness and independence of each other are shown, not only by their different degrees of strength bearing no constant relation to each other, but by the ever-varying combinations, in number and in kind, in which they manifest themselves. For if they were all general results, of one general power, operating through one organ, there would be in all instances a fixed proportion in the manifestations of feeling and thought, and a definite order in their sequence and arrangement, in harmony with the unity of action of a single organ. This is not the occasion on which to enter more fully into the objection; but I trust that I have said enough to satisfy you, that it is in reality more specious than sound, and that it is refuted both by direct evidence and by the analogy of other parts of the nervous system, the functions of which are now well ascertained.

Of the truth of the two fundamental principles of Phrenology, and of the possibility of applying them successfully to the discovery of the functions of the different cerebral organs which serve to manifest the different mental faculties, it would be easy for me to adduce ample evidence, were this the proper time to do



so. That, however, will be afterward satisfactorily done by your able lecturer. For the present, I must be allowed to assume their truth, and on this assumption to press upon you the necessity of examining both the facts and evidence for yourselves. You cannot with safety continue to neglect this inquiry ; because the truth is advancing while you are inactive, and you are not in possession of any other knowledge which can warrant you in condemning the claims of Phrenology untried. In common fairness, you are bound at least to make yourselves acquainted with both sides of the question, and to suspend your judgment till you have done so. I may go farther, and urge what to many will seem still stronger grounds for recommending you to give Phrenology a fair hearing. Your own interest is deeply concerned in your decision. If Phrenology be true, and if you remain unacquainted with its principles and facts, you will soon find yourselves left behind by those who have had the courage and sagacity to follow the guidance of truth. If true, there is no branch of knowledge which can be of more direct practical interest and utility to the physician or to the philosopher. If true, it furnishes a key, not only to the physiology of the brain and nervous system, but to the philosophy of the mind ; and, as such, there is scarcely any form of disease, on the nature and consequences of which it is not calculated to throw some light, or in the treatment of which it does not afford valuable aid.

Many suppose that it is only in cases of insanity, that a knowledge of the physiology of the brain is of any great consequence to the physician. In the discrimination and treatment of every form of nervous and mental disease, it is indeed invaluable, or rather, I may say, indispensable ; but from much experience I may further add, that there is scarcely a case to which a medical man can be called, in which an acquaintance with Phrenology will not smooth down difficulties, and afford him efficient aid, both in regulating the treatment, and in dealing with the friends of the patient, so as to secure their hearty and complete co-operation. The afflicted are beginning to make this discovery for themselves ; and the day is gone by, when advocacy of Phrenology was an objection to a medical man. The bias is now turning the other way ; and I have myself received many applications for advice from invalids in



different parts of the kingdom, who stated that they were induced to consult me by a belief that Phrenology would throw light upon their ailments. In ordinary private practice, also, the utility of Phrenology is already appreciated by many; and professional men who understand it are sought after in preference to men of equal skill who remain in ignorance of its value. Here, again, I speak from actual experience; because, since bad health compelled me wholly to relinquish the exercise of my profession, I have repeatedly been applied to by invalids to recommend an adviser who was well acquainted with Phrenology. Indeed, it is to the actual experience of its benefits by a former patient, that you are indebted for being now assembled in this hall. The late W. R. Henderson, Esq., devoted much time and attention to its study, and became deeply impressed with the services it was destined to render to mankind. In his own person, and under many drawbacks, he had, both during health and in disease, experienced its practical utility, and thence became more fully aware of the numerous and beneficent applications of which it admits, to the relief of suffering, as well as to the moral improvement of man. Under this conviction, he resolved to do all in his power for its more extensive diffusion. With this view, some years before his death, he devoted part of his leisure to the delivery of lectures on the subject to the working classes of Galashiels, in the neighborhood of which he then resided. An impediment in his utterance rendered this effort less successful than it would otherwise have been; but to secure the more effectual and permanent attainment of his object, he made a will, by which, after providing annuities for several friends, he bequeathed all his property to trustees, to be devoted to the more extensive diffusion and cultivation of Phrenology; and specially recorded, that he did so from no transient fit of enthusiasm, but from a calm, well-considered conviction of the truth and practical value of Gall's great discovery. He lived for four years after making this will; and his conviction that he had done wisely in dedicating his funds to such a purpose, became only the firmer. Need I add, then, that, in now providing an endowment for a lectureship on Phrenology in this university, Mr. Henderson's trustees—of whom I have the honor to be one, and as whose representative I now address

you—are merely acting in the spirit of the instructions which he left for their guidance, and thereby fulfilling the aim which he had in view. To them, indeed, there seems to be a peculiar appropriateness in this particular application of the Henderson trust, which renders the present duty doubly gratifying to them. Looking to the motives which actuated Mr. Henderson, and to those which actuated the founder of this institution, in making their respective bequests, what could be conceived to be more congenial in nature and in spirit? In proof of this, I need only read an extract from Mr. Chambers' biographical memoir of the late Mr. Anderson. After his appointment to the mathematical chair in the College of Glasgow, says Mr. Chambers, Mr. Anderson "entered upon the business of his class with an enthusiastic ardor of application which we may safely pronounce to have been without example in any Scottish university. Not contented with the ordinary duty of delivering a course of lectures—though he performed the duty in a manner alone sufficient to obtain distinction—he was indefatigable in studying and exemplifying the application of science to mechanical practice; visiting, for this purpose, the workshops of artisans in the town, and receiving, in return for the scientific doctrine which he had to communicate, a full equivalent of experimental knowledge. The most estimable characteristic of Professor Anderson was, a liberal and diffusive benevolence in regard to the instruction of his race. Under the inspiration of this feeling, which was in that age more rare, and therefore more meritorious, than it is at present, he instituted, in addition to his usual class, which was strictly mathematical, one for the working classes, and others, whose pursuits did not enable them to conform to the prescribed routine of academical study, illustrating his precepts by experiments, so as to render it in the highest degree attractive. He continued to teach this ANTI-ROGA class, as he called it, twice every week, during the session, to the end of his life; and it would not be easy to estimate the aggregate of good which he thus rendered to his fellow-creatures."

From the preceding extract, and from what I have mentioned regarding the motives of Mr. Henderson's bequest, it is evident that both testators were induced to make the arrangements we are now reaping the fruits of, by the anxiety

they felt to insure, long after they should have themselves mouldered into dust, the continued and wide dissemination of useful knowledge, as the surest way of benefitting and improving their fellow-creatures. In like manner, the managers of this institution, acting in a kindred spirit, discarding the narrow prejudices which have retarded the progress of Phrenology, as of every other great discovery, and looking only to your advantage, have cordially welcomed the proposal of Mr. Henderson's trustees to establish a phrenological lectureship within your walls ; and I feel assured, that, so far from ever having occasion to regret their liberality, they will one day be glad to have it in their power justly to boast that the university over which they preside was the first to teach the new philosophy as a branch of science.

Another circumstance which adds to the appropriateness of the present lectureship, is the rising eminence of your institution as a school of medicine, and the increasing number of professional students who are attracted to its halls. Phrenology, considered as the philosophy of the mind, must be deeply interesting to all classes of reflecting and educated men ; but to the intelligent and well educated medical man it offers still more powerful points of attraction, by presenting to him, for the first time, a firm foundation for a true and complete physiology of the brain. In this point of view it will, I am confident, speedily become an INDISPENSABLE branch of knowledge to every physician who desires to keep pace with the progress of science, and to maintain his place either in general society, or among his well educated brethren. Conscientiously entertaining this belief, I cannot but rejoice that you have been provided with an opportunity of becoming acquainted with the nature and evidences of Phrenology, and with its applications to the treatment of disease ; and I would strongly urge you not to let slip the facilities which Dr. Weir will afford to you of forming your own judgment, on the only safe ground—that of examination of evidence. Dr. Weir is well qualified to be your guide, and he is not untried. He has been long known to you as a successful teacher of medicine, and as an able physician. He has already lectured on Phrenology ; and from him you will learn all that is requisite to enable you to prosecute with advantage your own farther

researches into the anatomy, and the physiology and pathology, of the nervous system. He will prove to you, what many are anxious to conceal, that Gall's merits are not confined to the physiology of the brain; and that, on the contrary, it was he who, by abandoning the old plan of slicing this organ like a cheese, and adopting the rational method of tracing its elementary structure as it exists in nature, first gave the impulse and the direction which, in recent times, have done so much to improve our knowledge of the anatomical relations of the different parts of the brain to each other, to the spinal marrow, and to the nerves; and that such men as Reil, Blumenbach, Blainville, and Cuvier, did not disdain to acknowledge their obligations to him as an anatomist, even while they doubted his physiological doctrines.\* Dr. Weir will prove to you farther, that, in proportion as the principles of Phrenology have been examined and tested by extensive observation, they have been adopted and appreciated both in and out of the profession, and have made their way into books and practice, in an open or unavowed manner, to a far greater extent than those who look only at the silent surface of things are apt to suppose; and that, hence, we may expect their future

\* Bischoff mentions, in the preface of his *Exposition of Dr. Gall's Doctrines*, that Reil, after witnessing the dissection of the brain by Gall in 1805, said, "I have seen, in the anatomical demonstrations of the brain made by Gall, more than I thought that a man could discover in his whole life." (See *Phrenological Journal*, vol. vi., p. 307.) Blumenbach, in like manner, writes to his friend, Dr. Albers, of Bremen, in September, 1845—"I need not inform you, that I congratulate myself uncommonly on having heard Dr. Gall, and become more intimately acquainted with him. His lectures were equally interesting and entertaining to me." (*Phrenological Journal*, xix., 41.) The celebrated comparative anatomist and professor, Blainville, again, in his *Report on Foville's Anatomy of the Brain*, read to the Academy of Natural Sciences, on 28th June, 1828, "placing truth above selfishness, declared," says Dr. Spurzheim, "that Gall and I have given to the researches of the brain and nervous system an impulse and direction altogether new; that this new direction has diverted anatomists from the beaten track to which they had attached themselves before our labors; and that, if we had done nothing but this, and were all the points of our anatomy to be successfully contested and completely refuted, there would still remain to us the honor of having discovered a new impulse, and that, consequently, to us must be referred, as to its source, all that may be valuable in future labors on that subject." (*Phrenological Article of the Foreign Quarterly Review*, by Richard Chenevix, Esq., F. R. S., with Notes by J. G. Spurzheim, M. D. 8vo. Anderson, Edinburgh. 1829.) (See also *Phrenological Journal*, vi., p. 307.) I may add, that I have heard Blainville express similar sentiments, in equally strong terms, in his lectures in Paris.

progress among men of science to become every day more rapid. It is now fifty years since Gall proclaimed his discovery to the world, and surely half a century of active and determined hostility would have been sufficient to extinguish a system such as his, had it really been based on error and assumption, as it was said to be ! And yet, so far from being extinct, Phrenology gives every day new signs of increasing vitality. The works in which it is expounded have been sold to a large extent, and yet their sale still continues steady and regular. Does not this simple fact betoken an inherent interest in the subject, which, because truth is on its side, no misrepresentation can destroy ? Even in Germany, from which Phrenology was expelled almost at the instant of its birth, it now rears its head, and gives indications of vigorous and enduring vitality. Germany not only possesses a journal devoted to Phrenology, and published regularly at Mannheim, but there is every reason to hope that, in the University of Heidelberg, the very focus of the celebrated Tiedemann's active opposition, a lectureship similar to your own will shortly be established, and given to Dr. Scheve, who has already made himself advantageously known by his labors in the cause.

Many other facts might be referred to in proof of the increasing interest with which Phrenology is regarded, more especially among medical men ; but time forbids me to enter upon them. Many who believe in and make use of its principles, are still afraid to avow the fact, from a dread of suffering in the estimation of their patients ; but others are acquiring confidence in the force of truth, and proclaiming their convictions. The number of the latter is happily on the increase ; but so many are still under the influence of apprehension, that it is those only who are either sufficiently acquainted with the subject to detect its features through the thin disguise, or are admitted to the confidence of the more cautious followers of Phrenology, that can form a correct estimate of its actual progress. Being myself in the enjoyment of both of these means of judging, I have no hesitation in expressing my conviction that the new physiology of the brain is daily extending its influence, and that ere long all timid reserve will be thrown aside, and even credit be claimed

by many for a conversion which they are still anxious to conceal. The indications to be derived from the state of the medical press, both in this country, in America, and on the continent, lead to the same conclusion. In the United States and in France, especially, the principles of Phrenology are as unhesitatingly adopted in many practical works, as if their truth had never been doubted by any one. In England, also, they have found their way into many recent publications, where they can easily be recognized by those who have studied the subject. Among our professional periodicals, again, the ablest and most influential of them all—Forbes's *British and Foreign Medical Review*—has, within the last few years, and in several articles, enforced on its readers the necessity of investigating the phrenological physiology; and for many years past, the *Medico-Chirurgical Review* and the *Lancet*, and more recently the *Medical Times*, have advocated still more strongly its claims to attention. I have reason to know, indeed, that the conductors of both the *Lancet* and *Medical Times* have recently expressed a desire to give their readers reports of phrenological lectures. Significant as these signs are, I must refrain from commenting farther upon them; your own reflection will suffice to elicit their meaning.

But, gentlemen, I have still a word or two to address to the more general part of my audience. Many are now present who do not belong to the medical profession, and they may naturally ask, What interest can Phrenology have for us, who also are invited to attend? My answer is, that it has much. If Phrenology be true, it is destined one day to unfold the whole philosophy of human nature; and, therefore, to all who live in society, and wish either to improve themselves or exercise an influence over others, Phrenology is of indisputable use. By unfolding to us the nature and sphere of action of the different powers of intellect and moral feeling, and their laws of operation, it throws a flood of light on the principles of education, on the moral government of the world, and on the means for elevating and improving the condition of all classes of society. In the regulation of our own conduct, in the training of our children, and in our whole social intercourse, whether for business or for pleasure, it steps in with a helping hand, of which those who have experienced its effi-



ciency can best appreciate the practical value. I could point to educators among yourselves who avow that they owe to its aid almost the whole of the superiority and success which have distinguished their career ; I could point to parents who have experienced its blessings in the management of their families, and who would not give up its assistance for any consideration which could be offered to them ; and, lastly (to come to my own experience), I have, for many years, declared that my obligations to Phrenology, both in my private and professional capacity, are very great—greater, indeed, than to any other single branch of science. When I began to avow belief in its doctrines, at the outset of my career, I was warned that if I persisted in doing so, it would prove an almost insurmountable barrier in the way of my professional success. Trusting to the sustaining power of truth, I continued, nevertheless, to avow my convictions, and to advocate its cause, whenever the occasion required it ; and the result amply justified the reliance which I placed on the omnipotence and stability of truth. My advocacy of Phrenology did not prove any impediment in my professional career ; on the contrary, it in many respects extended my field of usefulness, and greatly contributed to my happiness, by giving a more definite and consistent direction to the faculties which I possess. No doubt, some, who might otherwise have employed me, were at first deterred, by their prejudices, from doing so ; but their place was more than supplied by others, who, in their turn, would not have sought my advice except for Phrenology ; and, ere long, many even of the prejudiced ventured to return, and ultimately took place among my warmest friends. The truth is, that, in the long run, professional success or failure • does not depend on a man holding this or that particular opinion which happens, for the moment, to be popular, or the reverse. Success depends almost entirely on professional skill and attainments, on general soundness of judgment, on readiness in resource, moral integrity, kindness of disposition, discretion, and persevering industry. These are the qualities which elicit confidence in the hour of danger ; and you may depend upon it, that if you give decided evidence of your possessing them in a high degree at the bedside of the patient, you will compel even the most prejudiced of your opponents



to respect your opinions on this as well as on other subjects, even while they may differ from you. In the private relations of life, also, I have derived the utmost advantage from the lights of Phrenology, and have gained a firmer hold on the confidence of my patients, by pointing out to them its great practical value in conducting the intellectual and moral training of the young, in promoting mutual forbearance and general kindness of intercourse, and thereby adding to their general means of happiness. It is for Dr. Weir to dwell upon all these points in detail; here I can only give you, in a few imperfect words, the general results of my own experience, and leave you to attach what importance to them you may think they deserve. I owe this testimony to Phrenology; and now that I am cut off from the active duties of life, I rejoice in the opportunity once more afforded to me of repeating it before such an assembly as the present. Some among the young and ardent minds who now listen to my words may be impressed by them, and stimulated to the study of a science which, rightly used, may not only greatly contribute to their professional success, but amply repay them for their trouble, by its utility in every relation of life.

But while I estimate thus highly the value of Phrenology, it is right to warn you that it is of Phrenology as it exists in the minds of its well-informed cultivators after years of study and observation that I speak, and not of the fancy which many substitute for it in their own minds, and designate by its name. Of the latter kind of Phrenology, nobody can have a lower opinion than I have. It neither is nor ever can be of any use, either to its possessor or to others. The Phrenology which I have here recommended to you is a science which cannot be mastered or judged of in a day, in a week, or in a month. Like other sciences, it must be studied before it can be known. Many entertain the notion that they have only to read a book or a pamphlet to qualify themselves to estimate its bearings, and pronounce authoritatively on its merits. This is a grand mistake; as well might we expect to become the equals of Liebig or Faraday, by reading a volume on chemistry. Till we become acquainted with Phrenology in its details, with its evidences, and with its manifold applications to medicine, education, and morals, we are in truth as incapable of forming a

correct opinion of its nature and uses, as we should be of those of chemistry while in a similar state of ignorance.

I am aware that, by many persons, medical men are supposed to be qualified by their professional knowledge to pronounce an *EX CATHEDRA* opinion, without any previous study of its doctrines; but, speaking again from experience, I have no hesitation in seriously affirming that this also is a gross delusion. A medical man enjoys many facilities for becoming acquainted with and verifying the truth of Phrenology, but he possesses no intuitive or acquired power of judging without careful examination in this department of science more than in any other. In my own case, I was so far from being conscious of the possession of any such power, that it was only after witnessing the examination of many brains, in the extensive hospitals of Paris, that I became convinced that the skull really represents the configuration of its enclosed brain; and it was only after upward of two years of observation, and meeting with many striking instances of the concomitance of the development of particular cerebral organs with the possession of the corresponding mental powers, that I became assured of its truth, and aware of its many important applications. Singularly enough, too, it was while attending the clinique of the philanthropic Esquirol, who was himself opposed to Phrenology, that my faith in its truth became fixed. As I was then investigating the subject, I became a regular attendant at the Salpêtrière, for the double purpose of studying the nature of insanity, and of ascertaining how far its phenomena were explicable by means of Phrenology. For the first two or three weeks, every thing which I saw, and every description which dropped from the lips of Esquirol, coincided so completely with the representations given by Gall and Spurzheim, that I could not help regarding Esquirol himself as a convert. Judge, then, of my surprise, when, calling one day for Dr. Spurzheim, and expressing this opinion to him, he significantly said to me—"Yes, Esquirol's *LECTURES* are phrenological, because he faithfully copies Nature, and Nature and Phrenology are one; but personally he is an opponent." Astonished at this statement, I replied, that surely he must have recently changed his views, as every word that he uttered seemed to me to embody the doctrines of Gall and himself.

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My lamented friend smiled, and answered, "Oh, no ! Esquirol has not changed ; wait, and you will see. One day he will speak out his opinion." The event entirely justified Dr. Spurzheim's prediction. Esquirol did ultimately speak of Phrenology by name, and he did so only to declare his dissent from its tenets. In the very few reasons, however, which he assigned for his scepticism, there was not, in reality, a shadow of ground to justify his hostile conclusion. On the contrary, his mode of classifying and explaining most of the phenomena seemed to me to imply, not only an acquaintance with, but a belief in, at least, the general principles of Phrenology. This was also the exact state of his opinions on the subject when I revisited the asylums of Paris, twelve years afterward (1831). While kindly conducting me through the wards of Clarenton, M. Esquirol mildly repeated his disbelief, and referred, in support of it, to objections which were either palpably irrelevant, or based entirely on misapprehension of Gall's statements. The singular contradiction between Esquirol's facts and inferences made a strong impression on me, on both occasions ; and he himself seemed in some degree sensible of its strangeness, for, in his lectures, his mention of Phrenology was very slight, and he never again referred to it by name, but went on as before, unconsciously making every day new use of its principles, and adding new force to its evidences.\* That I was not mistaken in regarding the cases which he brought under our notice as confirmatory of its truth, may, I think, be fairly presumed from the circumstance that the celebrated Georget, his own friend, relation, and disciple, who lived for years in the midst of those cases, not only became an avowed phrenologist, but, by his phrenological writings on insanity, did much to diffuse those sounder views of its nature and treatment, which are now effecting so much good, and for which he was, in no small degree, indebted to the able work which Dr. Spurzheim published shortly before on the same subject.

Having gone through this long and varied course of inquiry before I became fully aware of the extent and importance of the subject, I need scarcely say, that I feel as little respect for

\* The reader will find a more detailed examination of M. Esquirol's opinions on Phrenology in the "Phrenological Journal," viii., p. 653.

the favorable opinion of those who style themselves "great believers," formed on the evidence of an hour's study, or of two or three lectures, as I entertain for the hostility of those who, on equally slender grounds, reject its claims. Of the two, indeed, the "great believer" is, perhaps, the more dangerous enemy; for his credulity is apt to excite disgust in the minds of more thoughtful and philosophical men who happen to meet with him, and erroneously assume him to be a fair representative of the doctrines which he only brings into contempt.

But while I inculcate the necessity of patient inquiry, as the only means by which to acquire a competent acquaintance with the practical details and applications of Phrenology, I should be sorry were any one of you to be deterred from studying it by an exaggerated estimate of its difficulties. In this respect it possesses a great advantage over the ordinary systems of mental philosophy, many of the doctrines of which are so abstract as almost to defy comprehension. Even while I write, a document has been put into my hands, in which the superior intelligibility of Phrenology is so clearly stated, that I cannot do better than use its words. The document referred to is a prospectus just issued by the Phrenological Society of Paris, offering a prize of 1000 francs (called, from the name of the donor, the *Prix Pecoul*) for the best essay on the application of Phrenology to metaphysical analysis. After alluding to the contradictory vagueness of most metaphysical speculations, the writer continues: "It is important to remark, that the propositions of Phrenology concerning the nature of man, and that of the animals most nearly allied to him, are precise, and have the great merit of resting upon real data, easily tested by facts which every body can observe; while, in the philosophy of the schools, human nature remains an enigma, or at least a purely ideal conception, abounding so much in hypotheses wholly unconnected with experience, that neither teacher nor moralist, nor judge nor legislator, can derive from them any of the principles which are so much wanted to guide them in the action they exercise on each other, on individuals, and on society." In the justice of these remarks I entirely concur; and I would add, that, from the light which Phrenology throws upon many of the most intricate phenom-

ena of human nature, there is scarcely any situation in which a man can be placed, which does not afford opportunities for interesting and useful phrenological observation. From its very nature, it is in society and in our daily intercourse with the sick, and not in the closet, that we are to look for most of its evidences, and that we find ample scope for its applications ; and in this way it becomes an object of interest, and almost of amusement, in the very hours which would otherwise be often thrown away. Let no one, then, who is possessed of a strong love of truth, combined with even average powers of intellect, fear to engage in the study ; for although, in its applications to human improvement, Phrenology affords full scope for the exercise of the highest mental endowments ever vouchsafed to man, it also presents much that is at once intelligible, and in a high degree useful, to minds of an ordinary calibre. I know some persons of this description who, by patient perseverance, have not only thoroughly mastered its principles, but succeeded in applying them in the affairs of every-day life with so much tact and success, as to have added largely to their usefulness, comfort, and happiness.

In making these remarks regarding the utility of Phrenology, and the increasing interest now felt in its diffusion, I ought, perhaps, to warn you, that, as a system or body of doctrine, it is far from being regarded by its adherents as either perfect or complete. On the contrary, no one knows so well as the true phrenologist how much still remains unaccomplished. Let those, however, who are opposed to it, on the ground of its incompleteness, fairly try its merits even as it stands, by comparing them with those of any other philosophy or physiology of the brain, and we shall fearlessly abide by the result. Utility is a prominent characteristic of truth. Whatever is true, becomes of some use, even when imperfectly developed ; whereas error serves only to mislead, however ingeniously it may be propounded. Tried by this test, there is this remarkable difference between Phrenology and any other physiology of the brain or philosophy of mind that I ever heard of : on the one side, we have the direct and explicit testimony of physicians, moralists, philosophers, clergymen, lawyers, teachers, parents, superintendents of asylums, prisons, and schools, merchants, students, and, in short, of numbers in all ranks and

professions, certifying, in strong terms, and from their own experience, that they have found Phrenology of great utility in the practical business of life ; whereas there is not, on the other side, so far as I am aware, a single instance of any one volunteering similar testimony with regard to any other view of the functions of the brain, or any other philosophy of mind, from the days of Aristotle downward. For my own part, I am certainly within the mark when I say, that I have seen, heard, or received explicit testimony to the practical advantages of Phrenology from at least a hundred different persons, many of whose communications were by letter, and from individuals wholly unknown to me ; and I know that other phrenologists could state the same thing. How, then, are we to account for this remarkable fact ? A high and revered authority tells us, that truth may be known by its fruits, and admonishes us, therefore, to try all things, and hold fast by that which is good. Is it wrong, then, to infer, with this evidence before us, that there must be at least a large infusion of truth in that which all who know it have found to be a source of happiness, improvement, and advantage to them ? And am I wrong in urging you to try Phrenology for yourselves, and to abide by your experience of its results ?\*

But time warns me to have done. Before parting, however, I would once more earnestly recommend to you, while listening to the instructions of Dr. Weir, to observe nature for yourselves, and exercise your own judgment on the subjects submitted to your attention. Your object ought to be truth alone ; and that, unfortunately, is not to be found un-

\* Among other unequivocal symptoms of the estimation in which Phrenology, as a practically important science, is held, I may refer to the bequest of about £15,000 to the Phrenological Society of Edinburgh, by the late Dr. Robertson of Paris, who died in 1840, and who had taken a warm interest in the subject for nearly thirty years. In a correspondence which occurred a few months before his death, Dr. Robertson mentioned that he thought at first of leaving money for the purpose of founding a professorship of Phrenology in the University of London ; but that, on consideration, he preferred leaving the disposal of his funds to the Phrenological Society. The legacy, however, has not yet been forthcoming, and a lawsuit is now pending in Paris, at the instance of the Society, to compel Dr. Verity—the sole executor under the will—to fulfil the intentions of the testator. This he at present declines to do, on the groundless plea of the non-existence of the Society ; and he even repudiates the competency of the French courts to entertain the question at all.



mixed with error in any of the works of man. Man is, at best, but a fallible being, and no one who values science at its just rate will ever seek to rest its facts and doctrines solely on his own or any other human authority. So far as Phrenology is true, it has nothing to fear from either the wit or the malice of man; and so far as errors may have mingled with its truths, it can only gain by their exposure and rejection.

After what I have already told you, you will easily be able, without farther explanation, to understand the motives which have led to the establishment and endowment of the present lectureship. Addressing you, not as your teacher, but merely as the representative of Mr. Henderson's trustees, it was no part of my object to explain to you the nature, the evidences, or the uses of Phrenology; and consequently, if I have said enough to convince you that the subject is one of intrinsic importance, and eminently deserving of careful study on your part, my aim and that of the other trustees will be entirely fulfilled. It will remain for Dr. Weir, as your teacher, to do the rest, and I have no doubt that he will give you the most able and efficient assistance in conducting your inquiries. Looking back upon the aid and comfort which I myself have derived from Phrenology, both in my private and professional capacities, during the last twenty-five years, I cannot but feel an earnest desire that you, who are now only entering upon your career, should also share largely in its benefits, and contribute in your turn to its future improvement and diffusion. It is this feeling which has impelled me, at the cost of a greater effort than I have of late been accustomed to make, to prepare the present address; and, had strength permitted, nothing would have given me greater satisfaction than to witness in person, the commencement of an undertaking which, by its permanent results, will, I trust, redound equally to your advantage and to the credit of Anderson's University.

ANDREW COMBE.

## APPENDIX.

THE following letters are so interesting in themselves, and bear so directly on some of the points touched upon in the preceding address, that no apology can be required for introducing them here. They were all written to Mr. George Combe, in answer to a request made by him that each of his correspondents should favor him with his opinion on the subject of the Andersonian Lectureship. They were, consequently, all written without the slightest intercommunication or knowledge on the part of any one of the sentiments expressed, either in the address itself, or in any of the other letters. In this point of view, the definiteness and coincidence of opinion by which they are characterized, and the unconscious testimony which they bear to the accuracy of the author's representations, must strike every reflecting reader.

A greater number of such letters might easily have been procured; but those now presented will suffice. They are all from distinguished men, and each of them may be regarded as the representative of a distinct class of society. To the medical world, both at home and abroad, Mr. Carmichael has been long known as standing at the head of the surgical profession in Dublin; and his brethren will not soon forget either the ability, zeal, and success, with which he has, for many years, labored in the cause of science, or the munificent contribution (£500) which he gave, two or three years ago, to promote the cause of medical reform. Professor Gregory, also, is too well known, from his position and writings, and from his former connection with Anderson's University, to require any notice here. Of Dr. Browne, of Dumfries, and of the value of his testimony, little need be said. He is well known as one of the ablest and most enlightened men who ever devoted their energies to the cause of the insane. Of Mr. Hodgson, again, it will be sufficient to say, that as Principal of the Mechanics' Institution of Liverpool, he has for several years stood at the head of what is now one of the largest, most important, and most successful educational establishments of this country, and that to his untiring energy, enlightened views, and great talent, it owes no small share of its efficiency and prosperity.

## LETTER I.

RUTLAND SQUARE, DUBLIN, Dec. 24, 1845.

MY DEAR SIR—It afforded me the greatest satisfaction to learn that a Lectureship of Phrenology has been at length established in a university; and it reflects the highest credit upon the managers of the Andersonian University, to be the first to throw off early prejudices, and to acknowledge the importance of Phrenology, which, I have no doubt, will soon be generally regarded as the true physiology of the brain, and immeasurably beyond every system of metaphysics hitherto propounded, in accounting for the workings of this hitherto inexplicable organ.

When Spurzheim first arrived in this country, I witnessed his dissection of the brain; and I well recollect the gratification I felt, when I observed him tracing the nervous fibres from their origin to their termination, instead of cutting them transversely, as had been previously the habit. Just as well might we attempt to display the muscles of a limb, in order to explain their action, by cutting them across. But, notwithstanding this obvious improvement in the mode of dissecting the brain, Gall and Spurzheim were stigmatized for this, as well as for their other discoveries, in the *Edinburgh Review*, as impudent impostors and charlatans. But now their dissection of the brain is the only one pursued, I believe, in all the anatomical schools; and their Phrenology will soon, I trust, be equally taught, as the true philosophy of mind, in all the universities of Europe.

Phrenology, under the able lectures of Spurzheim, continued to make progress with the public, notwithstanding the opposition of established moral philosophers and metaphysicians, at the head of whom was the celebrated Dugald Stewart, who actually refused to admit Spurzheim into his presence, although he brought him a letter of introduction.

A second virulent article against Phrenology appeared in the *Edinburgh Review*, in which that most unmerciful of all weapons, RIDICULE, was unsparingly and skilfully employed by its able editor. But Phrenology has withstood all this violence and persecution; and, so far from being crushed, is every day advancing in public estimation; a strong proof of

which is the fact, that the language of Phrenology is often employed, even by its opponents, when they attempt to convey opinions respecting the mental characteristics of others, which they find it difficult to render equally intelligible in ordinary language.

I shall not occupy your time, by adverting to the flood of light which Phrenology has thrown on the principles upon which education, jurisprudence, and prison discipline, ought to be conducted, viz., by the improvement of the intellectual and moral organs, so as to keep in check the influence of the animal propensities. It would be equally superfluous to insist on the advantages it affords in treating the insane. You will agree with me, that no individual who is not a skilful Phrenologist, can reach the same degree of efficiency, in superintending an asylum for such patients, which he could attain by its aid. Indeed, the assistance it lends in establishing a confidence in ourselves, and acquiring the confidence of our patients, is of the greatest utility in the treatment of those ailments which depend upon a morbid state of the brain, or some other portion of the nervous system, such as epilepsy, hysteria, hypochondriacism, and neuralgia.

The example of the Andersonian University must in time be followed. Other similar institutions cannot leave the students in that unenviable state of ignorance, which would render vain all competition with those who are well grounded in this most important science, and aided by the light it sheds on so many fields of knowledge.

I remain, my dear sir, yours very truly,

RICHARD CARMICHAEL.

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## LETTER II.

EDINBURGH UNIVERSITY, JAN. 5, 1845.

MY DEAR SIR—Having only returned from the country two days ago, I could not sooner acknowledge the receipt of your letter, which I found waiting me here.

I rejoice that you are to deliver the opening lecture of the first course of lectures on Phrenology founded in any public educational institution in Scotland.

As having formerly held office in the Andersonian Institu-

tion, and as having, in 1839, delivered within its walls a brief popular course of lectures on Phrenology, I feel naturally much interested on the present occasion.

The managers have always been distinguished by liberality of sentiment ; and in no one of their proceedings have they more honorably acted up to the liberal spirit of their institution, or more conscientiously performed the duty which they owe to society, than in assisting in the foundation of a lectureship on Phrenology.

It is possible that some may look on this step as imprudent, or even unjustifiable ; but no one acquainted with the recent progress and present state of Phrenology, will hold such an opinion. On the contrary, those who have attended to the subject, and watched its progress most closely, cannot but look forward with confidence to the time when there shall be a chair for teaching the true physiology of the brain in every flourishing seminary, as no longer remote. The example now set by Anderson's University will, ere long, be followed by other seminaries ; and the managers and members of the Andersonian University will then derive just honor and praise from the result of their foresight, candor, and liberality.

The students attending these lectures will enjoy very great advantages ; for they will no longer be shut out from the rich harvest of observations, and the valuable practical applications of these which abound in the works of phrenologists. When they listen to their learned instructor, Dr. Weir, of whom it is unnecessary, and would be very presumptuous, for me to speak in terms of praise, they will find it impossible to hold the doctrine, so comforting to indolence and prejudice, that a phrenologist is necessarily a bad or inferior anatomist. The subject being presented to them as it ought to be, not in the form of a gross caricature, but in the words of the great founder and promoters of Phrenology, they will soon perceive that the cerebral anatomy of Gall and Spurzheim surpasses that of their predecessors, as much as their cerebral physiology does ; and that no discoverer ever lived who adhered to the golden rule of induction from carefully observed facts more strictly than Gall. These fortunate students, hearing Phrenology spoken of like any other branch of natural or physiological inquiry, as a field for observation and in-

duction, and not sneered at, when alluded to at all, as an absurd system of divination, will proceed to the study of nature in this branch of physiology, without having to unlearn a mass of prejudices which have, in many cases, proved an insurmountable obstacle to the progress of young anatomists, trained in some of the existing schools to a blind and unreasoning contempt of Phrenology.

Thus freed from the shackles of prejudice, and trained to employ their own faculties in observing nature, as well as in reasoning on the phenomena observed, they will soon discover that Phrenology furnishes the key, so long sought for in vain, to many perplexing facts; that it explains, in a natural and simple manner, the phenomena of partial genius, and of partial insanity; that it throws equal light on innate tendencies, whether intellectual, moral, or sensual; that it yields the most precious hints for the treatment of the insane, as well as of the criminal; and, finally, that it forms the only rational foundation for an enlightened education.

What less, indeed, can be predicated of the physiology of the brain, when studied on rational principles? Indeed, were I to enter here on a list of the invaluable applications of Phrenology, I should appear to exaggerate, when, as you well know, I should speak very sober truth.

Let me observe, in conclusion, that I never cease to rejoice that it has been my fortune to live in a time and country which admitted of my becoming acquainted with Gall's Physiology of the Brain, as expounded and illustrated by Spurzheim and yourself; and that I feel a thorough conviction that Dr. Weir's pupils in the Andersonian University will one day echo the sentiment, and will ever feel grateful to the founders of the lectureship, for the inestimable benefits which have flowed from the institution.

I remain yours, very sincerely,

WILLIAM GREGORY.

### LETTER III.

CRICHTON INSTITUTION, DUMFRIES, Jan. 3, 1845.

MY DEAR MR. COMBE—I understand that you are to deliver a lecture before the members of the Andersonian Institution,



Glasgow, introductory to the course of Dr. Weir, the newly-appointed professor of Phrenology.

All men, whether holding my sentiments or not, must regard this as a most important event in the progress of moral and physical science. But those who have faithfully investigated the subject of cerebral physiology, who have marked the progress of public opinion, who are aware that a large body of educated men have adopted the principles of Phrenology ; that an equally large body of men, it may be unconsciously, THINK phrenologically, judge of conduct and character through the medium of Phrenology, and employ its phraseology ; and, further, that the treatment and training of the young, the diseased, and the criminal, have been, in various places and countries, and in various modes, moulded and modified in accordance with these principles, cannot but regard the appointment as an indication of the general feeling upon this disputed question ; and the directors, not merely as patrons of science, but as benefactors, in the true sense of the word, in adopting means to diffuse a knowledge of truths which affect all men, in all states and stages of civilization, in all stations of life, and in all conditions, bodily and mental. This much, as to the act which you are about to signalize : then, as to the importance and value of phrenological views, I cannot now express myself otherwise, or better, than I did when addressing you ten years ago upon a different occasion.

I have been acquainted with the principles of Phrenology for upward of twenty years ; that, from proofs based upon physiology and observation, I believe these to be a true exposition of the laws and phenomena of the human mind ; that, during the whole of the period mentioned, I have acted upon these principles, applied them practically in the ordinary concerns of life, in determining and analyzing the characters of all individuals with whom I became acquainted or connected, and that I have derived the greatest benefit from the assistance thus obtained. But, although the utility of the science be most apparent in the discrimination of the good from the bad, those of virtuous and intellectual capabilities from the brutal and the imbecile, it is not confined to this. In the exercise of my profession, I have been enabled, by the aid of Phrenology, to be of essential service in directing the education of the

young, as a protection against nervous disease, and in removing or alleviating the various forms assumed by insanity in the mature. For many years I have devoted myself to the study of mental diseases, and to the care of the insane. During my studies at Salpêtrière, Charenton, etc., in Paris, I was able to derive great additional information from my previous knowledge of Phrenology; and since I have been entrusted with the care of public asylums, I am inclined to attribute whatever success may have attended my efforts to ameliorate the condition of those confided to my charge, to the same cause.

I may add, that I was CONVERTED from a confidence in the accuracy of the philosophy of the schools, to a belief in Phrenology; that I did not accept its doctrines on the authority of my teachers, but tested their truth by repeated experiment; that I have since taught them to large bodies of my countrymen; and feel fully convinced that, until they be recognized and acted upon generally, no just conclusion can be drawn as to human character, nor as to the administration of punishments for the improvement, or rewards for the encouragement of mankind. I have the honor to be, with great respect, your obedient servant,

W. A. F. BROWNE, M. D.

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#### LETTER IV.

LIVERPOOL MECHANICS' INSTITUTION, Jan. 2, 1845.

MY DEAR SIR—It is with no slight pleasure that I have heard of the introduction of Phrenology into the Andersonian University of Glasgow as a regular branch of instruction; and, from what I have heard of Dr. Weir, I am convinced that his appointment will be of eminent service to the science. You are not unaware of the views which I have held for many years as to the expediency of teaching Phrenology in all universities, not incidentally, but thoroughly, openly, and systematically, as a distinct and most important branch of philosophical inquiry—distinct, and yet closely allied with many other sciences, and forming in itself the great bond of union between physiology and metaphysics, the science of

the body and the science of the mind. Of the utility of Phrenology in various pursuits, there are not now wanting many influential witnesses. Of its importance to the educationist I may speak, if with humility, yet with confidence, based on actual experience. To the practical teacher Phrenology is of eminent service, not merely in enabling him to form rapid and correct judgments of individual characters, but from its clear and simple philosophy of mind, the light it throws on the NATURE OF THE BEING TO BE INSTRUCTED, and, consequently, on the true aim and wisest methods of education. But a letter is not the place for a full statement of the bearings of Phrenology on education. Once more I congratulate you, who have so long and so zealously labored in this cause, on the present recognition of the claims of Phrenology to be formally taught as something true, and useful because true.

I am yours, very faithfully,

W. B. HODGSON, Principal.

The last letter is from Dr. Conolly, late resident, and now consulting physician to the Middlesex County Lunatic Asylum at Hanwell, and formerly Professor of Medicine in the London University. Dr. Conolly is well known, both by his writings and by the improvements which he effected in the management of the Hanwell Asylum, and especially by the entire abolition of physical restraint, and the successful substitution of increased kindness and watchfulness among an insane population of upward of 800. His experience has been so great, and his clinical lectures, now in the course of publication in the *Lancet*, have made him so extensively and advantageously known, that his authority cannot fail to have much weight.

HANWELL, Jan. 5, 1846.

MY DEAR SIR—Recollecting almost the commencement of your labors in the cause of Phrenology, when I had the happiness of being a student at Edinburgh, I cannot refrain from offering you my congratulations on the establishment of a professorship of the science in the Andersonian Institution at Glasgow; and I only regret that I cannot have the advantage and gratification of hearing the lecture which you have undertaken to deliver on the occasion.

Many and pressing avocations leave me no time just at present to express to you, in a manner at all worthy of the subject, my conviction of the great usefulness of habitual regard to the principles of Phrenology, especially in my department of practice, and of the confusion and imperfection of the views which seem to me to be taken, both of sound and unsound mind, by those who reject the aid of observations confirmed now by vast experience, and most of which may be daily verified in asylums for the insane. I am also convinced, that attention to the form of the head, conjoined with that cautious consideration of all other physical circumstances which no prudent phrenologist disregards, will often enable the practitioner to form an accurate prognosis in cases of mental disorder, and to foretell the chances of recovery or amelioration, or hopeless and gradual deterioration. But I am aware that I am now taking a very limited view of the applications of the science ; which, however, I know you will excuse, in consideration of the somewhat exclusive occupation of my mind on these subjects.

I always remember with pleasure your illustrative remarks on the shape of the heads of some of the unfortunate inmates of a prison which I was some years ago permitted to visit with you ; and I wish much for an opportunity of conducting you through the wards of Hanwell, and, with examples before us, benefiting by your great experience.

With all good wishes, believe me to remain, my dear sir, always sincerely yours,

J. CONOLLY.

## PHRENOLOGY AND MESMERISM:

THE TRUE SCIENTIFIC SPIRIT IN WHICH THEY SHOULD BE EXAMINED.

It cannot be denied, that, in the present day, knowledge is more generally diffused, and education, as far as concerns an acquaintance with natural science, more rational, than was the case a hundred years ago, or even at the commencement of the present century. But it is equally certain, that the knowledge existing generally in society is lamentably deficient, and that the scientific part of modern education either is very imperfect, or has not yet had time to produce any very notable effect on the public mind. To convince us of this, it is only necessary to study the reception given by the world to new truths, or to statements professing at least to be truths, founded on careful and accurate observation of nature.

We are ready enough to refer to the absurd conduct of those who refused to look through the telescope of Galileo, and see with their own eyes those discoveries which they denied; and of those who could think that a compulsory recantation of an opinion founded on observation, and not yet refuted by observation, was either desirable or even efficacious, unless as a direct encouragement of falsehood. We contrast with such conduct the reception lately given to the beautiful discovery of Leverrier, by which the linear extent of our system has been doubled. And it is no doubt true, that the great truths of astronomy have been so strongly impressed on the public mind, that an extension of our knowledge, IN CONFORMITY WITH OUR NOTIONS OF THOSE TRUTHS OR LAWS, is readily admitted.

But the true question is this—How do we receive NEW TRUTHS? that is, truths involving principles different from those which we acknowledge. How should we receive, for example, the announcement of a doctrine of the universe, as different from that of Newton as Newton's was from those

of his predecessors? It is much to be dreaded, that a candid answer to this question would indicate a line of conduct not very remote from that of the opponents of Galileo, of Newton, or of Harvey.

It would appear that the human mind has usually opposed an instinctive resistance, a *VIS INERTIÆ*, to the progress of new ideas. Many of us can recollect, that when gas was first introduced, Walter Scott spoke and wrote of the idea as that of a visionary; and yet, before thirty years had passed, he had a gas factory at Abbotsford, and was chairman of the Edinburgh Oil-Gas Company. Here a man of a sagacious and practical turn of mind recoiled from a great practical improvement, apparently for no other reason but that the idea was new to him. Even the history of railways, at a still later period, can furnish an entirely parallel case; and the same may be said of steaming across the Atlantic.

If, then, where the point in dispute is so eminently practical, the first impulse be to reject the new, this is much more likely to be the case where the new doctrine treats of matters not lying on the surface, and where a personal knowledge and conviction of the truth can hardly be obtained without laborious study and observation. If, in addition, the new doctrine should clash, or should appear to clash, with established views on points on which the feelings are apt to be excited and interested, we may reckon with absolute certainty, even in the middle of the nineteenth century, on an opposition to it, very similar to that which might have been experienced in the sixteenth—equally vehement, and, inasmuch as it originates from the passions and not from the intellect, equally unreasoning.

The reception of Phrenology by the contemporaries of Gall was a case in point. Without an attempt to verify or disprove his statements by observation, his whole doctrine was at once rejected; and he, the patient, unwearied, and sincere student of nature, was stigmatized as a quack by men who had never even looked at a brain or skull, with a view to discover the relation they might bear to the mental manifestations. Nay, an authority, yet living, who certainly was not in the habit of making physiological or anatomical investigations, actually went so far as to declare, that "there is not the smallest reason for supposing that the mind ever operates through the



agency of any material organs, except in its perception of material objects, or in the spontaneous movements of the body which it inhabits."\*

The opposition to Phrenology, on the part of Gall's contemporaries, has all the characters above alluded to. Like the opponents of Galileo, those of Gall refused to look through his telescope; but thought themselves, nevertheless, justified in denying his statements of facts, and in accusing him of quackery and imposture. In place of arguments founded on independent observation, the only legitimate answer to statements of facts founded on observation, they attempted to put him down by reasonings *A PRIORI*, founded on what they chose to assume as the order of nature, or by attributing to his doctrine certain consequences inconsistent with their views of ethics and of religion; as if any doctrine truly deduced from natural facts, could be inconsistent with true religion or true morals; or as if, supposing the doctrine to be illogically deduced from the facts, or the facts to be erroneously assumed as such, the proper method of meeting it could possibly be by reasonings, either *A PRIORI*, or to consequences. They forgot that both these false modes of reasoning were employed against Galileo and the other discoverers above alluded to, and that the Bible was then supposed to declare that the sun really moved round the earth.

It is not in the least material to this question, whether Phrenology be true or false. Whether true or false, it appeals to facts and to nature; and no such appeal, whatever be the doctrine legitimately deduced from it, can be properly or even fairly met, except by a similar appeal to facts. Now, when we look at the history of the various attacks made on Phrenology, we find that they are almost uniformly characterized by the entire absence of facts or observations, as well as by the prevalence of the argument *A PRIORI*, or the argument from the supposed consequences of the doctrine. The very few attempts at a refutation of Gall's doctrine by means of observation, which have appeared, have been either ludicrously self-contradictory, or else founded on a total misapprehension of the doctrine to be refuted. At all events, they have not been successful, since each successive anti-phrenolo-

\* Edinburgh Review, vol. xliv., p. 257.

gist has rejected the refutations of all his predecessors, and has been in turn rejected as insufficient by his successors.

If we endeavor to account for the fact, that new truths, or statements of fact involving new principles, whether such statements be correct or not, are met, as they would have been two or three centuries since, not by an appeal to nature (which, in the case of false or erroneous statements, would be the shortest, as well as the most satisfactory method of dealing with them), but by arguments *A PRIORI*, assertions without proof, accusations of quackery and imposture, personal abuse, and appeals to prejudice on the score of the supposed or asserted consequences of a doctrine, we are forcibly struck with the apparent absence of all accurate notions, on the part of such objectors, of what constitutes evidence in natural science. And if we would trace this deficiency to its origin, we are compelled to admit that our boasted education is grossly defective in this point, and that the young seldom receive any instruction which can enable them to judge of the evidence produced by an investigator in support of his views of natural truth. Not agreeing as to what constitutes evidence of a natural fact, it is not wonderful that men should come to very different conclusions with respect to the inferences to be drawn from it; whereas, if all were duly trained to appreciate evidence in natural science, they would, when a new subject was presented to them, speedily come to a common decision as to the facts; and from these the inferences would follow as a matter of course, and all the time would be saved which is at present thrown away in disputes that could not occur if the disputants knew the laws of evidence in natural science.

It would be easy to quote many examples of every conceivable form of opposition to Phrenology, originating in the above-mentioned ignorance of what constitutes evidence in natural science. But the chief object of these remarks is to draw attention to another instance of the same deficiency, producing the very same result, namely, a blind and prejudiced opposition to new ideas, in the case of Mesmerism.

Mesmerism, like Phrenology, is essentially a collection of facts, or of what are, at least, alleged to be facts. In Mesmerism, as in Phrenology, the observers describe what they

have seen, and appeal to nature; while in Mesmerism, as in Phrenology, many individuals, without appealing to nature, without making a single observation, unhesitatingly declare the alleged facts to be no facts, and the observers to be either dupes or impostors.

Now, in Mesmerism, as in Phrenology, it is of not the smallest importance in reference to the present question (which is the mode in which statements of fact should be met), whether Mesmerism be true or false, or, as Dr. Forbes has it, true **AND** false. Whichever it be, it is quite certain that the alleged facts cannot be got rid of by declaring them to be no facts, or by declaring them to be impossible, or by accusing the observers of incapacity or of fraud, unless these assertions are made good by an appeal to facts. And yet such is the staple of the opposition to Mesmerism.

One chief cause of this must be sought in the same want of accurate notions as to what constitutes evidence in natural science, to which we have referred the principal part of the opposition to Phrenology. Let us, therefore, endeavor to trace the process, that we may discover the fallacy or fallacies which must exist somewhere, to account for the circumstance that, while, on the one hand, statements of fact are made by those who profess to have observed them, and who appeal to nature, maintaining that every man may, if he choose, observe them for himself; on the other, these alleged facts are contemptuously rejected on a variety of grounds, but certainly without the objectors having, as they ought to have done, investigated the matter experimentally for themselves. We say that some fallacy or fallacies must exist here, to lead to so strange a mode of treating a question of fact; and that if we can trace it, we shall probably find it to be the same which operated in producing precisely similar conduct on the part of the opponents of Copernicus, Galileo, Newton, Harvey, and Gall.

We do not here proceed on the assumption that what is called, in general, Mesmerism, is true. We only maintain that, whether true or false, it appeals to fact, and has been met by every kind of opposition except the only legitimate one in such a case, namely, a fair appeal to fact on the part of the objector.

If we take the accounts of the mesmeric phenomena from the modern writers on the subject, we find that they may be divided or classified into several states or stages, which are not always found to occur in the same individual—sometimes one only appearing, sometimes another, and sometimes two or three in succession.

The first of these is the mesmeric sleep, passing, in many individuals, into sleep-walking, or somnambulism. Indeed, the latter may almost be described as a distinct stage. It is, however, very closely connected with simple mesmeric sleep, and in many cases is the first stage observed.

In the next stage, the subject, still asleep, and commonly with shut eyes, can readily communicate with his mesmerizer, and often exhibits attachment to him, often also sympathy with him, with or without contact, so as only to hear, or, at least, to notice his voice, etc. In this stage, if not in the former, the subject frequently exhibits insensibility to pain (though this is far from uniform), and community of taste. He sometimes appears to possess introvision, and an instinctive knowledge of his own bodily state. There is often observed an uncommon acuteness of some of the senses.

In the third stage, the subject possesses all or most of the powers previously noticed, in a far higher degree, and seems to have acquired new senses. Clairvoyance, in some of its forms, is said to appear. He can, perhaps, read a closed letter, or tell the hour by a watch at the back of his head, or tell what is going on in the next room, or the next house, or next street, or even farther off still. He also, we are told, predicts accurately the course of his own disease, and sometimes exhibits a like power with reference to the diseases of others.

As a general rule, in simple somnambulism, and in all the higher stages, the consciousness of the patient is divided from that of his ordinary state, in which he has no recollection of his mesmeric proceedings. But, as in all the other phenomena, so in this, there is great variety. Some remember part, others the whole, of what occurs in their sleep. It may here be mentioned generally, but it will be more particularly alluded to hereafter, that the variety in mesmeric phenomena is so great, that not only no two cases are likely

to yield exactly the same result, but even the same case, at different times, may exhibit very different phenomena.

Now, there is nothing in such statements which ought to deprive them of the benefit of the ordinary rules of scientific investigation. They are surely such as can be easily proved, if true, or disproved, if false, by experimental investigation; and this would appear to be the only legitimate method of meeting them. Let us see, then, how far the opponents of Mesmerism have or have not adopted it.

1. The first objection commonly urged is, that the higher phenomena, such as those of clairvoyance, are impossible or incredible, and must therefore be rejected; and as a corollary from this proposition, it is also maintained, that those who profess to have observed such phenomena, are either themselves impostors, or the dupes of fraud on the part of the subjects of their observations.

To any one accustomed to scientific research, it is at once obvious that such a mode of getting rid of the subject, for it cannot be called argument, is altogether unscientific and inadmissible. It assumes, first, that we know the utmost limits of the natural powers of man, and are able to declare, *A PRIORI*, what is possible and what is not. Such power, it is needless to say, we do not possess; and in point of fact, our real knowledge of the natural powers bears the same ratio to that which is unknown, as the science of Newton, in his own opinion, did to the vast mass of undiscovered truth, when he compared himself to a child picking up pebbles on the sea-shore. Secondly, It assumes the right to deny the *BONA FIDES* or capacity of the observer, merely because we cannot account for the facts to which he testifies. Now, in reference to this point, it may be safely laid down that the *BONA FIDES* of an observer is on no account to be denied, unless his previous conduct have given good grounds for doing so. And it is more especially our duty to give every observer credit for truth and honesty, when the facts he states are such as may easily be ascertained by experiment. To act otherwise is to infringe, in the most direct and inexcusable manner, the divine precept, "Whatsoever ye would that men should do unto you, do ye even so unto them." The generation now passing away had a striking lesson on this

duty in the history of Bruce of Kinnaird, the Abyssinian traveler, whose statements of facts, to which he was eyewitness, were contemptuously classed with travelers' tales, although the truth and candor of Bruce were previously unimpeached, merely because these statements were startling, and the authorities of the day chose to consider the facts impossible. The lapse of time, however, has shown that Bruce had strictly adhered to truth in all his statements, which have been fully confirmed, even where apparently most improbable, by subsequent travelers in Abyssinia. No one now hesitates to admit that those who accused Bruce of *MALA FIDES* were alike deficient in justice and in logic; and the same judgment is impending over those who have accused the writers on Mesmerism of fraud, merely because the facts they described could not be explained or accounted for.

Here it may be observed, that there is a remarkable tendency in the human mind to be satisfied with any thing which wears the aspect of an explanation of natural truth, even where, in reality, nothing is explained and nothing accounted for. It is easy to find many persons who attach great importance to Newton's law of gravitation, not because it enables us to classify the facts, to remember the law according to which they occur, and with the aid of that law to predict new facts occurring under it, but as *ACCOUNTING* for the phenomena, as *EXPLAINING WHY* bodies attract each other. It is not, then, very wonderful, that those who suppose that they are accounting for gravitation, when they are merely stating the facts in a connected form, or, in other words, the law according to which, and not the cause in consequence of which they take place—it is not, we say, wonderful that such persons should ask for an explanation of the facts of Mesmerism previous to admitting them; and, finding them quite unaccountable on all ordinary principles, should reject them; little aware that were we to reject all that we cannot explain or account for, little, or rather nothing, would be left. Who can explain life, or thought, or sensation, or the various attractions through the play of which our universe is sustained? Who can tell why the needle points to the pole, or deviates from it when a small magnet is approached, although we can measure the amount of deviation? Who can tell how a copper wire,



in conducting a current of electricity or of heat, becomes a magnet, although the magnetic force of the current be measurable? Who can explain why or how an acid and an alkali neutralize each other, although we can measure the force of their attraction? Let us look where we may, we shall find the ultimate causes of all natural phenomena quite unknown to us. But we do not, on that account, deny the facts of life, sensation, and thought—of astronomy, magnetism, electricity, and chemical action. Still less do we accuse the observers of these facts of *MALA FIDES*, because we cannot explain them. “True,” it may be said, “but these facts are obvious to our senses, and we cannot deny what we see.” But it must not be forgotten that these very facts, or many of them—for example, the great facts of astronomy—WERE ACTUALLY long denied, notwithstanding their obviousness. And, on the other hand, the observers of Mesmerism appeal to nature, and assert that if you look there, you will find it impossible to deny or doubt the facts of Mesmerism, just as you find it impossible to deny the facts of electro-magnetism, strange and unaccountable as they are. Now we maintain that such an appeal cannot be disposed of by sheer denial of the facts, or in any other way than by an appeal to observation; which, if the facts be only alleged, and not true facts, must be a very short and easy operation.

In reference to the first objection, then, it must be admitted, that it is no valid answer to statements of facts in Mesmerism, to say that the higher phenomena are impossible; and also, that the difficulty or impossibility of accounting for the facts does not entitle us, any more than it did the calumniators of Bruce, to accuse of *MALA FIDES* observers of character previously unimpeached.

2. The next objection we shall notice is that drawn from the supposed consequences of admitting the mesmeric phenomena. It is said that the Creator never could have intended to confer on man such powers as appear to be exhibited in certain mesmeric cases—as, for example, the power of predicting future events. It is also said, that the unbounded influence acquired by the mesmerizer over his patient is most dangerous, and capable of being perverted to the worst purposes.

In considering objections of this class, the first thing that strikes us is, that the existence of any real fear of bad consequences implies belief of the facts themselves. We cannot fear the perversion of that the existence of which we deny. If, therefore, Mesmerism be altogether the result of fraud and imposture, these evil consequences must be imaginary. If, on the other hand, the facts be admitted, as they must be by those who sincerely dread such consequences, then we maintain that, in all questions of natural fact, we are entitled only to ask, "Is this true?" "Does it exist?" and not, "What are its consequences?" If the alleged fact be true, it must be the work of God; for human nature can possess no powers which are not derived from Him. This being the case, the dread of evil consequences argues an imperfect acquaintance with His works, and should rather act as an additional inducement to us to investigate these obscure phenomena, than lead us to neglect the additional knowledge to be obtained by such researches.

With regard to the influence of the mesmerizer over his patient, in some cases it appears to be great, in others limited, in others, again, it is absent. The abuse of this power can only be dreaded by those who admit its existence, and there is no reason to suppose that it is more liable to abuse than other powers or agencies, none of which are exempt from the liability to abuse. The best security, in all such cases, is not ignorance, but knowledge.

In reference, therefore, to this second class of objections, it is plain that, where entertained, they can only be so by those who admit the facts; and it is equally obvious, that to reason against a natural fact, from its supposed evil consequences, is contrary to all the rules of scientific research, which, in all cases where facts appear to lead to evil results, prescribe, not a denial or oblivion of the facts, but a more diligent study of them, in the conviction that no natural truth, when fully understood, can be otherwise than beneficial to mankind.

3. Another class of objections, on which great stress is laid, is that drawn from failures in mesmeric experiments.

Here it must be observed, in the first place, that one well-attested instance of success will overbalance, as evidence, hundreds or even thousands of failures, which, in that case

can only prove, at the utmost, that we are not sufficiently familiar with the conditions of success. To borrow an illustration from another department of science—when a chemist of known accuracy announces the discovery of a new and remarkable compound, and describes a process for its production, and when other chemists, on first repeating the process, fail to obtain the desired result, they do not conclude that the statement is false, but simply, either that the necessary conditions have not been described with sufficient minuteness, or else that they have neglected some one or more of these conditions; and they repeat the experiment till it succeeds, or apply to the discoverer for more detailed instructions. This happens every day in chemistry; but what would be thought of a chemist who should refuse to try the experiment, and yet consider himself justified in denying the truth of the discovery, and accusing his brother chemist of imposture, because it appeared to him impossible, or because he could not account for it?

But, in the second place, when we consider the special case of Mesmerism, we perceive many reasons why failure in obtaining certain results is a circumstance of even less weight and importance than in such a science as chemistry. In mesmeric experiments, the conditions of success are much less known. From the very nature of the subject of experiment, namely, the living nervous system, it is far more exposed to variations arising from causes apparently slight, but in reality only imperfectly studied, than the dead subjects of chemical research. There are many experiments, even in chemistry, in which a difference of a few degrees in temperature will cause utter failure. How much more probable is it, then, that the nervous system should be affected by a great variety of causes of uncertainty and failure! Every one knows, in his own experience, that the mental powers, and indeed the bodily powers also, are not at all times alike. The poet is not always able to rhyme, nor the musician to compose, with equal success; and the slightest variations in the state of health, especially in nervous temperaments, produce corresponding variations of mood, or humor, as it is called. Why, then, should it appear strange that the powers possessed by individuals in the mesmeric state should vary at different

times? Ought we not rather to expect that which, according to all writers on Mesmerism, actually occurs—namely, that the mesmerized person shall at one time possess powers which at another time are absent? It would indeed be strange if mesmeric phenomena alone exhibited a uniformity never seen in the other phenomena of the nervous system.

But, further, there are other causes of failure, to which mesmeric experiments are peculiarly liable. The first of these is a consequence of ignorance, on the part of the experimenter, of the facts just alluded to, and of a confidence in the results, which, if not justified to the full extent by a careful study of the subject, is, at least, a strong indication of the *BONA FIDES* of the observer. We allude here to the boldness with which those who have once obtained certain results in a given case, undertake, even in public, to exhibit and demonstrate the same results, and thus to convince sceptics. Now, these bold exhibitors, in many cases, not only do not practically attend to the considerations above stated as rendering occasional failure possible, but, also, neglect other considerations which render it even probable. Of these, the most important are, the exhaustion of the subject, the arbitrary alteration of the conditions of experiment, and the effect, on the mesmerized subject, of the proximity of many persons, or indeed of persons other than the mesmerizer, and especially of the sceptical and uncandid.

It frequently happens, at exhibitions of mesmeric phenomena, whether public or private, that certain experiments, requiring the full powers of the individual, are tried when he is already exhausted by a long series of efforts, and when, therefore, his answers are more or less unsatisfactory. This cause of failure is obvious, and easily avoided; but there is another which is less so; we mean the arbitrary alteration of the conditions of experiments. For instance, we shall suppose that an individual is said, when mesmerized, to acquire the power of *READING* a closed letter, or the page of a book covered with twenty other pages, or the dial-plate of a watch laid on the epigastrium, or held near the occiput. The experiment is tried, and succeeds; but a sceptic starts up and declares that he, for one, is determined not to be taken in; that, in the experiment just performed, collusion and imposture were possi-

BLE ; and, if he does not actually assert them to have been employed, he gives it to be understood pretty plainly that such is his opinion. He will not, he says, be satisfied, unless the clairvoyant shall read a letter inclosed in several folds of paper, and shut up within a box, perhaps in the inner one of two boxes ; or else he insists that the eyes of the clairvoyant shall be closed with strips of adhesive plaster, and bandaged in half a dozen towels and handkerchiefs, with the aid of pledgets of cotton wool. Without this, he will not believe. The mesmerizer and his clairvoyant, without having ever tried the proposed method, at once agree to his preposterous demand (a striking proof, by the way, of *BONA FIDES* on their part) ; and the experiment now fails, as was indeed most probable. Now, this we call arbitrary alteration of the conditions of experiment, altogether unwarranted on the part both of sceptic and exhibitor. On what ground does the latter undertake to do what he has never yet done ? By what right does the former dictate to Nature conditions, without which he will not believe ? The truth is, that both are misled by theory. The exhibitor unconsciously flatters himself that he can explain how his patient sees with his eyes shut, and does not mind an additional obstacle or two ; while the sceptic takes a most erroneous view of the province of the experimenter in scientific research, whose duty it is to observe and record the phenomena presented to his view, whether by simple observation or by experiment, but who has no right to dictate to Nature the conditions under which she must exhibit a fact. He is at perfect liberty to try any form of experiment he chooses ; but he is, at the same time, bound, above all, to study the fact, AS PRESENTED TO HIM BY NATURE. To return to our case—he may try as many experiments as he pleases, and on any conditions, however arbitrary and absurd, that he chooses to impose ; but he is not entitled to say that his belief, or that of others, depends, or ought to depend, on the fulfilment of these conditions ; for he is bound to study the case under the natural conditions, that is, those under which the fact was first observed. All writers on Mesmerism agree in this, that a patient may exhibit clairvoyance when his eyes are shut, and the object to be seen or perceived is behind his head ; but it is nowhere stated that he is certain to

succeed if, in addition, his eyes be glued up and loaded with bandages, in the way recorded by some profound sceptics. Indeed, were such a statement to be made, we should instinctively reject it as absurd. Is it conceivable that the horrid discomfort of such a blinding operation should have any other than a most injurious effect on the powers of the patient? That in some such cases the experiments succeed, in spite of the obstacles thus unwarrantably raised against them, only shows that some patients are less easily annoyed or disturbed than others. We must never forget that it is quite possible that ANY change in the conditions MAY cause failure, and that, at all events, to promise, or to demand, BEFORE TRYING THE EXPERIMENT, that it shall succeed, the conditions being altered, is as rash and unjustifiable on the one part, as it is illogical and unreasonable on the other. At all events, it is plain that the exhibitor is to blame who tries such a variation of the original experiment for the first time in public, in perfect confidence of success; and that very often, were he first to try it in private, he would find himself compelled to say that such varied experiment would not succeed. Failures of this kind, therefore, only prove the rash confidence of the exhibitor, and, while they speak in favor of his *BONA FIDES*, they argue a very limited acquaintance (such as we fear is too common among exhibitors of Mesmerism) with the phenomena which he professes to demonstrate.

There is entire unanimity among the chief authorities on Mesmerism in regard to this—that the proximity of other persons besides the mesmerizer, produces in many patients a degree of disturbance highly unfavorable to the successful exhibition of the higher powers; and that this is particularly observed when the patient is in proximity to a person in a sceptical, above all, in an uncandid frame of mind; that, for example, the approach of a person who is convinced that the patient is guilty of fraud, and has probably expressed this opinion to the company, will often deprive a clairvoyant of his whole power. Nay, it is stated by all writers on the subject, that the patient will often detect this state of mind in those with whom he is placed “*en rapport*,” although it has been concealed from all. Deleuze mentions a very striking instance of this, where the sceptic, finding that his secret thoughts,



thus read, acted as an impediment to the further exercise of clairvoyance, became convinced that imposture could not account for this, and, investigating the matter for himself, became a distinguished mesmerist. But it is sufficient here to state, that such is the uniform testimony of all the authors on the subject. Now, this being the case, it is plain that a very large proportion of public failures must admit of being thus explained; or, at least, that those who state the fact as we have here given it, would be entitled, on their own principles, to predict numerous cases of failure under such circumstances. Such failures, therefore, if they prove any thing at all, prove the truth of Mesmerism, by demonstrating one of the most curious mesmeric phenomena, namely, the alleged power of penetrating the thoughts and sentiments of others—or, as it may be called, occult mental sympathy, and the extreme sensitiveness of the mesmerized patients. Of course we understand that the failure shall be distinctly traced to this cause, as in the case mentioned by Deleuze.

These considerations are not to be regarded as *EX POST FACTO* attempts to explain failures. We offer them, on the contrary, as views deduced from the writings of the best authorities on Mesmerism, which would lead us, *A PRIORI*, to contemplate the probability of numerous failures in experiments performed under the circumstances we have mentioned; and which, so far from having been made use of by exhibitors generally to account for occasional failures, have been altogether neglected by them—a neglect which has led to by far the greater part of the public failures in Mesmerism.

In reference, then, to the argument against the truth of Mesmerism, derived from the occasional failure of experiments performed in public, our remarks may be briefly summed up as follows:

Like all other phenomena of the nervous system, the phenomena of Mesmerism are subject to frequent and great variations.

The conditions of success being much less known than in other experimental sciences, mesmeric experiments are even more liable to failure than others.

The exhibitors of mesmeric phenomena, ignorant of this, or not attending to it, expose themselves to failure by un-

dertaking to perform exactly what they have performed before.

The patient may vary in his power on different days, or from slight changes in his health, or from exhaustion in previous experiments; and in all these ways failure may take place.

Again, the sceptic often unwarrantably dictates new conditions of experiment, which are rashly accepted; and failure is the result.

Lastly, the proximity of persons in a sceptical, above all, of persons in an uncandid, prejudiced state of mind, has a powerful and most unfavorable influence on many susceptible subjects; and many failures are thus accounted for.

But even supposing that failures should occur not admitting of explanation in any of the above ways, still it remains indisputable that the evidence derived from one successful experiment, carefully observed and accurately reported, far outweighs that deduced from a hundred or a thousand failures, which can at most prove that we cannot do what others have done.

It is hardly necessary here to do more than allude to certain cases of alleged failure, in which the only cause of failure has been the extravagant and unreasonable expectations of the experimenter or of the sceptic. A sceptic, having read the account of the mesmeric phenomena exhibited in a case, and having, perhaps, soon after, the opportunity of seeing another case, quite new, proceeds to examine it, and instead of studying the case as presented by Nature, he insists that the patient shall either do all that the other patient was said to do, or submit to be denounced as an impostor. Without some experience of the style of reasoning prevalent among what may be called lay-sceptics (that is, sceptics without scientific training), it is difficult to imagine the extent to which bad logic can be pushed. Yet nothing is so common as to hear a person ask, as a test of truth, on being told that another has been thrown into the mesmeric sleep, "Is he clairvoyant?" and nothing is so difficult as to convince such a person that a patient may experience the mesmeric sleep, without possessing a trace of clairvoyance, or even of insensibility to pain. But we can hardly be surprised that lay-sceptics should reason

thus, when we find a medical man asking of a patient who was said to exhibit insensibility to pain, or some other mesmerism phenomenon, "Does he read with his belly?"—as if any writer on Mesmerism had ever stated, or even hinted, that each patient must exhibit the higher phenomena, or all the phenomena; or, as if the truth of one depended on the existence of the other.

We shall not dwell on the singular objection to Mesmerism, namely, that it proceeds from the arch-fiend, and is to be shunned or denounced as a snare of Satan. This objection, like those which refer to consequences, presupposes the truth of the facts.

Having thus briefly gone over the common objections to Mesmerism, it plainly appears that they are, for the most part, founded on ignorance of the laws of scientific evidence; and that, if the evidence produced in favor of the alleged facts of Mesmerism is to be treated as scientific testimony on questions of fact generally and very properly is, then the essential points in the statements of the chief writers on the subject must be admitted.

We have already established a parallel between Phrenology and Mesmerism in regard to their first reception; and it appears to us that this parallel may be extended somewhat further, so as to embrace the present state and widely-extended reception of both.

With regard to Phrenology, the *Edinburgh Review* no longer ventures the amazing dictum, "that there is not the smallest reason for supposing that the mind ever operates through the agency of any material organs," except those of the external senses and voluntary motion. Not only is the brain allowed to have a connection with the mind, but it may be looked on as a generally received truth, that the forehead is the seat of the intellectual powers, so that no man, with a view to intellectual superiority, would desire for his son a low and contracted forehead. It is even very generally admitted that the coronal region is connected with the higher moral sentiments, and that the basilar and posterior regions bear a similar relation to the animal propensities. It is very common to hear the great regions of the head admitted, while the detail of each (that is, the existence of the organs of the

special mental faculties) is denied or doubted. The merits of Gall, as an anatomist, are universally admitted; nay, even his classification of the mental faculties is extensively acknowledged as superior to those of his predecessors. But it is supposed, somehow, that he first of all constructed his system of faculties, and then deduced the special organology from the great regions above mentioned, very much according to his own fancy. Nothing can be more remote from the truth. Gall first noticed the organ of Language, seated in the anterior lobe; next, perhaps, that of Locality, also seated there; then that of Love of Offspring, seated in the occiput; and so on—for years, without even the idea of the three great regions, till the greater number or the whole of his faculties and their organs being fixed, he then noticed that the organs of the intellectual faculties were all in the anterior lobe, those of the moral sentiments in the coronal region, and those of the animal propensities in the basilar and posterior parts of the brain. Those, therefore, who admit the three great classes of faculties, with their corresponding regions (which they almost instinctively feel to be true), are not aware that this admission implies that of the very details to which they object, inasmuch as the former have been established only through the latter. Instead of, as they suppose, assuming a class and locality of moral feelings, and mapping this out into organs of Benevolence, Veneration, etc., Gall did the very reverse; for he discovered, one by one, the organs of these and other sentiments, and found at length that they were allied in nature as well as in the position of the organs, and thus formed one of the great classes with its corresponding region of the brain. The details, then, which are denied, proved or established the general fact which is admitted.

In regard to Mesmerism, in like manner, a great change has taken place. Formerly the whole subject was denounced as a deliberate imposture. Now, the charge of imposture, when made, is confined to some of what are called the higher phenomena, and a general impression exists that "THERE IS SOMETHING IN MESMERISM."

On examining a little more closely, we find that one mesmeric phenomenon, namely, the existence of a peculiar state, called the mesmeric state, the mesmeric sleep, the mesmeric

coma, somnambulism, sleep-waking, etc., is now almost universally admitted. Indeed, it is difficult to conceive how it could ever have been denied, considering the abundant testimony of all ages to its occurrence as a spontaneous condition. We are prepared to maintain that the testimony in favor of its production by artificial means, such as mesmeric passes, is quite equal to that which establishes the fact of spontaneous somnambulism; nay, that it is absolutely irresistible. The admission of this state as produced by Mesmerism, or even as a spontaneous phenomenon, we look upon as the turning point of the controversy, as important to Mesmerism as the admission of the three great classes of faculties and the three regions of the brain is to Phrenology. Before, however, making some observations on the bearings of this point, we may remark that another mesmeric phenomenon either is now or very soon must be admitted as universally as the existence of somnambulism. We refer to the production of insensibility to pain by Mesmerism.

It is not going too far to say, that no natural fact is more satisfactorily established than this. Even the first case recorded in England of the performance of a capital surgical operation without pain on a man in the mesmeric state (the case of the man Wombell, reported by Messrs. Ward and Topham), is supported by an amount of testimony, such as, in any other case, would have commanded instant belief, and such as, in every unprejudiced mind, will produce entire conviction of the truth of the statement made by the patient and the gentlemen who mesmerized him and performed the operation. The whole account of the case bears the obvious impress of truth; and the manner in which it was received by the London Medical and Chirurgical Society is a very marked instance of the prevalence of those fallacious notions of what constitutes evidence in such cases, to which we have already referred, and will long remain a lasting stigma on that body.

But, so far is that case from being a solitary one, that hundreds of similar cases have since been reported, and among these, upward of one hundred painless operations performed by one gentleman, Dr. Esdaile, in the presence of numerous officials of the East India Company, and others, in the company's hospital at Hoogly. We look on the mass of evidence

adduced to show the production of insensibility to pain by Mesmerism, by Dr. Esdaile, in his *MESMERISM IN INDIA*,\* as many times more than sufficient to establish that point, had no other evidence existed; but there exists even a larger amount of unimpeachable testimony to the same effect in the cases collected by Dr. Elliotson, and published in the *Zoist*, on the authority of the operators.

When we look at this testimony, we are at a loss even to imagine in what way it can be evaded. We cannot doubt that the same amount and quality of evidence would prove entirely satisfactory, on any other subject, to the opponents of Mesmerism; and we are therefore compelled to believe that the feelings, in this instance, are so warped by prejudice as not to recognize the presence of convincing evidence. Indeed, we have recently had a complete demonstration that the difficulty lies not in the absence of evidence in favor of the fact, but in the state of mind of the recipient. We allude to the discovery that insensibility to pain may be produced by inhaling the vapor of ether.

When this fact was first announced, it came to us on the authority of two or three respectable American surgeons, unknown, however, even by name, except to a very few private friends in this country. The number of cases was very small, and the facts of these cases were described, as nearly as possible, in the very same words as the painless mesmeric operations. Yet, up to this time, there has not appeared a doubt as to the truth of the facts. They have been, if not at once considered as established, at once received, as alleged facts ought to be, respectfully; they have been repeated, and, being true, of course confirmed. Above all, no one has ventured to say that the American surgeons or their patients were impostors. In short, this discovery has been received as it ought to have been.

How different was the reception of Mr. Ward's case, above alluded to! in which the patient was publicly accused of deliberate imposture, because he declared he felt no pain. It was held to be a proof of fraud, that he said he heard "a sort of crunching" when the bone of his leg was sawn through,

\* For sale by Fowlers & Wells, New York. Price 75 cents.



while he felt no pain in it; but precisely analogous statements are every day made by those rendered insensible to pain by ether, and are not supposed to prove the existence of fraud.

The two cases are absolutely parallel; except that during the first fortnight of the ether discovery, perhaps much later, the balance of testimony, both in point of amount and of quality, was vastly in favor of the truth of the mesmeric method of causing insensibility to pain. And yet, while the power of the ether was at once admitted, not only was that of Mesmerism denied, but the patient and operators were, and by some still are, publicly accused of fraud and imposture. It is plain that, in the latter case, some very strong prejudice blinded the mental vision to the force of the testimony which was absolutely, in point of cogency, the same as that which in the former case produced instant conviction. We rather think that many imagine that they can understand, account for, or explain, the action of the ether, which is a tangible material agent, whereas the action of Mesmerism, being of an intangible or spiritual nature, appears to them incapable of being explained; therefore, the alleged result is incredible, impossible, forged! It is hardly necessary here to add, that we can as little explain the mode of action of ether as we can that of mesmeric passes.

As little is it necessary here to point out that this discovery of the power of ether is destined to clear away an enormous mass of prejudice still existing on the subject of Mesmerism. When people are accustomed to believe (and already hardly any one doubts this) that insensibility to pain can be caused by artificial means, they will easily discover that there may be various modes of doing this; and as soon as they try the experiment, they will find that one of these is the so-called mesmeric process. They will also find that passes are far from being the only means of producing the mesmeric state. All this will take place before long; and people will ask themselves with wonder, how they were ever able to shut their eyes to the evidence laid before them of the power of Mesmerism in producing insensibility to pain; and, above all, how they could so far forget the dignity of scientific investigation as to accuse medical gentlemen of the highest honor,

and patients whose characters had been till then unimpeached, of conspiring to deceive the world by such stupid, unmeaning frauds ; frauds, moreover, which must infallibly have been exposed in a very short time.

Let us now consider for a little the bearing on the whole controversy of what we have just stated ; namely, that the existence of the mesmeric sleep as the result of certain processes is recognized ; and that the artificial production of insensibility to pain, in like manner, is, or presently will be, generally admitted.

The former of these is an immense step gained. It is but a few years, or rather months, since even the very existence of the mesmeric sleep was flatly denied, and those who, having seen it, professed their belief in it, were designated as either duping or duped, either rogues or fools. But now, most persons who have thought on the subject at all, are ready to admit the sleep, even while they deny most vigorously the existence of clairvoyance. In regard to the sleep, they seem to have a notion that they get rid of the matter by ascribing it to the imagination. "No doubt," they will say, "the mesmeric sleep exists, but it is entirely caused by the imagination." Be it so ; and let it be granted that those who use this phrase mean merely this, that the body is ultimately affected so as to cause sleep, in consequence of a previous affection of the mind reacting on the body through the brain. The questions still recur, Is this peculiar state producible by artificial means ? And what is the state ? Surely if the imagination, in what way soever, can give rise to the phenomena of somnambulism, it is time to study the imagination, and to trace the laws and conditions of its action, of which, on this supposition, little or nothing is yet known. And surely it is equally plain, that to ascribe these phenomena to the imagination, if the phenomena be true, is not to explain, nor even to simplify them, but only to add another link to the chain of causes which have been supposed to give rise to them. There is, in many minds, a vague notion, that to ascribe any thing to IMAGINATION, renders it IMAGINARY, or rather annihilates it ; whereas if a phenomenon, such as the mesmeric sleep, be true, it is not the less a substantial fact because it has been brought on through or by the imagina-

tion, that is, in consequence of a mental impression, as there is no doubt it can be.

The only real question, then, here is, that of the reality of the phenomenon of the mesmeric sleep. We cannot on any theory yet proposed explain its nature or origin, but we can convince ourselves of its existence. And here it may be confidently stated, that the recorded testimony to the fact is, in precision, in fullness, in consistency, and in the trustworthiness of the witnesses, equal, if not superior, to any collection of testimony bearing on any point in natural science which can be pointed out. Accordingly, in spite of prejudice, and in spite of the prevailing fallacy which leads men to reject that which appears incredible or impossible, or which cannot be explained or accounted for, for no other reason but that it appears incredible or incomprehensible, the conviction is generally spread among well-informed people, that the fact of the mesmeric sleep is established, while even the most sceptical are heard to say that there is "something in it."

But it is impossible logically to admit this fundamental fact, without at the same time admitting a great deal more. If the operator, and the patient whom he throws into the mesmeric sleep, be in regard to that phenomenon trustworthy and accurate, we cannot suppose that they should become all at once dishonest in regard to the subsequent stages of somnambulism. Again, if there be one fact connected with the sleep more firmly established than another, it is that of the divided or double consciousness, or the circumstance that the somnambulist, when awake, does not, as a general rule, recollect what has occurred during his sleep, although he may recollect it in his next sleep. To this rule there are exceptions; and this fact is of itself a strong proof of *BONA FIDES* in the patients. Were they impostors, they would all exhibit what is believed to be an essential mark of the true mesmeric sleep. Now if this divided consciousness exist, a lesson in fraud given in the waking state would be of no avail in the sleep. If it be said that the fraud is devised and carried out in the sleep, this admits the sleep as a fact, and we come again to the altogether inadmissible theory that all the patients and their mesmerists who have told the truth as to the first stage of mesmeric sleep, at once rush into deliberate false-

hood in regard to the more advanced stages. We have seen many who admit the entire truth of the first, which they consider the least marvelous stage of the mesmeric condition, yet who absolutely reject the higher phenomena. Now it does appear to us very wonderful indeed, that such persons, professing a wise incredulity, should either admit the existence of so astounding a mass of deceit appearing in the same forms in all parts of the civilized world, on the part of persons who give a true account of the earlier phenomena; or should not perceive that this is implied in their utter rejection, as the produce of fraud, of the higher, while they admit, as facts, the lower mesmeric phenomena. Least of all, are those who adopt so amazing an hypothesis as that of the existence of fraud in all mesmeric cases, entitled to sneer at Mesmerism as a theory.

Having felt from the first that the testimony in favor of the facts of Mesmerism was of such a nature as to entitle the subject to the most earnest and careful investigation on the part of all who feel an interest in natural truth, we have availed ourselves of such opportunities as have been presented to us of studying the phenomena. This we have done in private, because, from the very nature of the thing, it is very ill adapted for public exhibition; and we have, in several instances, seen and produced the ordinary mesmeric sleep, entire insensibility to pain, divided consciousness, and some others of the more common phenomena. It is altogether unnecessary here to specify cases or details, inasmuch as, with peculiarities in each case, the general results are precisely such as have been described with perfect truth in hundreds of published cases. Most of our observations were made on individuals who had never been exhibited, even in a private party, and some of them had never been mesmerized before. We cannot possibly be more certain of the entire absence of willful deceit or fraud in any persons or circumstances whatever, than in these cases; and we are bound to say, that, as far as they go, they entirely confirm the statements of all the best writers on Mesmerism.

But our opportunities have been but very limited, and we have not yet met with the higher phenomena, more especially clairvoyance. Still, it would be contrary to all sound princi-

ples of reasoning were we, on that account, to deny the existence of clairvoyance, seeing that it rests on the testimony of the very same persons whose statements, in regard to the lower phenomena, we have found to be not only true, but in a high degree accurate and minute. And it would be even far worse, were we, because of our own want of success in the attempts to elicit those higher phenomena, to accuse of imposture those same observers whose testimony we have, in other points, found to be so trustworthy. Belief is involuntary, and no one can insist on our believing the existence of clairvoyance when we have not seen it. But not to believe or feel satisfied of the fact is a very different thing from accusing of falsehood those who say they have seen it, and whom we have no reason to doubt. On the other hand, it is not always necessary to see a fact in order to believe it. There are many facts which we believe on testimony, without having ever seen them; and it cannot surely be said that no amount of testimony would be sufficient to convince us of the existence of clairvoyance. There are many people, nay, there are probably some medical men, who have never seen a case of ague; yet none of these persons doubt that an ague can be cured by means of quinine. Why is this? Simply because the testimony is sufficient. It cannot be said that the power of quinine to cure ague is more easily explained than clairvoyance; for those who have most studied the subject, best know how far we are from any thing approaching to a satisfactory theory of the action of quinine, or indeed of any other remedy. It is well remarked by a modern writer on physiology, that, in truth, the formation of a crystal is to the full as wonderful as the production of an organized being; and we may say, that our ordinary nightly sleep is not less wonderful than clairvoyance, as far as concerns our ability to explain these phenomena.

While, therefore, we have not yet been able to see any case in which the highest mesmeric phenomena have occurred, we find it utterly impossible to resist the mass of recorded testimony, both of the dead and of the living, on this point. We doubt not that there may have been exaggeration; that the phenomena may frequently have been ill observed; and that many fallacious theories may have been founded on them:

but making all possible allowances, there remains an amount of absolutely unimpeachable testimony, more than sufficient, if fairly weighed, to prove that, in the higher stages of the mesmeric sleep, the patient frequently acquires powers which, in his waking state, he does not possess. Whether these powers be acquired merely through an exaltation of the delicacy and acuteness of the ordinary senses; or whether, as some suppose, a new sense or senses be developed; or what, finally, may be the explanation or the true theory of these facts, we cannot say; but the evidence of the facts we hold to be irresistible, and to be such as, in any question where prejudice was not excited, would never for an instant be doubted. It is not within the limits of possibility, practically, that so many observers, during the last sixty or seventy years, in so many different places, and under such various circumstances, should, in regard to clairvoyance, agree on all essential points, unless the facts were facts; and besides, the very idea of deceit on the part of all these observers is at once felt to be preposterous.

The testimony of modern observers on this subject is greatly strengthened by the existence of numerous recorded cases of spontaneous somnambulism, exhibiting powers far beyond the ordinary reach of the senses; of double or alternate consciousness; and even of insensibility to pain. And although there be little recorded exactly corresponding to mesmeric clairvoyance, yet the agreement of the descriptions of the recorded cases with those of mesmeric somnambulism in all the recorded phenomena, is such as to give us great confidence in the accuracy of the modern reports. There are, however, some facts recorded, which would seem to indicate that some of the higher mesmeric phenomena had been observed as spontaneously occurring, generally in cases of disease of the nervous system, such as hysteria and catalepsy, and usually ascribed to supernatural influence.

This leads us to notice the very common objection urged by those who are not so ready as some are to charge others with falsehood; namely, that the mesmeric phenomena, being observed only in "hysterical females," are, on that account, unworthy of attention.

We profess our inability to perceive the cogency of this



argument. It cannot be meant that a fact is less a fact because it occurs as a symptom of hysteria. It is probably intended to maintain, that hysterical females are so fanciful, and so uncertain, that their statements cannot be relied upon. But surely no one will maintain that it is impossible so to study an hysterical case, as to ascertain the presence or absence of certain facts or powers. Even admitting the existence, in all cases, of what probably occurs in some cases of hysteria (namely, a peculiar proneness to deceit), there are many things that can be ascertained in spite of that tendency, which is in itself a very curious phenomenon, and worthy of careful study. Indeed, if such a deceitful patient were capable of simulating the mass of recorded mesmeric phenomena, even in a small degree, this power would be quite as wonderful as clairvoyance.

But, in truth, mesmeric phenomena are just as often seen in persons not at all hysterical, as in those affected with hysteria, and nearly as often in males as in females; and if there are some cases in which a tendency to deceit appears, this has been noted and described by the writers on Mesmerism themselves, while they all agree in the statement, that a most frequent characteristic of the mesmeric state is an exalted moral sense, and the highest degree of truth and sincerity.

There is another point connected with Mesmerism which must here be noticed. We allude to its employment as a remedy. There can be no doubt that if one tenth part of the evidence which has been published, as to the remedial employment of Mesmerism, had been produced in favor of a new drug, it would long since have been tried by every practitioner. Here we see the same fallacy that has caused the difference between the reception given to the alleged facts of insensibility to pain, as produced by Mesmerism and as produced by ether. Men imagine, that where certain properties are ascribed to a drug, a tangible means of acting on the system, it is, somehow, easier to understand the result than where there is nothing material employed. There cannot be a greater fallacy; for, in the case of the drug, we only know THAT IT ACTS, but not HOW IT ACTS; and, with regard to the mesmeric process, apparently so immaterial, it not only acts through the nervous system, but its effects are capable of

being produced by other and more material means, as the contact of a magnet, or of a crystal, or of the wire through which the electric current is passing, or of the human hand, as well as by passes made at a certain distance from the body. Mr. Braid has even shown that the mesmeric sleep, and other mesmeric phenomena (excepting, however, the highest, which he has not produced), may be caused by the patient's acting on himself, either by fixing the eyes on a point, or by concentrating the thoughts on the subject.

Of course the remedial efficacy of Mesmerism is likely to be exaggerated by those who have witnessed or experienced it. But the same remark applies to all new remedies, and cannot justify us in refusing to try them. An agent which has so powerful an effect on the nervous system, ought to be made the ally of the physician; and the less understood and the more dangerous the power is, the more is it the duty of the physician to study it with care. The best precaution against its abuse is the fullest possible knowledge of it. On the whole, we must confess that medical men have been very far from attaching due weight to the evidence produced in favor of the curative powers of Mesmerism. Considering its direct and powerful influence on the nervous system, we should naturally expect to hear of its efficacy in diseases of that system; and, accordingly, we find that the alleged benefits of Mesmerism have been chiefly in cases of epilepsy, paralysis, hysteria, neuralgia, melancholia, and mania. Surely where other means have failed, as they too often do in such diseases, we are bound to try this remedy, were it merely on account of the respectable testimony by which it is recommended.

With regard to the use of Mesmerism in surgical operations, the introduction of ether, as a means of producing insensibility to pain, will very much limit its employment. There is, however, much reason to conclude that the state induced is the same in both methods; and if so, we must be prepared for the occurrence of very great varieties in the effects of the ether. It is highly probable that cases will present themselves which will not yield to ether; and some of these may yield to Mesmerism. Cases also may occur in which ether is injurious, and in which Mesmerism may be

safely employed. It is also to be expected, that a careful study of the phenomena produced by the inhalation of ether will throw much light on the mesmeric phenomena.

Having thus gone through the circumstances connected with the reception of Mesmerism, it appears that it was at first rejected, not for want of evidence, but because men's minds were so prejudiced as not to give the evidence a fair consideration; that the evidence, being exactly such as is required in all other branches of natural science, is gradually producing a general conviction of the truth of Mesmerism; that to admit the lower phenomena, and, with regard to the higher, to assume *MALA FIDES* on the part of all mesmeric observers and writers, would lead to endless difficulty and contradiction; that we are not entitled, even when the alleged fact appears to us incredible, to impute fraud to the reporter; and that, where prejudice has not been active, as in the example of the inhalation of ether, the alleged discovery has been received and treated precisely as all alleged discoveries in natural science, including those of Mesmerism, ought to be. As there is no difference between the evidence in the two cases, sufficient to justify the opposite reception they have met with, we cannot avoid the conclusion that, after some time, the evidence in favor of Mesmerism will produce its full effect, and that the subject will be studied, in all its departments, precisely as any other branch of natural science is.

W. G.

## VARIETY.

**HEADS OF DISSOLUTE FEMALES.**—J. M. (Camberwell) writes that he has observed large organs of Benevolence and Veneration in the heads of many unfortunate females perambulating the streets of London. This is very likely; but he errs in supposing that clerical teachers, legislators, and medical essayists, unanimously ascribe all cases of prostitution to "radical moral deficiencies." He thinks that the two moral organs in question "tend, when most perfectly developed, all the more certainly to further its progress, and increase the number of its victims." This seems to us too broad a statement; but, where the intellect is weak and uncultivated, the fact may sometimes be as affirmed.

**DR. ELLIOTSON ON BARON REICHENBACH'S RESEARCHES.**—In the 13th and 14th numbers of the *Zoist*, Dr. Elliotson has reviewed Dr. Gregory's Abstract of Baron Reichenbach's Researches on Magnetism, etc. He says, "My own observations in Mesmerism, made eight years ago, coincide in every point with those of the author, which are analogous. Every one of his observations I feel must be true. I formerly prosecuted the physics of Mesmerism much more than had been done by others, and I see in Baron Reichenbach's statements of his experience, in what is really another field of the same estate, pure truth. He has only to make artificial sleep-wakers and cataleptics, and thus enlarge his means of experience, in order to be enabled to strike a rock, and pour forth a mighty stream of knowledge for our benefit. To Dr. William Gregory we are deeply indebted."

**SCOTTISH CRIMINALS.**—We extract the following interesting particulars from Mr. Frederic Hill's Eleventh Report on the Prisons of Scotland, presented to Parliament last session:

Of about 18,000 prisoners received during the year ending 30th June, 1845, rather more than 2,600 were under seventeen years of age; nearly 3,700 were between seventeen and twenty-one years of age; nearly 11,000 from twenty-one to fifty; and about 1,100 above fifty.

As a general rule, the prisoners, especially the young, are found on admission to be inferior, both in mental and physical development, and in the amount of knowledge they have acquired, to people generally; owing, no doubt, to the unfavorable circumstances of their birth and early training, and to frequent exposure to cold and want, often alternating, as the age advances, with the effects of dissipation. Many who are committed and liberated while young, probably die before they reach manhood; but the same general inferiority is observable, to a greater or less extent, in prisoners of all ages. In many cases, indeed, the degree of weak-mindedness and the want of self-control approach the confines and even pass

the boundary of sanity ; and a lunatic asylum would often be a more appropriate receptacle than a prison.

The records of the state of the education of the prisoners, on their admission, as shown by their knowledge of reading and writing, agree with what might be expected under such circumstances. Of upward of 15,000 prisoners examined last year, only 1,004, or one in fifteen, were found able to read and write well ; and only 262, or one in sixty, knew more than mere reading and writing ; while upward of 3,000 could not read at all, and upward of 8,000 could not write at all.

It will be found, by a comparison of the foregoing summary with that given by Mr. Redgrave, in the criminal returns from England and Wales, that, although the general state of education in Scotland is usually considered to be superior to that of England, the criminal population of Scotland is quite as low in education as the criminal population in England and Wales ; showing clearly that, in Scotland as well as in England, it is among the uneducated that crime abounds, potent as may be other causes than the want of education in producing crime.

LECTURES ON PHRENOLOGY.—In this number we publish an Address by Dr. Andrew Combe, read by Mr. George Combe at the opening of Dr. Weir's course of forty lectures in Anderson's University, Glasgow, on the 7th of January last. There was a crowded audience of nearly four hundred persons, many who desired admittance being obliged to go away for want of room. The proceedings were opened with a speech from the President of the Institution, who explained the object of the lectureship, advised the students to avail themselves of the opportunity which it afforded of becoming acquainted with Phrenology, and introduced Mr. Combe to the audience. The delivery of the address occupied above an hour and a half, and at its close the thanks of the managers were cordially expressed to Dr. and Mr. Combe, with a request that it should be printed and circulated forthwith. Mr. Combe, in acknowledging the compliment, spoke of the gratification with which he witnessed the change of public sentiment toward Phrenology, since he first lectured in Glasgow, in 1824. Several hundred copies of the address have been circulated gratis, chiefly among the students of the University. On the 9th of January we heard Dr. Weir deliver his first lecture, and were much pleased with the clear, appropriate, and intelligent manner in which the subject was handled. In the next ten lectures he gave a scientific description of the brain and nervous system, as taught by Gall and Spurzheim ; demonstrating the minute anatomy of the organ, and tracing the connection of the nervous centres with the hemispherical convolutions and the various phrenological organs. The subject was illustrated by recent and prepared brains, wax models, and drawings. The second part of the course consisted of an account of the different organs and faculties ; and the lecturer is now going on with the practical application of the science to insanity, criminal jurisprudence, and education. The students are chiefly MEDICAL. They have been extremely regular and attentive, and apparently much interested in the subjects brought forward. At the

close of each lecture some of them have generally remained behind for a short time, examining the casts and busts, and making inquiries of the lecturer on various points connected with Phrenology; sometimes starting objections, and thus acquiring practical information of value. This CONVERSATIONAL mode of studying is fitted to make good phrenologists, and should be adopted as much as possible by all lecturers.

As Dr. Weir's future courses will be begun at the opening of the medical session in November, with the other classes, it is to be hoped that the number of his students will yearly increase. We may add that Mr. Henderson's trustees, by whom this lectureship has been endowed, have offered a prize of five guineas for the best essay, by any students attending Dr. Weir's first or second course, on the following subjects:—"1. Is any physiology of the brain, exclusive of Phrenology, generally recognized by medical authorities as satisfactorily establishing the functions of the different parts of that organ, and as practically useful in the treatment of mental diseases, the education of the young, and criminal jurisprudence? In answering this question, the competitor will be expected to specify the views of several of the leading physiologists of Europe on the functions of the different parts of the brain, and the practical application which they propose to make of their views. 2. In case the answer to the above question shall be in the negative, the competitor will be required to point out the causes of the failure, and to give his reasons for believing that they are capable or incapable of removal, so as to promise ultimate success. 3. To compare the phrenological method of investigating the functions of the different parts of the brain with the methods pursued by non-phrenological physiologists, and point out their respective merits. 4. To discuss the question, Whether the phrenological physiology of the brain is practically applicable to the treatment of mental diseases, to education, and to criminal jurisprudence? and, if the answer be in the affirmative, to state what is the cause of its superiority to other views of cerebral physiology." It is proposed that a committee of the students, named by themselves, shall read all the essays that may be given in, and select the best three; that these shall be read and discussed at a public meeting of the class; and that the prize shall be awarded to that essay which shall have the majority of votes by the students in its favor.

At the Mechanics' Institution, London, on the evenings of 11th, 18th, and 25th February, three lectures were delivered by Mr. E. J. Hytche, on the principles and evidence of Phrenology, and its application to insanity, criminal legislation, and education. These lectures were well and increasingly attended. At Belfast, from 21st January to 24th February, Mr. C. Donovan delivered, in the lecture-room of the Natural History and Philosophical Society, a course of ten lectures on Phrenology, to audiences which increased nightly till the room was quite filled. Mr. D. formed several classes for instruction in his system of manipulating, and some of these were joined by both clerical and medical gentlemen.

PRECOCITY OF INTELLECT.—Having watched the growth of the young mind a good deal, I am less and less in love with precocity, which, indeed,



is often a mere manifestation of disease—the disease of a very fine, but very weak nervous organization. Your young Rosciuses, and all your wonders of that kind, generally end in the feeblest of common-places. There is no law, however, precise and absolute in the matter. The difference of age at which men attain maturity of intellect, and even of imagination, is very striking. The tumultuous heat of youth has certainly given birth to many of the noblest things in music, painting, and poetry; but no less fine productions have sprung from the ripeness of years. Chatterton wrote all his beautiful things, exhausted all hopes of life, and saw nothing better than death at the early age of eighteen. Burns and Byron died in their thirty-seventh year, and I think the strength of their genius was over. Raphael, after filling the world with divine beauty, perished also at thirty-seven; Mozart earlier. These might have produced still greater works. On the other hand, Handel was forty-eight before he “gave the world assurance of a man.” Dryden came up to London from the provinces, dressed in Norwich druggot, somewhat above the age of thirty, and did not even then know that he could write a line of poetry. Yet what towering vigor and swinging ease all at once in “glorious John!” Milton had, indeed, written his *Comus* at twenty-six; but blind, and “fallen on evil days and evil tongues,” he was upward of fifty when he began his great work. Cowper knew not his own might till he was far beyond thirty, and his *Task* was not written till near his fiftieth year. Sir Walter Scott was also upward of thirty before he published his *Minstrelsy*, and all his greatness was yet to come.—*Aird's “Old Bachelor.”*

PHRENOLOGICAL CLASS, LONDON MECHANICS' INSTITUTION.—This class was established in 1830, for the purpose of investigating mental phenomena and disseminating the principles of Phrenology. It has always been the aim of the class to enable the student to appreciate the evidence on which the science is based, and not to give a blind credence to the dogmas of other men. It is conducted on the principle of mutual instruction, by means of lectures and discussions. It possesses a library of above seventy volumes of the best books on Phrenology, Physiology, and correlative subjects; above one hundred casts of persons celebrated for their talent and virtue, or notorious in the annals of crime. During the past quarter the following lectures have been delivered:—Mr. Glanville, on the Skull; Mr. Haswell, on the Classification and Combinations of Organs; Mr. Wyatt, on Education; Mr. Warr, on the Metaphysics of Phrenology, No. 1, Mind; Mr. A. C. Pratt, on the Education of the Animal Propensities; Mr. Angell, on Happiness; Mr. Williams, on Dreaming, phrenologically considered; Mr. Mitchell, Suggestions for forming a Phrenological Model School; Mr. A. C. Pratt, on the Education of the Moral Feelings. Mr. Hayward, Illustrations of Phrenology from Casts; Mr. J. W. Greenwood on the effects of Education in forming the Character.



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THE RELATION  
BETWEEN  
RELIGION AND SCIENCE.

BY GEORGE COMBE.

THE Reformation in the sixteenth century produced a powerful effect on the European mind. The miracles, precepts, and sublime devotional effusions of the Old and New Testaments, excited, with deep intensity, the religious sentiments of the people, introduced ardent discussions on temporal and eternal interests, and, unfortunately, led to furious and desolating wars. Freedom on earth, and salvation in heaven or perdition in hell, were the mighty topics which then engaged public attention.

In the beginning of the seventeenth century, a generation born and educated under these exciting influences, appeared upon the stage. The Reformation was then consummated, but the duty remained of acting it out in deeds. The new generation had read, in the books of the Old Testament, of a people whose king was God; whose national councils were guided by omniscience, and whose enterprises, whether in peace or war, were aided and accomplished by omnipotence employing means altogether apart from the ordinary course of nature. The New Testament presented records of a continued exercise of similar supernatural powers; and the great lesson taught in both seemed, to that generation, to be, that the power of God was exercised as a shield to protect, and an irresistible influence to lead to success and victory in secular affairs, those who believed and worshipped aright, who embraced cordially the doctrines revealed in the sacred volumes, who abjured all self-righteousness and self-reliance, and who threw themselves in perfect confidence and humility on Him as their king, protector, and avenger.

In the first half of the seventeenth century, the active members of society in England and Scotland embraced these views as principles not only of faith but of practice. With

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that profound earnestness of purpose which is inspired by great ideas, they desired to realize in deeds what they believed in their minds. As remarked by Thomas Carlyle, that generation "attempted to bring the divine law of the Bible into actual practice in men's affairs on the earth." In the contest between Cromwell and the Covenanters, we observe both parties claiming to be "the people of God;" both asserting that they were directed by divine influence, and supported by divine power, even when in hostile collision with each other. It is necessary only to read attentively Cromwell's letters and speeches, and the contemporary narratives of the Covenanters, to be satisfied of this fact. Each party ascribed its successes to the divine approval of its conduct and belief, and its calamities to displeasure with its unbelief or other sins. When Cromwell overthrew the Scotch, and "had the execution of them," in other words, the slaughter of them, for many miles in the pursuit, he called it "a sweet mercy," vouchsafed to him by God, to whom he devoutly ascribed the glory. After mentioning his victory at Dunbar, the trophies of which were about "three thousand Scotch slain," "near ten thousand prisoners," "the whole baggage and train taken," with "all their artillery, great and small," he adds, "It is easy to say, the Lord hath done this. It would do you good to see and hear our poor foot to go up and down making their boast of God."\*

The Covenanters held the same belief; but, somewhat inconsistently, while they confessed that their own religious unworthiness had brought upon them the divine displeasure, they denied to Cromwell the right to interpret the victory as a manifestation of the divine approval of his faith, principles, and practice. They endeavored to represent it as merely "an event," for which Cromwell rebukes them in the following words: "You (the men of the Covenant) say that you have not so learned Christ 'as to hang the equity of your cause upon events.' We (for our part) could wish that blindness had not been cast upon your eyes to all those marvelous dispensations which God hath lately wrought in England. But did you not solemnly appeal (to God) and pray?

\* Letter XCII., Cromwell to Lenthal, dated, "Dunbar, 4th September, 1650." (Carlyle's *Cromwell*, vol. ii., p. 41.)



Did not we do so, too? And ought not you and we to think, with fear and trembling, of the hand of the great God in this mighty and strange appearance of his, instead of slightly calling it an 'event?' Were not both your and our expectations renewed from time to time, while we waited upon God, to see which way he would manifest himself upon our appeals? And shall we, after all these our prayers, fastings, tears, expectations, and solemn appeals, call these bare events?" The Lord pity you."\*

While the people of that age entertained these views of the manner of God's agency in secular affairs, they were equally convinced of the supernatural agency of the devil, and with similar earnestness acted on this conviction. They ascribed to satanic influence on their minds their sins of unbelief, and carried their horror of it into practical effect, by burning thousands of human beings as witches, for supposed compacts with the fiend. This belief lingered among the Scotch people a century later. In February, 1743, the "Associate Presbytery" of the Secession Church passed an "Act for renewing the National Covenant;" and among other national sins which they confessed and vowed to renounce, is mentioned the "repeal of the penal statutes against witchcraft, contrary to the express laws of God, and for which a holy God may be provoked, in a way of righteous judgment, to leave those who are already ensnared to be hardened more and more, and to permit Satan to tempt and seduce others to the same wicked and dangerous snare."

These were the views of God's providence entertained by the religious men of the seventeenth century. Those who were not penetrated by a deep sentiment of religion acted then, as the same class does now, on the views of the order of nature with which their own experience and observation, aided by those of others, had supplied them. They did not trouble themselves by much inquiry whether this order was systematic or incidental, moral or irrespective of morality; but acted as their views of expediency dictated at the moment. It is with the opinions of the religious and earnest men of that century that we are now principally engaged.

\* Letter XCVII., Cromwell to "The Governor of Edinburgh Castle," dated "Edinburgh. 12th September, 1650." Lib. cit., vol. ii., p. 65.



In commenting on that period, Thomas Carlyle observes, in his own quaint style, that "the nobility and gentry of England were then a very strange body of men. The English squire of the seventeenth century clearly appears to have believed in God, not as a figure of speech, but as a very fact, very awful to the heart of the English squire." He adds, "We have wandered far away from the ideas which guided us in that century, and, indeed, which had guided us in all preceding centuries; but of which that century was the ultimate manifestation. We have wandered very far, and must endeavor to return and connect ourselves therewith again."\*

I ask, How shall we return? This is a grave question, and the answer demands a serious consideration.

The grand characteristic of the Jewish dispensation, on which chiefly these views of the divine government of the world were founded, was, that it was special and supernatural. In the seventeenth century the people possessed very little correct scientific knowledge of the elements, agencies, and laws of inorganic and organic nature. The Scriptures constituted almost the sole storehouse of deep reflection and profound emotion for the men of that age; and, in the absence of scientific knowledge, they fell naturally into the belief that, as the Scriptures were given for guides to human conduct, the same scheme of Providence, physical and moral, which had prevailed in ancient times, must still continue in force. Their conviction on this point appears to have been profound and sincere, and they attempted to act it out in deeds.

But was there no error of apprehension here? Were they not mistaken in believing that the course of Providence was the same in their day as it had been among the Jews in the times of the Scripture records? A brief consideration of their actions, and the results of them, will perhaps throw light on this topic.

They assumed that the supernatural agencies which had been manifested under the Jewish dispensation might still be evoked, and would, in some form or other, be exerted for their guidance and support, if they called for them in a proper spirit. Hence, instead of studying and conforming to the laws of nature, they resorted to fastings, humiliations,

\* Lib. cit., vol. i., pp. 3 and 87.

and prayers, as practical means not only of gaining battles and establishing political power, but of obtaining direction in all the serious affairs of life. Their THEOLOGY and their science, so far as they had any science, were in harmony. They did not recognize an established and regular order of nature as a guide to human conduct, but regarded every element of physical nature, and every faculty of the human mind, as under the administration of a special and supernatural providence. They viewed God as specially bending all processes of physical nature and powers of thought to the direct fulfilment of his will, and on that will they believed they could operate by religious faith and observances. In principle, their view of the nature of the divine administration of the world was similar to that entertained by the Greeks and Romans. Homer's priests and heroes offered supplications to the gods for direct interference in favor of their schemes, and their prayers are represented to have been occasionally granted. Cromwell, and the men of his age, with more true and exalted conceptions of God, believed in his still administering the affairs of men, not by means of a regular order of causes and effects, but by direct exercises of special power.

I should say that in this condition of mind they were inspired by pure and exalted religious emotions, but misled by great errors in theology. There is a wide difference between religion and theology. Religion consists in the devotional emotions which spring up in the mind, on contemplating an object which we have been trained to reverence. "Theology," on the other hand, is used to designate the intellectual notions which we form concerning that object. Hence the untutored Indian, the Mahomedan, and the Hindoo, when they sincerely venerate and worship the objects which they have been taught to regard as divine, are RELIGIOUS, although their "theology" may be altogether erroneous. In like manner, the English Independents and Scotch Presbyterians of the first half of the seventeenth century, were earnestly and profoundly RELIGIOUS, although their theological ideas may appear to later generations to have been at variance with nature and truth.

It was, however, under the influence of such views of the

course of Providence as they entertained, that the existing standards of the Church of England, and of the Presbyterian Church of Scotland, were framed ; and hence perhaps arose the very meagre recognition of God's providence in the course of nature, as a practical system of instruction for the guidance of human conduct, which characterizes them.

After that age, however, the human understanding, by a profounder and more exact study of nature, obtained a different view of the course of Providence in the administration of temporal affairs. Science revealed a system in which every object, animate and inanimate, appears to be endowed with peculiar qualities and agencies, which it preserves and exerts with undeviating regularity, as long as its circumstances continue unchanged ; and in which each object is adapted, with exquisite wisdom and benevolence, to the others, and all to man. In the words of the Rev. Mr. Sedgwick, science unfolded a fixed order of creation, so clear and intelligible that "we are justified in saying that, in the moral as in the physical world, God seems to govern by general laws." "I am not now," says he, "contending for the doctrine of moral necessity ; but I do affirm, that the moral government of God is by general laws, and that it is our bounden duty to study those laws, and, as far as we can, to turn them to account."\*

Here, then, an important revolution has been effected in the views of profound thinkers, in regard to the mode in which Providence administers this world. Science has banished from their minds belief in the exercise, by the Deity, in our day, of special acts of supernatural power, as a means of influencing human affairs, and it has presented a systematic order of nature, which man may study, comprehend, and follow, as a guide to his practical conduct. In point of fact, the new faith has already partially taken the place of the old. In every thing physical, men now act more on the belief that this world's administration is conducted on the principle of an established order of nature, in which objects and agencies are presented to man for his study, are to some extent placed under the control of his will, and are wisely

\* A Discourse on the Studies of the University (of Cambridge). By Adam Sedgwick, M. A., etc., 3d edition.

calculated to promote his instruction and enjoyment. Some individuals adopt the same view in regard even to moral affairs. The creed of the modern man of science is well expressed by Mr. Sedgwick in the following words: "If there be a superintending Providence, and if his will be manifested by general laws, operating both on the physical and moral world, then must a violation of these laws be a violation of his will, and be pregnant with inevitable misery. Nothing can, in the end, be expedient for man, except it be subordinate to those laws the Author of nature has thought fit to impress on his moral and physical creation." Other clergymen also embrace the same view. The Rev. Thomas Guthrie, in his late admirable pamphlet, "A Plea for Ragged Schools," observes, that "they commit a grave mistake, who forget that injury as inevitably results from flying in the face of a moral or mental, as of a physical law."

Notwithstanding, however, this partial revolution in practical belief, the theology of the British nation has been permitted to retain the forms in which it was moulded in the olden time; and what has been the consequence? The natural order of providence is very meagrely taught by the masters in theology to their followers, as of divine authority, and as regulating this world's affairs. I put the following questions in all earnestness. Are the fertility of the soil, the health of the body, the prosperity of individuals and of nations, in short, the great secular interests of mankind, now governed by special acts of supernatural power? Science answers that they are not. Are they, then, governed by any regular and comprehensible natural laws? If they are not, then is this world a theatre of anarchy, and consequently of atheism; it is a world without the practical manifestation of a God. If, on the other hand, such laws exist, as science proclaims, they must be of divine institution, and worthy of all reverence; and I ask, in the standards of what church, from the pulpits of what sect, and in the schools of what denomination of Christians, are these laws taught to either the young or old as of divine authority, and as practical guides for conduct in this world's affairs? If we do not now live under a special supernatural government of the world, but under a government by natural laws, and if these laws

are not studied, honored, and obeyed, as God's laws, are we not actually a nation without a religion in harmony with the true order of Providence, and, therefore, without a religion adapted to practical purposes?

The answer will probably be made—that this argument is rank infidelity. But, with all deference, I reply that the denial of a regular, intelligible, wisely adapted, and divinely appointed order of nature, as a guide to human conduct in this world, is downright atheism; while the acknowledgment of the existence of such an order, accompanied by the nearly universal neglect of teaching and obeying its requirements, is true, practical, baneful infidelity, disrespectful to God, and injurious to the best interests of man. Let those, therefore, who judge us, take care that they be not judged; and let those who think that they stand, take heed lest they fall. The public mind is opening to such views as I am now unfolding; and they must in future be met by other arguments than cries of “irreligion,” and appeals to bigotry and passion.

The churches which have at all recognized the order of nature, have attached to it a lower character than truly belongs to it. They have treated science and secular knowledge chiefly as objects of curiosity and sources of gain; and have given to actions intelligently founded on them, the character of prudence. So humble has been their estimate of the importance of science, that they have not systematically called in the influence of the religious sentiments to hallow, elevate, and enforce the teachings of nature. In most of their schools the elucidation of the relations of science to human conduct is omitted altogether, and catechisms of human invention usurp its place.

Society, meantime, including the Calvinistic world itself, proceeds in its secular enterprises on the basis of natural science, so far as it has been able to discover it. If practical men send a ship to sea, they endeavor to render it stanch and strong, and to place in it an expert crew and an able commander, as conditions of safety, dictated by their conviction of the order of nature in flood and storm. If they are sick, they resort to a physician to restore them to health, according to the ordinary laws of organization. If they suffer famine from wet seasons, they drain their lands; and so forth. All

these practices and observances are taught and enforced by men of science and the secular press, as measures of practical prudence; but few churches recognize the order of nature on which they are founded, as a becoming subject of religious instruction.

On the contrary, religious professors have too often made war upon science, on scientific teachers, and on the order of nature, from the days of Galileo to the present time; and many of them still adhere, as far as the reason and light of the public mind will permit them, to their old doctrine of an inherent disorder reigning in the natural world. That disorder does prevail is undeniable; but science proclaims that it is to a great extent owing to man's ignorance of his own nature, and of that of the external world, and to his neglect of their relations. Many theologians do not recognize such views, but proceed as if human affairs were, somehow or other, still, in our day, influenced by special manifestations of divine power. Mr. Plumptre is reported, in the *Times*, to have lately said, in his place in Parliament, while discussing the existing famine in Ireland through the failure of the potato crop, that "he did not mean to enter at large into the question where the guilt, which had drawn down upon them this tremendous dispensation, lay—whether that guilt lay with the people or the rulers; but he could not help expressing, what he considered to be a well-founded opinion, that the rulers of this country had deeply offended, by some acts which they had recently placed on the statute-book, and which, in his belief, were calculated to bring down the divine displeasure on the land; but into this he would not enter."

It is conjectured that this honorable gentleman had in view the grant to the Roman Catholic College of Maynooth, or the repeal of the corn-laws, as the "act" "which, in his opinion, was calculated to bring down the divine displeasure on the land." Be the acts what they may, the speech implied that, in his opinion, sin in the people, or in their rulers, had led to a special deflection of physical nature from the ordinary course, in order to produce a famine for the punishment of the offenders. In the olden time, eclipses were viewed as portentous announcements of heaven's wrath against the sins of men; but the discovery of unswerving physical laws, by



which the motions of the heavenly bodies are regulated, and in virtue of which eclipses occur, has expunged that superstition from the civilized mind. Nevertheless, the same blind love of the wonderful and mysterious, which led our ancestors to quail before a natural and normal obscuration of the sun, leads the unenlightened mind in our day to seek for the causes of agricultural blights in sin, instead of in physical conditions presented to our understandings, as problems to be solved by our own industry and ingenuity, and to be then turned to account in avoiding future evils. On the other hand, many educated laymen, and also a number of the more enlightened among the clergy, whose scientific studies have produced in their minds a conviction of the steadfastness of the course of physical nature, have sought for the cause of the failure of the potato crop in some physical condition (unconnected with sin) of the plant itself, of the earth, the air, or the electrical fluids, which, if discovered, might, in their opinion, enable husbandmen in future years to avert the calamity; and they have declined to recognize fasts, humiliations, and prayers, as means adapted, according to their views of the course of Providence, to avert the recurrence of the evil. Indeed, these observances, inasmuch as they mislead the public mind, with respect to its causes, are regarded by such persons as positive evils.

The Archbishop of Dublin, in his "Address to the Clergy and other Members of the Established Church, on the Use and Abuse of the present Occasion" (the famine in Ireland in 1846-47), says,

"But advantage has been taken of the existing calamity to inculcate, with a view to the conversion of persons whom I believe to be in error, doctrines which I cannot but think utterly unsound and of dangerous tendency, by arguments which will not stand the test of calm and rational examination. There are some who represent the present famine (as, indeed, they did the cholera some years back) as a divine judgment sent for the punishment of what they designate as national sins; especially the degree of toleration and favor shown to the members of the Church of Rome. Now this procedure, the attributing to such and such causes the supposed divine wrath, is likely, when those of a different creed from our own are thus addressed, to be, by some of them, rejected as profane presumption, and by others **RETORTED**. When once men begin to take upon them the office of inspired prophets, and to pronounce boldly what are the counsels of the Most High, it is as easy to do this on the one side as on

the other. Roman Catholics who are told that a pestilence or a famine are sent as judgments on the land for the toleration of Romanism, may contend that, on the contrary, it is the Protestantism that is the national sin. And without the evidence of a sensible miracle to appeal to, neither party can expect to convince the other.

"When Israel was afflicted with a famine in the days of Elijah, on account of the idolatry of those of the people who had offended the Lord by worshipping Baal, the idolators might have contended that the judgment was sent by Baal against the worshippers of Jehovah, HAD NOT the prophet expressly denounced that judgment BEFOREHAND, and foretold both the commencement, and afterward the termination, of the drought, besides calling down the fire from heaven upon the altar. This it is that enables us to pronounce that that famine was a divine judgment sent for the sin of Israel, and for WHAT sin. And it is the same with the many similar cases that are recorded in Scripture. That Sodom and Gomorrah were destroyed on account of their abominable wickedness, WE KNOW, BECAUSE SCRIPTURE tells us so. And that Ananias and Sapphira were struck dead for tempting the Spirit of God, we know, and all present knew, BECAUSE the Apostle Peter announced beforehand their fate, and declared the crime which called it down. But for any uninspired man to take upon him to make similar declarations respecting any one of his neighbors who may die suddenly, or concerning any city that may be destroyed by a volcano or an earthquake, is as irrational and presumptuous as it is uncharitable and unchristian."

Unfortunately, however, the English clergy in general are not so far advanced in science as the Archbishop of Dublin, and they have afforded the nation a striking and painful illustration of the practical consequences which attend the enforcement of religious observances, based on obsolete principles. The queen, under their advice, issued a proclamation, dated the 9th of March, 1847, ordering a general fast and humiliation to be held on the 24th of that month, "in order to obtain pardon of our sins," and "the removal of those heavy judgments ('scarcity and dearth of divers articles of sustenance and necessaries of life') which our manifold sins and provocations have most justly deserved." This ordinance obviously proceeds on the assumption that the physical and organic laws of nature are actually administered, in our day, in the manner Cromwell and the Covenanters believed them to be in their age—not on regular principles of causation, but in special reference to the moral and religious merits of the people. Nevertheless, science has destroyed this belief in so large a portion of the public, that the queen's proclamation,

and the fast and humiliation, have been disregarded by millions of the people, and made subjects of pungent ridicule by a portion of the press. Among others, Douglas Jerrold, in his Weekly Newspaper of the 20th March, entertained his readers with grotesque representations of "the Fast-day at the Palace"—"in the fashionable world"—"in the House of Commons"—and "the Fast-day of the respectable man"—"of the middle classes"—and "of the destitute." His is not an infidel or irreligious newspaper, but one which has a wide circulation among the middle as well as the lower classes. No more effectual means could be devised by the wit of man to destroy all seriousness of religious feeling in the nation, and all sacredness in their views of the manifestations of God's providence, than proclamations ordering fasts which provoke ridicule; and apparently they owe their existence to the errors of the church, which, in this instance, is the instigator of the government. It chooses to remain behind the age in its theology, and to expose religion, the queen's authority, and itself, to public derision. The famine in Ireland unquestionably proceeded from divine appointment, and taught a most solemn and instructive practical lesson to all reflecting men; but it must be viewed in a different light, and different deductions must be made from it, from those which appear in the proclamation, before it can be invested with that solemnity and sacredness which really characterize it.

The fast-day sermons present a striking illustration of the confusion of ideas which prevails in the public mind regarding the course of Providence in temporal events. Science confirms the declaration of Scripture, that God maketh "his sun to shine upon the evil as upon the good," and gives no countenance to the notion, that vegetable substances prosper or suffer directly in their growth, in consequence of the moral qualities of the men in whose fields they grow. On the contrary, it proclaims that their condition and productiveness depend on the soil, the heat, the moisture, the electric influences to which they are subjected, the manure and the seed, and on the skill with which these are brought to co-operate in yielding a return. The moral qualities of their cultivators may lead them to attend to, or neglect, the proper administration

of these natural causes of fertility, in so far as they are subject to human control, and, by this means, indirectly influence the productiveness of the ground ; but there is no warrant in science for believing that, if all the natural conditions of fertility be present, a blight will nevertheless pass upon the crop because of the owner's general or particular sins ; or, VICE VERSA, that if these natural conditions be absent, God will nevertheless send a rich harvest in reward of the owner's piety and charity. In the fast-day sermons, however, little attention was paid to consistency on this point. In some of them, the potato failure was ascribed directly to sin ; and, stranger still, not to sin in the owners of the fields, who suffered the loss, but in their rulers, or in somebody else over whose conduct the suffering peasants had no control. This doctrine implied that the course of Providence is still special and extra-natural. Other preachers acknowledged only a natural Providence in the blight ; while many others spoke as if Providence, in some instances, observed the fixed relations of cause and effect, and, in others, set them all aside.

It is impossible that the public mind can advance in sound and self-consistent practical principles of action in this world's affairs, while such conflicting views of science, religion, and the course of God's providence, are poured forth from the pulpit and the press ; and it is equally impossible that the youthful mind can be trained to study, reverence, and obey the course of God's providence, while it is treated with so little consideration by those who assume to themselves the character of the accredited expositors of the Divine Will.

The questions, then, whether there be an intelligible course of Nature revealed to the human understanding, whether it should be taught to the young, and whether the religious sentiments should be trained to venerate and obey it as of divine institution, are not barren speculations respecting dogmas and doctrines. They touch a highly momentous practical principle. While an impassable gulf stands between the views of God's providence, on which society, in its daily business, acts, and the religious faith which it professes to believe, the influence of the latter on social conduct must necessarily be feeble and limited. It is a matter of great importance to have the principles of action and of belief brought into harmony.

Nothing can retard the moral and intellectual advancement of the people more thoroughly than having a theology for churches and Sundays, and a widely different code of principles for every-day conduct ; and yet this is, and **MUST CONTINUE TO BE**, the case with all the Christian nations, while they fail to recognize, and to teach the order of Providence in nature, as a divinely-appointed guide to human action.

A second Reformation in religion is imperatively called for, and is preparing. The new Christian faith will recognize man and the natural world as constituted by Divine Benevolence and Wisdom, and adapted to each other for man's instruction and benefit. It will communicate to the young a knowledge of that constitution and its adaptations, as the basis of their religious faith and practice in reference to this world ; and train them to realize in their own minds and bodies, and in the society to which they belong, **THE NATURAL CONDITIONS** on which health, prosperity, purity, piety, and peace depend. Until this change shall have been accomplished, religion will never exert its due influence over human affairs.

Thomas Carlyle, in treating of the opinions of the seventeenth century, observes, that "the Christian doctrines which then dwelt alive in every heart, have now in a manner died out of all hearts—very mournful to behold ; and are not the guidance of this world any more." This is literally true in the sense in which I have explained the fact ; but in most other respects it is erroneous. It is chiefly in regard to the continuation of the special supernatural agency of God in this world, that the belief of the seventeenth century has practically gone out. It has not been abandoned in direct terms ; on the contrary, it is retained in the standards and instructions of the churches ; and it is embraced, or attempted to be embraced, in the minds of many individuals ; but, in point of fact, it is no longer felt to be a reality by modern enlightened Christians.

"Nay, worse still," continues Mr. Carlyle, "the cant of them does yet dwell alive with us—little doubting that it is cant." With the **IGNORANT**, it is **NOT** cant, but a sincere, although a sadly confused, belief. The strong-minded and well-informed men who have abandoned the ancient faith, are **WRONG** in supposing that it is cant in their weaker breth

ren. They are themselves to blame for not honestly disabusing them, and informing them that the belief of the seventeenth century was, in this particular, a mistake, and that it no longer constitutes a practical rule of action. Mr. Carlyle proceeds, "In which fatal intermediate state, the eternal sacredness of this universe itself, of this human life itself, has fallen dark to the most of us." This is literally true. The religious sentiments are not permitted practically to recognize God's administration, in the ordinary course of nature, as of divine authority for the guidance of human conduct. We really ARE in the intermediate state here described. The old belief HAS partially died away, and our churches scowl upon the new belief, which perhaps may help to restore "the eternal sacredness of this universe itself, and of this human life itself."

In Germany, which led the way in the Reformation, the same truth has forced itself on the attention of religious men. Dr. Tholuck, professor of theology in the University of Halle, who is well known in this country as a distinguished evangelical Protestant divine, remarks :

"We live in an age when mankind is particularly rich in means to render the elements and nature subservient to their will. We live in a time when the individual becomes every day more independent of restraining power ; and if in the same measure in which this might, and dominion, and richness in means, increases, the fear of God, and the consciousness of dependence on him, decreases more and more—when all these gifts and all these means, instead of being used in the service of God, and of his kingdom, are used in the service of selfishness and our own enjoyment—when man, through this dominion, becomes, day after day, more free from earthly restraints, but each day more and more a slave to his earthly passions—when blinded man builds altars, and sings praises to his own skill and wit, instead of to his heavenly Father, from whom cometh every good and perfect gift—oh ! have not even the ancients foretold what must become of such a generation in that wonderful fable of the daring of Prometheus, who, with violent hands, stole from heaven its vivifying fire ? What we here speak of is no anxious dream, no unreal imagination ; no ! undeniable is the existing tendency, in this generation, to consecrate the temple which our pious forefathers reared to their Father in heaven, to man, the fleeting son of an hour."\*

Who is to blame for this forgetfulness of God by the culti-

\* A Selection from the University Sermons of Augustus Tholuck, D. D., etc., p. 181. London, Seeley, 1844.



vators of science, but the churches who have omitted to teach the sacred character of Nature, and to acknowledge her instruction as divine?

To those whose understandings have embraced the views which I am now advancing, and whose religious sentiments have been interwoven with them, "this eternal sacredness" stands forth in all the beauty, brightness, and intensity which it ever possessed in the minds of the men of the seventeenth century. Mr. Carlyle adds, "We think *that*, too" (*viz.*, the "sacredness of the universe"), "cant and a creed." Yes—men of science, whose religious sentiments have never been led to recognize the divine adaptations in Nature as proclamations of the divine will and attributes, but who have pursued their investigations from intellectual or interested motives alone, do regard the views which I am now advocating as "cant and a creed." To such individuals I can only say, that the religious sentiments exist in man; that the experience of all ages shows that they will cling to some object, and manifest themselves in one form or another; and the question is, Whether their legitimate direction in reference to this world is not toward the great Designer of the universe, and his adaptations of Nature in reference to human improvement and enjoyment?

If we can persuade the people that the course of Nature, which determines their condition at every moment of their lives, "is the design—law—command—instruction (any word will do), of an all-powerful, though unseen Ruler, it will become a religion with them; obedience will be felt as a wish and a duty, an interest and a necessity." The friend from whose letter I quote these words adds, "But can you persuade mankind thus? I mean, can you give them a PRACTICAL CONVICTION?" I answer—In the present unsatisfactory condition of things, the experiment is, at least, worth the trying; not with a view to questioning the importance of Scripture teaching; but for the purpose of communicating to its precepts in relation to practical conduct in this world, a basis also in Nature, and investing the ordinary course of Providence with that degree of sanctity and reverence which can be conferred on it only by treating it as designedly calculated to instruct, benefit, and delight the whole faculties of man. *Whatever*

objections may exist against this proposal, something is needed to reconcile religion and science; for, as Mr. Carlyle remarks, "the old names suggest new things to us—not august and divine, but hypocritical, pitiable, and detestable. The old names and similitudes of belief still circulate from tongue to tongue, though now in such a ghastly condition: not as commandments of the living God, which we must do or perish eternally; alas! no, as something very different from that."

This representation of our present condition is unfortunately too true, and we can scarcely fall into a more helpless, hopeless, and embarrassed state, in regard to the relations between secular and religious instruction, than that in which we now exist. This consideration may be pleaded as an apology for endeavoring to try something new. I shall proceed, therefore, to adduce a few illustrations of the manner in which I conceive that the religious sentiments may be profitably employed in enforcing obedience to the order of Providence in nature; but before doing so, I beg to observe that some obscurity, which it is proper to remove, occasionally attends the use of the words, "Laws of Nature." A law of nature is not an entity distinct from nature. The atoms or elements of matter act invariably, in certain definite matters, in certain circumstances; the human mind perceives this regularity, and calls the action characterized by it, action according to law. But the term "law," thus used, expresses nothing more than the mind's perception of the regularity. The word does not designate THE EFFICIENT CAUSE of the action; yet many persons attach a meaning to the term, as if it implied causation. The cause of the regularity which we observe in the motions and reciprocal influences of matter, may be supposed to be either some quality inherent in the atoms, or certain powers and tendencies communicated to them by the Divine Mind, which adapts and impels them to all their modes of action. This last is the sense in which I understand the subject, and I coincide in the views expressed in an article in the *Edinburgh Review*,\* generally ascribed to the Rev. Mr. Sedgwick.

\* Vol. lxxii., p. 62, July, 1845.

"What know we," says he, "of the God of Nature (we speak only of natural means), except through the faculties He has given us, rightly employed on the materials around us? In this we rise to a conception of material inorganic laws, in beautiful harmony and adjustment; and they suggest to us the conception of infinite power and wisdom. In like manner, we rise to a conception of organic laws—of means (often almost purely mechanical, as they seem to us, and their organic functions well comprehended) adapted to an end—and that end the well-being of a creature endowed with sensation and volition. Thus we rise to a conception of both Divine Power and Divine Goodness; and we are constrained to believe, not merely that all material law is subordinate to His will, but that He has also (in the way He allows us to see His works) so exhibited the attributes of His will, as to show himself to the mind of man as a personal and superintending God, concentrating His will on every atom of the universe."

I add that, in adopting Mr. Sedgwick's phrase of "a personal God," I use the word "person" according to Locke's definition of it—"a thinking, intelligent being, that has reason and reflection, and considers itself as itself, the same thinking thing in different times and places." In this sense of the word, our faculties enable us to assign a personal character to the Deity, without presuming to form any opinions concerning His FORM, His SUBSTANCE, or His MODE OF BEING.

The key to the system of natural Providence appears to me to consist in a knowledge of the distinct agencies of nature, and their results. Physical objects act in certain determinate modes, and produce certain invariable consequences; organic substances act in certain determinate modes, and produce also invariable effects; and each faculty of the mind, and function of the body, has its appointed constitution and mode of action, and it produces happiness or misery, according as it is used or abused. General health, happiness, and prosperity, are the results of our habitually acting in conformity with the several ordinations of nature, each communicating its own pleasures or pains, independently of the others, but all being in harmony among themselves, and with the nature of man.

These views have now been submitted for twenty years to public consideration, in "The Constitution of Man," and more recently in my "Lectures on Moral Philosophy," to which I beg leave to refer. The Calvinistic press and pulpit

have, at intervals, made war upon them ; but the only plausible objection which I have seen stated to the general doctrine contained in them, is, that circumstances occasionally occur in which it is virtuous to set the physical and organic laws at defiance ;—as when a man rushes into the water to rescue a drowning fellow-creature ; or on a railroad track in order to remove from it a child, or deaf or blind person, who, but for such assistance, would be smashed to pieces by an advancing train. The benevolent agents in such enterprises occasionally lose their own lives, either saving, or not, those of the objects of their generous care ; and it is argued that, in these instances, we applaud the self-devotion which set at nought the physical action of the waves and the train, and risked life to perform a disinterested act of humanity. But these cases afford no real exceptions to the doctrine which I have maintained, that even virtuous aims do not save us from the consequences of breaking the natural laws. A few explanations will, I hope, remove the difficulty apparently presented by these and similar instances. Unless the benevolent actors in these enterprises are able successfully to encounter the waves and escape the train, there is little chance of their realizing their generous intentions or gaining the objects of their solicitude. Obedience to the physical laws until they succeed is indispensable, otherwise both they and their objects will perish, and the calamity will thereby be aggravated. If they save the object, but die themselves, there is no gain to society, but the contrary ; the life lost is most probably more valuable than the one saved.

No man, therefore, is justifiable in leaping into the water even to rescue a fellow-creature, unless he be confident that, by his skill in swimming, or by mechanical aid at his command, he can comply with the physical law which regulates floatation. If he do go into the flood deliberately, and in the consciousness that he cannot comply with the conditions of that law, he commits suicide. If, under the impulse of generous emotion, he plunges into the water, miscalculating his power, and is overcome, although we may admire and applaud his humane intention, we must lament the mistake he made in the estimate of his own ability. In the case of the railway train, if the generous adventurer, after removing his fellow-creature from

the rail, is himself overtaken by the engine and killed, while we give the tribute of our esteem to his humanity, we must regret his miscalculation. In no case is it possible to set the physical laws at defiance with impunity. Cases such as those before alluded to may occur, in which it may be justifiable to risk the sinister influence of a physical or organic law for the sake of a moral object of paramount importance ; but even in such instances we are bound to use every possible precaution and effort to obey those laws, because our success in attaining the object pursued will depend on the extent of our obedience. We cannot escape their influence, if we do infringe them, and, assuming that we save a fellow-creature, if we perish ourselves we shall have only half attained our aim.

The objection to the doctrine of the natural laws, founded on these cases, appears to me to arise from a misunderstanding of the sense in which I use the word "punishment." The dictionary definition of punishment is "Infliction imposed in vengeance for a crime;" but this is not my meaning. The inflictions under human laws have no natural, and therefore no necessary, relation to the offence they punish. There is no natural relation, for example, between stealing and mounting the steps of a tread-mill. When, therefore, I am represented as teaching that, in these instances, the benevolent agent is "punished" with the loss of life for acting under the impulse of his moral emotions, those who understand the word "punish" in the dictionary sense, are shocked, and reject the doctrine as unsound. But the difficulty disappears when the word is differently defined. By punishment, I mean the natural evil which follows the breach of each physical, organic, and moral law. I regard the natural consequence of the infraction not only as inevitable, but as PRE-ORDAINED by the Divine Mind, for a purpose. That purpose appears to me to be to deter intelligent beings from infringing the laws instituted by God for their welfare, and to preserve order in the world. When people, in general, think of physical laws, they perceive the consequences which they produce to be natural and inevitable ; but they do not sufficiently reflect upon the INTENTIONAL PRE-ORDAINMENT of these consequences, as a warning or instruction to intelligent beings for the regulation of their conduct. It is the omission of this element that ren-

ders the knowledge of the natural laws which is actually possessed, of so little use. The popular interpretations of Christianity have thrown the public mind so widely out of the track of God's natural providence, that His object or purpose in this pre-ordination is rarely thought of; and the most flagrant, and even deliberate infractions of the natural laws, are spoken of as mere acts of imprudence, without the least notion that the infringer is contemning a rule deliberately framed for his guidance by Divine Wisdom, and enforced by Divine Power.

In considering MORAL actions, on the contrary, the public mind leaves out of view THE NATURAL AND INEVITABLE. Being accustomed to regard human punishment as arbitrary, and capable of abeyance or alteration, it views in the same light the inflictions asserted to take place under the natural moral law, and does not perceive divine pre-ordination and purpose in the natural consequences of all moral actions. The great object which I have had in view in "The Constitution of Man," is to show that this notion is erroneous, and that there is a natural pre-ordained consequence, which man can neither alter nor evade, attached to the infringement of EVERY natural law.

To express this idea correctly, a term is required, something between simple "consequence" and "punishment." The former fails to convey my idea in its totality, and the latter adds something to distort it. I find it difficult to discover an appropriate word, but hope that this explanation will render the idea itself comprehensible.\*

Believing, then, that this world is governed by physical, moral, and organic laws, appointed by divine power and wisdom, and pre-ordained as guides to human conduct, I select from physiology an illustration of the practical application of this proposition.

Science enables us to discover that the Author of nature has assigned a certain constitution, and certain functions, to the human lungs. The chief use of the lungs is to purify

\* The admirable expositions of natural theology by Paley, and in the Bridge-water Treatises and other similar works, have not been generally applied to practical purposes; and the reason may be found in their not recognizing the distinct consequences attached to the breach of the several natural laws, as instituted and pre-ordained to serve as guides to human conduct.



and vitalize, the blood; and the blood is the grand fountain of nourishment to the bones, muscles, skin, nerves, and brain; in short, to the whole man. The organism of man is calculated to act for three-score years and ten, and during that period to afford enjoyment to the intelligent and sentient principle resident within it. But Divine Wisdom has appointed CERTAIN CONDITIONS, on the observance of which the organism will continue successfully to perform its functions, and on the infringement of which it will either become impaired or altogether cease to act. These conditions are, to a great extent, cognizable by the human intellect, and constitute the TERMS on which the boon of health and life is presented to man; it being left in his option to accept and fulfil them, or to reject and infringe them, as he pleases; only, certain consequences are pre-ordained to follow each specific course of action; and these he must abide by, whether he will or not. One of these conditions is, that he shall breathe the atmosphere in that state in which God has prepared it and adapted it to the lungs and blood. A combination of oxygen, nitrogen, and carbonic acid gas, in certain definite proportions, exists in the air, and is exquisitely adapted to our frame. A great increase or diminution of the proportions of any one of these, or the introduction of certain other gases, is fatal to health, and eventually to life itself.

Regardless, however, of this divine arrangement, the inhabitants of Exeter, Liverpool, and many other towns, have, through ignorance and indolence, allowed the exhalations of decaying animal and vegetable matter to mingle with that compound atmosphere adapted by nature to their lungs and blood, and the consequence has been that many of them have suffered from disease, and prematurely died. On the 8th of December, 1846, a public meeting was held at Exeter, "to consider the sanitary condition of that city." The mayor was in the chair, and among the persons present were Viscount Ebrington, Sir J. Duckworth, M. P., Edwin Chadwick, Esq., Dr. Southwood Smith, etc. A report was read by Mr. Tirrell, which "analyzed the mortality of Exeter, and showed that while the deaths in those parts of the city where there was good sewerage and an ample supply of water were from 1.83 to 1.93 per cent. (per annum), in other parts,

where the drainage was deficient, the mortality was 5 to 7 per cent." Mr. Chadwick observed, that in infancy, "life is more susceptible than at any other period; infants, as it were, live more on air." "Now, what is the mortality at Exeter, compared with Tiverton? I find that while one child out of every ten born at Tiverton dies within the year, and one tenth is the average of the county, one in five dies at Exeter. And then, after its escape of the first year's mortality, it has not gone through all its chances. I find, further, that while in Tiverton TWENTY-SIX per cent. die under the age of five years, in Exeter no less than FORTY-FIVE per cent. die under the age of five years."

When we trace these effects to their causes, is it not clear that that purity of the atmosphere which, by the appointment of the Author of Nature, is necessary to the support of life, had been destroyed by foul exhalations; that the human intellect was capable of discovering and removing the sources of that corruption; and that it was a duty which the inhabitants of Exeter owed equally to God and to themselves, to apply the whole power of their understandings and will to comply with the conditions of life? Can there be a more becoming theme for the combined exercise of the intellect and religious sentiments than that which is presented by such occurrences as these, in which the voice of nature calls aloud on parents to save their children by yielding obedience to the Creator's laws? Yet what occurs? Mr. Chadwick informs us. "Well," says he, "here, in this city, in one of the healthiest counties of the kingdom, with an admirable site, and with all favorable circumstances, you have an infantile mortality and slaughter that very nearly follows—very closely, indeed—upon the infantile slaughter of Spitalfields," etc."

The same gentleman mentioned that, "about three years ago an epidemic raged in Glasgow, and there was scarcely a family, high or low, who escaped attacks from it. But at Glasgow they have an exceedingly well-appointed, well-ventilated prison; and in that prison there was not a single case of epidemic; and in consequence of the overcrowding of the hospitals, which killed some two thousand people, they took forty cases into the prison, and not one of them spread. In fact, there are so many classes of disease so completely with-

in management, that medical men who have the care and custody of those who are in comparatively well-conditioned places, are in the habit of saying, in relation to cases in their private practice, 'Oh, if I had but that case in prison, I could save it.' Now, what has your mortality to do with that disease here in Exeter? I find that in Tiverton, while twenty-three out of ten thousand of the population are swept off by epidemic diseases, in Exeter no less than one hundred and three are killed."

Here, then, we see a man of science, whose understanding is enlightened by the study of chemistry and physiology, clearly unfolding to the people of Exeter certain relations established by the Author of Nature between the composition of the atmosphere and the human body, in consequence of the infringement of which thousands of their fellow-citizens have perished prematurely. Yet these infractions of the laws of nature were allowed to continue, year after year, under the eyes of the Bishop of Exeter, unheeded and unrestrained. Not only so; but while his flock was thus dying from causes that were discoverable and removable, his lordship was warmly engaged in denouncing, as irreligious, the Irish system of National Education, because it proposed to teach, under the name of secular instruction, unmingled with the leaven of the Thirty-Nine Articles of the church, a knowledge of these very institutions of the Creator, a due regard to which would have enabled the people to save their own lives and those of their children! I do not doubt that he and his clergy duly consoled the dying, read the burial-service over the bodies of the dead, and comforted the bereaved parents whose cherished offspring were thus prematurely snatched from them by the hand of death. But if these mournful effects followed, by God's appointment, from causes which were cognizable by human intelligence, and removable by human skill, why did they shrink from teaching the people to reverence this connection, and to avoid the evils, by acting on the lessons which it was reading to their understandings? This would have tended in some degree to restore the sacredness of this universe and that earnestness of the human mind, the disappearance of which religious men so grievously deplore.

So far from acting in this manner, these excellent and estimable persons not only treat the order of creation and its lessons with neglect themselves, but, by their cries of "infidelity," deter other men, who see and reverence its sacredness, from appealing to the nobler faculties of the mind with full practical effect in its behalf. What a soul-stirring theme did not the facts now detailed offer to Mr. Chadwick and his brother philanthropists for an appeal to the sentiment of Veneration of the people of Exeter, to induce them to bring these evils to a close! But no—science, divorced from religion, dared not to trespass on such a field. Unfortunately, also, in the minds of the suffering members of the bishop's flock, there was no adequate knowledge of science on which to found an appeal to their religious sentiments. The speakers, therefore, could urge only the humbler motives of economy and prudence.

"Now," says Mr. Chadwick, "while, amid this population of the Tiverton district (32,499), in Tiverton 610 die, no less than 920 die in Exeter. That makes an excess of deaths due to Exeter of 332 deaths in the year. The EXPENSE OF A FUNERAL is certainly not less than £5 on the average. Taking it at £5, YOUR EXPENSES IN FUNERALS, for the excess of funerals compared with Tiverton during the year,

are,	-	-	-	-	-	-	-	-	-	£1,600 0 0
Every case of death involves at least 29 cases of sickness,										
which, at £7 per case, is an annual expense of	-	-	-	-	-	-	-	-	-	9,265 0 0
Besides that, you have a loss of labor of four years and eleven months by premature death, as compared with Tiverton, which, on the excess of this year's mortality, makes a sum, supposing wages to be 7s. 6d. weekly per adult, on the average (and a very low average), of	-	-	-	-	-	-	-	-	-	39,000 0 0
Making a total charge to this city of at least	-	-	-	-	-	-	-	-	-	£49,865 0 0

Say £50,000 a year. And that does not take into account any thing for the loss of the maintenance of the children that have been swept away, nothing for the extensive amount of premature widowhood, for the large amount of orphanage, you will find burdening your charities."

This is a TRULY ENGLISH argument, employed to induce a people suffering from gross infringements of the order of nature to remove the causes of pestilence and death from their dwellings! I greatly err in my estimate of the mental faculties of Mr. Chadwick, if he is not as deeply impressed with

the "sacredness of this universe, and of this human life itself," as he is obviously alive to the emotions of benevolence; and if he would not have felt his power over his audience greatly increased, if he had found their understandings so far enlightened, that he could have ventured to appeal to their religious sentiments, in order to give weight and authority to his words. Not only, however, was the knowledge of nature wanting in them, but an appeal to it, in connection with the religious sentiments, might have been regarded by religious men as infidelity, while by some men of science it would probably have been ridiculed as "cant and a creed." Such is the predicament into which the teaching of the order of nature as a guide to human conduct under the sanction of the religious sentiments has been brought by English education! No safe course was left to Mr. Chadwick but the one which he pursued, that of addressing the LOWER FACULTIES of the people—their acquisitiveness and fear!

I do not question the force of the arguments addressed to these faculties; because Nature is so arranged, that when we depart from her paths in one direction, we are liable to fall into a multitude of errors, each accompanied by its own peculiar evils. Pecuniary loss is one of the natural consequences of bad health; but the consideration of that infliction is not one of the highest, or most efficacious, motives for rousing a well-educated people to energetic action, to remove from their hearths the causes of disease and death.

I select another example from Scotland. A report of the mortality in Edinburgh and Leith for the year 1846, lately published, presents the following results:

The mean age at death of the 1st class, composed of gen- try and professional men, was	- - - - -	43½ years.
The mean age at death of the 2d class, merchants, master tradesmen, clerks, etc.,	- - - - -	36½ years.
The mean age at death of the 3d class, artisans, laborers, servants, etc.,	- - - - -	27½ years.

As I interpret this document, it is an intimation that these different classes have fulfilled, in widely-different degrees, the CONDITIONS on which God proffered to continue with them the boon of life. We cannot imagine that he deals partially with men, and establishes one law for the rich and another

for the poor. On the contrary, the structure of the various organs of the body on which life depends, is similar in all; and the elements of the atmosphere, the rays of light, and the winds of heaven, which affect these organs for good or evil, diffuse their appointed influences without the least respect of persons. To the circumstance, therefore, of obedience or disobedience to the organic laws, must these painfully different consequences be ascribed. Is it wrong to inquire into the nature of these conditions; to unfold them, when discovered, as valuable practical instructions to all these classes, and to appeal to their whole moral and religious sentiments to respect and observe them as divine institutions, in order that the great gift of life may no longer be trampled by so many persons under foot?

I became desirous to learn how much of this instruction is communicated by the Established Church of Scotland, in their great normal seminary in Edinburgh, an institution in which several hundreds of children belonging to the third class of citizens are educated, and nearly one hundred teachers are instructed in the duties of their profession. It is partly supported by government, and partly by the church. On visiting the school, I was informed that physical science forms no part of the instruction given either to the pupils or to the student-teachers, unless a few chapters on natural philosophy and chemistry in one of their reading-books, taught without apparatus and experiments, be entitled to that name. Nay, it was added, that lately Professor Johnston had voluntarily instructed the student-teachers attending the institution in as much of the elements of practical chemistry as might have enabled them, when they became parish schoolmasters, to train their scholars in the rural districts to the analysis of soils, by which means they might have learned to cultivate their gardens and their fields with an intelligent perception of the laws on which fertility depends; but that this instruction had not been followed up. It formed no part of the course of study prescribed by the church; many of the teachers saw no particular value in it; and when the professor ceased to attend, it was entirely abandoned.

As a contrast, I find the following statement in the "Twelfth Report of the Commissioners of National Education in Ire-



land for the year 1845:" "We have adverted, in former reports, to the importance of agricultural instruction. We have now five Agricultural Model Schools in operation, and we have undertaken to make grants toward five more, which have not, as yet, been established. There are also seven of the ordinary National Schools which have land annexed to them, and afford agricultural instruction." This shows some degree of appreciation, in the Irish Commissioners, of the importance of teaching one department of the order of nature, at least, to the Irish children. They also report, that "the principle is, and has been from the beginning, that the National Schools shall be open alike to Christians of all denominations!" In their Tenth Report, they assure us, that "the tendency of the system is to produce peace, and that knowledge of men's true interests, the want of which is so likely to lead to disaffection and crime." This stands to reason; but, nevertheless, THEIR system, which teaches nature without the leaven of the Thirty-nine Articles of the Church of England, has been stigmatized as "godless;" while that of the Church of Scotland, which omits nature and substitutes a catechism in its place, is admired as a bright example of sound religious education!

While schools under clerical guidance thus reject nature, the current in scientific channels runs in a different direction. Dr. Symonds, physician to the British Infirmary, in a letter published by him in the *Bristol and Foreign Medical Review* for October, 1846, remarks, that medical "ART, after all, is but Nature in a new form—a fresh arrangement of the forces of Nature, compelling them to work under new conditions." He adds, "I am not fond of arguments from final causes; but can it be doubted that the various medicines we possess were, as such, a part of the plan of the universe designed to have a relation to morbid states of living organisms, as much as esculent matters to healthy conditions?" If this view be sound doctrine, which it certainly is, are not both of these adaptations fit subjects for the reverential exercise of our religious sentiments, as well as for the investigation of our understandings? At present, the public attention is much interested by the application of sulphuric ether to produce insensibility to pain during surgical operations. This application

of it is still under trial ; but should it ultimately prove beneficial, it will present another instance of the adaptation of physical elements to living organisms for benevolent ends.\* It baffles our comprehension why this discovery (if it shall prove advantageous) was not made sooner ; unless, perhaps, we conjecture that He who endowed the ether and the organisms with their properties and relations, and bestowed on man faculties capable of discovering them, meant him to use these faculties for his own advantage, and that the long reign of suffering has been the consequence of infidelity to Nature and Nature's God. Men, in past ages, did not believe in nature as a system adapted by Divine Wisdom to the human constitution, and presented to them for their guidance ; and although physical science has forced, on well-educated minds, a perception of the truth of this doctrine in regard to physical events, yet moral science is still so little understood, that a too general skepticism prevails in regard to the moral government of the world by natural laws. According to my views, God does not send pestilences, earthquakes, or famines, to avenge this unbelief ; but punishes each act of infidelity by preordained deprivations of enjoyment, or preordained evils which follow as the natural consequences of each act of omission or commission against His laws, whether physical, organic, or moral.

While science, as a practical guide to conduct, is thus excluded from the schools of the Church of Scotland, the Shorter Catechism is sedulously taught ; and it presents the following view of the order of nature, and of man's relationship to it, for the instruction of the young :

"When God had created man, he entered into a covenant of life with him, upon condition of perfect obedience : forbidding him to eat of the tree of knowledge of good and evil, upon pain of death.

\* Professor Simpson, of Edinburgh, has applied sulphuric ether to produce insensibility to pain in cases of difficult labor, hitherto with success. While it extinguishes sensibility for the time, it does not impede the muscular contractions which accomplish childbirth, and, in consequence, he recommends it to be used in cases, also, of natural labor. The benevolence and wisdom implied in such a prearrangement as this, if experience confirm it, appear calculated to excite admiration and gratitude in every well-constituted mind ; nevertheless, I have heard this application of sulphuric ether, assuming it to be successful, objected to, as being a profane attempt to abrogate the primeval curse pronounced upon woman !

"Our first parents, being left to the freedom of their own will, fell from the estate wherein they were created, by sinning against God.

"Sin is any want of conformity unto, or transgression of, the law of God." (This definition would include all the laws of God; but, nevertheless, orthodox authorities in general regard a want of conformity unto, or transgression of, the laws of physical and organic nature, as acts only of imprudence or indiscretion.)

"The sin whereby our first parents fell from the estate wherein they were created, was their eating the forbidden fruit.

"The covenant being made with Adam, not only for himself, but for his posterity, all mankind descending from him by ordinary generation, sinned in him, and fell with him in his first transgression.

"The fall brought mankind into an estate of sin and misery.

"The sinfulness of that estate whereunto man fell, consists in the guilt of Adam's first sin, the want of original righteousness, and the corruption of his whole nature, which is commonly called original sin; together with all actual transgressions which proceed from it.

"All mankind, by their fall, LOST COMMUNION WITH GOD, ARE UNDER HIS WRATH AND CURSE, AND SO MADE LIABLE TO ALL MISERIES IN THIS LIFE, to death itself, and to the pains of hell forever."

Here, probably, lies the grand obstacle to the blending of clerical with scientific instruction in education. Before the religious sentiments and the reflecting intellect of the people can be induced to reverence and obey the precepts of God addressed to them in the order of nature, they must be taught that nature is still such as God made it, and that it reflects wisdom and goodness in all its parts. There can be no SACREDNESS in nature, if it be intrinsically disordered and out of joint. In studying it, we cannot come into communion with God, if, through either its inherent derangement, or our own natural obliquity of mind, His wisdom and goodness are NOT discernible in it; while if they ARE discernible, it cannot be justly said that man has lost communion with his Maker. If the divine adaptations in nature be calculated to raise and improve man as a moral, religious, and intellectual administrator of this world, he cannot be truly said to be under God's "wrath and curse."

Further, if the teaching of the Old and New Testaments, in regard to human conduct in this world, depends for its practical efficacy on that teaching being in harmony with, and supported by, the order of nature, then the foregoing representations of the physical and moral worlds, and their

relations to each other and to God, are not only speculatively erroneous, but constitute positive and important impediments to the progress of divine truth. They tend to blind the intellect, and mislead the moral and religious sentiments of the people, and thereby to retard their advance in practical wisdom, religion, and virtue.

I select the next example from Scripture. In the sacred volume we are told to "do justly, to love mercy, and to walk humbly with our God" (that is, to obey his commandments.) We are desired also to love our neighbors as ourselves, and to do unto them as we should wish that they should do unto us. Are these precepts PRACTICAL in this world, or are they not? and what is implied in their being practical? Before they can become practical, it must be shown that they are in harmony with, and supported by, the order of nature; that is to say, that nature is so constituted and arranged, that all the real interests of individuals and nations are compatible with each other, and that it is not necessary to rob and impoverish one to enrich another. Not only so, but that all injustice, oppression, and spoliation, being in opposition to the order of nature, must ultimately lead to evil and suffering to the perpetrator, or to those to whom he leaves the legacy of his spoils and his crimes. If such be the constitution of nature, then these precepts ARE practical. If, on the other hand, the order of Providence admits of individuals and nations profiting by injustice and oppression, and reaching, and continuing to enjoy real prosperity and happiness through the systematic practice of crimes and violence, then are these precepts NOT practical in this world.

The history of all Christian nations shows that while they professed to believe in the divine authority of the Scriptures, they were in a great measure skeptics as to their precepts being supported and enforced by the order of nature. In their practical conduct toward each other, they have too often set them at defiance; nay, each has striven to depress, spoil, and ruin its neighbor, as the most effectual means of raising itself to independence and prosperity. But not one of the nations has succeeded in attaining its ends by these means. The history of England's treatment of Ireland affords an instructive lesson on this topic.

Six centuries ago, in the reign of Henry the Second, England conquered the sister isle, and ever since has continued to sway her destinies. From the first day of her conquest to our own times, English statesmen have acted toward Ireland on principles diametrically opposed to the injunctions of the New Testament. They insulted the feelings of the Irish, placed shackles on their industry, shut them out from many of the most valuable rights of British subjects, placed the religion of the majority out of the pale of the constitution, prohibited its professors, under pain of banishment for the first offence, and of death for the second, to act as school-masters or tutors in the instruction of their people; and when at last, in 1783, Ireland, in a moment of her strength, and of England's weakness, asserted her independence, and achieved a native legislature, English statesmen converted that legislature, by means of systematic corruption, into a new instrument of injustice and oppression. England pursued this course notoriously with the view of providing for her own safety, prosperity, and power! Has she succeeded? No. A calm survey of her history will show that from the first day of her oppression to the present time, every injury inflicted on Ireland has recoiled on her own head; and that at this hour, Ireland is the source of her greatest weakness, anxiety, and suffering. She is paying eight millions sterling to save from starvation the victims of the system which she has pursued, and does not yet discern the end of the retribution which she has drawn upon her head.

During the whole period of this long crusade against the course of Providence and the precepts of Christianity, the rulers and people of England professed to believe in the divine authority of the Scripture injunctions which they were trampling under foot; but they did not believe in their being supported by the order of nature. If they had believed in this, their conduct would have been as insane as that of men who should have sown corn in snow, and expected to reap a harvest from it in winter. Cromwell, and the religious men of his age, did not recognize the order of nature as supporting Christianity. On the contrary, they not only believed in a special supernatural Providence, but when they were gratifying their own misguided passions, they com-

placently viewed themselves as the chosen instruments of God's vengeance for punishing his enemies. Statesmen who were not religious, either formed no deliberate opinion of any kind regarding the course of Providence on earth, or considered it as arbitrary or mysterious; not cognizable by man, and not available as a guide to human conduct. Indeed, the great majority of Christian statesmen and people, while they are disposed to acknowledge the existence of physical laws of nature, still disbelieve in the government of the world by MORAL laws. Lord Stanley lately presented, in a public document on convict treatment, a distinct expression of his conviction, that it is NOT LAWFUL for man to adopt the order of nature as a guide to his conduct. Captain Maconochie had urged on his lordship that "we cannot err in taking that model (viz., 'the discipline to which we are all subjected by Divine Providence') for our guidance in our attempts to elevate the characters of our guilty, but yet more unhappy brethren." To this his lordship answered, "I do not understand that it is permitted to us thus to constitute ourselves imitators of the divine government under which we live; or that, in this respect, the march of infinite wisdom is to be followed by beings of so contracted a range of knowledge and foresight as we are."\*

Lord Stanley and his predecessors certainly were not guilty of imitating the "march of infinite wisdom" in their convict management, but followed the counsels of their own will; and the result is now before the world. The transportation system is publicly acknowledged to have proved an utter failure, after costing hecatombs of human victims and millions of expense! It is, in future, to be abandoned. The men who saw and believed in an order of nature, predicted these issues from the beginning. Lord Bacon even denounced the natural consequences of the system as detrimental to humanity, and hundreds of voices have been raised against it from his age to ours. Nevertheless, statesmen, without inquiring into the causes of crime, the nature of criminals, or the adaptation of transportation to remove those

\* Parliamentary paper on "Van Dieman's Land," ordered by the House of Commons to be printed, 9th February, 1846, p. 11.



causes, and to improve that nature, proceeded in a course dictated by their own short-sighted preconceptions alone. The course of nature, however, could not be altered. Their measures were at variance with the prearranged adaptations of Providence; and nature triumphed, while they have recoiled, baffled and astonished. And this will ever be the case, until the "SACREDNESS of this universe, and of this human life itself," be practically recognized by those who wield the destinies of nations, as well as by those who are subject to their sway.

Another example of unbelief in the action of a moral providence in nature is afforded by the author of a recent able and eloquent pamphlet, "The Case of Ireland stated, by Robert Holmes, Esq." After detailing the wrongs of Ireland, the author speaks of "moral force" as a means of her deliverance, in the following terms: "Moral force," says he, "is a power, by the mere operation of reason, to convince the understanding and satisfy the consciences of those on whom the effect is to be wrought, that there is some particular moral act, within their ability to perform, which ought to be performed, and which it is their duty to perform; and, also, by the operation of the same divine principle only, making those free moral agents do the very thing required. The intended effect must be produced, and must be moral; the efficient cause must be moral, purely moral, unmixed, unadulterated by any mean or sordid views; reason, heavenly reason, applied with eloquence divine; no threat, no intimidation, no cold iron, no 'vile guns,' no 'villanous saltpetre dug out of the bowels of the harmless earth,' nothing but the radiant illuminations of moral truth."—(P. 96.)

Mr. Holmes considers this as a mere "evaporation plan," adopted as a safety-valve to Irish discontent. "It seemed," says he, "to be considered by the expediency men of the day as a first-rate contrivance;" but he regards it as pure "fudge," and seems to prefer "monster meetings," and displays of physical force, which may be used in case of need, as better calculated to accomplish "repeal of the union," and the redress of Ireland's wrongs. But Ireland has frequently tried to right herself by means of "cold iron," "vile guns," and "villanous saltpetre," and with what success her

present condition shows.\* It is obvious that Mr. Holmes does not comprehend the lessons contained in his own pamphlet, and is an unbeliever in the moral government of the world. He does not see that the advocates of justice to Ireland are backed not only by the "moral," but by the "physical force" of God's providence, in virtue of which they are able to demonstrate to England that every sordid act which she has committed against Ireland has redounded in evil to herself, and that the scheme of creation is so thoroughly moral, so skilfully combined, and so unbendingly enforced, that the wisdom of all her statesmen, the counsels of all her bishops, and the voices of her whole people, will not suffice to turn aside the stream of suffering which she has drawn, and will continue to draw upon herself, from every fountain of injustice which she has opened, or may hereafter open, in Ireland. What are the disappointments to avarice, the humiliations of baffled bigotry, the incessant consciousness of insecurity and weakness, and the lavish waste of treasure, which have followed from England's injustice to Ireland, but the sanctions of nature's moral laws, and the punishments which give reality and efficacy to the doctrine of "moral force?"

Mr. Cobden and his coadjutors carried repeal of the corn laws by the use of moral force alone; but they understood its nature and sanctions; that is to say, they demonstrated to the religious public that free trade is implied in the Scripture precepts before quoted—to the moral public, that free trade is prescribed by the dictates of the sentiment of justice inherent in the human mind—to the merchant, manufacturer, and hus-

\* I am no advocate of the doctrine of nonresistance. Organs of Combative-ness and Destructiveness exist in man, and they have legitimate spheres of activity, one of which appears to be to repel, by physical force, aggression which we cannot overcome by moral means. Armed resistance is one of the natural checks to injustice; but it is liable to one great disadvantage. The contests of force are governed by the laws of force. The most numerous, best appointed, best disciplined, and most ably commanded army, will gain the victory, irrespective of the moral merits of the cause for which it fights. High moral motives animating it will, no doubt, add to its discipline, its patience, and its devotion, and thus indirectly contribute to success; but they will not, in any other respect, supply the place of the ordinary sinews of war. Nature, however, has other modes of arresting injustice; and violence should never be resorted to until all better means have been tried without success.

bandman, that free trade is not only compatible with, and calculated to promote, their worldly interests, but that these cannot be permanently and systematically advanced by any other means. In short, they showed that every attempt of every class to benefit itself by unjust monopolies and restrictions had ended in failure, and had been punished not only by defeating its own end, but by actually obstructing the attainment, through other and moral means, of the very objects which the monopolies were introduced to promote.

Unless all this be actually true, free trade cannot maintain itself even now when it is established; and it was the moral conviction that these views **ARE** true, that first inspired Mr. Cobden with full confidence in the success of his agitation.

The advocates of "moral force," therefore, who see a moral government of the world established and enforced by God, wield not only "reason, heavenly reason," as an instrument for attaining justice, but "threats" and "intimidation;"—not the threats of "cold iron" and "vile guns," which may be employed in support of oppression and wrong as successfully as in vindication of right, but "threats" of evil from a power which no human sagacity can baffle and no might withstand. Yet if the threats be real, and if the inflictions be as certain as fate, what a strange condition of mind must Christian men be in, when they imagine moral force to be a mere "evaporation plan," altogether unsupported, when not backed by "vile guns" and "villanous saltpetre!" Before, however, they can wield moral force with effect, they must be converted to a belief in the real, actual, and efficient government of the world by God's secular providence, and they must search for evidence of this government, and teach it to their countrymen. The creeds and confessions of churches must be revised and new-modeled into accordance with the order of nature, and the Christian precepts must be allowed the benefit of nature's support to give efficacy to their injunctions.

If the liberal members of the European community who desire to accomplish moral, religious, and political reforms, could be convinced of the reality of the moral government of the world, and take up this doctrine as the basis of their operations, no political tyranny, and no erroneous creed, could withstand their assaults. While they rely on guns and bayo-

nets as their means of resisting misrule, they stand at a disadvantage ; for these are equally available to defend error as to maintain truth ; but when, abjuring these, they shall employ their higher faculties in discovering and demonstrating the combination of causes and effects, by means of which that moral government is actually carried into effect, they will become conscious of a strength before which error in every form will ultimately succumb.

Mr. Holmes' blindness to the moral order of creation is evinced by another proposal which he advocates. While he admits that, during all the period of England's oppression, Irishmen were, in general, so destitute of moral principle, patriotism, and mutual confidence, that England, at all times, found among them willing tools to perpetrate her deeds of injustice, and Ireland never (except for a few months in 1782) found in her own population moral, intellectual, and physical resources sufficient to oppose or arrest them—he looks to repeal of the union, and the delivery of Irish affairs into Irish hands, as the only panacea for her sufferings and her wrongs. But if the view which I am now expounding be not a dream, Ireland's wrongs will never be righted until her destinies are swayed by a moral and enlightened legislature ; and whether this shall hold its sittings on the one side of St. George's Channel or the other, will matter little to either country ; for, as God's providence embraces both, and has rendered beneficence and justice the only road to permanent happiness and prosperity for either, that legislature will first redress her wrongs which shall first bow before the power of God, and enforce His laws as superior in wisdom and efficacy to any which their own selfishness and prejudices can substitute in their place.

The advocates of the inherent moral disorder of the world, however, will probably point to history and to the actual condition of the human race in every country of the globe, as affording demonstrative evidence that this supposed moral government is a dream. The past and present sufferings of mankind cannot be disputed ; but I ask, in what age, and in what nation, have the religious instructors of the people been believers in an actual practical moral government of the world by God ? Where and when have they expounded the

natural arrangements by means of which this government is accomplished? And when and where have they directed the religious sentiments of the people to reverence and obey the natural laws as the roads that lead to secular virtue and prosperity? Ever since the promulgation of Christianity, has any nation discovered and practically fulfilled the natural conditions by which the precepts of this religion are supported and enforced? Not one example is known of such conduct: need we, therefore, be surprised at the results being such as history discloses and we perceive? The evidence of past and present experience certainly demonstrates that mankind, by shutting their eyes to the order of Providence in the world, by trampling the dictates of morality and religion under foot, and by seeking prosperity and happiness under the guidance of their selfish animal propensities, have never realized the objects of their desires; but it does not prove that no scheme of moral government adapted to their nature exists. It shows that they have not discovered such a scheme; but neither had they discovered the steam-engine, railroads, nor the effects of sulphuric ether, until a very recent date. They have been, and generally speaking continue to be, ignorant of their own nature, of the adaptations of the external world to its constitution, of the principles on which the order of nature is framed, and of their own capabilities of conforming to it; and hence many of their sufferings may be accounted for; but the requisite discoveries may be made, and indeed have been partially made, and all experience shows that human happiness has increased in proportion to obedience to the natural laws. The most intelligent, moral, and industrious nations are the most prosperous and happy; the most ignorant, idle, self-seeking, turbulent, and aggressive, are the most miserable and poor. These undeniable facts afford strong indications that a moral government of the world by natural laws exists; and if it does so, is not the discovery of its scheme an important study, claiming the serious attention of man? I cannot too often repeat that unless the Christian morality be sustained and enforced by the order of nature, it is in vain to teach it as a rule of conduct in secular affairs. And how can this study be commenced and prosecuted—how can new truths be turned to practical account—except by

reverencing nature and her adaptations as divine institutions, teaching them to the young, and enforcing them by the authority of the moral and religious sentiments? If man be a moral and intellectual being, it appears not to be inconsistent with this character to have constituted his mind and body and nature in harmony with each other, and to have left him, in the exercise of his discretion, to work out, to a considerable extent, his own weal or woe. The fact that he, through ignorance and the misapplication of his powers, has hitherto experienced much misery, affords no conclusive evidence that, by more extensive knowledge and more strict obedience to the laws of his nature, he may not greatly improve his condition.

Assuming, then, for the present, that an order of nature, preordained by God for the purpose of guiding human conduct, exists—that it is cognizable, to a greater or less extent, by the human understanding—and that it is in harmony with, supports, and enforces the practical precepts of Christianity—I proceed to apply these assumptions to the subject of national education.

Science is an exposition of the order of nature, and the order of nature is just another form of expression for the course of God's providence in the affairs of this world. The sciences of anatomy and physiology embrace systematic expositions of the course of Providence in relation to health. Chemistry unfolds the course of Providence in fertilizing our fields, and in placing the minute combinations of matter under our control as elements of utility and ornament. Natural philosophy describes the course of Providence by which the stupendous universe of suns and worlds, stretching beyond the grasp even of our imaginations, is bound together and regulated; and unveils to us, through the microscope, the incomparable skill displayed in the structure of the minutest forms of animal and vegetable life. And, in the principles of mechanics, it teaches us the extent and the conditions under which God has enabled us to apply the motive powers of nature to our own advantage. Phrenology unfolds to us the course of Providence by which the health and vigor of the mind is regulated in connection with the body. In every cerebral organ which it accurately describes, it presents an



instructive lesson regarding the sphere of activity, the uses and abuses of the concomitant mental power. The science of moral philosophy includes among its objects the exposition of the natural consequences attached by the Creator to the use and abuse of every faculty of the mind and function of the body. Natural religion, using all this instruction as its basis, aims at investing every portion of the course of Providence with a sacred character. It commands us to study it as a record of precious practical wisdom ; to revere it as the counsel of the Most High, addressed to our intelligence and adapted to our wants ; and to obey it as an indispensable condition to our attaining truth, purity, and intellectual elevation, with their concomitant blessings of health, happiness, and prosperity on earth.

These are named as a mere specimen of the sciences and their subjects. I admit that they are very imperfect, and that in many of them much error may be mixed up with truth. But this does not affect the question now under consideration. In so far as they contain any truth, that truth is divine wisdom, addressed to man for his instruction and guidance. It merits the attention of his intellect and the respect of his religious sentiments, and therefore should be taught in schools.

In the standards of certain churches and sects there may be found a general and formal recognition of God's natural providence as a guide, more or less intelligible, to human conduct ; but, nevertheless, no church and no religious sect with which I am acquainted has recognized the order of nature as the basis of the practical precepts which it teaches regarding secular conduct and duty ; and not one of them has expounded that order even as the ally and support of Christianity. Not only so, but, although they mention in general terms God's natural providence as a guide to human conduct, not one of them proceeds, in its formularies, to show how natural providence acts, in producing good or evil to man. Science, as I have said, attempts to do this ; but many religious men denounce the teaching of science as "godless education." While they are thus nearly unanimous in practically rejecting the course of Providence in nature as a source of instruction to the young, each places in their hands its own catechism of doctrines, its liturgy, its confession of faith, or its other

articles of belief, and with the most pertinacious assiduity labors to imprint these indelibly on the memory, and to imbed them in the affections of its pupils. Meanwhile many of the sects denounce the catechisms, liturgies, and confessions of certain others as unsound, unscriptural, and dangerous to the eternal welfare of the people. Here, then, is a record unquestionably divine, in so far as we read it rightly, superseded and set aside for books of human compilation—denounced as unsound by large masses of the community.

The effect of this on education is described by Mr. Horace Mann\* in the following words:—"After the particular attention which I gave to this subject (religious instruction) both in England and Scotland, I can say, without any exception, that, in those schools where religious creeds, and forms of faith, and modes of worship were directly taught, I found the common doctrines and injunctions of morality, and the meaning of the preceptive parts of the Gospel, to be much less taught and much less understood by the pupils, than in the same grade of schools and by the same classes of pupils with us," in Massachusetts, where the teaching of all sectarian doctrines in common schools is prohibited by law. Is not this sacrificing Christianity itself at the shrine of sectarianism?

The elements of which a sect is composed are the points in which it differs from other sects, and its existence depends on the success and assiduity with which it infuses a knowledge of and reverence for these into the minds of the young. It represents them as subjects of the utmost importance to their temporal and eternal welfare. In the estimation of its zealous leaders, they greatly surpass, in practical as well as religious importance, the order of nature. If any sect were to cease investing its points of difference with the highest reverence in the estimation of its pupils, and begin to magnify the truth and utility of the doctrines in which all are agreed, it would commit *FELO DE SE*. Its dissolution and fusion into the general body of Christian believers would be inevitable and

\* Report of an Educational Tour in Germany and Parts of Great Britain and Ireland, by Horace Mann, Esq., Secretary of the Board of Education, Massachusetts, U. S. With Preface and Notes, by W. B. Hodgson. London: Simpkin, Marshall, & Co. 1846.

speedy. The more completely, therefore, the different sects obtain the command of education, the greater will be the obstacles to the introduction of the order of nature into schools.

The points in which all Christian sects are agreed must constitute the essential substance of Christianity ; because it is on these that Christian men of all denominations act in the business and relations of life. Pious, honest, and benevolent men abound in them all ; and this common excellence must spring from a common source. The points on which they differ, although they form the life-blood and bonds of union of sects, cannot constitute Christianity ; because, if they did, the Christian religion would really have scarcely any practical form or substance. It would consist of abstract disquisitions, discernible only by microscopic eyes, and inapplicable to all beneficent ends. Who will say that the points of faith in which the Church of England differs from the Congregationalists, or the views of church government in which the Free Church differs from the Established Church of Scotland—or the Secession Church from the Free Church—or the Scotch Episcopalian Church from them all—are the essential elements of Christianity ? And yet it is for the sake of maintaining these distinctions from generation to generation, and of transmitting to the remotest posterity the bitter contentions which have so frequently vexed the spirits and alloyed the happiness of this age, that we are called on to exclude instruction in the course of nature, as a guide to human conduct, from our schools ; to reject a system of education founded on the points in which all are agreed ; and to prostrate the national mind beneath the car of sectarianism, and to allow it to be crushed into dust by its unhallowed wheels !

Practical Christianity, on the other hand, and the laws of nature, physical, organic, and moral, present the same instruction and recommend the same line of action to all, and are, therefore, destructive of sectarianism. Hence the deadly cry of infidelity which all sects raise against them ! Obedience to them is calculated to bind man to man, and nation to nation, by the ties of reciprocal interest as well as of affection and duty, and to bring all into communion with God. Our knowledge of them grows with the growth of science,

and their influence increases with the augmentation of the prosperity which obedience to their dictation yields.

Every motive of duty and interest, therefore, calls on the laity and the legislature to disenthral education from the dominion of sects, and to allow to God's providence a fair field for working out its beneficial ends. Disguise the fact as we will, the order of nature—in other words, God's secular providence—is a power which in this world shapes our destinies for weal or woe; while the peculiar doctrines of sectarianism only exalt the consequence and power of clerical teachers, and the few zealous laymen who constitute their staff. To vote money, therefore, as is done by the Minutes of Council of August and December, 1846, to every sect, to enable it to educate its own members in its own religious doctrines, is actually to endow discord. It is deserting the shrine of reason and of moral and religious principle, and bowing at that of prejudice and bigotry. It is renouncing all reverence for God's providence, as revealed in the course of nature; for every one of the sects, if it does not exclude, deny, and denounce the order of nature as a source of practical instruction to the young, at least practically treats it as a matter of small importance compared with its own peculiar dogmas. To give them the public money to enable them to pursue this course of instruction more effectually, is to encourage them in placing their own wisdom high above that of the Creator.

Truth alone can benefit a nation, yet the doctrines of every sect cannot possibly be true: to give each of them public money, therefore, to teach its own tenets, is to endow equally truth and error. It is tantamount, in physics, to setting in motion antagonistic forces; in cookery, it is like paying one man to pour wormwood and another sugar into the cup of which the nation is to drink. By all means, allow the men who prefer wormwood to fill their own bowl with it; and those who prefer sugar, to fill theirs with sugar; but let not the government, which superintends the cup out of which all must drink, pay men with national money to destroy the contents of that cup, and render them a potion which no human palate can endure. To pay all sects, who are teaching solemn contradictions, implies an utter disbelief in any intelligible order of God's providence on earth. It deliberately

supersedes the teaching of it, and plants conflicting catechisms, liturgies, and confessions, in its place. If the heads of the government cannot discern in science an exposition of the order of nature, or, in other words, of the course of God's providence on earth, they may at least so far defer to divine wisdom and intelligence, as to believe that God's providence, however dark, must be self-consistent, and that it does not promise to prosper contradictions!

Will not the men of intellect and science who see this to be the case, assume courage, speak out, and help to stem the torrent of sectarianism which overflows the land? They have it in their power at this moment to do their country an invaluable service, for which she would one day rear monuments of gratitude to their names. Will they, through fear of a little temporary obloquy, desert the standard of truth, of God, and of the people? Let their own consciences answer the appeal, and let them act as their consciences dictate. Will no teachers arise, imbued with knowledge of the order of nature, as unfolded in science, and, with faith in its adaptation to the human faculties, communicate it, under the sanction of the religious sentiments, to the young, as a help to guide them through the thorny paths of life? Yes! Such teachers exist, and they lack only the countenance of the enlightened laity to follow the strong impulses of their affections and understandings, and accomplish this great improvement in secular instruction.

Moreover, under the sectarian system, not only is the advancing intelligence of the people shackled by the consecrated errors of the dark ages, but the most vigorous and profound thinkers among the clergy of all denominations are subdued and held in thralldom by their feebler brethren. The men of inferior endowments and intelligence take their stand on the accredited dogmas, which they cherish because they are in accordance with their own narrow and prejudiced perceptions; and they resist every liberal idea and study that has the most remote appearance of conflicting with their own preconceived ideas. As they exert a great influence over a half-educated people, trained to regard their doctrines with holy reverence, the more powerful minds too generally retire from the field, and leave them to an undisputed sway.

The best interests of society suffer from this unhappy state of things ; whereas if nature were taught, as the harmonious ally of Christianity, the men endowed with the profoundest intellects, and the purest, and most elevated emotions, would lead the general mind, and we should constantly advance. In the present time, the leaders of the Calvinistic sects are strenuously exerting themselves to bring back the public sentiment to the opinions of the beginning of the seventeenth century ; and if they do not succeed, it is science alone which prevents this consummation of their labors.

From the neglect of nature by the sects, and the paramount importance which they attach to their own peculiar doctrines, they languish when not excited by contention among themselves. Dr. Candlish illustrated this fact lately, when he called on the Free Church to renew and proclaim its "testimony ;" in other words, constantly to obtrude on public attention the peculiar views which distinguish it from all other sects. He assigned, as the motive for doing so, the danger of decay, with which it appears already to be threatened, from its distinctive characteristics being forgotten, seeing that its standards, doctrines, and discipline, are identical with those of the Established Church of Scotland. There is no perennial source of activity and progress in any doctrine that is not in harmony with and supported by the course of nature. A scheme, on the contrary, founded on the combined principles of Christianity and God's natural laws, will enjoy an inherent vitality, and a self-rectifying energy, that will cause it constantly to flourish and advance. It will in time root out sectarian errors, and unite all classes in the bonds of harmonious truth.

In advocating a non-sectarian system of national education, I do not propose to deliver over scholars and teachers to government officers, with power to mould their minds into whatever forms our rulers may prefer, as some advocates of sectarian instruction pretend. The United States of North America have set us a bright example in this enterprise. They have divided their country into convenient spaces, and designated them as school districts. The existing law of Massachusetts (Revised Statutes, 1835, title x., chap. 23) ordains that districts containing fifty families shall maintain one



school—districts containing one hundred and fifty families shall provide two schools, and so forth—"in which children shall be instructed in reading, writing, geography, arithmetic, and good behavior, by teachers of competent ability and good morals." Larger districts, again, are required to maintain a school, "in which the history of the United States, book-keeping, surveying, geometry, and algebra shall be taught." And if the locality shall contain four thousand inhabitants, the teacher shall, "in addition to all the branches above enumerated, be competent to instruct in the Latin and Greek languages, general history, rhetoric, and logic." The law requires the inhabitants to raise money by taxing themselves for supporting these schools, and ordains them to appoint committees annually for managing them.\*

In regard to the question, What, in conformity with law, may be taught in these schools in the name of religion? the "Constitution" of Massachusetts requires that all children shall be taught "the principles of piety, justice, and a sacred regard to truth, love to their country, humanity, and universal benevolence, sobriety, industry, and frugality, chastity, moderation, and temperance, and those other virtues which are the ornament of society, and the basis upon which a republican constitution is founded." The "Constitution" goes no further in specifying what things may be taught; but by the laws of the state, the school committees are authorized to prescribe the books which shall be used in the schools, under the restriction (imposed by section 23d of the Revised Statutes) that they "shall never direct to be purchased or used in any of the town schools any school-books which are calculated to favor the tenets of any particular sect of Christians." This prohibition was first enacted in 1827; but in 1835, when the statutes were revised, it was retained and re-enacted by an almost unanimous vote in both branches of the legislature, and was approved of by Samuel T. Armstrong, an orthodox gentleman, then acting as governor of the state.

The Bible is allowed to be read in all, and is actually read

\* Further details concerning the machinery by which the schools are managed, and the taxes levied, in Massachusetts, will be found in an article in the *Edinburgh Review* for July, 1841, under the title of "Education in America."

in nearly all, the schools ; and, of course, whatever it teaches is taught.

Further, "Under the provisions of the constitution and laws, children may be taught to love the Lord their God with all their heart, and their neighbor as themselves ; they may be taught to do to others as they would be done by ; to do justly, to love mercy, and to walk humbly with God ; they may be taught to visit the fatherless and widows in their affliction, and to keep themselves unspotted from the world ; they may be taught to honor father and mother ; to keep the Sabbath holy ; not to steal ; not to kill ; not to bear false witness against neighbors ; not to covet. Nay," continues Mr. Mann, "I refer to that awe-inspiring description of the judgment in the 25th chapter of Matthew, and I say that there is not a single ACTION or OMISSION there mentioned, for which the righteous are to be rewarded and the wicked punished, that may not be taught, inculcated, or warned against, in all our schools. Such, also, I know to be the opinion of the Board of Education. Are all these things, and every thing else of a kindred character, which the Scriptures contain, NON-ESSENTIALS in Christianity ? But perhaps you desire something more for the schools ? Perhaps you desire, not only that these passages (quoted by an evangelical adversary) should be read, but that certain articles of faith, or formularies, more or less in number, embodying these passages in a manner more acceptable to you than is found in the original texts, should be taught with them ?" This is what is prohibited by the law.\*—(P. 12.)

Mr. Mann continues : "I have now received more than a thousand reports from the school committees of the respective towns (districts) in the state, detailing the condition and wants of the schools. Probably a majority of them were written by clergymen. In these reports, no subject has been more freely discussed than that of moral and religious instruction, and how far the latter might be carried without trenching upon the rights of individuals : and with only two exceptions—less, therefore, than one in five hundred—the voice of these committees has been unanimous in favor of

\* "The Common School Controversy." Boston, U. S., 1844.

our constitution and laws on the subject of religious instruction, as they now stand. Every one of these reports, also, was accepted in open town meeting, and, therefore, must have received the sanction of the town whence it came."—(P. 13.)

This system, or one closely resembling it, has been found to be practicable, and to produce excellent effects, wherever it has been tried in the United States. Why should it not produce the same beneficial fruits in England and Scotland?

In discussing the question of government aid, let it ever be borne in mind, that the class most deeply interested is the poor. The upper and middle, and better-conditioned members of the lower classes, have sent, and will continue to send, their children to schools which meet their own approbation, and for which they are able to pay. It is only the poor who are the real objects of our present solicitude; and we have the choice only of one of three measures in regard to them: **FIRST**, To leave them in their present ignorant condition; which nobody advocates. **SECONDLY**, To leave them to be scrambled for by the contending sects,\* who lie under no responsibility to perform the duty of educating them. Or, **THIRDLY**, To place their education under the protection of the legislature, and of the general intelligence and philanthropy of the country. The last is the scheme which I prefer; and, disguise it as they will, those who recommend the second, have at heart the interests of a sect more than those of the people.

Such a scheme as that which is now advocated has every thing to recommend it. It is the voluntary system, preserv-

\* The Rev. Dr. Alexander, in his speech delivered at a public meeting held in Edinburgh on the 31st March, 1847, to oppose the Minutes of Council Scheme, gave a graphic representation of this scramble, which was loudly cheered by his audience, consisting chiefly of Evangelical Dissenters. "There is," said he, "another thing which I do not like in this measure, which has not been dwelt upon this evening. It is this: that, instead of giving us a scheme of national education which shall tend to merge our sectarian differences, and our sectarian prejudices, in our common interests, this measure is distinguished by nothing so much as being a contrivance, in my opinion, to deepen the animosity of sects, and to involve the country more than ever in all the fierce bitterness of sectarian strife." "The consequence will be, a continual striving among all the different sects to get hold of children, and to keep them in their schools when they are there; and, in short, to use all sorts of means in order to induce and tempt children to join one sect rather than another."

ing all its excellent elements, and freed from several serious imperfections. The benevolent and active members of every school district naturally become the voluntary springs and managers of the whole educational machinery within it. They give life and vigor to its efforts, and control its every movement. They are enabled to do this with greatly-increased effect, from the law placing funds at their disposal, arming them with official authority, and backing them by the moral influence of the WHOLE COMMUNITY, instead of that of a single sect. Again, the exclusion of sectarian teaching operates most beneficially on the mind of every one who takes an interest in schools. It accustoms him to look on the points of faith and practice in which all Christian sects are agreed, instead of dwelling with concentrated attention on those which distinguish his sect from all others. And this promotes the growth of brotherly love and true religion. It leads the mind insensibly to perceive that Christianity consists rather in the points of faith and practice in which all sects are agreed, than in those regarding which they differ.

We are told, however, by some able opponents of the educational scheme introduced by the orders of Council, that government has no right to interfere with the secular instruction of the people, and that voluntary effort is adequate to accomplish all that is needed for the public welfare. In my late "Remarks on National Education," I endeavored to show that government is not only entitled, but bound, to enable the people, by legislative aid, to organize their own wealth and intelligence for the establishment and maintenance of schools for universal instruction; and I now beg to add, that experience shows that legislative aid beats voluntary effort out and out in this good work. England has been left to voluntary effort for the education of her people from the foundation of her institutions, and what has been the result? Mr. Horace Mann, in his Educational Tour, says, "England is the only one among the nations of Europe, conspicuous for its civilization and resources, which has not, and never has had, any system for the education of its people. And it is the country where, incomparably beyond any other, the greatest and most appalling social contrast exists; where, in comparison with the intelligence, wealth, and refinement of what are called

the higher classes, there is the most ignorance, poverty, and crime among the lower! Owing to the inherent vice and selfishness of their system, or their no-system, there is no country in which so little is effected, compared with their expenditure of means; and what is done tends only to separate the different classes of society more and more widely from each other."

In Prussia and the United States, on the other hand, the education of the people has been conducted by legislative authority and aid. The proper way to judge of the merits of the different systems, is to select two nations in corresponding degrees of ignorance, and inquire within what time each had attained to a certain degree of morality, intelligence, and industry. Now it is a fact, which all history supports, that in the beginning of the present century the common people (for it is to their condition that the controversy refers) of Prussia and Western Germany were many of them serfs, and most of them steeped to the core in ignorance, indolence, and vice, oppressed by unmitigated despotisms, and valued by their rulers chiefly as materials for war. They resembled the English common people in the reign of Queen Elizabeth. The English have enjoyed free institutions for two hundred and fifty years, and during all that time the Voluntary principle in education has been allowed to do its best to elevate their condition, unawed by despotism and uninterrupted by foreign invasion. The liberation of the Prussian peasant from slavery, and the introduction of the national system of education, dates from 1807, but the latter did not come into full operation till ten years afterward. One generation, therefore, has not yet entirely passed away since it was introduced. In thirty years the Prussian system has put a soul under the ribs of death, called into existence a national, intelligent, and energetic spirit, destroyed one half of the remaining power of the Church of Rome, and extorted by moral force, without revolution or shedding one drop of blood, institutions more or less free, from all the sovereigns of Germany, except Austria! Can any one show as much accomplished by the Voluntary principle in the same period, starting from the same zero of attainment in England?

Mr. Mann sums up his description of the English "no-sys-

tem," and of the Prussian scheme, in the following words :— "Arrange," says he, "the most highly civilized and conspicuous nations in Europe in their due order of precedence as it regards the education of their people, and the kingdoms of Prussia and Saxony, together with several of the western and southwestern states of the German confederation, would undoubtedly stand pre-eminent, both in regard to the quantity and quality of instruction. After these come Holland and Scotland." "The whole Prussian system," continues Mr. Mann, "impressed me with a deep sense of the vast difference in the amount of general attainment and talent devoted to the cause of popular education in that country, as compared with any other country or state I had ever seen."— (Page 146.)

There is a great difference between the influence of the voluntary principle when applied to the support of churches and of schools for the poor. The object of the church is to provide means for securing the eternal salvation of the contributor and his family—a most momentous consideration to every reflecting man. It involves the selfish principles of his nature as well as his affections and his sense of religious duty. The school for the poor, on the other hand, addresses chiefly his moral and religious sentiments, leaving his self-interest far in the rear. Experience shows that these emotions do not suffice to induce the rich to provide sufficiently for the physical wants of the poor, and, in consequence, Parliament has enacted poor-laws. How, then, should we rely on them for providing for a less clamant mental destitution?

In supporting these views, I beg to be understood as leaving the Scripture doctrines relating to eternity altogether to clerical superintendence. The statements that the precepts of Christianity, in relation to human conduct in this world, are in harmony with, and supported by, the ordinary course of God's providence, and that they can never become practical until the reality of their being so is demonstrated to the understandings, and recommended to the moral and religious sentiments, of the people, can be objected to by those only who find a difficulty in reconciling their peculiar dogmas to such propositions. In the words of Archbishop Whately, "Revelation may be compared to a telescope, which brings



within our view things beyond the reach of the naked eye, but which no more supersedes the use of eyes than revelation does the use of reason; and which, again, if it be a good telescope, does not distort or discolor such objects as do lie within the reach of unaided sight. Even so revelation, though going BEYOND what reason could alone discover from a view of the created universe, will never CONTRADICT the perceived laws of that universe. A pretended revelation would be proved not to be a true one, if it were at VARIANCE with the laws by which the Maker of the universe governs it.\*

The conclusions which I draw from what has been stated, are the following: that, in the present condition of sectarian religion, the government is not justified in endowing all sects to teach conflicting creeds and catechisms to the young; that the order of nature is of divine institution, and calculated to serve as a guide to human conduct, and therefore should be taught to the young in the form of secular instruction, and its authority and lessons should be enforced by an appeal to their moral and religious sentiments; that the practical precepts of Christianity harmonize with, and are supported by, the order of nature, and should therefore be taught along with natural science; but that all doctrines on which religious sects differ (not being connected with nature) should be excluded from national schools, and left to be taught by the parents and clergy of each sect to the children of its own communion, at separate hours and in separate apartments; and, finally, that national education should be supported by a rate levied on school districts, but that the administration of the fund and of the school should be committed to the rate-payers of the district under proper regulations to be enacted by Parliament, and under government inspection.

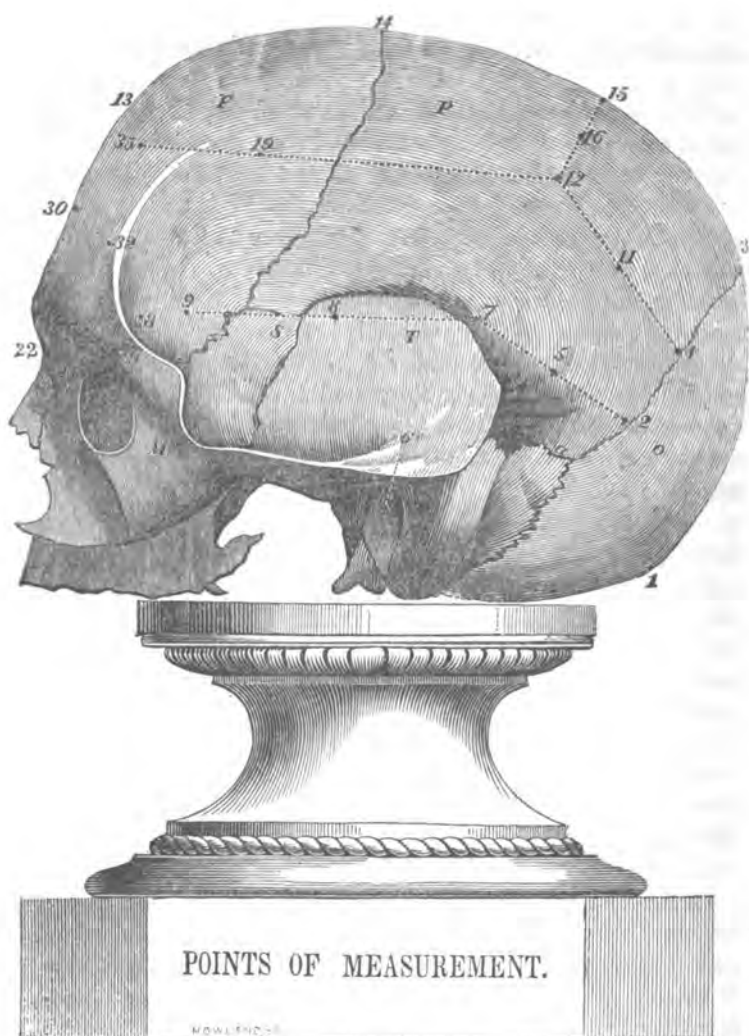
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Two questions are considered in the preceding pages: what is the state of practical religion in this country? and, what is the remedy for its present condition? In regard to the first point, I beg to adduce the testimony of the North British Review for February, 1847. In an article in that number, generally ascribed to the Rev. Dr. Chalmers, and

\* "Essay on Christian Self-Denial," and in other works.

bearing all the characteristics of his style, it is said that "As things stand at present, our creeds and confessions have become effete, and the Bible a dead letter; and that orthodoxy which was at one time the glory, by withering into the inert and lifeless, is now the shame and reproach of all our churches." (Vol. vi., p. 326.) Again, "There must be a most deplorable want among us of 'the light shining before men,' when, instead of glorifying our cause, they (men like Thomas Carlyle) can speak, and with a truth the most humiliating, of our inert and unproductive orthodoxy."—(P. 328.)

This representation is even stronger than that which I have ventured to give of the same subject in the preceding pages; and it is some advantage to start with so distinct a recognition, and from so high an authority, of the "great fact," that the present state of practical religion in this country is not satisfactory. The remedy suggested in the Review is widely different from that which is here advocated; but the public are the legitimate judges of the merits of the several proposals.



## MATHEMATICS OF PHRENOLOGY.

ILLUSTRATED WITH A PLATE—INTENDED TO AID STUDENTS.

BY JAMES STRATTON,

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It is surely impossible to contemplate the amazing accuracy which instrumental measure has imparted to many departments of science—an accuracy immensely beyond the reach of the finest unaided eye—and not feel a wish that some such services were rendered to Phrenology. It is, indeed, easier to conjecture than to certify, why so little has hitherto been done in efforts to render these services. It cannot be the difficulties which stand in the way. The human head is not an object which, either by its magnitude or its minuteness, its flexibility or its irregularity, defies either the application of instruments or the powers of calculation. It seems impossible that those differences in size which are so obvious to the eye cannot be measured by some uniform scale, and expressed in terms of definite, known value. It may be—(rather must be, shall we say?)—that the extensively practiced, forgetting their early difficulties when experience has rendered very little mathematical aid sufficient for their individual use, become reconciled to acquired habits, and think little more of those difficulties which they have ceased to feel. Yet such is not always the case; for, that the ordinary specifications of size and proportions are all but intolerably painful, vague, and perplexing to some minds, is a fact publicly recorded by friendly hands, with much ability, and much more bitterness than comports with beauty in philosophical disquisition. Stand the matter how it may, this much will be readily admitted, that the increasingly rigid requirements of scientific minds, the changing social arrangements, the progress of individual improvement—in short, the interests of all (except the unprincipled quack), call for the utmost precision in estimating and recording size, which is, in the nature of the case, practicable.

Believing that improvement was possible, I have attempted it to some extent, and the results obtained have either completed the delusion, or confirmed my conjectures.

I propose, in the subsequent pages, First, to show how the human head, or cranium, may be measured by very simple means, and with an approximation to mathematical accuracy sufficient for practical purposes. Second, to graduate a scale, indicating the average size, the average range, and the extreme ranges of size which have been found among the various races of men.

After measuring the head as a whole, and determining its place in the scale of size, I propose, in the third place, to measure that whole in separate parts; and, fourthly, to determine the relative size of those parts in equally-balanced heads.

The principal aim, in measuring separate parts, is to furnish the eye of the observer with a more definite range or standard whereby to estimate the more minute portions—the individual organs. I have, therefore, attempted instrumental measure to the **LEAST** possible extent only which would be useful for that purpose. The principal object in view, throughout, is to remove perplexing uncertainties, in attaching a meaning to the language of the masters, and thereby to impart a proper degree of confidence to the student, and, to the more advanced, a uniformity in the estimating and recording of size and proportions, which I believe has hitherto been unnecessarily difficult to attain.

The shape of the human head, or cranium, may be described as partly cubical, and partly spherical. The latter seems to the eye to predominate so much, that, previous to an extensive series of measurements, it might readily be supposed that spherical was the only measure likely to approach accuracy. This mode was proposed in the *Phrenological Journal*, vol. viii., p. 403, and two examples are quoted, which give results very near the truth. I have no doubt of the examples being correct, but they are exceptions to a rule so general, that, according to my experience, ninety-five cases **AT LEAST** in each hundred give results varying from 15 to 40 cubic inches below the truth. The following are specimens of the results which I have obtained :

	Spher.	Proof.		Spher.	Proof.
Thurtell . . . .	161	160	Cordonnier . . . .	139	180
Ann Ross . . . .	87	114	Rev. Mr. M. . . .	145	165
Clara Fisher . . . .	94	117	Allan . . . . .	116	148
Linn . . . . .	138	180	M'Innes . . . . .	116	135
Greenacre . . . .	103	135	Adam . . . . .	116	140
Eustache . . . .	115	155			

Referring to nature for further proof, I pass from spherical measure as unsuitable for our purpose.

## MEASUREMENT IN WATER.

The head, or skull, may be measured to any degree of accuracy, by marking the quantity of water which it displaces in a receiver of known dimensions. This mode is, of course, inapplicable, or inconvenient, in most cases, for the living head, but, as it gives a standard proof wherewith to test the accuracy of every other mode, and can be easily applied to skulls and plaster casts, the following is given as a simple and convenient means of obtaining proofs.

The receiver is constructed as nearly square as possible, 10 inches long, 10 inches broad, and 8 inches deep, inside. One of the sides is a plate of glass; all the other parts are of pine deal, well saturated with paint. On the plate of glass is fixed a perpendicular scale, divided into inches and tenths of an inch.

The 0, or zero of the scale, is about five inches from the bottom of the receiver, inside, which is accurately filled with water up to the 0 point before the object is immersed.

In taking measurements, the head or skull must be put into the water, with the top lowermost, till the surface of the water touches the articulation of the nasal and frontal bones, and enters the opening of both ears. From the given dimensions of the receiver, it will be obvious that each inch which the water rises on the scale corresponds to 100 cubic inches (i. e.,  $10 \times 10$ ), and each tenth to ten cubic inches. The use of a vernier would give single inches, or even tenths of an inch, with equal accuracy, but a practiced eye will find the aid of the vernier unnecessary. It is by such means that all the proofs quoted in the following pages have been obtained.



## THE CRANIUM.

To simplify the specifications which will be submitted for investigation as we proceed, we may here enumerate the different points and lines to and from which the measurements are taken, and note their places on the several parts of the cranium.

The accompanying plate represents a skull, on which the lines and points are marked.

The anatomical parts are briefly the following:

**BONES.**—O, the OCCIPITAL; P, the PARIETAL; F, the FRONTAL; N, the NASAL; M, the MALAR; S, the SPHENOID; and T, the TEMPORAL.

**SUTURES.**—The LAMBDOIDAL articulates the occipital to the parietal bones from 3 to  $\alpha$ , and to the temporal from thence downward.

The SAGITTAL unites the superior margins of the parietal bones, along the line 3, 15, 14.

The SQUAMOUS joins the temporal bones to the sphenoid and the lower margin of the parietals.

The CORONAL touches the sphenoid at each side, and unites the frontal to the parietal bones.

The TRANSVERSE connects the frontal with the nasal at 22, with the malar at 29, and others more deeply seated.

## POINTS OF MEASUREMENT.

1. Occipital spine.
2. Posterior margin of P at half the distance from  $\alpha$  to 4.
3. Termination of the sagittal suture at the occipital bone.
4. Middle of the posterior margins of the parietal bones.
5. Middle of the straight line from 2 to 7.
6. External opening of the ear.
7. Middle of a straight line from 6 to 12.  
On a straight line, joining 7 and 28, place—
8. Equidistant from 7 and 9, and
9. Equidistant from 28 and the parietal bone.
11. Middle of the line from 4 to 12.
12. Centres of ossification of the parietal bones.
13. On the middle line of F, equidistant from 14 and 22.

14. Middle of the coronal suture.
15. Middle of the sagittal suture.
16. Half the shortest line from 12 to the sagittal suture.
19. One third the horizontal line from 35 to 12.
22. Nasal vertex, or middle of the transverse suture.
23. Internal angular processes of F.
28. Commencement of the temporal ridge.
29. Junction of M with the external angular processes of F.
30. Centre of the forehead.
32. Middle of the line joining 29 and 35.
35. Centres of ossification of F.

The numbers selected to indicate the points of measurement, though not in regular series, answer our purpose equally well, and have also the advantage of being familiar to the student, in relation to the subjacent parts of the brain.

#### GENERAL DIRECTIONS.

The specified points of measurement will generally be found to correspond nearly with the centres or margins of phrenological organs, but such is not necessarily or uniformly the case. For our present purpose, the anatomical points are to be adhered to, without reference to the phrenological organs.

In some cases, local irregularities of surface occur at some of the points; most frequently at 3 and 19. These are to be avoided, or allowed for in taking measurements.

The best examples to begin with are skulls or finely-executed casts, which show the articulations, etc., distinctly. The most difficult are plaster casts of heads. If these have masses of stucco representing hair, it is impossible to measure them accurately.

The following may be suggested to beginners as an easy mode of preparing to measure:

Having selected a suitable cast or skull, mark with a pencil or bit of chalk the points 4, 12, 29, and 35; join these by lines, and mark the points 11, 19, and 32. Finish the pointing in the following order: 1, 3, 15, 30, 22, 23, 28, 7, 2, 5, 8, 9.

It will readily be understood that, in taking the measurements which will be proposed as we proceed, an ordinary degree of precision is requisite. Accuracy within the tenth of an inch is essential. The numbers being all used in evolving cubic results, an error which might appear trifling in itself may assume seriously vitiating importance, when multiplied to the extent unavoidable in the specified calculations.

In measuring, the callipers is the only instrument required. In practice, I have found the time and labor very much abridged by a peculiar construction of the instrument. It has a scale attached, on which the inches and tenths, "imperial standard," are marked the full length; these can be accurately read as soon as the instrument is adjusted to the intended points of measurement.

#### CUBIC MEASURE.

The human head, or cranium, may be measured, as an irregular cube, with a degree of accuracy all but perfect.

The average length, breadth, and height can be deduced from a number of measurements—the more, the better for precision; but the fewest by which the requisite accuracy is attained, is the best for practical utility.

I think myself warranted by a series of experiments, which it is impossible to detail in any reasonable number of pages, to submit the following, as a formula which fulfills the essential conditions of sufficient accuracy, simplicity, and applicability to every variety of case.

To find the average

**BREADTH.**—Add the measurements from 5 to 5, 7 to 7, 8 to 8, and from 9 to 9; divide the sum by 4; the quotient is the average breadth.

**LENGTH.**—The measurement from 3 to 30 is the average length.

**HEIGHT.**—Add the measurements from 6 to 16, from 1 to 3, and from 22 to 13; divide the sum by 3; the quotient is the average height.

Multiply the height by the breadth, and the product by the length. The result represents the cubic measure.

## TABLE OF MEASUREMENTS.

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EXAMPLE.—R. R. ROY—PROOF, 190.

$5\cdot6+3\cdot2+2\cdot6=11\cdot4\div3=3\cdot8$	Height . . .	3·8
$5\cdot4+6\cdot4+6\cdot2+5\cdot4=23\cdot4\div4=5\cdot85$	Breadth . . .	5·85
		<hr/> 190
		3·04
		<hr/> 19 0
		22·230
From 3 to 30 . . . . .	Length . . .	8·4
		<hr/> 8·8920
		177·840
		<hr/> 186·7320
	Cubic inches . . . . .	

## TABLE OF CUBIC MEASURE.

HEADS.	Height.	Breadth.	Length.	Cubic M.	Proof.
Dr. Gall . . . . .	3·9	5·8	7·5	170	174
Rev. Mr. M. . . . .	3·9	5·5	7·7	165	165
R. B. Sheridan . . . . .	3·8	5·6	7·8	165	166
F. Cordonnier . . . . .	4·	6·2	7·2	178	180
Rajah Ra. Roy . . . . .	3·8	5·8	8·4	185	190
French M. D. . . . .	4·	5·8	7·6	176	178
Mr. Goss . . . . .	4·	5·2	8·4	175	178
Robert Owen . . . . .	3·7	5·4	7·6	152	155
Mr. King . . . . .	3·8	5·8	7·4	159	160
Mr. Terry . . . . .	3·9	5·5	7·5	160	160
Horace Smith . . . . .	3·7	5·6	7·7	160	165
Ann Ross . . . . .	3·3	5·1	6·6	112	114
Clara Fisher . . . . .	3·2	5·1	7·	114	117
Eustache . . . . .	3·6	5·6	7·7	155	155
MURDERERS.					
Hare . . . . .	3·3	5·8	7·7	150	150
Burke . . . . .	3·4	5·8	7·5	148	148
Allan of Aberdeen . . . . .	3·6	5·4	7·5	146	148
Adam of Inverness . . . . .	3·6	5·5	7·2	143	145
Greenacre . . . . .	3·3	5·5	7·3	132	135
Courvozier . . . . .	3·8	6·	7·7	176	180
Linn, parricide . . . . .	3·8	6·2	7·8	179	180
Thurtell . . . . .	3·7	5·6	7·6	157	160
M. M'Innes . . . . .	3·5	5·3	7·3	135	135
Dean . . . . .	3·5	5·9	7·3	151	152
Martin, parricide . . . . .	3·5	5·5	7·1	136	138
SKULLS.					
Robert Burns . . . . .	3·6	5·3	7·6	145	145
Dr. Spurzheim . . . . .	3·7	5·6	7·	145	145

TABLE OF CUBIC MEASURE.—*Continued.*

SKULLS.	Height.	Breadth.	Length.	Cubic M.	Proof.
La Fontaine . . . . .	3.5	5.6	7.6	149	150
Swift . . . . .	3.3	5.5	7.2	130	130
King Robert Bruce . . . . .	3.4	5.4	7.1	130	130
Gen. Wurmser . . . . .	3.2	5.3	6.9	115	115
Mil. of Vienna . . . . .	3.	4.9	6.4	94	95
CRIMINAL.					
Haggart . . . . .	3.2	5.	6.9	110	110
Bellingham . . . . .	3.2	5.3	7.1	120	120
Nisbet . . . . .	3.2	5.	7.3	115	115
Griffiths . . . . .	2.8	4.8	6.9	93	95
Tardy . . . . .	3.4	5.4	7.3	128	130
Chinese Assassin . . . . .	3.3	5.1	6.5	109	112
Agnes Clark . . . . .	3.	5.	6.7	99	100
Chatham Convict . . . . .	3.2	5.4	7.5	130	130
Buchanan . . . . .	3.1	5.1	7.1	114	115
Cung. Debtor . . . . .	3.1	5.2	6.7	108	110
French Soldier . . . . .	3.2	4.9	6.4	100	100
NATIONAL.					
Icelander . . . . .	3.1	5.2	6.9	110	110
Celt . . . . .	3.1	5.	7.6	117	120
Swiss . . . . .	3.2	5.3	6.6	112	115
Ancient Greek . . . . .	3.3	5.2	6.7	115	118
Circhesian . . . . .	2.8	4.6	6.5	84	84
Armenian . . . . .	3.2	4.6	6.6	97	97
Chinese . . . . .	3.	5.3	6.5	98	100
Hindoo . . . . .	3.1	4.8	6.8	103	105
Burmese . . . . .	3.	5.	6.	90	90
Ceylonese . . . . .	2.8	4.8	6.4	86	88
Native of Java . . . . .	3.2	5.2	6.5	108	110
Papuan Islander . . . . .	3.2	5.6	7.	126	130
New Holland Chief . . . . .	3.1	5.	7.1	110	112
New South Wales Female . . . . .	2.9	4.4	6.3	80	82
New Zealander . . . . .	3.1	5.	7.	108	110
Moor . . . . .	2.9	4.5	6.5	85	88
Peruvian . . . . .	3.2	5.1	5.6	92	94
Negro . . . . .	3.1	4.8	6.8	101	102
Ashantee . . . . .	3.3	4.8	7.	111	112
Mozambique . . . . .	3.1	5.1	7.4	117	120
Caffre Female . . . . .	3.	4.6	6.9	95	95
Esquimaux . . . . .	3.	4.7	6.4	90	92
Esquimaux . . . . .	3.	4.7	6.8	96	98
North American Indian . . . . .	3.	5.	5.8	87	90
Carib . . . . .	3.	4.8	7.2	104	106
Peruvian . . . . .	2.9	5.3	5.8	89	92

TABLE OF CUBIC MEASURE.—*Continued.*

NATIONAL.	Height.	Breadth.	Length.	Cubic M.	Proof.
Brazil Indian . . . . .	2·9	4·6	6·4	85	88
Chilese . . . . .	3·	5·	6·4	96	98
Araucanian W. . . . .	3·1	5·2	6·5	105	105
Ceyl. T. T. Boy . . . . .	2·8	4·3	6·5	78	82

The examples given in the table have been selected from those most likely to be familiar or accessible to phrenologists in this country. The majority of the casts are from O'Neil of Edinburgh. They are fully described in the "Phrenological Journal," "The System of Phrenology," by Mr. Combe, and other leading works on the science. Other casts of the same figures will probably differ slightly in some of the measures—will certainly do so, indeed, except taken with great care from the same mould; but such difference will not affect the main question in hand, namely, the approximation of the proposed measurement to the proof obtained in water. This, I respectfully submit, is sufficiently near for practical purposes, and sufficiently simple to be applicable to all cases.

A nearer approach to fractional accuracy may easily be made, with the same formula, by those who think it desirable. No extraordinary care has been exercised in preparing the table. Fractions beyond the first decimal place have been dropped, and the cubic dimensions are expressed in the nearest integers. In short, the aim has been to exhibit such results as the student may readily obtain, after sufficient practice has given an ordinary degree of accuracy in executing the measurements and calculations.

## AVERAGE SIZE.

We come now to inquire what is the average size, what the average range or variation of sizes, and what are the extremes of range which have been found to obtain among the nations and tribes regarding whom we possess any information on the point in hand. In other words, to determine mathematically, as nearly as may be, what is an average size of head—what is a large, a small head, etc.



Here it may be premised, that though the information possessed is neither so extensive nor so precise as could be desired, yet we hope to adduce such a chain of evidence as will warrant us in sketching the outline of a scale which will be useful, by rendering some important service, until we are prepared to substitute a better.

The first question in this department of our inquiry is that of AGE. Should our inquiries be limited to the adult head, or should they embrace all ages, or stages of existence of the human being, from birth upward? It seems to be generally admitted, that from ten years old to sixty is the period during which phrenological observations may be made with greatest certainty, and such may possibly be the truth, especially as regards the latter period. But there are many questions yet to be settled, which require us to extend our observations to a period anterior to ten years of age—even to birth, I presume.

For example, the most extraordinary difference of opinion prevails at the present moment regarding the period at which the human head attains its full, fixed, or adult size; and this difference of opinion seems to be increasing rather than diminishing. To settle this question alone, if it is to be settled by phrenologists—and I know none either so competent or so strongly called upon by the interests of science to settle the point—would carry our inquiries back to three years of age, as we shall see presently.

Professor Tiedemann says, in the *Philosophical Transactions*, for 1836, p. 504, "The brain arrives, on an average, to its full size toward the seventh or eighth year. Soemmering says, erroneously, that the brain does not increase after the third year. The brothers Wenzel have shown that the brain arrives at its full growth about the seventh year. This is confirmed by Hamilton's researches. Gall and Spurzheim, on the other hand, are of opinion that the brain continues to grow till the fourteenth year." Gall and Spurzheim will be found to be nearest the truth; and, in so far as they err, they will be found to have stated the age below rather than above the truth. I venture to think my conjectures well founded from such considerations as the following. The gradation of age and size, exemplified in the family quoted below, is what

I have seen so often, that, in a similar family, I would expect to find a similar gradation as a matter of course :

M.	aged	6 months—size of head,	72 cubic inches.
E.	"	3 years,	" " 98 "
P.	"	5 "	" " 104 "
Jn.	"	8 "	" " 114 "
G.	"	10 "	" " 121 "
L.	"	12 "	" " 124 "
Mt.	"	20 "	" " 128 "
Js.	"	18 "	" " 133 "
Wm.	"	15 "	" " 147 "
A.	"	22 "	" " 142 "

Here, it will be observed, we find a gradation of relative age and size, which may be termed regular with irregularities. Wm., aged 15, had a larger head than any other member of the family at birth, and he still retains the peculiarity. Mt., the daughter, 20, has rather less than Js., the son, at 18, a fact quite in harmony with the well-known relative proportions of the male and female head. The other members of the family exhibit a regular gradation of age and size. To affirm that the head of any one of the family, even A., 22, has attained its full size, would be an assumption altogether unwarranted by any extensive class of facts that I know.

Persons engaged in the hat business have the most extensive means of knowing the size of heads. All such parties that I have conversed with on the subject, are uniform in their testimony that the head rarely attains its full size before eighteen years of age, and frequently continues to increase till twenty-four, or even later.

Dr. J. B. Mege, of Paris, says, "The human brain requires from forty-five to fifty years to attain its highest degree of development and activity. The head of Cuvier is an example of this law." *Zoist*, No. 10, p. 147.

If the experimental researches of Mr. Deville of London be admitted as evidence good for any thing, they confirm that of Dr. Mege.

But, supposing, for a moment, the question of adult size to be settled, there are others equally important which remain to be so—questions for which urgent reasons exist that they also

should be settled as early and accurately as possible. This becomes obvious on reflecting that it is to the young of our race that Phrenology can render its most valuable aids. It is in behalf of the young (often far below ten years of age) that the phrenologist will most frequently be required to give an advice which may exercise very important influences on the life and future comfort of many of his fellow-creatures. And that advice is sometimes requested under circumstances of such a nature, that a refusal to comply with the request would be attended with very pernicious consequences to the youthful subject. I could quote more than one such case, but think it unnecessary.

Now, though it may be quite true that the more minute characteristics of individual development are not so distinctly to be seen before, as after, ten years of age, yet I offer it as a question, which my present evidence would lead me to answer in the affirmative, that the leading features of character are traceable at five years of age, and even sooner, in many cases. But, be that as it may, in order to prepare the phrenologist to render the greatest possible amount of service to the young, it is necessary that the following, and, it may be, other questions, be fully answered by an ample amount of evidence:—What is the average size of the head at birth? What is the range of sizes at the same period? What is the rate, or rates, of increase at the different periods of infancy and youth? What are the modifications of development which take place between infancy and maturity? What are the effects produced on development and character by training and circumstances?

Such are some of the reasons why I regard it as essential that our inquiries should embrace all ages and sizes, from birth to fifty years at least.

Before we can render two of the sources of evidences which we are about to examine, available for our purpose, it is necessary to determine how the external measure of the head may be deduced from the internal capacity of the cranium. To effect this, I ascertained the ordinary thickness of the skull at the points of measurement, by examining a number of crania and fragments. I also ascertained the ordinary thickness of the covering integuments at the same

points, and found that the calculation may be effected as follows :

To find the external from given internal dimensions of the cranium—

- Add .3 to the average height ;
- “ .23 to the average breadth ;
- “ .3 to the average length.

To infer the corresponding size of head from the external dimensions of the cranium—

- Add .3 to the average height ;
- “ .33 to the average breadth ;
- “ .3 to the average length.

We are now prepared to avail ourselves of the valuable evidence furnished to this department by Dr. S. G. Morton, in his work, “Crania Americana.” From that work, the columns of “internal capacity” (Int.) in the following table are quoted from the Edinburgh Phrenological Journal, vol. 13, p. 357. The columns of external measure (Ext.), and size of the head (H.), are found in the manner just specified.

	No. of S.	AVERAGE.			LARGEST.			SMALLEST.		
		Int.	Ext.	H.	Int.	Ext.	H.	Int.	Ext.	H.
Caucasian . . .	52	87	105	130	109	131	159	75	92	114
Mongolian . . .	10	83	101	125	93	112	138	69	85	106
Malay . . .	18	81	99	123	89	107	132	64	78	98
American Aborig.	147	80	98	122	100	119	146	60	74	93
Ethiopian . . .	29	78	96	119	94	113	139	65	79	99

The Caucasian variety is represented above by 52 specimens, all from the lowest classes of society, except one. This is an acknowledged defect.

In the American Phrenological Journal, vol. i., p. 287, we find a table of eight measurements of each of the heads of 52 of the “leading men” in America. From these measurements, I have endeavored to estimate the size of the respective heads, and believe the following is very near the truth :

Average of the whole, 165. C. inches. Largest 170, smallest 145. C. inches.

The next inquirer in this department we come to notice is Dr. Frederick Tiedemann, Professor of Anatomy and Physiology in the University of Heidelberg. He executed an extensive series of experimental researches, with a view to ascertain the size of the Negro brain, in comparison with the other races of man, and thence to infer the relative intellectual capacity of the African race.

That eminent professor visited the principal European collections of crania. Among others, those of the University, the Phrenological Society, and Dr. Knox, Edinburgh; Surgical College, Dublin; Christ College, Oxford; St. Thomas', Guy's, St. Bartholomew's Hospitals, Hunterian and South's Museums, London; Museum of Frankfort, of Soemmering, of Camper, etc. He measured all the specimens which he was fully satisfied of the authenticity of, and published the results of his labors in the Philosophical Transactions of the Royal Society, London, for 1836, p. 497-528.

The article gives very valuable evidence on the point in hand, but there are some reasons for doubting the entire accuracy of the capacities which may be inferred from the tables given.

The professor measured the internal capacity of each skull by filling it with "dry millet seed." He recorded the weight in pounds, ounces, and grains troy, in a series of tables given in his paper. Here a question occurs, Does "dry millet seed" weigh exactly the same, measure for measure, at all times, in all countries? If so, it is an exception to a very general rule. We shall grant that it is so; but a still more serious difficulty remains: Does a given weight of millet seed always occupy the same extent of space, whatever care may be taken in shaking, packing, or adjusting it? I must answer in the negative, and admit that here is a source of uncertainty, it may be of error, which it is much to be wished had not existed. Any one may verify this by taking a straight, smooth, glass tube, ten inches long, one inch or more in diameter, and closed at one end. Fill the tube carefully, but without shaking, of dry millet seed, quite full. It will then be found easy to shake the seed into less room, so far that one inch of the tube is empty. In other words, it is quite easy to err 10, 15, or 20 inches in measuring skulls by such means.

The same objection, though not to the same extent, applies to the use of lead shot for such purposes. I have noticed this objection at some length, in order to put students on their guard, and to remind them that a liquid, such as mercury or water, is the most suitable substance wherewith to measure cranial capacity.

Let us take it for granted that each cranium was shaken, or packed, with a moderate and nearly uniform degree of care, and that dry millet seed, under such circumstances, weighs .45 oz. Troy, per cubic inch, which I believe is very near the truth, but would respectfully suggest to such phrenologists as can identify any of the specimens measured by the professor, to repeat the measurements in some way which cannot be mistaken, and to publish the results, in order to secure the evidence of the tables on a less doubtful basis. From the data just stated, I have calculated the internal capacities of the crania, and from this the external and the corresponding size of head, in the manner previously stated, and thus obtain the following table :

	No. of S.	AVERAGE.			LARGEST.			SMALLEST.		
		Int.	Ext.	H.	Int.	Ext.	H.	Int.	Ext.	H.
European . . . .	77	92	111	137	109	131	159	73	90	112
Magnolian . . . .	20	86	103	127	99	118	145	55	69	88
Asiatic . . . . .	24	81	96	119	92	111	137	62	76	95
Malay . . . . .	38	86	103	127	109	131	159	42	55	72
American Aborig.	27	87	105	130	101	120	147	58	72	91
Ethiopian . . . .	38	84	102	126	97	116	141	70	86	107

Our next source of evidence is the measurements in use by those engaged in the hat business. This, at the first glance, may appear to some to be of little value for our present purpose, inasmuch as we only obtain the measurement of the head in one line. Hat measure, or even a series of two, three, or more measures taken in a similar way, is, unquestionably, altogether worthless, when applied to measure the absolute size of INDIVIDUAL heads. But, when used so extensively as to insure an average shape of head for each size in the series, the case is entirely altered. Now hat measure being so extensively applied as to secure, beyond all doubt, an av-



erage shape to each size, it becomes legitimate for our purpose, provided we know the average dimensions of head corresponding to each size of hat. This I have endeavored to ascertain by an extensive series of comparisons, and submit the following table as an approximation to the truth.

Hat.	C. inches.	Head.	Hat.	C. inches.	Head.
8	200 to	220	6 $\frac{1}{8}$	120 to	135
7 $\frac{1}{2}$	190 "	210	6 $\frac{1}{4}$	110 "	120
7 $\frac{1}{4}$	175 "	195	6 $\frac{3}{8}$	100 "	110
7 $\frac{1}{8}$	160 "	180	6 $\frac{1}{2}$	90 "	100
7 $\frac{1}{4}$	150 "	165	6 $\frac{3}{4}$ to 6	80 "	95
7 $\frac{1}{8}$	140 "	155	6 " 5	50 "	80
7	130 "	145			

It would not be difficult to give a much more definite value to each size than I have ventured to state. It would be somewhat laborious; but it may be made so extensively useful in determining both local and general peculiarities of size, that, to facilitate future investigations, I would respectfully suggest that phrenologists should combine their observations, in order to determine the value of each size as soon and as nearly as possible.

It ought to be noticed that there is a slight difference, to the extent of half a size, or rather more, in the standards of different manufacturers. I have based my table on the standard in most general use among the English firms.

Of the statements given me by a number of most respectable parties, whose experience in the hat business extends from ten to fifty years, I present the following brief summary:

The average size of the Scotch adult male heads is between 7 and 7 $\frac{1}{2}$  (130 to 155), rather nearer the latter than the former, say 147 C. inches. The average range of sizes is from 6 $\frac{1}{2}$  to 7 $\frac{1}{4}$  (120 to 165). 6 $\frac{1}{4}$  (110 to 120) is rather rare, and sizes below that very rare. That 7 $\frac{1}{8}$  and 7 $\frac{1}{4}$  (160 to 180) are not unusual; 7 $\frac{3}{8}$  is rare, and above that very rare. The adult female head averages about 125 inches, and the range of sizes is from 10 to 20 inches below the male head.

It is the general opinion that the size of the head varies to the extent of one size up or down in different localities. The Aberdonians, for example, get credit for being rather above the average of the Scotch. The fishing communities along

the coast, and the native Highlanders, are considered rather below the average. The examination of general features is what I here confine myself to, leaving local peculiarities till much more extensive evidence be accumulated. I shall only remark, in passing, that the evidence I possess is not conclusive regarding the superior size of the Aberdonian heads; as to the fishing communities which I have had an opportunity of seeing, the prevailing opinion is borne out by some villages, and not so by others.

In an excellent paper by a London hatter, published in the *Edinburgh Phrenological Journal*, vol. iv., we are furnished with an extensive chain of evidence on the size of hats required in various parts of England. I have heard the statements contained in that paper confirmed in many particulars (not in all) by gentlemen extensively connected with the business, and confidently offer a summary of the general details. The average size of the English adult male head is 7 (130 to 145), and the average range from 6½ to 7½ (?) (80 to 185). The female head ranges from 6½ to 7½ (80 to 155). In the lower ranks of life, the majority are below 7. In Spitalfields, Coventry, Essex, Hertford, Suffolk, and Norfolk, 6½, 6¾, and 6¾ (80 to 110) are prevailing sizes of male heads. Devonshire and Herefordshire average above London. Lancashire, Yorkshire, Cumberland, and Northumberland have more large heads, in proportion, than any other part of the country.

The evidence, based on hatter's measure, may be summed up thus:

	Average.		Average range.
Scotch, adult Male, . .	147 cubic inches		120 to 165
"    Female, . .	130 . . . . .		100 " 145
English, adult Male, . .	137 . . . . .		80 " 170 (?)
"    Female, . .	120 . . . . .		80 " 155

The evidence already quoted in this department is derived from sources so completely independent of each other, and, though varied and extensive, is nevertheless so harmonious the different parts with each other, and with phrenological observation in general (exemplified in the tables, pages 173, and 174), regarding the different races of mankind, that it appears to me to furnish an approximation to, first, the AVERAGE

SIZE of head ; and, second, the AVERAGE RANGE of sizes of the different races, which is not likely to be materially altered until phrenological observations have been extensively accumulated among each race on its native soil.

#### SMALLEST SIZES.

We turn now to consider the extremes of ranges—those points on the scale of size which nature rarely attains, and never passes, either upward or downward, in any individual of healthy normal structure, and competent mental capacity to fulfill the imperative duties of life. This is the most difficult part, especially to discover the minimum, or smallest size, the point below which none but idiots can be found.

After ten years' practice in observation, during which I have measured more than 3000 heads, and formed an eye estimate of more than ten times that number, measuring every head in any way remarkable to which I could obtain access, I have to report the following as unique in my experience, in the respective classes to which they belong :

— L —, Esq., a gentleman of talents and learning, size of head, 111 cubic inches. C. A., aged 60, a village politician, orator, wit, poet, and tinker, a little above 100. Robert Duncan, aged 29, found employed in a large manufactory, 92. Robert Gibson, pauper, found in the Public Soup Kitchen, Aberdeen, one day—18th May, 1845—when all the youths found begging were conveyed there, during a benevolent effort to suppress juvenile mendicity, age about 7, 82 cubic inches. Girl belonging to a fisher's family, age between 6 and 7, size of head, 72 cubic inches.

From the latter's evidence previously quoted, we learn that 80 cubic inches is a common size of adult male heads in Spitalfields and some other parts. We are warranted from thence to infer that adult female heads are to be found somewhat less—say 70 inches—and boys and girls still less, at or below 60 inches.

Dr. Voisin, of the Hospital of Incurables, Paris, as quoted by Mr. Combe, in his *System of Phrenology*, fourth edition, p. 40, states that "heads, 13 inches round and 9 over, are idiots of the lowest class. Heads, 17 inches round and 12 over,

give glimpses of feeling and random intellectual perceptions, but without power of attention or fixidity of ideas;" and "heads of 18 inches round give intellectual manifestations, regular, but deficient in intensity." Now, heads of 13 inches round and 9 over will generally range between 40 and 50 inches, cubic measure. Those of 17 round and 12 over will range about 70; and those of 18 inches round would, if tolerably well balanced, range from 80 to 85 cubic inches. I must take leave to doubt the inferences which the latter part of the quotation would, without explanation, lead to. The pauper boy that I found in the Public Soup Kitchen had, as I have stated, a head of only 82 cubic inches, but it was well balanced, the constitutional temperament highly nervous, and the boy is quite as intelligent as could be expected at his age, in his circumstances.

I think it highly probable that the heads of 17 and 18 inches round, noticed by Dr. Voisin, were defective in regard to either balance of parts, health, normal structure, or temperament: the latter I think most likely. And, to show cause for my conjecture, may here remark that, from the study of, not individuals only, but whole communities, living distinct from each other, but in precisely similar circumstances, I am disposed to believe that a person in whom the nervous temperament predominates, with a head of 120 inches, is equal, or nearly so, in mental scope and energy, to a person with a head of 140 inches, in whom the lymphatic temperament predominates.

In a quotation from a Memoir by Dr. James Y. Simpson, Professor of Midwifery in the University of Edinburgh, given in the *Phrenological Journal* for July, 1845, p. 245, we find the average measurements of the heads of 60 male and 60 female children at birth given thus:

Males, . . . . .	13.983 in. round, and 7.429 in. over from ear to ear.
Females, . . . . .	13.617 " " 7.221 " " "

This implies an average cubic measure of about 40 inches. And as some are more and some less, the probable range of the infant head at birth may be from 30 inches, or less, to 50 inches, or more; but evidence to fix the limits is wanting.

## LARGEST SIZES.

The **MAXIMUM**.—The highest point, on the scale of size, should not be so very difficult to determine, seeing that the largest heads are precisely those most likely to make their existence known among their fellow-men—to stamp their impress, good or bad, as the case may be, on the age in which they live.

## CAUCASIAN.

The largest head of which I have had an opportunity of measuring the plaster cast is that of Joseph Hume, Esq., M. P. After making ample allowance for hair, the cast gives a cubic measure above 210 inches. I have been told, by what I believe to be good authority, that Mr. Hume requires a hat of 8 $\frac{1}{2}$ , and that Daniel O'Connell, Esq., the famous Irish M. P., requires a hat nearly the same size. If this be true, and if the ordinary portraits which we see of him be tolerably correct, his head is broad in more than the average proportion, and must, therefore, be about equal in size to that of Mr. Hume. Mr. O'Connell appears, also, to combine a peculiarity which I have rarely found in large heads, namely, a very active and enduring temperament. Napoleon Bonaparte was an extraordinary example of such a combination. In short, we may safely assume that 220 cubic inches is about the extreme limits of size which the healthy human head ever attains among the Caucasian race.

## MONGOLIAN.

The largest head of this race which I have seen a measurement of, and whose history is known, is that of Tyloolick, an Esquimaux, who accompanied Captain Parry in one of his expeditions. The skull, according to Professor Tiedemann, measures 99 inches internal; hence the head must have been about 145 cubic inches. Eenoolooapik, a young Esquimaux chief, who accompanied Captain Penny in the whaling ship *St. Andrews* to this country, a year or two ago, has a head about the same size as his countryman just named.

## AMERICAN ABORIGINES.

The largest head of this race, whose measurement and history I have seen, is the famous warrior and chief, "Black Hawk"—rather more than 165 inches.

## ASIATIC.

The Rajah Rammohun Roy stands pre-eminent among the Asiatics known in this country for a head of great size, finely balanced. The cast we possess measures, after allowing for hair, above 185 inches.

## MALAYAN.

Professor Tiedemann gives a male native of Huaheine equal to 159 inches. We have no sketch of history, however, whereby to discover whether the head was healthy or not.

## ETHIOPIAN.

The cast of the head of Eustache, the amiable and talented negro of St. Domingo—one of the finest specimens of human nature ever known—measures 155 inches. Professor Tiedemann gives a negro of Congo equal to 170 inches; but it is so far above the next highest specimen measured, that, in the absence of a sketch of history, I do not venture to adopt its measure.

The following is a condensed view of the entire evidence connected with this department:

## MEASUREMENTS.

	Average.	Average Range.	Extreme Range.
Caucasian . . . . .	137	100 to 160	40 or less to 220
Mongolian . . . . .	127	90 " 140	40 " 145
Malayan . . . . .	126	98 " 132	40 " 159
Ethiopian . . . . .	123	100 " 139	40 " 155
American Aborigines .	122	93 " 146	40 " 165
Asiatic . . . . .	119	95 " 137	40 " 185

It remains in this department to suggest a scale, by the use of which the student will obtain definite ideas of what is



meant by a "large head," a small, a full, a moderate-sized head, etc. It fortunately happens that this is a very simple and easy part of the matter, inasmuch as we find it already in use all but complete.

The following scale, which we are in the habit of using to designate size in our ordinary practice, will, with the simplest possible addition, be admirably adapted to the purpose in view.

## SCALE IN USE.\*

- |                               |                                 |
|-------------------------------|---------------------------------|
| 1.                            | 12. Rather full.                |
| 2. Idiocy.                    | 13. Rather full, or full.       |
| 3.                            | 14. Full.                       |
| 4. Very small.                | 15. Full, or rather large.      |
| 5. Very small, or small.      | 16. Rather large.               |
| 6. Small.                     | 17. Rather large, or large.     |
| 7. Small, or rather small.    | 18. Large.                      |
| 8. Rather small.              | 19. Large, or very large.       |
| 9. Rather small, or moderate. | 20. Very large.                 |
| 10. Moderate.                 | 21. Very large, or extra large. |
| 11. Moderate, or rather full. | 22. Extra large.                |

To designate the absolute size of the head, it is only necessary to add a 0 to each number of the series, to represent the cubic inches, and the words, retained as they stand, have a definite mathematical meaning which cannot be misunderstood.

## PROPOSED SCALE.

- | C. Inches.                  | C. Inches.                     |
|-----------------------------|--------------------------------|
| 10.                         | 90. R. small, or moderate.     |
| 10.                         | 100. Moderate.                 |
| 30. Idiocy                  | 110. Moderate, or rather full. |
| 40. and                     | 120. Rather full.              |
| 50. Infancy.                | 130. Rather full, or full.     |
| 60. Small.                  | 140. Full.                     |
| 70. Small, or rather small. | 150. Full, or rather full.     |
| 80. Rather small.           | 160. Rather large.             |

\* The scale now in general use in America is from 1 to 7.

- |                              |                                  |
|------------------------------|----------------------------------|
| 170. Rather large, or large. | 200. Very large.                 |
| 180. Large.                  | 210. Very large, or extra large. |
| 190. Large, or very large.   | 220. Extra large.                |

If it be admitted that the human head can be measured with the degree of precision which we have exemplified—that the degree of precision is sufficient for practical purposes, and that the mathematical value proposed to be given to the terms of the scale is warranted by a sufficient amount of evidence—it will further be admitted that it is essential for the interests of science to retain the same meaning or value, in the subsequent steps of estimating and recording the size of the different parts or cerebral organs; and that such can be done, with a degree of accuracy exactly proportioned to the skill or observing capabilities of the party using the scale.

## EXAMPLE.

Given, a head of 140 cubic inches, in which five different degrees of size of organs are just perceptible—two above the medium or average size, and two below. The proper designation of size for the medium organs would obviously be 14, that is, "full." The next size above medium, if only just perceptibly larger to the eye of a competent observer, must be 15, "full or rather large," meaning thereby just equal to the organs in an accurately-balanced head of 150 cubic inches. The largest organs in the given head will be 16, "rather large," or equal to an equally-balanced head of 160 inches.

The next size below the medium would be 13, "moderate, or rather full;" and the smallest would be 12, "moderate," equal to the organs in a truly-balanced head of 120 cubic inches.

The same method might, of course, be adopted with heads of 100, 150, 160, or any other size, and whether the organs exhibited one, two, three, or more gradations of size above or below the medium.

It will be admitted that some such degree of accuracy as that referred to is exceedingly desirable—is attempted, indeed, by every observer, and necessarily so. With what success, is another question—one on which doubts are, with good rea-

son, entertained by many minds. And such doubts (whether well founded or otherwise) are not likely to be removed, but by estimating size, in the practice of observation, with a much greater degree of mathematical precision than is commonly attempted. Whether such can be done or not, remains to be seen. It appears to me that it can be so; and I proceed to show in what way, only premising that the method to be submitted may neither be the only nor the best way. I merely offer it as useful, till a better appear.

#### MEASUREMENT OF PARTS.

After measuring the head as a whole, I propose then to measure that whole in four or five separate parts; and if the measurement of the parts can be executed with nearly as much accuracy as that of the whole, some important advantages will thereby be obtained. It will give us the means of checking or proving the accuracy of our measurements in cases where proof by other means cannot be conveniently obtained, as is most frequently the case with the living head. Again, by determining, with something like mathematical accuracy, the size of separate portions or distinct regions of the head, we furnish the eye with an aid or standard whereby to estimate the more minute subdivisions—the separate organs of each group.

The regions or compartments which it is proposed to measure separately, are—

First, The Frontal region, or compartment of the intellectual faculties.

Second, The Coronal, or region of the superior sentiments.

Third, The Occipital, or region of the domestic feelings and inferior sentiments.

Fourth, The Lateral region, or aggressive group of organs.

The last-named region is, in reality, two separate groups, or portions, one on each side of the head, but, for the sake of simplicity, is spoken of here throughout as one. It is proposed to measure each region or portion just named as if it were formed like a pyramid—the apex dipping into the me-

dulla oblongata, and the base being a specified part of the surface of the head or cranium. It is not, of course, meant to be understood that each portion is, strictly speaking, a cerebral pyramid in natural structure, it being well known that all the fibres do not pass directly from the surface to the centre of the brain; but the irregularities, if such they may be called, are supposed to be constant, and a pyramidal figure is that which, from anatomical and mathematical considerations, it appears proper to measure.

In determining the superficial space on the head—in other words, the base of the pyramidal portions to be measured—it would obviously be impossible to adhere strictly to the outlines of the different regions or groups of organs which we are accustomed to contemplate in studying Phrenology, and even though it were quite practicable to determine the precise position of the outlines in every case, their irregular waving course would complicate the measurements far too much for practice. For our present purpose, however, it is not considered necessary to attempt to follow the precise phrenological outlines. It is believed that a sufficient approximation to accuracy is obtained if we measure the largest possible portion, or nearly so, in each region, to which a regular outline of surface can be easily and certainly found by observing anatomical points and lines—provided that the part measured always bears a proportional relation of size to the entire region. This is what I propose to do. The superficial space measured of each region will therefore be a parallelogram, more or less long, more or less broad, according to the measurements of each individual case, and always below the actual size of the phrenological group measured.

#### ANTERIOR.

(The numbers refer to the plate, and points of measurement, described on page 170.)

Length . . . . .	From 32 to 32
Breadth . . . . .	" 22 " 13
Height . . . . .	" 6 " 32

**NOTE.**—Breadth—From 22 to 13, and from 23 on one side to 35 on the other, are measurements so nearly uniform in

most cases, that, in practice, I generally prefer the latter, because the points are readily seen.

## CORONAL.

Length . . . . .	From 15 to 13
Breadth . . . . .	" 19 " 19
Height . . . . .	" 6 " 16

**NOTE.**—Length—From 15 to 13, and from 12 to 35, are usually the same, except in peculiar cases. The measure may therefore be taken from any point on the line joining 15 and 12, to any point on the line from 13 to 35, which obviously gives the truest average of the space indicated.

Breadth—Avoid irregularities on the temporal ridge.

Height—In most cases the calliper may be passed on line from 16 to near 35, touching the surface at all points.

## LATERAL.

Length . . . . .	From 2 to 9
Breadth . . . . .	" 6 " 12
Height . . . . .	The average breadth of the head.

**NOTE.**—The Lateral is really two parts, one on each side, and may be measured as such by taking one sixth the height, calculating twice, and adding the products; but as only additional trouble would be gained, it is better to calculate the two as one, following the general rule.

## POSTERIOR.

Length . . . . .	From 1 to 15
Breadth . . . . .	" 11 " 11
Height . . . . .	" 6 " 3

**NOTE.**—Length—In most cases the calliper may be passed from near 12 on one side to the other, touching the surface at all points. It is, therefore, easy to avoid irregularities.

Height—Avoid irregularities at 3, by measuring a little to one side.

Generally—Avoid local irregularities by taking that which is most obviously the nearest average of the specified measurement.

**RULE.**—To find the cubic contents, multiply the length by the breadth, and the product by one third the height.

**EXAMPLE.**

	Lnth.	Brdth.	Hght.	C. M. or nearest integer.
Anterior . . .	3.7	$\times 2.7$	$\times \frac{4.5}{3}$ (i. e. 1.5)	= 14.985, say 15 c. inches.
Coronal . . .	4.4	$\times 5.2$	$\times \frac{4.8}{3}$ (i. e. 1.6)	= 44.928 " 45 "
Lateral . . .	4.9	$\times 3.4$	$\times \frac{5.4}{3}$ (i. e. 1.8)	= 29.988 " 30 "
Posterior . . .	5.2	$\times 5.$	$\times \frac{5.2}{3}$ (i. e. 1.7)	= 44.28 " 45 "
Aggregate . . .	134.881, say 135 c. inches.			

The above measurement in regions, is that of a head which by proof gives 150 inches. The aggregate is, therefore, less than the proof by 15 inches—that is, equal to one tenth part of the whole head.

The deficiency is, as I have already stated, intentional, and practically unavoidable. It is of no consequence, however, if it be very nearly equal on each part IN PROPORTION TO ITS SIZE. The student may easily examine for himself by lining and pointing a cast or skull in the manner specified on page 171, and then measuring the specimen, when he will find that the anterior is measured slightly too short. The coronal is measured rather too narrow. The lateral does not include a part near the medulla oblongata; a protuberance, so to speak, on the lower side of the pyramid is not measured. The same remark applies to the posterior portion. I repeat, then, that each part is deficient, as nearly as can be, in proportion to its size; and that deficiency is a constant quantity, viz., one tenth part. The correction is, therefore, so simple, that it can be instantly made to any possible number within our range of calculation. Thus, the preceding example is corrected as follows, and all others in the same way:

	Measured.	Add 1 tenth.	Corrected.
Anterior . . . .	15 inches	+ 1.5	= 16.5 inches.
Coronal . . . .	45 "	+ 4.5	= 49.5 "
Lateral . . . .	30 "	+ 3.	= 33. "
Posterior . . . .	45 "	+ 4.5	= 49.5 "
	135 "	+ 13.5	= 148.5 proof 150.



In practice, it simplifies the process very much to omit the correction in all the parts except the aggregate; and every useful purpose is answered, when it is distinctly understood and recollected that the correction has to be made.

The proposed mode of measuring the head in parts is exemplified in a subsequent table, by the same list of specimen cases already given on pages 173 and 174.

The measurements of the different regions, the aggregates, corrections, and proofs, are inserted in successive columns. From these the accuracy, which it is not difficult to attain, may be judged of.

#### EQUALLY-BALANCED HEADS.

To facilitate the comparison in the practice of observation and inference, one essential, among many necessary to be known, is the corresponding measurements of the same parts of "equally-balanced" heads—that is, heads which exhibit a certain proportion in the relative size of parts, whatever the absolute size of the whole may be. Heads which are presumed to possess equal innate power, adaptation, or capability of mental manifestation in all the parts or organs, and to have no native tendency in any one particular direction more than another, except that which circumstances may impart, such heads are called **EQUALLY BALANCED**—meaning thereby, equal balance in the **CAPABILITY** of the parts to execute the functions assigned them in nature, though it may be very unequal in absolute size of parts, as we shall see presently.

Such heads are very rarely, perhaps never, seen complete in all parts; but, among the great mass of human beings, many present a near approach to an equal balance (or what is supposed to be so) in some one or more parts of the head. To determine with certainty what is an equally-balanced head, will require very extensive observation and inference; but it is not so difficult to approximate the solution of the problem with a degree of accuracy that will be useful.

From the measurements of a large number of the best balanced heads I have seen, I am led to infer that the following are the proportions of the different regions, measured in the manner above specified :

The Anterior, or intellectual region, is one tenth part of the cubic measure of the whole head.

The Coronal is equal to three times the Anterior, or three tenths of the head.

The Posterior is equal to the Coronal.

The Lateral is equal to twice the Anterior, or two tenths of the measure of the head.

Such, it appears to me, are the uniform proportions of an equally-balanced head, measured in the way proposed.

## EXAMPLES.

Size of Head.	Anterior, 1 tenth.	Coronal, 3 tenths.	Lateral, 2 tenths.	Posterior, 3 tenths.	Sum.	Add 1 tenth.	Aggregate.
150	15	45	30	45	135	13.5	148.5
148	14.8	44.4	29.6	44.4	133.2	13.32	146.52
134	13.4	40.2	26.8	40.2	120.6	12.06	132.66
96	9.6	28.8	19.2	28.8	86.4	8.64	95.04
82.4	8.24	24.72	16.48	24.72	74.16	7.42	81.58

One of the many services for which we are indebted to the Edinburgh phrenologists, is the publishing, in 1829, of a model bust, which, so far as I am able to judge from the best copy of it which I have seen, exhibits the proportions above stated in every particular. The size is 150 inches.

The following table shows the measurement of the regions of a series of models corresponding to each ten inches of the scale of size, from 60 inches to 200; it will enable the student to compare, at sight, the measurements of any head with a model of a greater, a less, or a corresponding size:

## MODELS.

Size.	Anter.	Cor.	Lateral.	Poster.	Sum.	Correc.	Aggregate.
60	6	18	12	18	54	6	60
70	7	21	14	21	63	7	70
80	8	24	16	24	72	8	80
90	9	27	18	27	81	9	90
100	10	30	20	30	90	10	100
110	11	33	22	33	99	11	110
120	12	36	24	36	108	12	120
130	13	39	26	39	117	13	130
140	14	42	28	42	126	14	140
150	15	45	30	45	135	15	150
160	16	48	32	48	144	16	160

MODELS.—*Continued.*

Size.	Anter.	Cor.	Lateral.	Poster.	Sum.	Correc.	Aggregate.
170	17	51	34	51	153	17	170
180	18	54	36	54	162	18	180
190	19	57	38	57	171	19	190
200	20	60	40	60	180	20	200

Whether or not the proportions above stated are those of an equally-balanced head, is a proposition which every head, cast, and cranium, whether of the living or the dead, that we have access to examine, and of which the history or manifestations are known, give their individual items of evidence for or against. It matters not either how near to, or how far from, a true balance the specimen may be, if the character and circumstances are clearly defined—the quota of evidence is equally conclusive. Neither does it matter what particular “type” the head may range under; the equal balance proportions are, so far as I have seen, still the same. It will readily be understood that every variety of size may exhibit the same shape and proportions, and that the same size may exhibit every variety of shape and proportions, but it may not be so readily admitted that the same size and proportions may be found in a considerable variety of shapes; yet so it appears to be. The long and narrow head, such as Mr. Goss; the short and square head, such as Dr. Gall, or Cordonnier; the round and high heads, such as Mr. King, and the common busts of Sir Walter Scott, may, I believe often do, exhibit the same size in whole and proportion of parts as the type represented by the model bust.

## MEASUREMENT OF REGIONS.

HEADS.	Proof.	Anter.	Coron.	Later.	Poster.	Sum.	Add.	Entire.
Dr. Gall . . . .	174	20	54	34	46	154	15	169
Rev. Mr. M. . . .	165	17	53	37	43	150	15	165
R. B. Sheridan . .	166	16	45	36	50	148	15	163
F. Cordonnier . .	180	19	49	41	52	161	16	177
Rajah Ra. Roy . .	190	19	64	38	45	166	17	183
French M. D. . . .	178	17	48	41	54	160	16	176
Mr. Goss . . . .	178	19	58	37	42	156	16	172
Robert Owen . . .	155	15	43	34	44	136	14	150

MEASUREMENT OF REGIONS.—*Continued.*

HEADS.	Proof.	Anter.	Coron.	Later.	Poster.	Sum.	Add.	Entire.
Mr. King . . .	160	19	45	34	45	143	14	157
Mr. Terry . . .	160	16	44	34	48	142	14	156
Horace Smith . .	165	19	47	37	41	144	14	158
Ann Ross . . .	114	11	28	25	37	101	10	111
Clara Fisher . .	117	10	33	26	35	104	10	114
Eustache . . .	155	15	51	31	41	138	14	152

## MURDERERS.

Hare . . . . .	150	16	40	40	44	136	14	150
Burke . . . . .	148	14	42	38	41	135	13	148
Allan of Aberdeen .	148	15	35	37	46	132	13	145
Adam of Inverness	145	14	35	32	48	129	13	142
Greenacre . . .	135	14	32	32	42	120	12	132
Courvozier . . .	180	16	46	43	55	160	16	176
Linn, parricide . .	180	18	46	46	46	159	16	175
Thurtell . . . .	160	17	44	38	42	141	14	145
M. M'Innes . . .	135	13	31	36	39	119	12	131
Dean . . . . .	152	13	37	40	46	136	14	150
Martin, parricide .	138	12	32	37	40	121	12	133

## SKULLS.

Robert Burns . .	145	16	45	30	41	132	13	145
Dr. Spurzheim . .	145	16	40	30	42	128	13	141
La Fontaine . . .	150	15	41	33	45	134	13	147
Swift . . . . .	130	13	36	32	35	115	12	127
King Robert Bruce	130	12	33	32	41	118	12	130
Gen. Wurmser . .	115	12	30	28	32	102	10	112
Mil. of Vienna . .	95	8	27	23	28	86	9	95

## CRIMINAL.

Haggart . . . .	110	12	32	26	29	98	10	108
Bellingham . . .	120	13	30	28	36	107	11	118
Nisbet . . . . .	115	10	32	28	35	105	10	115
Griffiths . . . .	95	6	23	24	32	85	8	93
Tardy . . . . .	130	13	34	32	37	116	12	128
Chinese Assassin .	112	9	31	24	35	99	10	109
Agnes Clark . . .	100	10	29	25	27	91	9	100
Chatham Convict .	130	12	35	34	35	116	12	128
Buchanan . . . .	115	11	34	27	33	105	10	115
Cung, Debtor . . .	110	12	29	27	30	98	10	108
French Soldier . .	100	8	26	23	34	91	9	100

## NATIONAL.

Icelander . . . .	110	10	30	26	31	97	10	107
Celt . . . . .	120	12	31	28	35	106	11	117

MEASUREMENT OF REGIONS.—*Continued.*

NATIONAL.	Proof.	Anter.	Coron.	Later.	Poster.	Sum.	Add.	Entire.
Swiss . . . . .	115	10	34	26	31	101	10	111
Ancient Greek . .	118	11	33	29	33	106	11	117
Circassian . . . .	84	7	24	19	25	75	7	82
Armenian . . . . .	97	8	28	22	27	85	9	94
Chinese . . . . .	100	9	29	25	26	89	9	98
Hindoo . . . . .	105	8	31	22	32	95	9	104
Burmese . . . . .	90	8	25	23	26	82	8	90
Ceylonese . . . . .	88	7	26	21	24	78	8	86
Native of Java . .	110	8	32	21	29	97	10	107
Papuan Islander . .	130	10	36	34	37	117	12	129
N. Holland Chief .	112	10	30	25	35	100	10	110
N. S. W. Female . .	82	8	20	19	25	72	7	79
New Zealander . .	110	8	31	27	31	97	10	107
Moor . . . . .	88	8	26	21	23	78	8	86
Peruvian . . . . .	94	8	26	22	27	84	8	92
Negro . . . . .	102	5½	26	25	33	90	9	99
Ashantee . . . . .	112	9	30	24	35	98	10	108
Mozambique . . . .	120	11	32	29	34	106	11	117
Caffre Female . . .	95	9	24	21	30	84	8	92
Esquimaux . . . . .	92	8	24	22	29	83	8	91
Esquimaux . . . . .	98	8	23	25	30	86	9	95
N. Amer. Indian . .	90	9	25	23	24	80	8	88
Carib . . . . .	106	7	26	29	33	95	10	105
Peruvian . . . . .	92	8	24	24	25	83	8	91
Brazil Indian . . .	88	8	24	20	27	79	8	87
Chilese . . . . .	98	8	27	23	30	88	9	97
Araucanian War . .	105	9	24	26	24	93	9	102
Ceyl. T. T. Boy . .	82	6	22	17	26	71	7	78

I will now take leave to assume that the reader is prepared to examine the cases quoted in the table of the measurements of regions, to compare these with each other, with model proportions of all sizes, with any other heads whatever, and with the published memoirs of the different individuals, and from the whole to judge how far the measurements given are in accordance, or otherwise, with each other, and with the known characters.

I may first remark, however, that it is the constant, or general features only, of the individual character, which will be made apparent, in most cases, by the measurements. When striking features of character turn upon one or two promi-

nent or defective organs in one or more of the groups, such features will appear in the measurements so far only as the general size of the region is affected by the excess or deficiency.

## EXAMPLE I.

		Intel.	Mor.	Aggr.	Dom.
Caucas. Model, average size, . . . .	137	14	41	27	41
Dr. Gall, . . . . .	174	20	54	34	46
Model, correspond. size, . . . .	174	17	52	35	52

The first remarkable peculiarity of Dr. Gall's head is great size, 174 inches—the average of his race being 137. The second is the still greater size of the anterior, or intellectual region, 20 inches—the model proportion being 17 inches for the corresponding size, and 14 inches for the average. The coronal region appears by the cast to be unequally balanced in some of the organs; but, upon the whole, it is slightly above the model proportions, and far above the average—being 54 to 41. The lateral is slightly below the model (34 to 35), and the posterior still farther below (46 to 52).

## EXAMPLE II.

		Intel.	Mor.	Aggr.	Dom.
Asiatic. Model, average size, . . . .	119	12	36	24	36
Rajah Ramah. Roy, . . . . .	190	19	64	38	45
Model, correspond. size, . . . .	190	19	57	38	57

Rajah R. Roy, the famous Hindoo chief, was a philosopher and a philanthropist of the highest order. In size of head, he towers above his fellow-Asiatics like a giant among pigmies—he being 190, they averaging 119. The intellect is exactly the model size on the whole, but some of the organs are slightly above, and others slightly below the equal balance. The coronal is far above the model size. Some of the organs are far below, and others far above the model balance.

## EXAMPLE III.

		Intel.	Mor.	Aggr.	Dom.
Caucas. Model, average size, . . . .	137	14	41	27	41
Hare, . . . . .	150	16	40	40	44
Model, correspond. size, . . . .	150	15	45	30	45



Hare, the associate of the notorious Burke, it is allowed by all, was the more infamous of the two. Burke had the first offer to be admitted king's evidence, and he refused. Hare sacrificed his associate to save himself. His head is considerably above the average (150 to 137). The intellect is above the model proportion (16 to 15), and still farther above the average (16 to 14). The coronal is not only below the model (40 to 50), but even below the average (40 to 41). The aggressive is far above the model (40 to 30), and still farther above the average (40 to 27). The disproportion between the moral (5 below) and the aggressive (10 above) is 15 inches, being nearly the entire size of the intellect.

## EXAMPLE IV.

		Intel.	Mor.	Aggr.	Dom.
Ethiopian. Model, average size,	. . . 123	12	36	24	36
Eustache, . . . . .	. . . 155	15	51	31	41
Model, correspond. size,	. . . 155	15.5	46.5	31	46.5

EUSTACHE.—“No situation could be more unfavorable to virtuous conduct than that of Eustache when he was a slave, associated with slaves in a war of extermination against their masters; yet such was the preserving power of a high moral and intellectual organization, that he nobly discharged his duty to both belligerents, and triumphed over every temptation.”—(Mr. Combe's System, p. 776.) During an insurrection in the Island of St. Domingo, he was the means of saving the lives of more than four hundred of the white population. In every situation in which he was placed, he discharged his duty with unexampled industry and fidelity. The French Institute awarded to him the “Prize of Virtue,” on the 9th of August, 1832, and the government gave him a handsome annuity.

The head of Eustache is far above the Negro average (155 to 123). The anterior is equal to the model proportions. The coronal is above the model (51 to 46), and several of the organs are much farther above the equal balance.

Among the multitude of comparisons which will readily suggest themselves to the mind of the student, I shall only instance one more, viz.: instead of comparing the size of the

different regions with each other, and with those of other heads, compare the different sizes of model, or equally-balanced heads which correspond with the separate regions of the individual heads, thus:

	Measurement of Regions.				Corresponding Size of Model Heads.			
	Intel.	Mor.	Aggr.	Dom.	Intel.	Mor.	Aggr.	Dom.
Dr. Gall, . . .	20	54	34	46	200	180	170	153
R. R. Roy, . . .	19	64	38	45	190	210	190	150
Hare, . . . . .	16	40	40	44	160	130	210	145
Eustache, . . .	15	51	31	41	150	170	155	140
Lion, . . . . .	18	46	46	46	180	153	230	153
Greenacre, . . .	14	32	32	42	140	110	160	160

Here we see the anterior region of Dr. Gall's head is equal to the same part of a model of 200 inches. The coronal in R. R. Roy equals that in a model of 210. The lateral region of Linn is equal to the same region in a model head of 230 inches. Thus may the comparisons be varied to any extent, and in any way which may be deemed most appropriate to elucidate the concomitance of size and character.

It must be admitted, however, that we are not yet prepared to understand the full force or value of such comparisons, and indeed cannot be so, until it is known what degree of functional energy, or what amount of mental manifestation corresponds to given sizes of heads, regions, and organs, under specified circumstances; the first essential step toward the solution of this problem, or rather series of problems, is to determine absolute size of parts with the necessary degree of accuracy.

From what has been stated regarding the measurement and proportions of parts, it will be obvious that the volume of each region, as ascertained in the manner specified, determines its place on the scale of size, or, in other words, gives the average size of the organs composing the group. Thus,

**ANTERIOR.**—The cubic inches and the point on the scale are always the same.

#### EXAMPLES.

10 inches, moderate; 14, full; 16, rather large; 18, large. \*

**CORONAL.**—The cubic inches divided by 3, gives the point on the scale.

**EXAMPLES.**

$$42 \div 3 = 14, \text{ full.} \quad 48 \div 3 = 16, \text{ rather large.}$$

**OCCIPITAL** same as the coronal.

**LATERAL.**—The cubic inches divided by 2, gives the point on the scale.

**EXAMPLES.**

$$20 \div 2 = 10, \text{ moderate.} \quad 39 \div 2 = 19.5, \text{ full, or rather large.}$$

It remains for the eye to determine the size of the individual organs, guided throughout by the ascertained average, in retaining as nearly as possible the mathematical value of the terms used. This is to be done in the manner described on page 223, with this difference, that the absolute size of each region (instead of that of the head) is now to be taken as the basis of estimate and comparison.

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The following scale, from **PHRENOLOGY PROVED, ILLUSTRATED, AND APPLIED**, by O. S. and L. N. Fowler, of New York, has been generally adopted in the UNITED STATES :

**EXPLANATION.**

THE PROPORTIONATE SIZE of the phrenological organs of the individual examined, and, consequently, the relative power and energy of his primary mental powers—that is, HIS MORAL AND INTELLECTUAL CHARACTER AND MANIFESTATIONS—will be indicated by the WRITTEN figures 1, 2, 3, 4, 5, 6, 7: figure 1 signifying VERY SMALL; 2, SMALL; 3, MODERATE; 4, AVERAGE; 5, FULL; 6, LARGE; 7, VERY LARGE.—AM. ED.

## CAPITAL PUNISHMENT.

BY GEORGE COMBE.

IN the *SCOTSMAN* of the 9th and 30th of May and the 13th June, 1846, a series of articles appeared on "The Use of Capital Punishment;" and as they imbodyed in a clear, calm, and logical form, an able defence of the existing practice, I beg to offer some remarks in reply to them. The articles bear the signature M., and, for the sake of brevity, I shall refer to them under this designation; but it is proper to say, that they were not written by Mr. Maclaren, the editor of the paper.

M., then, "entirely lays aside all claim on the part of society to inflict vengeance" on criminals; but he agrees with Beccaria, that "the true end of all punishment should be to prevent others from committing the like offence." This last we consider to be an erroneous principle. It is discussed, and in our opinion refuted, by Mr. Hurlburt, in his *Essays on Human Rights*,\* p. 23. M. resolves the right of society to punish into "the right of self-defence"—coupled with which, he says, "it is a high and important object, also, to promote the reformation of the criminal." In these propositions I cordially agree with him. After stating that we are bound to select "THE BEST PROTECTION TO INNOCENT LIFE" (which also is granted), he proceeds in these words: "Taking human nature as it actually exists, and applying a rule which is to be operative not merely on this or that eccentric individual, but upon the congregated thousands which make up a nation, the terror of a sentence of DEATH will operate more to restrain, than the terror of any other punishment. There is, in truth, something like the universal consent of all mankind—at least of all unsophisticated men—to this position." If this proposition were sound, the whole question would be settled; but I submit, that even if there were something like the universal

\* Published in New York by Fowlers and Wells.

consent of all mankind to the proposition, it might still be open to legitimate doubt; for the day was, when the same universal consent declared the earth and moon to be flat—the earth to be thousands of times larger than the sun—the globe to be stationary—and the sun, moon, and stars to revolve round it; every one of which propositions is nevertheless false, and is now abandoned by all who have enjoyed the benefit of a scientific education, to enable them to correct the first impressions of their unaided senses. Science may enable us to correct, also, the first impressions of our emotional faculties. The law of retaliation—an eye for an eye, and a tooth for a tooth—unquestionably received the “universal consent of all mankind” in their first stage of civilization. It was dictated by the natural impulse of revenge, along with rude notions of justice; but more profound and elevated views of the nature of man have induced us to abrogate this law. It appears to me, that the universal consent of mankind in regard to the efficacy of death-punishment (supposing it to exist) is founded, like the law of retaliation, on certain instinctive emotions of the mind, which are universal because they are natural; but that it does not necessarily follow, that all the actions to which they prompt us are on that account either ethically sound or practically useful.

M. proceeds to say, that “there is nothing which all men have so thoroughly in common as the boon of life, to which **ALL ALIKE**, by the very condition of their nature and their animal instinct, **CLING WITH EQUAL TENACITY**, from the richest to the poorest, and from the youngest to the oldest of mankind.” If this proposition, also, were well founded, it would powerfully support the other two; but in fact it is an assumption that will not bear the scrutiny of reason. The real state of the case appears to me to be the following.

The love of life is **ONE AMONG MANY** feelings which are inherent in the human mind. It is universal, because it forms an element in our being; but it is not equally strong in all individuals. There is reason to believe that there is a special organ for this feeling, which in different individuals differs in its size relatively to the other organs. But be this as it may, any one who will inquire among a pretty wide circle of persons for an account of their consciousness in this respect, will

learn that in some the feeling is so strong as to amount almost to a passion, while in others it is moderate, and in others feeble.

Further: the practical effect of this innate feeling is liable to be strengthened by some, and to be weakened by other feelings, which coexist with it in the mind. I state two examples, and number them for the sake of reference:—I. If the emotion of Fear, depending on the organ of Cautiousness, be naturally strong, and be combined in an individual with a powerful Love of Life, it will render death in the highest degree appalling to him. Such a man will be a natural coward. II. If, on the other hand, in another individual, the emotion of Fear be feeble, the instinctive quality of Courage, depending on Combativeness, be strong, and the Love of Life be moderate or feeble, this combination will cause death to appear to him as a much less formidable evil.

Again: There are still other instinctive emotions in the mind which coexist in different degrees of relative strength in different individuals, and act along with those already enumerated: for instance, the love of sensual pleasure, depending on Alimentiveness and Amativeness; the love of gain, depending on Acquisitiveness; the love of distinction, depending on Love of Approbation, and so forth. Now, does not the universal experience of mankind prove that the fear of death has very different effects in restraining different men from the indulgence of these propensities? For example, the man possessing the combination No. I., will abstain from convivial indulgences, from horse-racing, from quarreling, from visiting pestilential climates in quest of gain, and from many other gratifications to which he might be inclined, through fear of losing his health and his life; while the man with the combination No. II., will disregard every motive of prudence founded on the love of health and life, and will pursue the objects of his desire at every hazard. He will think it even mean and dastardly to be restrained by so contemptible a motive as the fear of death. Common observation so strongly corroborates the truth of these propositions, that I do not stop to offer detailed evidence in support of them. But if they are true, it follows that, in judging of the efficacy of the punishment of death as a means of deterring from crime, it is

not sufficient to proceed on general assumptions founded on the supposed universal consent of mankind; we must go a little deeper, and inquire into the special combinations of faculties which characterize the criminal mind. A physician does not prescribe for a patient on mere general principles applicable to all invalids. He tries to discover the specific disease, and to adapt his remedies to its nature. The administrator of the criminal law must follow the same rule, and adapt his treatment to the mental condition of the offender.

When a reflecting medical practitioner reads a statistical report of deaths from disease in a great city, and perceives that those from consumption exhibit the same proportion to the population year after year, what conclusion does he draw? It is—that in this population a certain number of individuals have lungs too weak to withstand the injurious influences of the climate and other noxious agencies which assail them. The reason why ALL do not die of consumption is, that SOME, the great majority, have lungs that ARE CAPABLE of withstanding these influences. Those who die of other diseases may have other vital organs weaker than their lungs; but in them the lungs, at all events, have been sufficient to resist the hurtful circumstances to which they have been exposed. Now, when we find in the statistical reports of any nation the same number of robberies, the same number of murders, and other crimes, recurring year after year in the same number of people, as long as their circumstances continue the same, does not the conclusion follow that there are, out of the whole population, a certain number of individuals whose moral qualities are not sufficiently strong to resist the temptations to crime presented by their external circumstances? In short, does not this show that it is only a CLASS of society which is predisposed to crime? In no other way can we explain the UNIFORMITY of the numbers of criminals while the circumstances continue unchanged. It appears to me to be impossible for any reflecting individual to read the “*Essai sur la Statistique Morale de la France*,” by Mons. A. M. Guerry (Paris, 1832), and M. Quetelet’s work, “*Sur l’Homme et les développements de ses Facultés*” (Paris, 1835), or the ordinary statistical reports of crime in this



country, without arriving at this conclusion. M. Quetelet says, "This possibility OF ASSIGNING BEFOREHAND the number of the accused and condemned which should occur in a country, is calculated to lead to serious reflections, since it involves the fate of several thousands of human beings, who are impelled, as it were, by an irresistible necessity, to the bars of the tribunals, and toward the sentences of condemnation which there await them. These conclusions flow directly from the principle, already so often stated in this work, that effects are in proportion to their causes, and that the effects remain the same if the causes which have produced them do not vary."

If, then, mental predisposition be the primary cause of crime, the question presents itself, What is that peculiar combination of mental qualities which produces, in a certain proportion of the population, a proclivity to crime? It is an undue natural preponderance of the animal propensities, and an undue deficiency in the native power of the moral or the intellectual faculties, or of both. This fact has been demonstrated so thoroughly by evidence recorded in this Journal and in other phrenological works, that I do not stop to repeat the proof. I need scarcely add, that this combination does not NECESSARILY produce crime as a specific result, but only causes strong impulses toward animal indulgences, accompanied by weak powers of restraint, in consequence of which the individual is unable to resist the temptations presented by his external circumstances.

Keeping in view, then, the causes of crime, we proceed to inquire into the relation in which PUNISHMENT stands to them. If I am correct in saying that these causes consist in natural predisposition, and the influence of unfavorable circumstances, it is obvious that punishment does not tend directly to remove either. This will probably be admitted by the advocates of death-punishment; but they may reply, that they punish offenders with death in order to deter other persons from offending. Let us consider, then, the relation which this proceeding bears to the object in view, viz., deterring other men from crime. I beg, again, to base my argument on an illustration.

Suppose two young men to have weak lungs, and both to

be told that if they indulge in late and protracted convivial entertainments, and often pass from the heated atmosphere of a tavern into the chill air of a December night, they will certainly die; and suppose, further, that in one of them the appetite for pleasure is moderate and the reflecting and prudential faculties are strong, while in the other this mental combination is exactly reversed—would the physician's threat of death have the same influence on both? Obviously not. The former would be deterred by it, while the latter would either disbelieve in it, or recklessly disregard it. These are not fanciful cases, but pictures of realities which may be verified by daily observation. The lesson which they teach is, that (other things being equal) the fear of death, as a motive restraining from hurtful indulgence, operates in the INVERSE RATIO of the force of the temptation.

This process of reasoning is strictly applicable to the case of crime. In the criminal mind, the love of pleasure (which may take the form of sexual indulgence, of intoxication, of idleness, of ostentation, or of any other vice) must be PLUS, while the moral or intellectual powers, or both, must be MINUS, otherwise he could not become a criminal. The more intensely powerful the desire of immediate unlawful enjoyment is, and the feebler the moral and intellectual faculties are in any individual, the more directly and vigorously will the temptation act on him, and the more feebly will the consideration of contingent evil, even in the form of death, be calculated to modify his conduct. The punishment threatened is necessarily distant and contingent. But the fiercer the passion, the more thoroughly will it engross the whole mind with the desire of present gratification; and the feebler the moral and reflective powers, whose function is to consider duty and to contemplate consequences, the less capable will the individual be of realizing the fear of death and applying it as a restraining motive.

If these views of the criminal mind are sound, it appears to follow, 1st, That death-punishment does not stand toward crime in the relation of a direct preventive; and, 2dly, That as a means of deterring others, it operates in the inverse ratio of the danger to avert which it is applied—that is to say, that it will effectually deter all favorably-constituted men, or those

who are naturally virtuous and prudent, and on whom temptation to crime acts feebly; that it will cast the balance in favor of virtue in the case of certain individuals in whom the elements that give power to temptation and those which lead to resistance are pretty equally poised; and that it will operate with least effect precisely on those on whom it is most needed to act powerfully, viz., on such as by nature and circumstances are most prone to fall before temptation.

These views are supported by the statistics of crime. A return to the House of Commons, dated 22d May, 1846, shows the number of persons committed for each of seventeen different denominations of offences, including robbery, housebreaking, arson, forgery, rape, and so forth, which were capital in 1830, but for which the punishment of death has been abolished by statute, or for which it has not been inflicted during the last five years. The return includes two periods of five years each, the one before and the other after the last execution for each offence. The result is the following: During the five years ending with the last year of an execution, there were committed, 7276; executed, 196 individuals. During the five years immediately following the last execution, there were committed for the same offences, 7120.

What effect can be ascribed to the fear of the punishment of death on the persons who committed these crimes? Although the population increased, the aggregate amount of commitments for the seventeen offences actually diminished after the punishment of death was abolished; whence we might infer that the abrogation of that punishment had operated as a sedative on the criminal mind. But, again, looking at the small amount of the diminution (for the number of the offences is very nearly the same in both periods), we might with some degree of plausibility conjecture that the punishment of death had, in these instances, been absolutely inoperative either for good or evil. Apparently, evil-disposed persons committed the same number of offences, whether they incurred the penalty of death or not. These returns, at all events, support the proposition that the punishment of death does not stand toward crime in the relation of a preventive; for fewer offences were committed after it was abolished than when it was enforced.

Do I mean, then, it may be asked, to propound an absolute impunity for crime as the result of this reasoning? Certainly not; and I shall therefore proceed to mention the treatment which I propose. Before doing so, however, let me say, that the punishment of death appears to me to be *IMMORAL*, as well as unnecessary. Death with torture is now universally disused; and the punishment inflicted is simply the extinction of life ignominiously. Little importance attaches to the ignominy as a deterring influence: 1st, because the mind that will brave death itself, will not be much influenced by the attendant circumstances; 2dly, because, by destroying life, the consciousness of ignominy and of every other emotion is extinguished; and, 3dly, because the same amount of ignominy, if it were necessary, might easily be inflicted without the accompaniment of death. Simple death, therefore, remains as the staple of the punishment. Now, by the ordination of God, we are all under the sentence of death. The clergy admonish us to bear it habitually in mind, and to prepare for it; the warrior is praised for disregarding it; and the philosopher glories in resigning himself to it with cheerfulness and equanimity: and I ask, On what principle, consistently with these views, can its infliction be justified AS A PUNISHMENT—as the most terrible of calamities—as that which is to restrain the reckless, excited, daring villain, after he has become insensible to all other earthly motives? He may tell the jury which convicts him, and the judge who condemns him, that *THEY* also are under sentence of death, and that the brief space of time which will elapse between the execution of the sentence on him and them, is no very formidable consideration to his disadvantage. Such a remark would be justified by religion, supported by philosophy, and sympathized with by men of courage who were neither religious nor philosophical. How, then, I again ask, CAN we reconcile such heterogeneous modes of viewing the most important event of our mortal existence? If all who should not be put to death for crime were naturally immortal in this world, I could understand the consistency of depriving a criminal of life, as the acme of human infliction; but in our actual condition, it appears to be not only barbarous, but immoral and irreligious to do so. If we value moral consistency as of any import-

ance in criminal legislation, we shall be led to abandon the notion that death is the most awful of punishments, and regard it simply as an institution of a great and merciful God, to be encountered with courage and constancy at the call of duty, to be prepared for by the aid of religion, and to be submitted to with calmness and resignation, when it comes to us in the course of Providence.

But what mode of treatment can society advantageously substitute for the punishment of death? An illustration again drawn from disease will serve to introduce the conclusion which appears to me to follow from the facts and considerations above mentioned. In the case of consumptive disease, we most successfully diminish the number of deaths, 1st, by using means to strengthen the lungs, and thereby to render them more capable of resisting the rude vicissitudes of the climate; and, 2dly, by removing as much as possible all noxious external influences. To accomplish the former object, we must improve the general health of the patient, beginning in infancy, and using diet, air, exercise, and habits of cleanliness, order, and temperance, as means of doing so. To attain the latter, we must drain, cleanse, and widen our streets, ventilate our houses, and so forth.

Let this illustration be applied to the case of crime. To remove, as far as possible, the first cause of crime—namely, the excessive tendency to idleness and animal indulgence—moral training, combined with religious and intellectual instruction, should be supplied, and habits of industry be formed. These are the natural means for strengthening the higher and mitigating the vigor of the lower tendencies of the mind. To diminish the second cause of crime—namely, unfavorable external circumstances—we must improve the social condition of our people, by withdrawing from them the temptations to crime, presented, on the one hand, by the abuse of intoxicating liquors, and, on the other, by the pressure of actual starvation and physical destitution. While we allow these two causes to flourish in unabated vigor, we may inflict whatever punishments we please, and the sum-total of crime will not be lessened. On the other hand, in proportion as we diminish their influence, crime will decrease. Parliamentary returns show a diminution of offences

as the constant accompaniment of increased physical prosperity among the people.

The infliction of pain and suffering, therefore, as PUNISHMENT, with a view to the protection of society, may, in my opinion, be safely abandoned. But this is quite different from proclaiming IMPUNITY to crime. Society is clearly entitled to defend itself against the criminal acts of its evil-disposed members, and also to use the best means of defence. But the best means of defence are those which go most directly to the root of the evil. Let us at once deprive the offender of the power of repeating his criminal acts; let us withdraw him from all excitements to new transgressions; and let us train him to industry, morality, and religion. The application of these means, in the form of imprisonment, attended with rigid discipline, and protracted for a longer or shorter period according to the inveteracy of the evil habit which we seek to subdue, will prove at once the most efficacious punishment for crime, and the best defence of society, which can be attained, until society shall amend its own institutions.

To this doctrine it is often objected, that by such treatment we shall render criminals more comfortable than the destitute but virtuous poor, who are left to struggle with the last degrees of physical destitution and mental depression, unaided by the hand of beneficence, and uncheered by the voice of hope. In reply, I beg to remark, that the possession of the dispositions which enable the poor in such circumstances to abstain from crime, places them far above envying the criminal, although he were lodged and fed in a palace. The deprivation of liberty and the stamp of disgrace which degrade the criminal, are felt by well-constituted minds as evils more poignant than the bitterest pangs of hunger and cold; and it is from this cause that the virtuous poor are not seduced by the apparent comfort of the criminal in prison. He does not appear to them to be in a happy and enviable condition. It is an erroneous idea of the rich that they view him in this light. If their mental conformation be so low that they feel no regard for their own character, and set no value upon their liberty, they will, by that very moral constitution, be prone to become criminals, irrespective of the supposed seductive pleasures of a jail. If their minds be well constituted, they will



abhor a prison, **BECAUSE** it is a prison; just as a poor but virtuous woman loathes a brothel, although its inmates may appear to her to be wallowing in luxury and wealth.

But there is another answer to the objection. If the rich, against whom, chiefly, criminal acts are directed, neglect their own duty toward the poor, and leave them to grow up in ignorance, destitution, and vice, until, by becoming desperate and reckless, they commit serious crimes—they have no right, under the plea of self-defence, to degrade the offenders still further by rendering prisons more horrible than the loathsome homes from which the criminal poor generally emerge. This would be to add cruelty to injustice; to perpetrate an unwarranted and useless severity on the poor, under the color of protecting themselves from an evil which is the direct consequence of their own misconduct.

Public opinion has now recognized the expediency of abolishing the punishment of death for all offences except murder; and I proceed to consider if there be really any necessity for retaining it as a means of protecting society against the perpetration of this crime.

Murder may be resorted to as a means of preventing the detection of another crime; of accomplishing some other offence, such as robbing a dwelling-house; or of gratifying a blood-thirsty, rancorous disposition.

Experience shows that a large class of offenders systematically prefer cunning and stratagem to violence, as their means of depredation. They pick pockets by feats of dexterity, without the consciousness of the person robbed; they enter dwelling-houses under cloud of night, or in the absence of the inmates, and plunder them in silence and by stealth; or they devise and execute plans of fraud and deception for the purpose of robbing tradesmen of their goods, under the guise of dealing with them as customers. All such practices indicate in the perpetrators a mind in which, along with a certain degree of daring, there is a large share of caution, consideration, and ingenuity. Their grand defect is a want of an adequate controlling moral power to give to these qualities a virtuous direction. The organs of Cautiousness, Secretiveness, and knowing Intellect, are fairly developed, those of



the moral sentiments are deficient, while those of the propensities are large.

Another class are so destitute of ingenuity, cunning, and self-command, or so much swayed by the coarser and fiercer passions, that they are incapable of using stratagem, but resort to direct violence as their means of committing crime. In them Combativeness and Destructiveness are *PLUS*, and Cautiousness, Intellect, and the moral organs *MINUS*.

The distinction between these two classes is so well marked, that no reflecting person can avoid ascribing it to differences in the natural dispositions and intellectual faculties of the criminals.

As it is almost exclusively the latter class which commits murder, whether as a means of perpetrating other offences, of destroying evidence, or of gratifying the passion of revenge, let us inquire into the effect of the prospect of death as a punishment, on this section of malefactors. The very fact of their preferring blood and murder to stratagem and dexterity as their means of crime, proclaims their deficiency in ingenuity, in self-command, and in all the softer feelings; while it indicates a predominance of the coarser and more brutal elements of our nature. Owing to this combination of faculties, the penalty of death, when presented as a remote contingency to such individuals, finds no quality within them on which it can make a deep impression. If they possessed sufficient power of reflection to realize its high probability and its terrors, they would, in order to avoid it, employ stratagem as their means of crime, in preference to violence; if they had an adequate sensibility either to social opinion or to human emotions, they would recoil from blood; if they were timid, they would fear resistance or detection. In short, in order to *BE* a murderer, a man must, as a general rule, possess the minimum of the faculties which confer foresight, prudence, and a just regard to self-interest, and the maximum of the brutal propensities which rush headlong to violence, regardless of results. Phrenology enables us to *PROVE* that this combination actually characterizes murderers as a class. On such minds, then, the prospect of death, as a contingency, does not, and cannot, operate as a powerful restraining motive.

Further: those propensities from which murder (as an

abuse) springs, are directly stimulated, instead of being restrained, by witnessing acts of severity and violence, and especially acts of killing. The tiger in his cage rages at the sight of blood; and the blood-thirsty man becomes excited by executions. Even the average soldier, who recoils at the first aspect of carnage, becomes, when familiarized with death, indifferent to its terrors and reckless of his own life. The murders of the French Revolution produced a striking regardlessness of life in the people. One of them, when under trial for murder, addressed the judge in the following words:—"Certainly, sir, I killed the man: kill me; but do not fatigue me with so much talking." This is not theoretical reasoning, but the statement of results resting on facts. Captain Maconochie, after four years' experience of the effects of the severest criminal treatment at Norfolk Island, declares that it fostered "a tendency to reckless daring;" a quality which, "more or less, characterizes all prisoners, and without which they would probably have been scared by the first threatenings of the law, and would have escaped its toils." His concluding remark goes directly to the point of the present discussion; it is in these words:—"As a feature in the criminal character, this daring is not, I think, sufficiently adverted to by those who advocate the attempt to deter from crime by severe punishments. Tempers under its influence feel themselves only challenged, both in their own eyes and in those of their companions, by the recurrence of these." However strange it may appear to those unacquainted with the subject, yet "crime thrives on severe examples," and "most certainly in direct competition with them."

If, then, the infliction of death be advocated as the **SEVEREST**, and therefore the most efficacious, punishment for murder, this testimony tends to prove, that, so far from repressing the inclination to the crime, it only challenges to its commission, or excites the minds of those who are predisposed to it to greater acts of violence. In short, the whole records of crime and punishment, if read with a due knowledge of the peculiar constitution of the criminal mind, indicate that the direct effect of witnessing acts of killing, as an example, is to stimulate the desire to kill in those in whom the propensity is naturally

strong ; and that hence executions operate as the natural fuel of murders.

Those who disapprove of death-punishment maintain that its advocates, to be consistent, should proceed to the use of torture as an accompaniment of death, to render it more terrible ; and this consequence seems to me inevitably to follow from their own principles. Their object is to restrain by the terror of the severest punishment ; and as experience proves that simple death does not restrain, why not render the punishment more severe, and therefore more terrible, by adding torture to death ? According to them it is the SEVERITY which gives the punishment its influence ; why, then, not increase the dose in proportion to the malignity of the disease ? M. answers, that "if the fear of death will not deter, it may be doubted whether any pains incidental to death would operate generally to deter." But does not this doubt imply a suspicion, that the mind disposed to murder is so constituted as not to be capable of weighing accurately degrees of distant evil ? Death by torture is, to a reflecting mind, a thousand times more terrible than simple death ; and if the offender be insensible to it, on what ground can we rely on his sensibility to the terrors of simple death ?

But M. assigns another reason for avoiding torture. No penal law, says he, can operate beneficially, if public sentiment revolts against it ; and public sentiment does revolt against torturing criminals. The premises and conclusion here are both admitted to be sound ; but public sentiment is bound to be consistent with itself. The same process of reasoning which has led it to abolish torture will, if legitimately pursued, lead it to abandon death also as a punishment. The real cause why society revolts at torture is, that extreme suffering, when intentionally inflicted, lacerates and pains all the higher feelings of good men, and, by exciting their sympathy for the tortured wretch, blinds them to the malignity of his crime. There is, however, a counterpart to this result, which is too little known and considered ; viz., that the sight of torture interests, gratifies, and excites cruel and ferocious minds, and supplies them with a decided impulse to deeds of cruelty and blood. I object to torture, therefore, on the ground that, so far from restraining, it stimulates dangerous minds to mur-

der; and as the infliction of an ignominious death is only a minor degree of the same species of infliction, it stands condemned by its tendency to produce the same effect.

If there be truth in the principles now stated, it follows that we shall most effectually temper and assuage the violent and blood-thirsty elements in the minds of the evil-disposed members of society, by cultivating the greatest tenderness for life as a general public sentiment. By this means, when any individual should feel a propensity to injure or to kill, rising in his mind, he would find in all around him a calm abhorrence of the act, instead of that wild wonder and excitement which now accompany the announcement of such deeds, and which operate as a direct stimulant to his desires. The prospect of secluded confinement for life would certainly not excite his destructive propensity, but would tend, in some degree to assuage it. By such means would society be best protected.\*

The last remark which I offer is, that the destructive propensity is liable to become morbid, and to induce acts of killing as pure symptoms of insanity—which, nevertheless, are often mistaken by society for crime, and punished by the penalty of death. Not only the poor and the profligate, but likewise educated, prosperous, and virtuous individuals, in the full enjoyment of the external goods of life, are occasionally tormented by unaccountable desires to commit suicide. When the mind is under this diseased excitement, a straw may turn the balance whether the sufferer shall kill another or himself. A case of homicidal impulse, reported by Dr. Samuel B. Woodward, lately superintendent of the State Lunatic Hospital at Worcester, Massachusetts, in the "American Journal of Insanity," No. IV., is highly instructive on this subject, and, like all similar cases, deserves to be carefully read and seriously reflected on.

\* Those who desire to see evidence of the tendency of executions to excite the destructive propensity, may consult Mr. Sampson's work on "Criminal Jurisprudence considered in relation to Mental Organization." For sale by Fowlers and Wells, New York. Price 62½ cents—mailable:

## VARIETY.

**BIOGRAPHY OF DOCTOR GALL.**—François Joseph Gall, the founder of Phrenology, was born in Germany, in the year 1758. His father was a merchant by profession, and a man of considerable distinction and character. His parents, being professors of the Roman Catholic religion, had intended him for the service of that church; but his natural dispositions were averse to such a course, and, having become early interested in medical studies, he preferred to engage in the profession of the healing art. His youth was spent in acquiring a knowledge of the elementary branches of science and literature. He was passionately fond of the studies of nature, and frequently resorted to the country and the forests to make observations on butterflies, insects, birds, and other tribes of the animal kingdom. This spirit of inquiry was undoubtedly the key which opened up to him the way to his future discoveries. Gall had observed that those scholars with whom he found the greatest difficulty in competing in verbal memory, were distinguished for large, prominent eyes. He made very extensive observations on this point, and was finally led to believe that there must be some necessary connection between memory for words and the size and projection of the eye. Afterward, while engaged in medical studies, he found that, though the structure and functions of every other organ of the human body were understood by anatomists and physiologists, those of the brain were enveloped in the greatest mystery. He found on examination also, that the notions of philosophers respecting the faculties or powers of the mind were of the most vague, indefinite, and unsatisfactory nature. And after the most extensive observation and research, Gall was led to believe that the brain was the organ of the mind, and, moreover, that it was composed of a congeries of organs, and that the mind consisted of a corresponding number of faculties.

It was in the year 1796, that Dr. Gall first commenced giving public lectures on his new discoveries respecting the functions of the brain. He then had extensive practice as a physician at Vienna—ranked high as a man of science—associated with the first men of the place and nation, and was connected with several public institutions. His lectures were continued six or eight years in Vienna, and were attended by audiences the most intelligent and respectable. Considerable interest was now created on the subject. It was represented to the emperor that Gall's views were dangerous to religion. This misrepresentation and opposition arose chiefly from the overwhelming influence of an ignorant, bigoted, and corrupt clergy. An edict was issued by the Austrian government prohibiting all private lectures, unless a special permission was obtained from the public authorities; and, accordingly, Dr. Gall, finding that all prospects of communicating and defending publicly his discoveries, was cut off, determined to seek a country whose government was more liberal and tolerant.

On the 6th of March, 1805, Dr. Gall left Vienna, accompanied by Dr. Spurzheim, who had now been with him nearly five years. They repeated their lectures and anatomical demonstrations, in the course of their tour, in more than thirty towns of Germany, Prussia, Holland, Switzerland, etc. They arrived at Paris in November, 1807, and in these travels, says Gall, "I experienced every where the most flattering reception. Sovereigns, ministers, philosophers, legislators, artists, seconded my design on all occasions, augmenting my collection and furnishing me every where with new observations."

Dr. Gall was now in the fiftieth year of his age, and from this time to his death, made Paris his permanent residence. He still continued to prosecute his discoveries with great ardor, industry, and success. Dr. Elliotson, formerly professor in the London University, while on a visit to Paris, writes to a friend in England as follows:—"I have seen Dr. Gall—seen much of him, and had frequent conversations with him. He lectures in Paris, to a class above one hundred, at the *Athenée Royale*. His course consists of about sixty or seventy lectures, and he spends several days in dissecting. Dr. Gall ranks high in Paris; is physician to the ambassadors—has great practice—is considered a savant, and bears himself and lives handsomely like a gentleman. Gall's head is magnificent; and his countenance, dress, and manners, with the depth, continuousness, liberality, and simplicity of his remarks, show you that you are in company with a profound philosopher, a perfect gentleman, and a kind-hearted friend. He is perfectly free from all affectation or quackery; pursues truth only, regardless of all consequences; and has sought it at an immense expense, and free from all interested motives. He knows the importance and reality of his discoveries; and though perfectly modest and simple, forms the just estimate of himself that posterity will form, and feels secure of immortality."

The views of Gall respecting God and religion, were no less philosophical than original. "Every where," says he, "and in all times, man, pressed by the feeling of dependence by which he is completely surrounded, is forced to recognize at every instant the limits of his power, and to avow to himself that his fate is in the hands of a Superior Power. Hence the unanimous consent of all people to adore a Supreme Being; hence the ever-felt necessity of recurring to Him, of honoring Him, and rendering homage to His superiority." Thus Gall recognized God like a philosopher. He was indignant only against the abuses that men practiced upon the credulity of the people; against those who make of religion a refinement of power, of ignorance, of slavery, and corruption. He was indignant against the persecutions which sectarians of different faith carry on against their fellow-men, in the name of God and religion. He was indignant against all these abuses, because he loved the human race, and desired its happiness.

Mr. George Combe, in his "System of Phrenology," page 625, pays the following just tribute of respect to the memory of Dr. Gall:—"The discoveries of the revolution of the globe, and the circulation of the blood,



were splendid displays of genius, interesting and beneficial to mankind; but their results, compared with the consequences which must inevitably follow Dr. Gall's discovery of the functions of the brain (embracing, as it does, the true theory of the animal, moral, and intellectual constitution of man), sink into relative insignificance. Looking forward to the time when the real and ultimate effects of Dr. Gall's discovery shall be fully recognized, I cannot entertain a doubt that posterity will manifest as eager a desire to render honor to his memory, as his cotemporaries have shown to treat him with indignity and contempt. Like many other benefactors of mankind, he has died without his merits being acknowledged, or his discoveries rewarded by the 'great in literature and science' of his own age; but he possessed the consciousness of having presented to the world one of the most valuable discoveries that ever graced the annals of philosophy, and enjoyed the delight of having opened up to mankind a career of improvement, physical, moral, and intellectual, to which the boldest imagination can at present prescribe no limits. This appears to be the reward which Providence assigns to men eminently gifted with intellectual superiority; and we may presume that it is wisely suited to their nature. A great duty remains for posterity to perform to the memory of Dr. Gall."

The person of Dr. Gall was well proportioned; in stature, he was five feet ten inches, with a large chest and strong muscles; his step was firm, and his look vivid and penetrating. His features, though not handsome, possessed a mild and pleasing expression. He acquired a distinguished reputation as a physician, as well as a writer and philosopher; and, independent of the respect shown him by all parties, he realized from his profession a handsome fortune. At the close of one of his lectures in the spring of 1828, Dr. Gall was seized with a paralytic attack, from which he never perfectly recovered, and which ultimately carried him off, the 22d of August, 1828, in the seventy-second year of his age. His remains were followed to the grave by an immense concourse of friends and admirers, five of whom pronounced discourses over his grave, as is the custom in France on such occasions. Dr. Fossati, in his funeral discourse, has the following touching paragraph:—"What an irreparable blank do I perceive in the scientific world by the death of one man! A blank which will long be felt by all the friends of science and sound philosophy. But what a man have we lost! What a genius was his! What a happy organization nature had given him! Yes! Dr. Gall was one of those privileged individuals whom the Creator sends on the earth at the interval of ages, to teach us how far human intelligence can reach."

The exertions of Dr. Gall, in collecting skulls and phrenological specimens in Vienna, created no small sensation among all classes of people. It is said that at one time the excitement was so great that every person in Vienna trembled for his head, and feared lest one day it should become the property of the greedy doctors. Among other anecdotes on this subject, the following is related:—"M. Dennis, Librarian to the emperor, inserted a clause in his will, for the express purpose of securing his head from the researches of Dr. Gall."



**PHRENOLOGICAL SKETCH OF THE PERUVIANS.**—Mr. Prescott, in his lately published *History of the Conquest of Peru*, speaks thus of the Inca nobility :—"It was the Inca nobility who constituted the real strength of the Peruvian monarchy. Attached to their prince by ties of consanguinity, they had common sympathies, and, to a considerable extent, common interests with him. Distinguished by a peculiar dress and insignia, as well as by language and blood, from the rest of the community, they were never confounded with the other tribes and nations, who were incorporated into the great Peruvian monarchy. After the lapse of centuries, they still retained their individuality as a peculiar people. They were to the conquered races of the country what the Romans were to the barbarous hordes of the empire, or the Normans to the ancient inhabitants of the British Isles. Clustering around the throne, they formed an invincible phalanx, to shield it alike from secret conspiracy and open insurrection. Though living chiefly in the capital, they were also distributed throughout the country in all its high stations and strong military posts, thus establishing lines of communication with the court, which enabled the sovereign to act simultaneously and with effect on the most distant quarters of his empire. They possessed, moreover, an intellectual pre-eminence, which, no less than their station, gave them authority with the people. Indeed, it may be said to have been the principal foundation of their authority. The crania of the Inca race show a decided superiority over the other races of the land in intellectual power; and it cannot be denied that it was the fountain of that peculiar civilization and social polity which raised the Peruvian monarchy above every other state in South America." These nobles acted as provincial governors and judges. The laws were in accordance with the large organs of Destructiveness which appear in the Inca skulls. "The laws," says Mr. Prescott, "were few and exceedingly severe. They related almost wholly to criminal matters. Few other laws were needed by a people who had no money, little trade, and hardly any thing that could be called fixed property. The crimes of theft, adultery, and murder, were all capital; though it was wisely provided that some extenuating circumstances might be allowed to mitigate the punishment. Blasphemy against the Sun, and the malediction of the Inca—offences, indeed, of the same complexion, were also punished with death. Removing landmarks, turning the water away from a neighbor's land into one's own, burning a house, were all severely punished. To burn a bridge was death. The Inca allowed no obstacle to those facilities of communication so essential to the maintenance of public order. A rebellious city or province was laid waste, and its inhabitants exterminated. Rebellion against the 'Child of the Sun' was the greatest of all crimes."

**SUPERSTITION OF THE INDIANS.**—Sir G. Simpson, in his "Narrative of a Journey round the World during the years 1841 and 1842," reports some interesting particulars that were told him by an American missionary named Munger, who had been two years on the Columbia along with his family. "This gentleman," says he, "was grievously disappointed with the country—a feeling common, in his opinion, to most of his fellow-

citizens. But the ministers of the Gospel, moreover, had a grievance peculiar to themselves; for, instead of finding the savages eager to embrace Christianity, as they had been led to expect, they saw a superstitious, jealous, and bigoted people. They soon ascertained that they could gain converts only by buying them; and they were even reproached by the savages on the ground that, if they were really good men, they would procure guns and blankets for them from the Great Spirit merely by their prayers. In short, the Indians, discovering that the new religion did not render them independent of the traders any more than their old one, regarded the missionaries as nothing better than impostors. Under these discouraging circumstances, Mr. Munger was desirous of returning home." This account corresponds with what is recorded of Thomas Adams, the Flathead Indian, in our eighteenth volume, p. 191.

PHRENOLOGICAL EDUCATION.—E. S., writing to us from Malaga on 7th July, 1847, proposes that those who recognize the value and importance of Phrenology as a guide in education, should proceed to act according to their convictions, by establishing "one or more free schools, which shall be conducted entirely according to phrenological doctrines. I would further suggest," he adds, "that the more particular object of such schools should be to qualify young men to become efficient teachers, and apostles of a superior educational system. To attain this end, subscriptions from believers in the science are necessary, and I, although merely a young employé of a Manchester mercantile house, shall have the pleasure in subscribing annually a couple of guineas toward the support of such school or schools. More wealthy men, who may, like myself, entertain strong opinions on this matter, will doubtless subscribe more largely; and, I trust, that if committees be formed for the purpose, a sum will shortly be obtained sufficient to put at least one school in full operation. I leave to abler hands the task of chalking out the system to be pursued; merely suggesting, that the end desired is the most complete and harmonious development of all the faculties, intellectual, moral, and bodily, and to show practically, the working of an educational scheme as complete as can be devised. I enclose my address, so that in case the idea is realized, you may put me down as a subscriber for the amount named."

TESTIMONIALS.—Mr. Solly, in the second edition of his excellent work on "The Human Brain; its Structure, Physiology, and Diseases," just published, thus avows his opinion of Phrenology:—"My reasons for believing that there must be a great deal of truth in Phrenology are fourfold. First, I have received from practical phrenologists, and especially the late worthy Mr. Deville, such accurate characters of individuals known to me, but unknown to them, that I cannot believe the accounts I received could be the result of accident and conjecture, which must have been the case if Phrenology is untrue. Secondly, Phrenology alone, as it appears to me, can account for all the varieties of insanity, especially monomania. Thirdly, The facts which have been collected by the late Mr. Deville, showing that the brain will alter its form at any period of life. Fourthly, The existence of longitudinal commissures."

EDUCATION OF IDIOTS IN PARIS.—On the 20th of September, 1847, at 10 A. M., I went to Bicêtre, the great public Pauper Lunatic Asylum of Paris, where Dr. Voisin (who is an enlightened and avowed phrenologist) received me most kindly, and conducted me to his school for the education of idiots.

There were about one hundred of them, of ages varying from ten or twelve, to thirty or forty years. Their heads were of all forms and sizes. There were idiots from pure deficiency in the size of the brain—with small, narrow foreheads, small in the coronal region, and some of them small also in the region of the propensities;—idiots from extreme deficiency only in the intellectual organs, with predominant propensities; idiots from epilepsy, with brains well formed but diseased; idiots from hydrocephalus; idiots from structural weakness of brain, members of families in whom insanity is hereditary, and in whom mere weakness of structure begets idiocy, independently of deficiency in form and size; and, lastly, children who are mischievous from great predominance of the organs of the propensities over those of the intellect and moral sentiments, and whose brains are liable to excitement and abnormal activity, without, however, being involved in what can be properly called insanity or idiocy.

The object is, to waken up the dormant powers, to restrain the over-active, and to bring all into a condition of regulated action, approaching as nearly as possible to the state of reason.

The means followed are, the enforcement of cleanliness and order; the supply of good nourishment, in proper quantities; a great deal of muscular exercise; and unceasing appeals to the five senses, the faculties of observation, and the moral feelings. Kindness, vivacity, and intelligence, characterize their teacher in an eminent degree. Dr. Voisin said that it is necessary to knock a hundred times on the deficient faculties, before they will respond; but, if you constantly present to them their natural objects, persevere, and solicit them by kindness, they will open more or less by degrees; and when you have once obtained access, you may convey to them much more information, and train them, by imitation and repetition, into habits of action, much more closely approaching to reason, than you could have anticipated before making the experiment. The first grand object is to fix the attention, and this is done by bringing down the wandering and glimmering faculties to deal with realities. He has bottles containing a variety of odorous substances, which are presented in succession to the organs of smell, and the idiot is taught to discriminate the differences, and afterward to name the substances. Figures of various forms are presented to educate the senses of sight and touch. There are music, and marching, and dancing, to teach them to discriminate sounds and intervals of time; military evolutions, gymnastics, and fencing, to educate the faculties of Order, Individuality, and Eventuality, and to invigorate the corporeal functions generally. Moral instruction, reading, and any other kind of knowledge for which the individuals show a capacity, are added; and, at length, those whose faculties are sufficiently developed are employed in trades. I saw them making shoes, and tables, and chairs.

The results are very satisfactory. In an ordinary asylum, these idiots would have been lolling about the wards, with open mouths, vacant, wandering eyes, slouching gaits, and countenances destitute of intelligent expression; or some of them would have been in confinement as dangerous. With the exception of one lolloping negro boy with an excessively small head, the countenances of all were more or less intelligent, and a calm, harmonious, moral expression pervaded them. They could all march to time; some could dance well, some fence well, some read, some draw, some write, and so forth.

It must not be imagined, however, that these idiots were rendered sane to the extent which would fit them to become self-acting, moral, and intellectual beings. The excellent results above noted are the fruits of external stimulus, addressed to their deficient powers, and with the great majority of them it must be kept up during life; but they are rendered far happier and more useful by this training, than they would have been if left in a neglected condition.—GEO. COMBE

**MUSIC IN SCHOOLS.**—In a late report by Mr. Allen, accompanying the Minutes of the Committee of Council on Education, the cheering and elevating influence produced by the cultivation of music in schools is thus mentioned:—"Scarcely any school visited in my district, in which music is taught successfully, fails to rise to considerable eminence in other respects. The schools at Longparish and Forton, where great attention is paid to this art, are excellent specimens of a strong moral influence being exercised thereby. Our forefathers reckoned music among the seven liberal sciences: and I hope that we are making a considerable advance in the right direction, in bringing back into our schools an art which, under proper management, cultivates a certain delicacy of feeling and gentleness, greatly needed by the children of the poor; making their tempers plastic, and contributing in various ways to harmony and order." With these remarks we cordially agree.

**HINDOO PHRENOLOGISTS.**—A Phrenological Society, consisting of Hindoos, has lately been established in Calcutta, and in August last included fourteen members, of whom two are schoolmasters, four belong to the medical profession, and the rest are engaged in mercantile pursuits. They have sent a remittance to Edinburgh, to be expended in purchasing a suitable collection of casts, books, etc. We wish them much success, and shall be happy to learn that the study of Phrenology becomes general among the Hindoos.

SANITARY REGULATIONS  
ON BOARD  
EMIGRANT SHIPS.

BY DR. ANDREW COMBE.

THERE is a bill at present before Parliament for enforcing additional sanitary regulations on board emigrant ships ; and in order to illustrate the great importance of the subject, we reprint the following letter by the late Dr. Andrew Combe, which appeared in the *Times* of Sept. 17, 1847. It is his last legacy to a cause for which he has done so much, and it is marked throughout by his vigorous thought and sound judgment. There is no abuse that calls more loudly for removal than the present condition of passenger vessels to America. The mortality which has occurred in this "middle passage" has averaged from 10 to 30 per cent., and in particular cases much higher, in a voyage of comparatively short duration. Further details may be found in the appendix to an interesting work—"The Englishwoman in America"—which has just appeared, by Mrs. Maury, of Liverpool, whose efforts, hitherto (we are sorry to say, unsuccessful), for obtaining medical advice for the poor emigrants have been above all praise :

TO THE EDITOR OF THE *TIMES* :

SIR—I was glad to perceive from the newspaper reports of the debates, a few days ago, that the subject of the recent unusual sickness and mortality on board of emigrant ships had at length attracted the notice of both Houses of Parliament, and that government professes to be fully aware of the magnitude of the evil, and anxious to use every possible means for its mitigation. But on reading the speeches, my satisfaction was much diminished, by finding that, with the exception of a very proper proposal by Lord John Manners, to compel emigrant ships to carry a surgeon, all the suggestions thrown out had reference exclusively to the care and treatment of the passengers after their arrival in the colonies, and that not a

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word was said of any intention even to attempt the prevention of the disease, by modifying the present regulations so as to suit the altered circumstances under which emigration is now going on. And yet this is not only by far the most important part of the subject, but precisely that over which government may exercise control with the greatest advantage. Indeed, I cannot but regard it as a strong proof of the necessity of some official and responsible superintendence of matters relating to the public health, that while ship fever has, for some months past, been exciting so much distress and alarm, not only among the emigrants themselves, but in the seaports on the American coast, no active measures have been resorted to on this side of the Atlantic to counteract its causes or attempt its prevention. Can we doubt that if a board of health had existed, the very prevalence of an unusual amount of disease would at once have excited inquiry, and prompted to the use of every possible precaution? But on the principle that what is every body's business is nobody's, the pestilence has been allowed to go on unchecked, and all our efforts have been reserved for the restoration of the sick. Such, at least, is the only inference to be drawn from the reports of the speeches in Parliament. Earl Grey, for example, assures the House of Lords, that on receiving accounts of the suffering among the Irish emigrants, "Lord Elgin, the Governor of Canada, had lost not a moment in taking the most prompt and energetic measures. He had immediately applied to the Ordnance Department for assistance, and immediate steps were taken for the erection of sheds, and additional medical officers had been engaged. In short, all that human skill and art could do had been done for the relief of these unhappy persons. The House was aware that the usual vote for the purpose of assisting emigrants on their arrival in Canada had been increased from £1000 to £10,000, and the governor had been directed to draw, in addition, for such further sums as he might think necessary, in the full confidence that Parliament would sanction the additional expenditure for such a purpose." In the House of Commons, also, Mr. Hawes gave similar assurances, that "the attention of the government and of the colonial authorities had been most earnestly directed to the subject, and nothing in their power should be wanting to mitigate the calamity."



All this is excellent so far as it goes, especially when backed by the further assurance from Mr. Hawes, that "he would make careful inquiry to ascertain whether the practical difficulty to which he had adverted (of providing a surgeon for every emigrant ship) was one which could be overcome;" and that, in the next Parliament, he would introduce a large measure, consolidating the laws which regulate the conveyance of emigrants. But as no distinct reference is made to any proposed means of warding off disease, I beg to be allowed to offer a few remarks for the purpose of at least partially supplying the omission. I am well aware that they will be found both meagre and imperfect; but as they are the results, partly of observation during a recent voyage to New York in a Liverpool packet ship, with three hundred and sixty (chiefly Irish) emigrants on board, and partly of information obtained during a short stay in the United States, they may afford some useful hints to the emigration authorities, in the absence of more extensive and trustworthy detail.

Ship fever, then, is no new or mysterious disease; it is neither more nor less than a variety of the too familiar typhus, which has lately committed such ravages in Ireland and among the Irish population of our large towns; and it owes any peculiarities it may possess entirely to the confined space and other circumstances under which it appears. Like typhus, it springs from the combined influence of imperfect nutrition, vitiated air, filth, and moral depression; and its extraordinary prevalence this season can be traced to the unusual pressure of these causes, particularly the first. It follows that, till the causes be removed or counteracted, no abatement of the pestilence can reasonably be hoped for. Doubtless, it is very proper that "additional means should be taken to mitigate the sufferings of the emigrants arriving in Canada in a state of sickness;" but it would, I repeat, be much better if, instead of waiting for the arrival of the sufferers in Canada, we were to meet the evil at its source, by the adoption of precautionary measures at home. These ought to be brought into play, at least as early as the causes they are intended to counteract, and be continued during the entire course of the voyage.

1. Among the most efficient causes of the present unusual



prevalence of ship fever, the low physical condition of the emigrants when they go on board, and still more, their inadequate sustenance during the voyage, may be placed in the front rank; because, without the agency of these, all the other causes would fail to produce more than the average amount of sickness. Of the fact of the low condition of the emigrants, I can speak strongly, from my own personal observation of the poor Irish whom I saw mustered on deck before leaving the Mersey, and in whose appearance no medical man of experience and reflection could fail to see plain indications of reduced stamina, and of inability to withstand the causes of disease. But the fact referred to is so notorious, and so generally admitted, that I need not waste words in proving it. With regard to inadequate feeding during the voyage, however, some explanation may be required, to show in what respect the sustenance of the emigrants on board ship has differed this season from what it was in former years, and why this difference has been so influential in the production of the present extraordinary amount of disease. This inquiry is the more necessary, as Earl Grey himself seems not to be fully aware of the facts of the case; and yet the right selection of the measures to be adopted must depend mainly on the real state of matters being understood. In reference to the accounts which "the government had received of extreme suffering having prevailed among Irish emigrants in Canada," his lordship is reported to have said, that "those emigrants had gone out in ships as well provided as such vessels usually were, but they had embarked in such a state of health, that, in some cases, the very change to a better diet on board the emigrant ships had caused fever to break out among them." Judging from personal observation, and the other sources of information accessible to me, I cannot but consider this statement to be founded on a most unfortunate mistake. It may be true, that "the ships were as well provided as usual;" but unless I have been greatly misinformed, it is far from being true that the poor emigrants were so. By the usual agreement for a steerage passenger in an emigrant ship, the passenger undertakes, or, at least, is expected to furnish his own provisions for the voyage, the ship supplying only fuel for cooking, and three quarts of water daily. In ordinary sea-

sons, when food is plentiful and cheap, the emigrants embark in good plight, and bring along with them a considerable supply of potatoes or oatmeal; though, as the captain has no means of compelling them to lay in a sufficient store for even a voyage of average length, the supply is generally much below what is necessary. In order to guard, therefore, against their actual starvation, either from their own improvidence, or from a very protracted voyage, the ship is bound to furnish daily to each steerage passenger (besides at least three quarts of water) one pound of bread, flour, rice, or oatmeal—it being provided that at least one half of the quantity of these provisions shall consist of bread or biscuit, and that potatoes may be given to the extent of one half the supply, five pounds of potatoes being computed as equal to one pound of the other articles. Every ship is compelled by law to lay in provisions for ten weeks (the average passage to New York or the St. Lawrence being about six or seven); and I believe it is not till the emigrant's own store is exhausted, that he is entitled to demand a supply from the captain. Hence, in ordinary years, the average mortality on the passage, according to Mr. Hawes, is only one half per cent. This season, however, when food has been scarce, and the price of both meal and potatoes so high as to put them virtually beyond reach, most of the emigrants have embarked without supplies of any description, and consequently have, from the first, been thrown on the stinted allowance which the government kindly intended to be merely a resource, in an emergency, against actual starvation. That this destitution was the case with almost all the poor Irish on board the ship in which I crossed the Atlantic, I was positively assured, and have every reason to believe: and no one who considers that the miserable allowance above mentioned is the sole support of men reduced by previous want to a state but ill calculated to resist the additional unwholesome influences which they encounter at sea, can be much surprised at the excessive mortality which is now occurring. The public are already aware that the sick and dying, landed from emigrant ships at Quebec and some of the American ports, have been so numerous as to fill not only the hospitals and the sheds and tents erected for their reception, but even, it is said, some of the churches. In a private letter, dated

12th of June, from a gentleman who had access to correct information, the number of sick at the quarantine station near Quebec, is said to be about three thousand, and the deaths to be nearly one hundred a day; and the case of the Ceylon, which was lately reported at New York, with one hundred and fifteen sick, and having lost thirty-one passengers during the voyage, exemplifies the condition of the emigrants while at sea.

That under favorable circumstances life may be preserved, for a time, by such an allowance of food as the emigrant ships are bound to furnish, experience, no doubt, demonstrates; but that such a diet ever proves so stimulating as to "cause fever to break out," as Earl Grey has been led to suppose, or that vigorous health can be sustained by the continuance of such diet for any length of time, is utterly incredible; because all the nutriment which a pound of "breadstuffs" contains is greatly below the actual daily waste from the body. Seeing, then, that in the present circumstances of the country, most emigrants are unable to furnish themselves with an adequate supply of food, I conceive that here is a most fit occasion for the interposition of government. Let the existing regulations be modified, and ships be compelled to furnish larger and better supplies; but do not allow the poor creatures to be sent to sea on an allowance under which health and life can be preserved only under the most favorable circumstances. In one or two ships, where the fever prevailed to an extreme degree, the quality of the provisions is said to have been very bad, but whether truly or not, I cannot tell. Both quantity and quality, however, ought to be subject to efficient inspection.

2. Another very active cause of ship fevers is the impure and noxious atmosphere which the emigrants are compelled to breathe between decks. Of all known poisons, that produced by the concentrated effluvia from a crowd of human beings, confined within a small space, and neglectful of cleanliness, is one of the worst; and in ships where ventilation is not enforced—especially if the passengers are dirty in their habits, and much kept below by bad weather—it frequently operates with an intensity which no constitution can long resist. In the ship in which I went to America, even with the utmost vigilance and care on the part of the captain to

ensure cleanliness and ventilation, and force the emigrants on deck, the air below was so foul and offensive as to be almost intolerable to any one unaccustomed to it. Even in the cabin, it proved a source of serious discomfort and annoyance; for, as the steerage extended the whole length of the ship, and so was partly under the cabin, the foul air from below penetrated through crevices in the lower deck, and at the sides, in sufficient quantity to contaminate our atmosphere. This latter evil, however, was accidental, and may easily be guarded against by making the floor and partitions of the cabin airtight. But the great impurity of the air in the steerage is, I may say, of universal occurrence, and it has acted more injuriously than usual this season, partly from the debilitating effect of the circumstances under which emigration has been carried on, and partly from the fact, that in a lowered state of the system, the exhalations from the body are more poisonous than during health and vigor. By the combined influence, too, of deficient food and vitiated air, a moral apathy is induced, which renders many of the sufferers indifferent to ordinary comforts, and indisposes them to make the slightest effort for their own well-being. On board of some ships this has been the case to such an extent, that many even preferred lying amid their own ordure to taking the trouble of rising to obey the calls of nature. The degradingly filthy habits exhibited in similar circumstances must be witnessed to be credited; but the influence of such habits in predisposing to fever will be doubted by none.

There are two ways in which the purity of the air may be promoted in emigrant ships. The first is to limit still more the number of passengers allowed to a given space, so that less air may be consumed, and a smaller quantity of impurities be given out. The proportion of passengers to tonnage allowed by the existing law (namely, sixty for every one hundred tons, deducting the crew\*) may not be too great for most

\* The law counts two children under fourteen years of age as one adult; and children under one year are not counted at all. Whatever its burden, no ship is allowed to carry more passengers than can be accommodated with ten clear superficial feet appropriated to the use of each, free of all stores, except personal luggage: and every ship must have a space of six feet between one deck and another. I am informed that the American government requires that each person shall have fourteen feet of space, and that the number of souls on board shall

voyages, or for persons in sound health ; but when the system is enfeebled, atmospheric purity becomes more and more indispensable for the preservation of health ; and hence, when, as is now the case, most of the emigrants are impaired in constitution and prone to disease, a larger space ought to be assigned to each than would be sufficient in better circumstances. But as some ships are much better constructed and more easily ventilated than others, a discretionary power on this point might safely be entrusted to a well-constituted board of health, provided certain limits were laid down, which must in no instance be transgressed. Even under favorable circumstances, however, the number of passengers now allowed by law might with great advantage be reduced.

Having provided against over-crowding between decks, let the government next enforce the use of means for expelling the foul air, and supplying its place with pure air from without. This is an object which has of late attracted much attention, and many contrivances have been proposed to effect it. The simplest, and, I believe, the most efficient of all, is Dr. Neil Arnott's ventilating pump, which draws off the foul air, and substitutes pure air in its place, and is, moreover, easily worked. A description of the apparatus need not be given here ; but I submit that either this or some similar means should be rendered compulsory in emigrant ships. Even with the ordinary wind-sails used on board, much good may be effected, where the captain is fully alive to the importance of thorough ventilation, and to the necessity of having the passengers on deck as much as possible during fine weather. If the voyage prove tedious, these precautions become doubly imperative, because, in proportion as confinement is protracted, the system becomes less and less able to resist the injurious influences by which it may be surrounded. In the vessel in which I was a passenger, but one man died of fever (and he was ill when he came on board), and the only other death was that of an old woman of eighty-five, from sheer exhaustion. That the rest escaped so well, notwithstanding the inadequate supply of food, was owing very much

in no case exceed two fifths of the tonnage. English vessels are, consequently, much more crowded than the superior regulations of the Americans would allow.

to our good fortune in having a short voyage and favorable weather, and, also, in no small degree, to the humane and unceasing exertions of the captain, in enforcing cleanliness, ventilation, and the taking of exercise on deck, and to his having a surgeon on board. In almost every instance, the sickness and mortality have been observed to bear a direct relation to the length of the voyage, the badness of the weather, and the greater or less care with which the above conditions were fulfilled. A few weeks ago, the ship *Loostbark*, of Liverpool, put into *Miramichi* in distress, having been forty-nine days at sea, and having lost one hundred and seventeen out of three hundred and fifty passengers. The *Ceylon*, also, already mentioned as having suffered severely, is stated to have had a tedious voyage. Other ships were in a still worse condition; but in all, the sickness and mortality were apparent almost in direct proportion to the intensity and duration of their causes. On the other hand, the protective power of intelligent arrangements is forcibly shown, not only by the good health enjoyed in other ships, but still more by the lately published instance of the Glasgow prison, which has had hardly a single instance of fever among its six hundred inmates, although the disease has been very prevalent among that class of the population from which most criminals are derived.

3. Another removable cause of the liability to ship fever, is the gross personal uncleanness of which I have already spoken; but comment on this is as needless as its influence is notorious, and its prevalence among the poorer Irish is also, unfortunately, too palpable to be doubted. On ship-board, however, the habit appears in a most disgusting form, and nothing but a firm hand, directed by much benevolence and sound sense, can enable the master of an emigrant ship to keep the nuisance within bounds. Like all other exciting causes, it has acted with more than usual force this season, from the reduced and apathetic condition of the emigrants.

4. A fourth, and far from inactive cause, also in a great measure removable, is the moral depression and want of elasticity of intellect and feeling, almost inseparable from long-continued physical deterioration, and which renders it difficult to withstand the inroads of disease. The Irishman may not become gloomy or despondent, but he loses his



bounding hilarity; the spring of life is weakened, and he falls a victim to disease, where, in happier circumstances, he would have escaped uninjured. To restore him, he must be fed; and to allow him to go to sea with food only sufficient to keep soul and body together, under favorable circumstances, is to leave him exposed to the inroads of disease, whenever bad weather, crowding, or neglect, may chance to add its adverse influence to the many other evils under which he is already suffering. In the navy all this is well understood, and it only requires the vigorous application of the same principles to the protection of emigrants, to ensure for them the same safety which is enjoyed in her majesty's ships.

Since, then, the prevalence of ship fever depends so directly on the operation of ascertained causes, most of which are within our control, can any reasonable doubt be entertained of the possibility of vastly diminishing its ravages, by the adoption of suitable precautionary means? Some practical difficulties may indeed stand in the way; but the more distinctly the facts are brought out, the more easily may those difficulties be overcome. I hardly need observe, that the success of precautionary measures is always likely to be greatest, if they be resorted to under the direction of a well-qualified medical man. Strange to say, however, so far from emigrant ships being compelled to carry a surgeon, the former law to that effect has lately been repealed, as if on purpose to give free scope to the sources of disease; and ships now sail with, perhaps, five hundred and eighty passengers on board, and without any professional assistance, except that derived from a medicine chest, and the manual of directions accompanying it! By many shipmasters, the responsibility thus thrown upon them is very painfully felt; so much so, that some of them have voluntarily provided surgeons at the ship's expense. This was the case in the packet-ship in which I sailed. But, as Mr. Hawes has already pledged himself to make inquiry into the practicability of obtaining medical aid for all emigrant ships, I need not add a word more to enforce its propriety.

Although most unwilling to trespass further on your space, I cannot refrain from observing, that the records of the naval



and transport service afford ample evidence that hundreds of human beings may be carried through long voyages, in every variety of climate, with little or no injury to health, provided the requisite conditions be fulfilled. Several remarkable examples of this are given in the fifteenth chapter of my work, entitled, "*THE PRINCIPLES OF PHYSIOLOGY APPLIED TO THE PRESERVATION OF HEALTH*," etc.\* Now, surely, the same principles and conditions apply to emigrant ships as to the others. If it be objected here, that a greater expense must be incurred than it is possible to afford, I reply that, in practice, the cost will be found much less formidable than is supposed; and even if it were considerable, would it not be both cheaper and better to charge a higher fare, and land the emigrant in health and strength, than to charge a low fare, and allow him to encounter all the risks and miseries of disease, or, perhaps, to die on the voyage, and leave his family destitute in a foreign land? At present, the passage money to New York is from forty to one hundred per cent. above what it was formerly; and if emigrants are ready to pay more when the price of food is high, surely they will not begrudge a trifle for additional security to health and life. Supposing them to be unable to meet the extra expense, still it would be as economical for the government to give a little temporary aid in preventing the disease, as to reserve the Canadian grant of ten thousand pounds entirely for the treatment of the sick. Both in an economical and benevolent point of view, the gain would evidently be very great, if the fever were prevented, and the colonial expenditure for curing it rendered unnecessary. Let us shut the stable door, without waiting till the steed be stolen.

I am, sir, your most obedient servant,

ANDREW COMBE, M. D.

Edinburgh, August, 1847.

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AN act has just been passed by the British Parliament in accordance with the spirit of the foregoing letter, which reads as follows:

\* Published by FOWLERS & WELLS, New York

*AN Act to make Further Provision for One Year, and to the End of the then Next Session of Parliament, for the Carriage of Passengers by Sea to North America.*—[28th March, 1848.]

WHEREAS, it is expedient to make further provision respecting the carriage of passengers by sea to certain parts of North America and the islands adjacent thereto, and for that purpose to alter certain provisions of an act, passed in the session of Parliament held in the fifth and sixth years of the reign of her present majesty, entitled "An Act for Regulating the Carriage of Passengers in Merchant Vessels," and of an act passed in the session of Parliament held in the tenth and eleventh years of the reign of her present majesty, entitled "An Act to Amend the Passengers' Act, and to make Further Provision for the Carriage of Passengers by Sea;" be it therefore enacted, by the queen's most excellent majesty, by and with the advice and consent of the lords, spiritual and temporal, and commons, in this present Parliament assembled, and by the authority of the same, that no ship carrying passengers on any voyage, from any port or place in the United Kingdom, or in the islands of Guernsey, Jersey, Alderney, Sark, or Man, to any port or place on the eastern coast of North America, or in the islands adjacent thereto, or in the Gulf of Mexico, shall proceed on such voyage with, or shall carry, more passengers on board than in the proportion of one passenger to every two tons of the registered tonnage of such ship; and that no such ship shall, whatever be the tonnage thereof, proceed on such voyage with, or carry, more passengers on board than in the following proportion to the space occupied by them, and appropriated to their use, and unoccupied by stores not being the personal luggage of the passengers; that is to say, on the deck upon which the passengers live, one passenger for every twelve clear superficial feet, or on the orlop deck, if any, one passenger for every thirty such superficial feet; and that if any ship carrying passengers upon any such voyage as aforesaid, shall carry any person or passenger beyond such proportions, or any of them, the master of the ship shall, for and in respect of every person or passenger constituting such excess, be lia-

ble to the payment of a penalty not exceeding five pounds sterling.

II. And be it enacted, That in computing the aforesaid proportions, two children, each being under the age of fourteen years, shall be computed as one person or passenger, and that children under the age of one year, shall not be included in such computation.

III. And be it enacted, That no ship carrying one hundred or more passengers, shall clear out, or proceed on her voyage, unless there shall be on board a ship's cook, approved by the emigration officer at the port of clearance, and engaged for the purpose of cooking the food of the passengers, nor unless a convenient place shall have been set apart, and a sufficient apparatus provided for that purpose, to the satisfaction of the said emigration officer; and if any ship shall proceed on her voyage, not having on board such ship's cook and cooking apparatus, as herein is required, the master of the said ship shall be liable to a penalty not exceeding fifty pounds.

IV. And be it enacted, That whenever any ship shall carry one hundred or more passengers, on any such voyage as aforesaid, there shall be on board a surgeon, duly qualified as hereinafter mentioned, or, in default thereof, it shall not be lawful for any such ship to carry more passengers on the deck upon which the passengers live, than in the proportion of one passenger to every fourteen superficial feet, so occupied and appropriated as aforesaid.

V. And be it enacted, That in the calculation of such proportion, every child above the age of one year, shall be computed as one passenger.

VI. And be it enacted, That every such surgeon as aforesaid, shall be a person duly qualified by law to practice in the United Kingdom as physician, surgeon, or apothecary, and who shall not be objected to by the said emigration officer.

VII. And be it enacted, That, except as herein after provided, no ship shall clear out, or proceed on any such voyage as aforesaid, until the said surgeon, or, in case of ships not carrying surgeons, until some medical practitioner, to be appointed by the said emigration officer, shall have inspected as

well the medicine chest of the said ship as the passengers on board, and shall certify to the said emigration officer, that the said ship contains a sufficient supply of medicines, instruments, and other things requisite for the medical treatment of the passengers during the intended voyage, and that none of the passengers appear to him likely, by reason of being affected by any infectious or other disease, to endanger the health of the persons on board: Provided, always, that the master, owner, or charterer, of every ship inspected by any medical practitioner, so appointed as aforesaid, shall pay to such medical practitioner a sum, to be fixed by the said emigration officer, not exceeding twenty shillings for every hundred passengers: Provided, also, that in case, on any particular occasion, it shall be deemed, by the emigration officer, impossible to obtain the attendance of such medical practitioner, it shall be lawful for the master of any such ship, to clear out and proceed on her voyage, on receiving, from the said emigration officer, written permission for the purpose.

VIII. And be it enacted, That in case any such surgeon or medical practitioner shall notify to the emigration officer at the original port of clearance, or at any other port or place in the United Kingdom, into which the vessel may subsequently put, or in case the said emigration officer shall be otherwise satisfied, that any person, about to proceed on such voyage as aforesaid, is likely, by reason of being affected by any infectious or other disease, to endanger the health of the other persons on board, it shall be lawful for such officer to re-land, or cause to be re-landed, any such person, and such members of his family, if any, as may be dependant on him, or as may be unwilling to be separated from him; and no ship shall be cleared out, or proceed on any such voyage, so long as any such person or persons shall be on board, and the master of any such ship, who shall willfully proceed on the said voyage with any such person or persons on board, shall be liable to a penalty not exceeding fifty pounds sterling.

IX. And be it enacted, That any person or persons who shall be so re-landed as aforesaid, or the emigration officer on his or their behalf, shall be entitled to recover, by summary process, before two or more justices of the peace, in like

manner as in the said first recited act is provided, in the cases of moneys thereby made recoverable, the whole of the moneys which shall have been paid by him or them, or on his or their account, for his or their passage in such ship as aforesaid, from the party to whom the same may have been paid, or from the owner, charterer, or master of such ship.

X. And be it enacted, That it shall be lawful for her majesty, by any order or orders in council, to be by her made, with the advice of her privy council, to prescribe any such rules and regulations as to her majesty may seem fit, for preserving order, and for securing cleanliness and ventilation, on board of British ships proceeding on such voyage as aforesaid, and the said rules and regulations, from time to time, in like manner to alter, amend, and revoke, as occasion may require; and that any copy of such order in council contained in the London Gazette, or purporting to be printed by the queen's printer, shall, throughout her majesty's dominions, be received, in all legal proceedings, as good and sufficient evidence of the making and contents of any such order in council.

XI. And be it enacted, That, in every British ship, it shall be lawful for the surgeon, or, in ships not having a surgeon on board, for the master of any such ship, to exact obedience to all such rules and regulations as aforesaid, under the penalties next herein after provided.

XII. And be it enacted, That any person on board such ship, who shall neglect or refuse to obey any such rule or regulation, or who shall obstruct the master or surgeon of such ship in the execution of any duty imposed upon him by such rule or regulation, shall be liable to the payment of a penalty not exceeding two pounds sterling; and it shall be lawful for the justices of the peace in any part of her majesty's dominions, before whom any person shall be convicted of such obstruction or resistance as aforesaid, to order such person, in addition to the penalty herein before mentioned, to be confined in the common jail, for any period not exceeding one month.

XIII. And be it enacted, That the said colonial land and emigration commissioners shall, from time to time, prepare such abstract as they may think proper, of the whole or part

of this and of the said recited acts, and of any order in council to be made as aforesaid; and that six copies of the said abstract, together with two copies of this and the said recited acts, shall, on demand, be delivered by the collector or comptroller of the customs of the port of clearance to the master of every ship carrying passengers on such voyage as aforesaid; and that such master shall, so long as any passenger be entitled to remain in the ship, keep posted, in at least two conspicuous places, between the decks of the said ship, copies of such abstract, and shall be liable to a penalty not exceeding forty shillings sterling, for every day during any part of which, by his act or default, such abstract shall fail to be so posted; and that any person displacing or defacing such abstract, so posted, shall be liable to a penalty not exceeding forty shillings sterling.

XIV. And be it enacted, That all penalties imposed by this act shall be sued for and recovered by such persons only, and in such manner, as in the said first recited act is provided in the case of the penalties thereby imposed.

XV. And be it enacted, That the bond required by the said herein before firstly recited act, to be given in certain cases to her majesty, in respect to ships carrying more than fifty passengers, shall include and be a security, not only for the matters and payments in the said act mentioned, but also for the faithful observance of the provisions as well of the said herein before secondly recited act, as of this act, and of any rules and regulations to be prescribed by any such order in council as aforesaid; and, further, for the due payment, by the master of any such vessel, of all penalties which he may be adjudged to pay, under, or by virtue of, the said herein before secondly recited act, or of this act.

XVI. And be it enacted, That all powers and duties given to, or imposed upon, the emigration officer herein before mentioned, may be exercised and performed respectively by his assistant, in his absence, or, at ports where there shall be no such emigration officer, by the officer of the customs whose duty it may be to grant a clearance to such ship.

XVII. And be it enacted, That, in the interpretation of this act, the term "passenger" shall be held not to include the class of passengers commonly known by the name of cabin passen-

gers; and the term "ship" shall include every description of sea-going vessel; and the term "master" shall include any person being in command of such vessel for the time being; and that, unless there be something in the subject matter or context repugnant to such construction, every word importing the singular number or the masculine gender only, shall be construed to include several persons, matters, or things, as well as one person, matter, or thing, and females as well as males, respectively.

XVIII. Provided, always, and be it enacted, That nothing in this act contained shall apply to any ship in which the number of passengers shall not bear to the registered tonnage a greater proportion than that of one passenger to every twenty-five tons: Provided, also, that if, in any action, prosecution, or other legal proceeding under this act, any question shall arise, whether any ship carrying passengers on any such voyage as aforesaid, did, or did not, carry a greater number of passengers than aforesaid in proportion to the tonnage thereof, the burden of proving that the number of passengers so carried, in proportion to the tonnage of the ship, was not greater than that of one person to every twenty-five tons, shall lie upon the person against whom any such action, prosecution, or other legal proceeding, may be brought; and, failing such proof, it shall, for any such purpose as aforesaid, be taken and adjudged that the number of passengers so carried did exceed that proportion.

XIX. And be it enacted, That in all proceedings it shall be sufficient to cite this act by the title of "The North American Passengers Act."

XX. And be it enacted, That this act shall remain in force for the period of one year from the passing thereof, and from thence to the end of the then next session of Parliament.

XXI. And be it enacted, That this act may be amended or repealed by any act to be passed during the present session of Parliament.

VOL. I.—16



THE  
RIGHT OF RELIGIOUS FREEDOM.

BY E. P. HURLBUT.\*

It is provided by the constitution of the United States, that "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof." The constitution of the State of New York has a provision on the same subject, in these words: "The free exercise and enjoyment of religious professions and worship, without discrimination or preference, shall be for ever allowed in this state to all mankind." Other state constitutions contain similar provisions, the object of which is to secure what is called freedom of religion, or the perfect equality of religionists before the law. But it does not appear that the equality of all men, irrespective of their religious opinions, is actually secured—nor but that there is in this country a species of religious establishment, notwithstanding these constitutional provisions. It would seem that the state has not yet perfected the work of human enfranchisement, if any man can suffer for opinion's sake.

The sense of religion is innate in the human mind, or, in other words, man is a religious being by the very constitution of his nature. He may possess much or little of this feeling, according to his organization; but if a man be found who is entirely destitute of it, his mind is far from being in a normal condition, and he is a very eccentric person. Perhaps that is the worst that ought to be said about him. The religious sentiment has its seat in the organ of Veneration, which originates the feeling of awe and reverence for the Supreme, the Infinite, the Almighty Power of the universe. Faith, when allied to Veneration, disposes a man to believe in divine mystery; and Hope, looking to the future, lends its bright images to religion, and points him to a happy immortality. To the combined action of these sentiments may we ascribe the religious feelings. Now, since these relate to infinity and the future, it is

\* Now Judge of the Supreme Court in the city of New York.

difficult to perceive why the absence of any, or a peculiar manifestation of these sentiments, has ever been regarded as an offence to the state. The religious feelings proper have little concern with the affairs of our present existence. Reverence for the Divine Being, faith in the infinite mystery which shrouds his existence and his power, and an expectation of a blessed immortality, refer rather to the Deity and man's relation to Him in a future world, than to those humble practical relations in which man stands to his fellow in the social state. It is not upon these sentiments that a man relies when he appeals to his brethren for justice, the protection of his rights, or for love and sympathy. In the assertion of his rights, he appeals to the enlightened conscience of mankind—and addresses their benevolence, when he demands their pity or charity. Although faith and hope abide in the human mind, yet greater than these is charity, and greater far than this favorite sentiment of the apostle, is justice. It is upon Conscientiousness, enlightened by the intellect, that the social man altogether depends for the acknowledgment and protection of his rights. Now, a man may possess a large endowment of the sentiments of justice and benevolence, and yet be deficient in veneration, faith, and hope; so that, although, in all his social relations, he may be upright and charitable, he will not manifest the religious feelings to such an extent as other good men. On the other hand, a man may exhibit these feelings in a very striking manner, but at the same time possess such a scanty endowment of the sense of justice and benevolence, as to circulate at a great discount in society on account of these defects, and, indeed, be rather a dangerous man. This is so well known, that it has ripened into a proverb, that "one may be Godward straight, but manward crooked." Such persons are often charged with religious hypocrisy, while those wanting in the religious feelings, but who, nevertheless, practice every social virtue, are denounced as infidels; while the truth is, both of these classes of persons act in obedience to the laws of their organization—the one in yielding to the supremacy of the moral, and the other to that of the religious feelings.

Now, the religious as well as the moral sentiments are of themselves blind; they produce mere feelings or emotions,

which are altogether crude and ignorant, until informed and directed by the intellectual faculties.

But the observing and reflecting powers of the human intellect take up the theme suggested by these sentiments, and by the process of thought bring the mind at length to an opinion or judgment in the matter. This is a natural and inevitable process of the mind. The intellect will inquire of facts, and make its deductions in reference to every emotion of the sentiments; it will reason and determine upon them. The religious, benevolent, and conscientious feelings demand to be enlightened by the intellect, and must take their direction accordingly. Now, because such an exercise of the intellect is natural and inevitable, the state can do nothing whatever in the case, either to interrupt it, or to censure its ideal results.

This innocent and necessary process of the mental faculties terminates in a speculative result, or an opinion, which will be different in one mind from that of another; but whatever may be this diversity, it is no concern of the state, since, at the most, only an opinion, and not an act, has resulted; an opinion which, in the case of the religious sentiment, does not affect man's relations to his fellow-man, but only his relations to the Deity, which relations cannot be adjusted by human legislation.

The state, then, having in view its only office, the protection of rights, has no such concern with any speculation, conclusion, or belief, in reference to any question of religion or morals, as will authorize it to make distinctions among men on that account; but it must bring its authority to bear only upon such positive acts as are injurious to the rights of mankind, and not attempt to diminish the sovereignty of reason.

If this be correct, then several clauses in the American constitutions ought to be stricken out, and conservative provisions made to protect freedom of opinion; and the common laws and statutes, so far as they interfere on this subject, ought to be abrogated.

The constitution of the State of North Carolina, which was adopted in 1776, contained the following provision: "That no person who shall deny the being of God, or the truth of the Protestant religion, or the divine authority of either the Old or New Testaments, or who shall hold religious principles

incompatible with the freedom and safety of the state, shall be capable of holding any office or place of trust or profit in the civil department within this state." This was amended in 1836, and "Christian" was substituted for the word "Protestant." But for sixty years, all Catholics were excluded from office in that state; and although they are rendered eligible by the amendment, still all heathen and infidels are excluded, and the true believers have all the offices to themselves. But that this provision should not be written down in flat prose, without being redeemed by any constitutional poetry, the framers of the same instrument caused it to be inserted therein, "That all men have a natural and inalienable right to worship Almighty God according to the dictates of their own conscience." They may worship—and the state will not interrupt them—but it will inquire as to the Divinity they adore; and if He be not the constitutional Jehovah, the unlawful worshipers will be excluded from civil office. They may, however, hold military offices: the state being content to have heathen bleed in its defence.

Then, what may not the legislature enact as to persons holding religious principles which may be deemed incompatible with the freedom and safety of the state? Even the Christian sects may attempt, under this clause in the constitution, to exclude each other from office. Ought such a door to be open—such an attempt to be possible?

The constitution of Massachusetts, adopted in 1780, declares that "The commonwealth have a right to invest their legislature with power to authorize and require, and the legislature shall, from time to time, authorize and require the several towns, parishes, precincts, and other bodies-politic, or religious societies, to make suitable provision, at their own expense, for the institution of the public worship of God, and for the support and maintenance of public Protestant teachers of piety, religion, and morality, in all cases when such provision shall not be made voluntarily." The legislature is invested with authority to enjoin upon all subjects an attendance upon such teachers of religion—if there be any which they can conscientiously and conveniently attend; but the people are to have the choice of their teachers. Every denomination of Christians demeaning themselves well, shall be equally pro-

tected by the laws, and no subordination of one sect to another can be established.

This portrays the infant state of religious freedom in the "cradle of liberty." It would seem, according to the principles which I have endeavored to maintain, that there was this obvious mistake in this constitution; that it expressly authorized what it ought more expressly, if possible, to have forbidden—to wit, a species of religious establishment, and its compulsory support.

The chief officers of state, under this constitution, were required to declare that they believed in the Christian religion, and had a firm persuasion of its truth; but, by an amendment adopted in 1820, this is dispensed with, and they now swear allegiance to the commonwealth, and that they will support the constitution.

The constitution of the State of New York provides for the free exercise and enjoyment of religious profession and worship. But, notwithstanding this provision, the legislature may interfere with the rights of opinion, and the courts, in the administration of the common law, may punish a man for speaking against the prevailing religion of the country.

In most of the states, witnesses are subjected to a religious test. A man cannot testify in a court of justice, unless he believe in a God; and in the State of New York, in former years, many respectable persons were declared to be incompetent witnesses, because they did not believe in a state of future rewards and punishments. Even under the present laws of the state, the witness must believe in a God who will punish false swearing, or he is incompetent.

Before requesting a neighbor to witness a will, the testator must be sure that he knows his religious opinion, and must be careful to select a man who will not relax his faith, lest the witness should prove to be incompetent, for the want of this religious test, and the will should therefore turn out a nullity. If a man happen to be slain in the presence of an unbeliever, it is fortunate for the offender, since there can be no proof made against him; and so the community may be exposed to further violence.

The exclusion of a witness for this cause, is based upon the notion that religious faith is necessary in order to ensure a

proper regard for truth. This is unphilosophical, and opposed to the experience of practical men. The religious sentiments are independent of that faculty of the mind which respects the truth. They may exist to a striking degree, and the possessor may, nevertheless, commit perjury with great facility. I speak as well from the constitution of the human mind, as from a liberal experience of testimony from all sorts of men. I have known religious perjurers and infidel perjurers; and as many of one as of the other. It is to the sentiment of conscientiousness that we owe the regard for truth; and we have seen that that may exist independent of the religious feelings. How unwise, then, to adopt a religious test for a witness. All intelligent moral beings ought to be regarded as competent witnesses; and the degree of credit to be awarded to their testimony must depend upon the characters which they bear in society.

Neither the rights of witnesses nor suitors can be regarded as secure without the adoption of this rule, and it seems to me important enough to be incorporated in the constitution of a state.

If the state has no concern with matters of faith and opinion—if its only authority is to conserve human rights—if every man may demand of right that he be not molested by the power of the state, unless he has infringed upon another's rights—if, in a word, the principles\* which have guided me in this attempt to define the powers of the social body, are well founded in reason and morality, as I cannot doubt they are, then, in respect to matters purely of a religious nature, the laws ought to be as silent as if there were no such thing as religion in the world. The law can have no religion, since it cannot have all. If it selects that of one sect, it offends against the rights of all other sects. If it take into favor the religion of the majority, it tyrannizes over the minority; if it establish the religion of the Christian, it offends the infidel, the Jew, and the heathen. But it is fortunate that the state has no occasion to interfere on the subject, since it can protect the rights of all men without infringing upon the rights of any; and it has only to declare that there are so many good religions, that it will not venture to make choice among them.

See *Phrenological Journal*, xvi., 317.



How, then, could any legal controversy arise because of religion, or any matter of faith or opinion? The believer and the infidel might debate, but the state would not interfere until they came to blows. If the believer struck first, the state would condemn him, although he might hold the best sort of religious opinions. The state would judge him by his acts alone. In the religious riots which lately disgraced Philadelphia, the state perceives only that arson, murder, and other crimes have been committed, and it is hoped will prevent their recurrence.

In the fierce paper warfare of sects, the law may detect a libel; not a libel on religion, but on human character. But it cannot detect any heresy, because it has no orthodox faith; nor can it punish blasphemy, because the law only protects human rights.

As regards the observance of a day of rest, the state has an undoubted authority to abstain from all action on such a day; but it cannot rightfully compel any man to keep Sunday as a religious institution; nor can it require him to cease from labor or recreation on that day, since it cannot be shown that the ordinary exercise of the human faculties on that day is in any way an infringement upon the rights of mankind.

There cannot, properly, be any legal controversy as to the introduction of the Bible into the schools. The law has no Bible, and cannot recognize any distinction between Catholics, Protestants, Jews, and infidels.

The interests of religion, as well as the rights of mankind, are deeply concerned in establishing these principles. There is no surer way to make any religion odious, than to attempt to coerce men into its support. If I wished to corrupt and destroy it, I would give it power over the laws. The stake would soon follow the statute, and the conscience and benevolence of mankind would revolt at its alliance with the state, and both would fall together.

But it is inquired, can a state exist which recognizes no religion? I answer, that it can, as well as if it do not recognize music. One is no more the natural offspring of the human mind than the other; and both will flourish best without the interference of the state authority. And, indeed, the state might as well ordain a tune as a religious exercise, and



a few fragments or notes of that tune, as a few fragments or parts of any particular religious faith.

A statute of the State of New York, enacted in 1844, on the subject of common school education, contains this clause :

"No school shall be entitled to a portion of the school moneys (i. e. moneys from the school fund of the state) in which the religious sectarian doctrine of any particular Christian or other religious sect shall be taught, inculcated, or practiced, or in which shall be used any book or books containing compositions favorable or prejudicial to the particular doctrine or tenets of any Christian sect.

"But nothing herein contained shall authorize the board of education to exclude the Holy Scriptures, without note or comment, or any selections therefrom, from any of the schools provided for by this act ; but it shall not be competent for the said board of education to decide what version, if any, of the Holy Scriptures, without note or comment, shall be used in any of the said schools ; provided that nothing herein contained shall be so construed as to violate the rights of conscience, as secured by the constitution of the state and of the United States."

This statute arose out of a controversy between the Catholics and Protestants, in the city of New York, respecting religious teaching in the schools. It is well that it ended in a statute rather than in bloodshed, as did a like controversy in Philadelphia, although the statute may be based upon false principles. It virtually forbids religious teaching in the schools ; while it seems to me that it ought neither to forbid nor to command it, but to remain as silent on the subject of religion in the schools as elsewhere, and leave the people of each school district to determine their course for themselves.

A school district is a small democracy, and is exactly adapted to the entire control of its own affairs. If this be not so, there is no virtue in the democratic principle, and the sooner we centralize the powers of state the better.

But the board of education are not allowed, by this act, to determine what versions of the Holy Scriptures, without note or comment, may be used in the schools. This may be very well ; since, if I am right, the inhabitants of the district must manage every thing. I have only to observe on this pro-

vision, that I do not perceive how the legislature, in its proper capacity, obtained any idea as to what Scriptures are holy and what are not; what are with, and what are without note or comment.

A few more such statutes, and the decisions of our courts will, by and by, become deeply imbued with ecclesiastical learning, and quotations from the holy fathers; and sectarian religion will furnish a large share of legal controversy. Religion was once forbidden to go to law, and it would profit by obedience.

This statute at last preserves the rights of conscience—which had the legislature observed at the outset, the statute would not have been passed, and the school districts would have been permitted to manage their affairs in their own way.

The error lay in the recognition of a religious controversy at all. It might have been permitted to spend its force in argument; the state could not properly take part until somebody was hurt.

It would seem that we need further constitutional provisions—such as will render it impossible for the religionist of any sect whatever to obtain the least legal recognition, or the ratification of any portion of his creed, the adoption of his sacred books, or any other favor from the state. Until the state takes the position of perfect indifference and impartiality, the rights of conscience will not be secure; and that religious freedom, so much boasted in America, will rest upon an unsafe foundation.\*

\* This and sundry other not less valuable papers (some of which appeared in our 15th and 16th volumes) have been collected by the author in a volume, entitled, "Essays on Human Rights and their Political Guaranties. By E. P. Hurlbut, Counselor at Law in the City of New York. New York: Fowlers & Wells. 1847." It consists of ten chapters, the titles of which are as follows: I. The Origin of Human Rights. II. The True Function of Government. III. The Constitution of Government. IV. Constitutional Limitations and Prohibitions. V. Constitutional Limitations continued. VI. The Elective Franchise. VII. Rights emanating from the Sentiments and Affections. VIII. Rights of Woman. IX. The Right of Property, and its Moral Relations. X. Intellectual Property. In our opinion, these important subjects are discussed by Mr. Hurlbut in a manner truly philosophical. He displays a rare union of the power of vigorous reasoning, with just perception of human rights, and the ability of expressing his ideas with clearness, terseness, and precision.

THE  
STATE OF PHRENOLOGY  
IN SOUTH-WESTERN GERMANY.

BY GEORGE COMBE.

HOMBURG, 22d August, 1845.

SIR—I have this season revisited the banks of the Rhine, and have now the pleasure of informing you of the progress of Phrenology in these provinces. In traveling through Belgium, I was informed that M. Mareska, physician to the Maison de Force, or Penitentiary of Ghent, and professor of chemistry in the university of that city, has taken an interest in Phrenology, and has made a collection of the skulls of such criminals as have recently died in the penitentiary; and that M. Idgiez, of Brussels, keeps for sale a collection of phrenological casts and busts; but I did not obtain this information until it was too late for me to visit these individuals, which I much regret. In Brussels I had the pleasure of conversing with the celebrated M. Quetelet, on the subject of Phrenology, and found him not only free from all prejudices against it, but alive to its importance, and anxious to apply it in his own statistical inquiries. He expressed his regret that, owing to the want of exact phrenological measurements of the head at different ages, and in different nations, he could not blend Phrenology with his statistics of crime and education. In this sentiment I cordially participated; but remarked, that while so much remains to be done in merely teaching the truths which are already ascertained, and in repelling objections, and while no public encouragement is given to phrenological investigations, it is scarcely to be expected that individuals in different countries should devote their time and talents to making extensive measurements, which few could appreciate, and fewer still apply.

In ascending the Rhine, I had the pleasure of renewing my acquaintance with Mr. Hulle, the schoolmaster of Königs-

winter, at the foot of the Drachenfels. He has completed a manuscript translation of the school edition of my work on "The Constitution of Man," submitted it to the Prussian superintendent of public schools at Cologne for his perusal, and obtained his approval of it; and he only waits for the means of printing it, in order to offer it to the schools of his district for the use of their scholars.

On arriving at Wiesbaden, I found a course of phrenological lectures actually in progress, by Dr. Scheve, of Heidelberg, already known to your readers as one of the collaborateurs in the German Phrenological Journal. He informed me that, in December and January last, he had delivered a course of lectures on Phrenology in Carlsruhe, the capital of the grand duchy of Baden, and had sixty subscribers. In Frankfort-on-the-Maine he delivered a course in April. In June he lectured in Mayence, and had seventy-five subscribers, and above twenty-five visitors at each lecture. One third of his subscribers belonged to the medical profession, and a considerable number to the law. They passed resolutions at the close of the course, expressive of their deep interest in the subject, and high gratification with Dr. Scheve's exposition of it. At Wiesbaden he had an audience of fifty persons, all permanent residents in the town, who were so much interested in his lectures, that he was requested to repeat them. The course extends from eight to fifteen lectures, according to the character of the audience. One circumstance occurred at Wiesbaden, which is worth mentioning. M. Garnier, the master of a French institution for the education of young men, at Fredericksdorf (about three miles from the place where I now write), happened to attend the lectures at Wiesbaden. He was so much struck with the importance of their subject in education, that he invited Dr. Scheve to come to Fredericksdorf and deliver a course, and promised him forty pupils out of his own institution. Dr. Scheve has come to Fredericksdorf and visited the institution, but has not yet been able to make arrangements for complying with M. Garnier's wishes. He returns soon to Heidelberg, to push forward an application which he has already made to the senate of the university of that town, for permission to lecture to the students on Phrenology, as an extra professor. His request has

been opposed by some of the professors, but seconded by others; and he expects in time to surmount all obstacles, and to become the first recognized professor of Phrenology in any university in the world. I hope that Scotland will be able to boast the honor of priority in an appointment of this kind; but whichever country shall take the lead, it is clear that the day of the admission of Phrenology into established universities is fast approaching, and were the example once set, and a few able professors of the science furnished with the means of communicating its truths, under the sanction of public authority, to students, its progress would be irresistible, and its influence far greater than is at present dreamt of by its opponents.

Mr. Von Struve, in addition to his duties of editor of the German Phrenological Journal, has now those of editor of the Mannheimer Journal, a daily newspaper of extensive circulation; and he employs the influence which it gives him in promoting the advance of the science among his countrymen. Amidst his other efforts, the following deserves particular notice. He is publishing sketches of the development of brain and natural talents and dispositions of such of the remarkable men of Germany as he can induce to submit their heads to his manipulation, and to give their consent to publication; and his success in obtaining both of these concessions is great. He presents his readers with an amusing history of his applications, and of the receptions he met with: from some direct refusals, and from others courteous permission. "My first attempt," says he, "was directed to Herr Von Itzstein, the leader of the opposition in the Commons House of Deputies of the grand duchy of Baden; with whom I found also Vice-Chancellor Bekk, the President of the Chamber of Deputies. I submitted my proposal to them both, and both complied with my request. Herr Von Itzstein could not, at that moment, present his head for examination, on account of a severe tooth-ache; but I manipulated that of the venerable Vice-Chancellor Bekk. Next day (2d April), I waited on Herren Bassermann and Mathy, the former of whom received my solicitation with loud bursts of laughter, but, nevertheless, soon expressed his readiness to submit, out of complaisance to me. The examination of his head, and that of his friend Mathy,

was immediately accomplished. On the 4th of April I went to Heidelberg, and received from Herren Welcker, Gervinus, and Schlosser, the permission which I solicited. The examination instantly took place, and was to me of the highest interest, and the more so as it was seasoned with the most interesting conversation. On Sunday, I examined the head of my colleague, Dr. Hecker—expedited the cast of the head of Herr Mathy—and received from the latter his remarks on my analysis of his natural character. All the gentlemen whom I had solicited promised me similar observations. On 8th April, I went to Carlsruhe, where my success was not great. Only my old friends, the brothers Marschall von Bieberstein, declared themselves ready to give up their heads to my phrenological examination, and on the condition that nothing on the subject should be published. This diminished my interest in them. Nevertheless, I examined the head of the elder brother, Augustus, at that time councilor of state, and a member of the ministry of foreign affairs. I scarcely obtained permission from him to publish the results of my examination after his death. Privy-Councilor Nebenius, who received me with his accustomed friendship and amiability of manner, expressed, nevertheless, many objections against the examination of his head; at one moment declaring his anxious wish to remain in obscurity, and the next, that he had not then time to spare. I did not return to him, as it appeared to me that his concession, if afterward granted (which he spoke of as probable), might be yielded out of complaisance, and in opposition to his own inclination. The President of the Ministry of State, Her von Bokh, received me with a very grave countenance, which became still more serious when he heard the object of my visit. He said, that posterity must decide whether he was one of the distinguished men of the nineteenth century or not. I answered, that posterity, however, could have no means of instituting a phrenological examination of his head; but he remained firm in his position. Only when I assured him that I should not further intrude, and took hold of the handle of the door, did his countenance brighten up, and he dismissed me with some polite and friendly expressions.

"On the 10th of April I reached Stuttgart, and repaired

first to Paul Pfizer, who put a decided negative on my request. An interesting conversation, however, on the condition of Germany, compensated me for my phrenological disappointment." "Chapel-Master Lindpainter surrendered his head to me with the readiest good will, although I came to him rather inopportunately, when he had company at table. In the evening I found the Chancellor Von Wachter at home, and the examination of his head proceeded, amidst the most interesting conversation. On the 11th I examined the heads of two former friends, now political opponents, the Deputy Romer and the Minister of State Von Schlayer. The difference of their characters is strongly indicated in the differences of their heads. After an unsuccessful call for the Deputy Guvernoy, I proceeded to the university town of Tubingen.

"My first visit was directed to Uhland. Although, on the announcement of my name, he gave me a very friendly reception, he betrayed evident uneasiness when I stated the object of my call. I read his answer not merely in his countenance, but in the movements of his whole body." Mr. Von Struve left him without further attempts on his head. "I proceeded next to Professor Ewald, the second member of the German Siebengestirnes, whose head I desired to examine. We immediately fell into a most interesting conversation. Commencing with Phrenology and its relations to other sciences, we touched on the present circumstances of our native country. I never shall forget the three instructive hours which I spent with this truly amiable and high-minded man."

Mr. Von Struve next received from Herr Von Schlayer his remarks on the phrenological analysis of his head, and, after an unsuccessful attempt to procure daguerreotype portraits of the individuals who had permitted him to publish his examinations of their heads, he returned to Mannheim. On the 5th June he examined the head of the celebrated Von Itzstein, already mentioned. He then proceeds to lay before the public full details of the measurements, phrenological developments, and natural characters of the persons before named who had consented to the publication, beginning with Vice-Chancellor Bekk.



Some of your readers, judging by English standards, may view these proceedings as ludicrous, others as enthusiastic, and some, perhaps, as impertinent; but here they have a different aspect. Mr. Von Struve is of a family distinguished in Germany for its high diplomatic employments; he himself is known as an author; and by profession he is known as an active liberal barrister in the supreme court of Baden, besides editing a daily newspaper. Of his position in society, therefore, of his personal character and attainments, and of the scientific object of his solicitations, there could be no question. Hence, his generally cordial reception, and the confidence reposed in him, by so many men occupying eminent stations and offices in their several states, is easily explained. In so far as regards the utility of his project toward the advancement of the science, nothing, in my opinion (if his sketches be correctly executed), could be better conceived. We all like to dissect individual character; and if the subjects be distinguished men, our attention is the more deeply rivited by an able portraiture of their minds. Such sketches, therefore, possess an inherent interest that will carry them into general circulation, wherever the individuals are known. The simple fact of such persons submitting their heads to examination, permitting the publication of the results, and furnishing their own commentaries on them, implies a degree of respect to Phrenology which is well adapted to recommend it to serious consideration. Only on the supposition of the sketches being unsuccessfully drawn can it injure the cause; and this I do not apprehend.

Mr. R. R. Noel, in a recent letter from Rosawitz, informs me that he has now in the press a new and greatly improved edition of his systematic work on Phrenology.

These facts, gleaned in a very short time, and in a limited extent of territory, prove that the Germans are at length awakening to the merits of Gall's discovery. Dr. Scheve has promised to furnish me with a written narrative of his own proceedings and experience; but from his numerous engagements, he cannot supply it in time to find a place in your next publication. I am, etc.,

GEO. COMBE.

THE  
INFLUENCE OF THE WEATHER  
UPON THE MENTAL FACULTIES.

EVERY one, we suppose, has noticed that the weather has some effect upon the feelings and disposition; that wet, cold, and unpleasant days induce moody and often irritable feelings, while a warm day, with a serene sky and dry atmosphere, gives cheerfulness to every one. Physicians often notice that their patients are better when the weather is pleasant.

But upon the minds of some, unpleasant weather, with damp wind, has very serious effects, often changing the entire moral character. We apprehend it often leads to quarrels and crimes, and influences the disposition of jurors and legislators, teachers and scholars, clergymen and their hearers, etc.

Hence it is of vast importance that legislative halls, court-rooms, school-houses, and churches, be well ventilated and well warmed. Yet the fact is notorious, that these places are among the worst ventilated and worst warmed buildings in the country.

A distinguished advocate informed the writer of this, that he had often noticed the bad effect of a cold, unpleasant atmosphere upon the temper of both court and jury; and seen an immediate change, in this respect, on the improvement of the temperature and atmosphere.

The Parliament House in London is now admirably ventilated, lighted, and warmed; and it would be well if the arrangements adopted there for these purposes, were introduced into the public buildings of this country.

That the inhabitants of warm countries are more passionate and of quicker temper than those of cooler regions, is well known.

"The cold in clime are cold in blood.  
Afric is all the sun's, and as her earth,  
Her human clay is kindled."

Dr. Sealy, late resident physician at Florence, Messina, etc., states, in a recent number of the *Dublin Journal of Medical Science*, that the climate of Sicily and Southern Italy often affects residents after they have been there two or three years, and induces a peculiar nervous affection. The following condensed account of the disease we take from the last July number (1844) of the *Medico-Chirurgical Review*.

"It is characterized by an excessive irritability, attended with extraordinary mental and muscular activity, and seldom attacks the new comer, but more frequently those who have been resident between two or three years, and just beginning to suffer from nostalgia. There exists in it an inexpressible consciousness of disease: the mind is disturbed by visions; the imagination is morbidly awakened; yet the judgment still possesses its control over the mind, with scarce a capability of obeying its dictates.

"Dr. Sealy is satisfied that it is a disease of climate. The modifications of it are great, and its grades are various, from slight excitability to serious and formidable disease, affecting mind and body. According to the doctor, 'it seems a hyperelimination of the nervous principle, a peculiar elastic evaporation of a spiritual consciousness and capability, aroused by electrical agency or invisible atmospheric influence.' The imaginative and sanguineo-nervous temperaments are particularly liable to it, and suffer much during the prevalence of the Sirocco wind, especially at Rome and Palermo, and at Naples and Sicily, when the atmosphere is charged with electricity. That all should feel excitement in that elastic atmosphere is not to be wondered at; it is when such excitement becomes excessive and permanent that it requires control. The extraordinary rarity of the atmosphere contributes much to the force with which impressions are conveyed to the senses. In Sicily, the air is so attenuated and transparent that distance seems almost annihilated, and sounds come on the ear with appalling force. Some parts of Italy are found to possess this exciting influence more than others.

"While residing at Florence, several cases of this nervous affection presented themselves to Dr. S., affording curious, and some of them most amusing traits. The severest case of it ever witnessed by him was in Messina, in Sicily. On his

arrival at Messina, from Naples, he was waited on by a gentleman, stating that their resident clergyman was dangerously ill, and requested his immediate attendance; he stated that the town was in a ferment about him, the Church of England service having been suspended for some weeks. Dr. S. immediately waited on his patient; he found him in bed; countenance haggard; eyes glaring out of his head, and deeply suffused and bilious; skin dry and parched, and almost verging on the icteroid tint; tongue dry and red at edges, and covered with a brown fur in centre and back portion; pulse small and quick; his general expression denoted the deepest misery, though his mind was perfectly clear. He had been ill three weeks. He had been under the care of a Sicilian physician, and had taken very little medicine—none of a purgative kind, though he felt he wanted it, as his bowels had not been moved for some days. The Sicilian physician declared his complaint to be March fever, and was treating him accordingly with quinine; the only other medicine he had taken was an infusion of taraxacum, the Sicilian panacea for all diseases. Dr. S. advised blue pill in a smart dose, combined with compound colocynth pill, to excite the biliary secretion; to this were added leeches to the head, mustard sinapisms to the feet; the pills to be followed up by a bitter saline mixture, to full purging. After twelve hours there was a perceptible improvement; the patient had been well purged; his mind became more tranquil, and his nervous system much quieted. During the progress of his disease, his mental hallucinations were extraordinary, almost amounting to what the French mesmerisers denominate clairvoyance, and his visions were frightful; his pervading wish was to tear every thing near him, to shout, to sing, and curse; he fancied he saw his limbs leave his body; he was convinced of the unreality of the vision, and of its being the result of a diseased imagination, yet so palpable was the delusive vision, that he could scarcely correct the delusion by the utmost effort of his reason.

“The bodily disease, separated from the mental hallucination, evidently had its origin in the biliary and chylopoietic viscera; this was indicated by all the symptoms, as well as by the alvine discharges. This was the disease in its severest type. The minor modifications of the disease, met

elsewhere, were not attended with such severe constitutional symptoms; and in many cases, where severe and distressing mental hallucinations existed, were unaccompanied by morbid appearances. Dr. Sealy states, that he could almost always trace the disease to some engorgement of the chylopoietic viscera. He considered the disease as a modification of hypochondriasis, the nervous system being over-excited by atmospheric influence, while the biliary and digestive systems were deranged at the same time.

"The most successful treatment, according to the doctor, is a modification of mercurial and vegetative purgatives, with a modified anodyne and stimulating plan of treatment."

But the damp winds of South America have still worse effects upon the temper of some individuals. The following account of these winds, and their effect on the mental faculties, is taken from the Penny Magazine for September, 1844; to which our attention was directed by Dr. T. R. Beck, of Albany.

"The inhabitants of the La Plata provinces are subject to other alternations of climate, not less remarkable than those resulting from the actual presence or absence of rain. Northward of Buenos Ayres is a very marshy district, while south-westward is the giant chain of the Andes, separated only by the dry plains of the Pampas; and according as the wind blows from one or other of these quarters, the effects are most extraordinary. Sir Woodbine Parish, who resided for a considerable time at Buenos Ayres, noticed this subject particularly, and some of his details are highly instructive.

"By the time the north wind reaches the city, it has become so overcharged with moisture, that every thing is made damp; boots and books become mildewed; keys rust even in the pocket; and good fires are necessary to keep the apartments dry. Upon the bodily system, the effect produced by this prevailing humidity is a general lassitude and relaxation, opening the pores of the skin, and inducing great liability to colds, sore throats, rheumatic affections, and all the consequences of checked perspiration. As a safeguard against the consequences of this state of things, the inhabitants wear woollen clothing, even if the weather be quite hot; and although Europeans would prefer wearing cool cotton cloth-

ing in such a climate, they soon learn that the native inhabitants are right in the plan they pursue. It is in the immediate vicinity of the river Plata that the effects are the worst.

"This damp wind of La Plata seems to affect the temper more than the constitution, and in so far differs somewhat from the 'sirocco' of Malta. The irritability and ill-humor which this damp wind excites in some of the inhabitants, amounts to little less than a temporary derangement of their moral faculties. It is a common thing for men among the better class to shut themselves up in their houses during its continuance, and lay aside all business till it has passed; while among the lower orders it is always remarked, that cases of quarreling and bloodshed are much more frequent during the north wind, than at any other time. In short, every thing is disarranged, and every body lays the fault to one source, '*Senor, es el viento norte.*'"

"A physician of many years' standing, who had closely studied the effects of this dreaded '*viento norte,*' or north wind, on the animal system, gave Sir W. Parish the following account of an instance which had come under his personal notice: "A man named Garcia was executed for murder. He was a person of some education, esteemed by those who knew him, and was, in general, rather remarkable than otherwise for the civility and amenity of his manners; his countenance was open and handsome, and his disposition frank and generous. But when the north wind set in, he appeared to lose all command of himself; and such was his extreme irritability, that during its continuance he could hardly speak to any one in the street without quarreling. In a conversation with my informant, a few hours before his execution, he admitted that it was the third murder he had been guilty of, beside having been engaged in more than twenty fights with knives, in which he had both given and received many serious wounds; but, he observed, '*it was the north wind, and not he, that did it.*' When he rose from his bed in the morning, he said, he was at once aware of its accursed influence over him; a dull headache first, and then a feeling of impatience at every thing about him, would cause him to take umbrage even at the members of his own family, on the most trivial occurrence. If he went abroad, his headache generally be-

came worse; a heavy weight seemed to hang over his temples; he sought objects, as it were, through a cloud; and was hardly conscious where he went. He was fond of play; and if, in such a mood, a gambling-house was in his way, he seldom resisted the temptation; once there, any turn of ill-luck would so irritate him, that the chances were he would insult some of the by-standers. Those who knew him, perhaps, would bear with his ill-humors; but if, unhappily, he chanced to meet with a stranger disposed to resent his abuse, they seldom parted without bloodshed. Such was the account the wretched man gave of himself, and it was corroborated afterward by his relations and friends; who added, that no sooner had the cause of his excitement passed away, than he would deplore his weakness, and never rested till he had sought out and made his peace with those whom he had hurt or offended.

"Many of the female inhabitants of the city, during the continuance of the 'viento norte,' may be seen walking through the streets with large split beans stuck upon their temples; these are said to act as a slight blister, and to counteract the relaxation caused by the state of the atmosphere. It is found that, during this period, old wounds often burst out afresh; new ones are very difficult to heal; an apparently trivial sprain becomes, at this period, very serious; and lock-jaw, from the most trifling accident, is very frequent. In domestic matters, too, every thing is out of sorts at such a time; the meat turns putrid, the milk curdles, and the bread becomes bad before it can be eaten.

"But no sooner does the 'pampero' succeed this 'viento norte,' than every thing changes almost instantly. The pampero, or southwest wind, blowing from the dry and snowy summits of the Andes, across the Pampas to Buenos Ayres, sweeps away the dreaded north wind and all its effects, and substitutes a dry, healthy air in its place."\*

\* Some remarks on the influence of the weather on the mind will be found in our 15th volume, p. 34.—Ed. P. J.



## SUNDAY LECTURES

AT THE

PHILOSOPHICAL INSTITUTION, BEAUMONT SQUARE,  
MILE-END, LONDON.\*

BY PHILIP BARWOOD.

A short notice of this institution, founded and endowed by the late J. T. Barber Beaumont, Esq., was inserted in our 14th volume, p. 389; but many readers may be pleased to see a more ample statement of its nature and objects. These are so clearly and comprehensively set forth in the report issued by Mr. Beaumont's trustees in January, 1842, that we cannot do better than present it entire:

"In entering on the second year of the existence of this institution, the trustees, on whom the duty has devolved of carrying into effect the intentions of the founder, are desirous of obtaining the attention of the principal inhabitants of the neighborhood, to the important and beneficial purposes contemplated in this foundation.

"The practice of meeting together for mental improvement and recreation, by means of lectures, reading-rooms, concerts, choral classes, and other such arrangements, is favorable alike to intellectual culture and to the social virtues and affections. As a means of moral amelioration, it is more powerful and salutary than either vehement denunciations or stringent penal enactments. The mind that has learned to interest itself in objects connected with the higher intellectual and moral faculties, gradually acquires a distaste for gross and coarse indulgences, and thus vice and misery are assailed in the surest and most effectual manner, by suppressing the causes in which they originate, and cultivating habits with which they cannot permanently co-exist. The perception of this truth has, of late years, been rapidly gaining ground with thoughtful and practical philanthropists; and, accordingly,

\* Stated in a lecture delivered in the chapel of the above-named institution, May 15, 1842.

much earnest effort has been devoted to the establishment and support of institutions calculated in various ways to promote the objects above mentioned.

“Very much, however, yet remains to be accomplished. In particular, no provision has been made by any of the institutions now alluded to, for meeting the wants of the Sunday—that day of rest, on which, more than on any other, the mind possesses opportunity and inclination to occupy itself with the highest and noblest objects of thought. It would appear to be assumed, that mental recreation and improvement on the one hand, and religion on the other, are so incongruous and mutually repellant, that to attempt combining them in one system of arrangements were unseemly, if not impracticable. The grounds of this assumption are not easily intelligible. It seems a more legitimate, as it is certainly a more pleasing conviction, that a ‘cheerful heart’ is an ‘acceptable sacrifice,’ and that ‘the invisible things of God,’ so far from being obscured, are more ‘clearly seen,’ when ‘understood from the things that are made.’

“The institution in Beaumont Square is planned and conducted in accordance with this conviction. In addition to the arrangements of the week (which embrace the usual objects of philosophical and mechanics’ institutions), lectures are delivered on Sunday mornings, introduced by sacred music, and by some of the forms with which divine service is usually associated in this country. These lectures consist of moral exhortations, and of such religious and philosophical inquiries as the minister deems best fitted to interest and improve his hearers; the general object and tendency of the whole being to inspire the love of virtue, and to supply motive for the discharge of duty.

“The Sunday evening lecture is usually devoted to the examination of some branch of physical science, considered in connection with the moral and religious lessons which it suggests. The subject affords inexhaustible variety; and the numerous and attentive audiences which these lectures have already attracted, prove that Natural Theology is capable of inspiring an interest not less profound, and perhaps more enduring, than religious topics which aim more directly at excitement.

"The facts and laws of moral and physical nature constitute, therefore, the main basis of the lessons inculcated in the chapel of the institution in Beaumont Square. All further information that may be desired on this point, is furnished in the most frank and ample manner in the 'Manual' composed and compiled by the founder, which is used in the Sunday morning service. It will there be seen, that, while none of the peculiar tenets of religious sects and parties are adopted as a creed, moral truth and wisdom are cordially welcomed, from whatever quarter they may spring. It is not thought desirable to exclude altogether the notice of theological controversies, and of the revolutions in opinion with which they have been connected. The history of religion forms so conspicuous a feature in the general history of the human mind, that it would indicate a culpable indifference or timidity entirely to pass over, in a continued course of moral instruction, the many valuable and important lessons derivable from it. It is obvious that subjects of this kind, on which considerable difference of opinion prevails among inquiring minds, require the exercise of much candor on the part of hearers. The lecturer, if he speak with that entire sincerity and freedom, without which public instruction loses its force and efficacy, must occasionally give utterance to thoughts resulting from his own individual studies and reflections, and for which he alone is responsible. It is hoped, however, that a source of common agreement will never be wanting in the exercise and cultivation of that spirit of free inquiry, toleration, and charity, in which all may unreservedly unite.

"The munificence of the founder, and the generous aid of his son and successor, render this institution independent of popularity, or extraneous support; and it is the intention of those who are entrusted with its management to persevere steadily in their course, disregarding prejudices which they believe to be but temporary and partial, and confiding in the ultimate ascendancy of those benevolent and enlightened principles on which the establishment is based. At the same time, they cannot but feel earnestly desirous of that popular support which, while it indicates the adaptation of the institution to popular wants, will enable them to extend its efficiency yet further; and it is with much satisfaction that they contem-

plate the result of the first year of its existence, in the numerous and respectable body of subscribers that have availed themselves of its advantages. The support and countenance of additional friends, and especially of the influential inhabitants of the popular vicinity in which the Beaumont Square Institution is situated, will furnish them with the means of increasing its interest, and enlarging its usefulness: and to the attention of all such, this institution is recommended, as a means by which they may powerfully contribute to the mental enjoyment and improvement of themselves, their families, and their fellow-creatures."

Mr. Harwood, in the pamphlet of which the title is prefixed to this article, speaks chiefly of the Sunday services and lectures, "partly," says he, "because these constitute the most peculiar and distinctive feature of our institution, and also because it is of these alone that the nature of my connection with you enables me to speak with full personal knowledge." He quotes, from the advertisement prefixed by Mr. Beaumont to his "Sunday Manual," the following statement of the general purpose of the meetings on that day: "To afford Christians of every sect, and the religiously disposed of all persuasions, the satisfaction of assembling together for divine worship, and of having their minds refreshed and invigorated by expositions of the principles which naturally produce peace and happiness, free from the supernatural creeds upon which mankind are divided and exasperated, the chapel in Beaumont Square has been opened and endowed." We learn from Mr. Harwood, that, in pursuance, of this plan, lectures were delivered in the chapel during the successive Sundays of the preceding year, by Mr. Thomas Wood, on the following subjects: Ancient Philosophy; Integrity; Primitive Christianity; Paul's Defence of himself before Agrippa; the Corruptions of Christianity; the Relative duties of the Rich and Poor; Mohammed and Mohammedanism; Popery; the Irascible emotions; the Protestant Reformation; and the Spirit of the Age: and, by Mr. Harwood himself, on the True Principle of Mental Tolerance; Reason and Revelation; the Spirit of Antagonism and Negation; six lectures on German Anti-supernaturalism; four lectures on Life, considered under its various aspects of Success and Failure; two lectures on the

**Moral Importance of Little Things ; two lectures on Self-help ; the New Year ; two lectures on Falsehood, as generated and upheld by Social Usages and Institutions ; the Love and Pursuit of Truth ; the Christening of the Prince of Wales ; two lectures on the Life and Character of Priestly, and his Work as a Theological Reformer ; the Spirit of Exclusion and Monopoly ; the Childlike Character ; the Relation of Theological Opinion to Religious Faith ; the Spirit of Hebrew Poetry ; four lectures on the History of the Hebrews, considered under its leading Epochs—the Patriarchal Age, the Heroic Age, the Age of National Development, and the Age of Calamity and Hope ; the Relations of the Hebrew History and Poetry to Christianity ; two lectures on Cheerfulness ; and one on the Bible, its Use and value as a Source of Moral Instruction, and its Relations to Natural Religion.** In the Sunday evenings were delivered, during the winter months, six lectures on the Philosophy and Moral Uses of History ; thirteen lectures on Human Physiology, considered with reference to Natural Theology ; and four lectures on the Destination of Man.

In lecturing on these topics, desultory and disjointed as they appear, an essential unity of spirit and definiteness of aim was preserved. A more methodical kind of teaching, says Mr. Harwood, would be necessary, "if INSTRUCTION, in the low and limited sense of the word—the mere communication of knowledge as knowledge—were the sole or chief aim which we have in view. But this is not, by any means, our sole or chief aim. The object of these Sunday lectures (more especially of the morning ones) is not merely, nor mainly, the communication of literary and theological knowledge, but the forming ourselves to those habits of clear, wise, large, and vigorous thinking on moral subjects, and manful dealing with the moral realities of life, which our founder has designated by the familiar phrase, 'practical religion and morality.' In one word, our aim is to learn and teach moral truth ; truth of moral sentiment and conduct ; that truth which is written on the heart, and illustrated in the life of man ; whose ultimate standard is to be sought in the most enduring and universal characteristics—what we call THE SPIRIT—of humanity ; and which all literatures, politics, religions, and philosophies, embody and express, here a little and there a little."

With respect to theological tenets he says: "We have no creed in this Philosophical Institution; strangely would our style and title be stultified if we had one. . . . Let me add, that our position here is not, mainly and chiefly, one of antagonism toward the creeds and forms of opinion now existing in this country. Antagonism there is, no doubt, more or less, in our position. . . . Still, this is not the principle and purpose of our institution. It is not specifically *THE WORK* which we have to do. It is never any thing more than an incidental result of that intellectual and spiritual freedom—that liberty of prophesying, which, in truth, is the rock we build on, or (to use a fitter metaphor) the air we breathe. Our antagonism is only incidental. The purpose and spirit of this institution, as of its founder, is not repulsion, but attraction; not exclusion, but comprehension; not denial, but affirmation; not doubting, but believing. We are not afraid, indeed, of skepticism; we do not denounce and abhor it; we think a reasonable, considerate skepticism, a good and healthy thing, so far as it goes; but we do not depend on skepticism to keep us alive and awake; we do not make it our whole duty of man."

We trust that the Beaumont Institution will be so conducted, as permanently to uphold its title to the character claimed for it by the trustees—that of "an important boon to the eastern parts of the metropolis." It offers, at a moderate cost, the privilege of using, (1.) A news-room, in which the principal morning and evening papers are provided, and filed; (2.) A reading-room in which several periodicals are taken in and filed; (3.) A library for reference; (4.) A library for circulation; (5.) A museum of natural history, in the departments of geology, mineralogy, and conchology; (6.) A musical class for the practice of choral and glee singing; (7.) Classes for other modes of improvement or recreation, when a sufficient number of members desire them; (8.) Concerts and lectures frequently on the evenings of the week; and, lastly, the Sunday lectures of which we have already spoken.

The funds of the endowment, together with the sums laid out upon the building by the founder, and his son, Mr. J. A. Beaumont, amount to about £19,000.

THE  
PRACTICAL APPLICATION OF PHRENOLOGY  
IN THE  
ORDINARY AFFAIRS OF LIFE.

PHRENOLOGY has now been known many years ; since its discovery we have been confirming its principles, adding facts, correcting errors, and perfecting its system, and still much remains to be done.

But is not the science now perfect enough to yield more abundant fruits than have yet been gathered—a more adequate reward for this labor ? Knowledge is power ; it has proved so at least in all physical science ; and the knowledge of mind ought to give power over mind—power to do better all the work of mind. And that it does so, Hanwell Lunatic Asylum and Norfolk Island afford strong, if not sufficient proof.

The good so striking, so wonderful, that has flowed from the bold use of Phrenology in those cases, was it accidental ? Is there any thing peculiar in the case of criminals and lunatics which affords an easier conquest to science, or renders them alone capable of receiving its benefits ? No ; that good was the necessary result of the wise application of the science of mind to rule mind, and such application can more easily yield an increase of good to sane and virtuous minds.

Phrenology being true, all the works of mind—trade, commerce, literature, education—all that is performed by individual or associated mind—can be better carried on by the aid of Phrenology than without that aid. And if so, such palpable, undeniable advantages can be gained by the wise application of Phrenology, that society would hasten to acknowledge its truth, in order to partake of those advantages.

Phrenologists claim to have discovered the science which enables man to obtain a knowledge of each individual's innate capability and trustworthiness, the want of which knowledge is the most fruitful source of human misery—the possession



of which will materially help society to put each in his right place. True, by Phrenology, by the mere shape and size of an individual's head alone, we cannot predicate a man's actions, his trustworthiness, his immediate fitness for particular duties; but, aided by an easily attainable knowledge of his opinions and principles, of the extent of his mental cultivation, of the temptations by which he is surrounded, and the general circumstances in which he is placed, we may do so. The organization, and, to a certain extent, these circumstances of an individual being known, no sound-minded practical phrenologist would hesitate at pointing out the situation he would well fill—the duties he would properly perform.

If any one has never considered the importance of this power, let him observe the evils which spring from the want of it in all human affairs. Every family, every workshop, every body of men associated for any purpose, above all, every nation, shows the disorder, suspicion, selfishness, and waste of human exertion, which arise from placing men in situations for which they are unfit, and keeping them out of those for which they are fit. Children under the care of ignorant, vicious, selfish teachers; men intrusted with power and authority, who are certain to use them to gratify their own greediness and ambition; men and women, who, for their own and others' sake, require the discipline of the lunatic asylum or the penitentiary, intrusted with enormous influence, and allowed to sport with the destiny of millions; while genius, knowledge, and virtue are lost in obscurity, or struggling and sinking under difficulties.

These, the prolific sources of evil, and the formidables of good, are some of the effects arising from man's ignorance of man, an ignorance which, with phrenologists, no longer exists.

The science of mind enables us to do better all the work of mind. Consider its value in association, the principle on which human power and progress so greatly depend. Hitherto, all associations have necessarily been feeble and imperfect, compared to what they are capable of being; because men were ignorant of the nature of that which they attempted to combine and work with. But now we can associate for any purpose with vastly increased power and confidence. We know the fitness, the strength, of each individual mind so

far, that we can place on each the reliance it deserves, while, without Phrenology, each mind is an uncertain, fickle agent, which we cannot safely trust after the longest experience.

If I could but draw the attention of phrenologists to the importance of our science, even in this one respect alone, I should be satisfied. Think on what single, isolated minds have done; from that judge what vast power must be gained by the mutual assistance and confidence of many such minds associated. The means of uniting men so that they can act together with safety and confidence, and so that each mind can be set to work in its proper direction, being once found, then whatever man has done or can do, will be done infinitely better in every way than it ever has been or can be otherwise done by individual or collective man. Whether in commerce, literature, or politics, men so associated could not fail to leave all others far behind them. At present, all associations, powerful as some of them are in spite of their imperfections, are formed of the most discordant and opposing materials; a far higher degree of association, in which each should take the part he is suited for, and have sufficient confidence in all the rest, would be attained by attending to the following principles and circumstances in the selection of the members:

Cerebral development, temperament, and quality of brain.

The acknowledgment of common principles and rules of action in matters on which the association might have to act in common; for two individuals of exactly the same organization may be unable to act in concert if acting on different principles.

And, in some cases, a knowledge of the circumstances and mental culture of each individual.

All the causes of human action and power would thus be taken into account, and the conduct of each might be calculated on with sufficient safety.

Ten men of superior mind thus associated, would have greater power than ten thousand men bound together only by the loose ties of ordinary association, and among whom jealousy, ignorance, selfish designs, and suspicions are continually at work.

A splendid proof of the power of Phrenology and of education together, could be given by forming a model school of children of the finest obtainable cerebral and general physical

organization, and educating them with every advantage by a teacher of the highest experience, cultivation, and cerebral development. If such a teacher do not give to the world men and women who shall be living proofs, which folly and bigotry shall not dare to deny, of the value of Phrenology and of enlightened education, then the greatest writers on both those subjects are mere visionary enthusiasts.

Or, if the best possible amusement, instruction, and society be required, institutions may be formed (similar to the existing literary and scientific institutions, club-houses, etc.), an essential to the membership of which should be, the possession of a brain not below a stated proportion. Such institutions might be formed in at least every large town. Beside the great benefit of bringing superior minds into community, they would offer to them luxuries, conveniences, enjoyment, and instruction at a lower rate, and higher in degree and character, than is possible any other way. They might be made profitable speculations, by the cultivation and education of those whose organization showed them capable of high excellence in elocution, music, and various other arts and sciences; and the public would soon find out, and liberally pay for the superior instruction and entertainment such institutions could afford.

In fact, as all human affairs are carried on by association, whether of two or three individuals or of millions, and as their success depends on the firmness of that association more than on any thing else, Phrenology, if it gives the means of rendering association more secure and easy, must be equally applicable and valuable in every kind of human exertion; and wherever wisely used, must produce results as new, as great, and as good, as it has done in the management of convicts and lunatics.

The applications of Phrenology which I have mentioned may not be the best, or they may be impracticable: still, I wish to press on the consideration of phrenologists the fact, which they must at once admit, though they have paid little attention to it, that they possess a vast, almost untried power, but which, so far as it has been tried, has produced results which testify its power, and that, by wisely using it, they may produce great good to themselves and to society.

And perhaps this is the means by which Phrenology is to triumph. New truths make their way, not by argument, but by visible fact; the fact of the practical advantage attendant on them, excepting only those truths which have no apparent connection with the institutions, the realities, of the time. With the mass of men, that which is—which is operating before their senses—outweighs all argument; they will not forsake it for what their reason teaches them may be. Had an individual discovered the applications of the power of steam to perform all its now familiar wonders, and demonstrated it all on paper or by models, it might have remained demonstrated for ages, and the generality of men would never have altered their habits and methods to carry out the demonstration, however great the good it might promise, but would rather have laughed at him who, with his fine theories, came to teach practical men. But as soon as some mind, not so cramped by prejudice or custom, tries the experiment, gains by the trial, and promises to beat the old methods, and those who live by them, out of the field, then it is no longer a laughing matter, but dull, satisfied men must so far shake off their ignorance and conceit, and adopt the plans, and get the assistance of the visionary. Thus those are compelled now to receive the advantages of science, who, a few years since, derided, and would still have derided, the attempts of the scientific, supported by the strongest argument, the clearest demonstration. Society is thus obliged to move forward; and truth and knowledge progress not by argument merely, but by reality.

In conclusion, I would urge on our leading minds to set themselves earnestly to the work to which present circumstances peculiarly invite them, of making Phrenology a visible practical agent in the affairs and business of society; let them, like Ellis and Maconochie, look fearlessly on the difficulties they have to overcome, the evils they have to subdue, and trust in the power of knowledge. The power which produced such happy effects on the felon and maniac, can also better the condition of the moral, the talented, and the industrious; and Phrenology will show such proof of its truth, that all will joyfully hasten to acknowledge the science of mind to be the highest of all sciences.

## THE PHILOSOPHY OF INDUCTION,

CONSIDERED

IN RELATION TO THE INTELLECTUAL FACULTIES OF MAN

BY MR. RICHARD CULL.

ARISTOTLE unfolded the principles of deduction. He taught us when, where, and the extent to which inferences may be drawn from data, and thus to descend with safety and certainty from principles to their consequences and applications. Bacon taught us the system of induction. He has shown us that the only sound method of ascending from facts and common experience to principles successively higher and higher, is by a series of inductive generalizations. The philosophy of deduction was given to the world two thousand years before that of induction. If we study the history of science, we shall cease to feel surprised at the great interval which elapsed between the publication of the two philosophies. Successful examples of deduction must exist before it is possible to construct the science of deduction. And successful examples of induction must also exist, before it is possible to construct the science of induction. The geometers alone, prior to Aristotle, supply an abundance of successful inductions. "The scientific faculty," says Professor Whewell, "especially that part of it which is requisite for the induction of laws from facts, emerges slowly and with difficulty from the crowd of adverse influences, even under the most favorable circumstances. We have seen that, in the ancient world, the Greeks alone showed themselves to possess this talent; and what they thus attained to, amounted only to a few sound doctrines in astronomy, and one or two extremely imperfect truths in mechanics, optics, and music, which their successors were unable to retain."\* If we examine the various books and writings on physical science, even those since the time of Bacon, we shall find that by far the greater part are treatises

\* Whewell's *History of the Inductive Sciences*, vol. iii., p. 597.

upon the consequences and applications of known laws; and but very few, and of those only a small part, treat of newly discovered laws. Few, very few, scientific men are engaged in original research and inquiry; fewer discover laws; while the mass of scientific men are fully occupied in deducing truths from the general laws discovered by the few, and in applying those truths to practical and important purposes in the arts.

The laws of motion and the law of gravitation, as obtained by induction, are briefly expressed, but their consequences and applications have occupied the attention, and that for the whole of their lives, of some of the most distinguished men of science. Euler, Lagrange, Laplace, and others, have devoted themselves to tracing the consequences of Newton's laws, and upon which, indeed, their fame is built. The wonder, then, is, not that the philosophy of induction was delayed so long, but, on the contrary, that it appeared so early, and when so few successful inductions existed as were to be found in Bacon's time.

Men reasoned long prior to Aristotle, but he was the first to display the principles which govern reasoning. Men made inductions long prior to Bacon, but he was the first to announce that the whole of natural philosophy depends upon true inductions. Aristotle thought that his system would go far to equalize the natural talent of different men in the act of reasoning. Bacon says: "Our method of discovering the sciences merely levels men's wits, and leaves but little to their superiority, since it achieves every thing by the most certain rules and demonstrations."\* Aristotle displayed the requirements of conclusive deductions; he wrote the grammar of deduction. Bacon directed the way to arrive at true propositions by induction. Although the grammar of induction is yet to be written, still we hail Bacon as a guide from facts to generalizations—from sense to thought. Bacon leads us upward to principles; Aristotle conducts us downward to their consequences and applications. And guided by the two philosophies, our feet are fully illumined in the undulations of the path of research, with a light which gives a steadiness of

\* Bacon's *Novum Organum*, Book i., Sec. 122.



step and a confidence in our career, that was before unknown.

I shall endeavor to describe the process of induction, and consider it in relation to the faculties of the human mind. I refer those who are familiar with the physical sciences to the literature of those sciences for the last two hundred years, in order to gather for themselves a knowledge of the generalizations, classifications, and inductions, which have advanced those sciences. Those who are less acquainted with the sciences may consult Tenneman's *Geschichte der Philosophie*, Degerando's *Historie comparée des Systemes de Philosophie*, Compté's *Cours de Philosophie positive*, Thomson's *History of Chemistry*, Professors Playfair and Leslie's *Dissertations on the Progress of Mathematical and Physical Science in the Encyclopædia Britannica*, and Professor Whewell's *History of the Inductive Sciences*,\* for that purpose. As authorities on the inductive method, I refer to Bacon's *Novum Organum*, Sir John Herschel's *Discourse on the Study of Natural Philosophy*, Professor Powell on the connection of Natural and Divine Truth, Professor Whewell's *Philosophy of the Inductive Sciences*, and his *Mechanical Euclid*.

The terms "inductive philosophy" and "inductive reasoning" are synonymous, and are adopted in two senses, one of which is general, and the other is particular.

"Inductive philosophy" is adopted in its general sense to signify the whole modern method of research in physical science; that is, Bacon's method. And, in its particular sense, it is adopted to signify the obtaining a general fact, a general result, an abstract idea, a law, from the study of individual facts. This idea is not contained in the facts, and, therefore, cannot be evolved from them as conclusions are evolved from premises. On the contrary, the idea is brought in by the mind from its own stores; it is superinduced upon the facts, and it includes the facts. We see a number of billiard balls striking against each other, and thus moving, accelerating, retarding, and stopping each other. These are individual

\* Professor Whewell's book is misnamed; it is not a history of the inductive sciences, but a history of the principal inductions in certain sciences. It is, however, a valuable book, and forms an excellent introduction to his work on the *Philosophy of the Inductive Sciences*.



facts. They are perceptible, and perceived by us. We introduce the abstract idea of *MOMENTUM*, which, in its consequences, includes all the separate facts which we had perceived. We have passed from sense to thought. The truths of observation are, by induction, merged in a great truth, which is internal, and belongs to the intellect.

Generalization differs from induction, yet it is commonly considered as a part of induction, or as a distinct kind of induction. We generalize in two ways, viz.: 1st, By studying a large collection of facts we observe their points of resemblance, and classify them accordingly. The statement of that resemblance is the general fact, or generalization of the individual facts. 2dly, Having conjectured or guessed concerning their resemblance, we collect individual facts on the subject, in order to test the value of the guess. If the guess be not supported by the facts, it is valueless. If, however, it be supported, it then becomes a general fact, a verified generalization.

A general fact, arrived at by either of those methods, announces, in abstract terms, a whole group of particular facts, relating to the behavior of a class of natural agents, in certain proposed circumstances. This is a generalization by enumeration of particulars. The general truth is a help to the memory, by expressing in a formula a number of separate truths. And as this formula is applicable to, and, indeed, comprehends, each of the individual truths, it, as a general proposition, so far assumes the character of a law of nature. I select the familiar illustration of the effect of certain transparent solids on polarized light. On passing a pencil of polarized light through a crystal of Iceland spar (rhomboidal carbonate of lime), it will exhibit a succession of streaks or bands of colors, well known as periodical colors. Many other substances, both mineral and chemical, exhibit periodical colors. No opaque bodies, and no fluids, however, exhibit them. We now seek to form a general proposition which shall express thus much knowledge. We cannot affirm that "all transparent solids exhibit periodical colors by exposure to polarized light." We can, however, assert, that "all bodies which exhibit periodical colors on exposure to polarized light, are solid and transparent." This proposition is not an induction, it is only a generalization by enumeration of

particulars. It is merely a collective assertion of what is already asserted *SERIATIM* of the individuals.

I add another illustration. The planet Mercury revolves around the sun. The planet Venus does the same. The planet Mars, and the rest of the planets, do the same. We seek to express thus much knowledge in a general proposition. We therefore affirm that "all the planets revolve around the sun." Now, in this generalization there is no induction. There is simply a collective assertion of what is already asserted *SERIATIM* of each planet. It is generalization by enumeration. The planets Mercury, Venus, Mars, etc., which are all the planets, revolve around the sun. There is no new truth brought among the facts, but simply a reassertion in another form of the already as fully asserted truth. It is an economy of expression that we have gained. And this general expression—this formula—simply embraces and expresses the class of separate facts which it was intended to comprehend.

In the process of generalization, as illustrated in both instances, we have studied the individuals in a *PART* only of their nature, that part in which they obviously resemble each other, and we have withheld our attention from the other parts. And we have united them so far as they agree, in a formula which expresses that agreement.

I proceed to another, a superior generalization. We have collected together a number of individual facts, which we have economically expressed in a general proposition, that "all the bodies which exhibit periodical colors by exposure to polarized light, are solid and transparent." We are now desirous of knowing *WHAT* transparent solid bodies exhibit those colors. We therefore examine and make a list of such bodies as exhibit them, after the manner of Lord Bacon's instances of heat, and thus obtain a large group of substances which are bound together by this common property. The individual substances of this group present great varieties of form, size, weight, color, hardness, texture, and chemical composition. The manifestation of periodical colors being an optical property of the solids, we determine to examine them in relation to their other optical properties. We do so, and find that they have one point of agreement, viz., the property of double-re-

fraction. And continued investigation shows that all double-refracting substances exhibit periodical colors by exposure to polarized light.

Now, as Sir John Herschel remarks, if observation had enabled us to establish the existence of a class of bodies possessing the power of double refraction, and an entirely independent series of observations had grouped together a class of bodies which exhibit periodical colors in polarized light, a mere comparison of the two lists would at once have shown their identity.\* In the generalization, then, that "all double-refracting substances exhibit periodical colors by exposure to polarized light," there is no induction, but simply a declaration of the identity of two groups of bodies. The proposition announces that the group of bodies which agree in one character, agree also in another.

These generalizations are laws of nature. They are formal laws, or laws of phenomena. The first asserts that a certain EFFECT takes place when certain bodies are submitted to the action of polarized light. The generalization is, however, silent as to the CAUSE. The varied phenomena of creation are effects resulting from causes, which act according to fixed and constant rules. And these rules are named laws of nature.

The constant association of the phenomenon of double-refraction with that of the exhibition of periodical colors, impresses the mind with the idea of a relationship between the two phenomena. We cannot escape from this idea. The idea is not asserted in the generalization, but is suggested by it, and that too, to even ordinary minds. Where two phenomena are thus constantly associated together, we consider them to be related to each other as cause and effect, or as common effects of a single cause. The inquiry into the nature of this relationship is an inquiry of a higher order than that of the laws of phenomena. It is an inquiry into the cause of phenomena. It is the highest and most satisfactory inquiry in physics in which we can be engaged.

FELIX qui potuit rerum cognoscere causas.

After a careful study of phenomena, after the establish-

\* Herschel's Discourse on the Study of Natural Philosophy, sec. 90, et seq.

ment of general laws of phenomena, after arriving at higher laws, to which the former general laws hold the same relation as individual facts hold to them, we begin to seek for a physical cause of the phenomena. It is well known how much optical science was advanced by the researches of Sir Isaac Newton. In order to account for the production of the phenomena, Newton proposed the emission theory, which is, that light is actual matter, emanating from luminous bodies, and which satisfactorily explained the phenomena then known. As our knowledge of phenomena extended, and new facts were discovered, it was found that the emission theory alone could not account for them. The conjecture of Huyghens was revived by Dr. Thomas Young, and applied with singular ability to the elucidation of the fringes of shadows and other phenomena which stubbornly resisted explanation on the emission theory. After immense labor and great opposition—for men clung to the emission theory apparently because it was Newton's—Dr. Young established the undulatory theory of light. This theory explains facts which the other could not; and newly discovered facts have hitherto found their places within the theory, as if it had been constructed with a view to include them.

The two elements required for the construction of a science are the phenomena on the one hand and the mind on the other. And these elements must be rightly brought together. The mind must be properly applied to the phenomena to convert them, by observation, into facts. The collected facts must be generalized and classified, which is accomplished by seizing on some common resemblance amidst their many diversities. There is yet no induction. The mind, besides all this, must be able to originate an idea which shall be appropriate to the facts, not deduced from them, nor even suggested by them in the way that points of resemblance suggest a generalization, but excogitated from the mind. The idea is a general idea, it includes the facts, and hence it is occasionally spoken of as a generalization.

I shall now select some examples of induction, as treated by Professor Whewell in his *Mechanical Euclid*.

The inductive principle, that all liquids gravitate, includes such facts as—

"1. Water falls in air as solid bodies do.

"2. A bucket of water held in air is heavy, and requires to be supported in the same manner as a solid body.

"3. A bucket of water held in water appears less heavy than in air, and may be immersed so far as not to appear heavy at all.

"4. A lighter liquid remains at rest above a heavier, as oil of turpentine upon water.

"5. The bodies of divers, plants, and other organized bodies, though soft, are not compressed or injured under a considerable depth of water.

"The different effects 2 and 3 led to the doctrine that all the elements have their PROPER PLACES, the place of earth and heavy solids being lowest, of heavy fluids next above, of light fluids next, of air next; and that the elements do not gravitate when they are in their proper places, as water in water; but that water in air, being out of its proper place, gravitates, or is heavy. In this way, also, 1 and 4 were explained.

"But it was found that this explanation was not capable of being made satisfactory, for, 6, a solid body of the same size and weight as the bucket of water in 3, gave rise to the same results; and these could not be explained by saying that the solid body was in its proper place.

"These facts can be distinctly explained, and rigorously deduced, by introducing the IDEA of FLUID PRESSURE; and the PRINCIPLE that water is a heavy fluid, its weight producing effects according to the laws of fluid pressure.

"For, on this supposition, 1 and 2 are explained, because water is heavy, and 3 is explained by the pressure of the fluid upward against the bucket, according to propositions 11, 12, 14.

"Also, it may be shown by experiment, that in such a case as 4, the lighter fluid increases the pressure which is excited in the lower fluid.

"Facts of the nature of 5 are explained by considering that an equal pressure is exerted on all parts of the organized structure in opposite directions; such pressures balance each other, and no injury results to the structure, except, in some cases, a general contraction of dimensions. If there be a communication between the fluids within the structure and the fluids in

which it is placed, those pressures are exerted from within as well as from without, and the balance is still more complete.

"Also all the other observed facts were found to confirm the idea of fluids considered as heavy bodies exerting fluid pressure; thus it was found—7. That a fluid presses downward on a lighter body which is entirely immersed; and presses upward on a heavier body which is partially immersed; and presses in all directions against surfaces, according to the deductive propositions which we have demonstrated to obtain in a heavy fluid."\*

The inductive proposition which includes the facts is, that "water and other liquids have weight in all situations." Professor Whewell places the proposition first, as is done in Euclid.

The idea which is introduced, and which connects and includes the facts, is that of FLUID PRESSURE. Now what is this idea of fluid pressure? The idea of fluid pressure, besides the idea of solid pressure, as developed in statics, includes also the idea of a fluid, as a body whose parts are perfectly movable by the slightest pressure, and in which all pressure exerted on one part is immediately transferred to every other part. The history of science shows that it is very difficult to hold this idea of a fluid with such clearness and distinctness as to trace its consequences, and to apply it usefully.

The doctrine which was applied to those facts—that every element has its proper place—is not an induction. It is a statement of what is observed, as may be seen on reference to the facts. Now the idea of fluid pressure, consisting, as it does, of the combined ideas of solid pressure and fluidity, is not what is observed, but is an idea in advance of the facts, and distinct from them. It is difficult, after once knowing an induction in connection with its facts, to sever that connection, and consider the facts alone, and without reference to it. The induction seems so natural to the facts, and so uniformly recurs to the mind along with the facts, that we deem them to be the same. Indeed, we can scarcely now see any difficulty in originally making the induction. It seems as if the

\* Whewell's *Mechanical Euclid*, Book 2. *Hydrostatics*, Prop. xxv.

idea must start into the mind on the first knowledge of the facts.

From the fundamental idea of fluid pressure, in connection with certain stated facts, we obtain the principle, which is an inductive principle, that water and other liquids have weight in all situations. I proceed to cite another inductive principle, which is dependant on the idea of fluid pressure, viz., that AIR HAS WEIGHT.

"The facts included in this induction are such as the following:

"1. We, existing in air, are not sensible of any weight belonging to it.

"2. Bubbles of air rise in water till they come to the surface.

"3. If we open a cavity, as in a pair of bellows, the air rushes in.

"4. If, in such a case, air cannot enter, and water can, the water is drawn in; as when we draw water into a tube by suction, or into a pump by raising the piston.

"5. If a cavity be opened, and nothing be allowed to enter, a strong pressure is exerted to crush the sides of the cavity together.

"If facts 1 and 2 were explained at first by saying that the PROPER PLACE of air is above water; that when it is in its proper place, as in 1, it does not gravitate (as was said of water), but that when it is below its proper place, as in 2, it tends to its place; the facts 3, 4, 5 were explained by saying that NATURE ABHORRS A VACUUM.

"But it was found by experiment—

"6. That water could not, by suction, or by a pump, be raised more than thirty-four feet; and stood at that height with a vacuum above it.

"7. That mercury was supported in a tube with a vacuum above it, at the height of thirty inches (Torricelli's experiment).

"8. That at the top of a high hill this column of mercury was less than thirty inches (Pascal's experiment).

"These facts overturned the explanation derived from nature's horror of a vacuum; for men could not suppose that nature abhorred a vacuum less at the top of a hill than at the



bottom, or less over thirty-four feet of water than over one foot.

"But all the facts were distinctly explained and rigorously deduced, by adopting the IDEA of fluid pressure, and the PRINCIPLE that air has weight, its weight producing its effects according to the laws of fluid pressure. This will be seen in the deductive propositions which we shall demonstrate as the consequences of assuming that air has weight.\*

"The inductive proposition was further confirmed by—9. Experiments with the air-pump; for it appeared, that as the receiver was exhausted, the mercury in the Torricellian experiment fell."†

Lecturers on natural philosophy devise their experiments as examples of facts comprehended under, and, therefore, as illustrations of the truth of the several principles which are derived from generalization and induction. Thus the principles, that water and other liquids have weight in all situations, and that air has weight, are stated first, and then illustrated by experiments.

That cause which produces, alters, or destroys motion, or which tends to do so, is called force. We perceive motion, and may consider it without reference to its cause; thus, we can perceive that undisturbed motion is rectilinear. Motion is an EFFECT. We see the motion of a billiard ball, but we cannot see the force which produces the motion. Force is a CAUSE, and therefore is not an object of perception. The idea of force involves the conception of body or matter, for matter is the subject on which force acts, and which exhibits the phenomenon of rest or motion, according as the force of resistance is equal or unequal to the acting force. Now the clear and distinct IDEA OF FORCE is the basis of the whole science of mechanics.

In studying the motion of a body, as that of a billiard ball, the idea beyond the perception, and which is superadded by the mind, is the idea of force. This idea is an induction. The term force is applied to designate a number of distinct causes—as pressure, inertia, momentum, force of cohesion,

\* These deductive propositions in the Mechanical Euclid follow this one.

† Whewell's Mechanical Euclid, Book 2. Hydrostatics, Proposition xxvi

magnetic force, chemical force, etc. Each of these terms designates a cause. The definitions of force which are given by writers on mechanics, are intended to describe, as accurately as they can, the fundamental idea of force producing rest, and also of force producing motion. The science which treats of force producing rest is called statics; and that which treats of force producing motion is called dynamics. When the force producing rest acts on fluids, the science is called hydrostatics; and when the force producing motion acts on fluids, it is called hydrodynamics.

The definitions in a science are intended to assist the student in forming the fundamental conceptions on which the science is built. And when those conceptions are formed, a number of elementary truths appear with them. When the conception of force, as pressure, is distinct in the mind, the elementary truths of statics, which are stated as axioms, are assented to at once, just as the axioms of Euclid are assented to, when clear conceptions of the ideas belonging to the definitions are formed.\* Some persons may be disposed at first to say, that our knowledge of such elementary truths as are stated in the axioms of statics and hydrostatics, is collected FROM OBSERVATION AND EXPERIENCE. But in refutation of this I remark, that we cannot experimentally verify these elementary truths, without assuming other principles which require proof as much as these do. If, for instance, Archimedes had wished to ascertain by trial whether two equal weights at the equal arms of a lever would balance each other, how could he know that the weights WERE equal, by any more simple criterion than that they DID balance?"† And when those common notions (axioms) of the subject-matter in question are obtained, the mind, taking them as necessary truths, forms them into propositions, from which it deduces conclusions. So that the induction of force upon the phenomena of motion, occasions conceptions of a number of truths (axioms) to arise in the mind on the subject of force, and these axioms become the data of conclusions.

\* What we call axioms, Euclid calls common notions, that is, notions common to man.

† Whewell's *Mechanical Euclid*, Remarks on Mathematical Reasoning, section 40.

In my paper on the Philosophy of Deduction, it was shown that the premises contained the conclusion from which it—a new truth\*—is evolved by an act of the mind named reasoning. In the process of induction, the new truth arrived at is not contained in the facts, but, on the contrary, the new truth contains the facts. I avoid calling the new truth—the induction—a conclusion, because it is not a conclusion in the sense of one in logic. And I avoid calling it a generalization, as it is not one in the sense in which mere generalization is adopted. Bacon calls the process of obtaining a new truth by induction, an INTERPRETATION of facts. Dr. Thomas Brown terms it RELATIVE SUGGESTION (Lect. 46). Dr. Reid calls it the exercise of the inductive principle of the human mind.† There has evidently been great difficulty in describing the process, and also in naming it. The immediate question is, What mental faculty produces the idea—that is, forms the truth in which the induction consists? Is it a perception or reflection? Professor Whewell truly remarks—"Whenever any material step in general knowledge has been made—when ever any philosophical discovery arrests our attention—some man or men come before us, who have possessed, in an eminent degree, a clearness of the ideas which belong to the subject in question, and who have applied such ideas, in a vigorous and distinct manner, to ascertained facts and exact observations."‡ We have no means of knowing what the cerebral endowment of those men, eminent in their respective sciences, was, in connection with the possession of those clear ideas on the subject-matter of those sciences. We know nothing of the cerebral developments of Archimedes, Galileo, Stevinus, and Newton. We know that Archimedes laid the foundation both of statics and hydrostatics. He introduced to the facts which were familiarly known, the IDEAS OF SOLID PRESSURE and FLUID PRESSURE. His ideas were clear and distinct. And, until the time of Galileo and Stevinus, no other writer appears to have possessed clear and distinct ideas of pressure.

\* If the conclusion be not a new truth, as some assert, then Euclid contains no other truths than the axioms.

† Reid's Inquiry into the Human Mind on the Principles of Common Sense, chap. vi., sect. 24.

‡ Whewell's History of the Inductive Sciences, Introduction, p. 9.

in order to ascertain what mental faculty conceives the idea of pressure, we must clearly ascertain in WHAT the idea consists; and, first of solid pressure, which includes the conception of a solid, rigid body, and also of two or more forces acting on that body. A rigid body is one in which a force applied at one part is transferred to another part, the relative positions of the several parts of the body being incapable of change, as when we push open a door with a stick. When any number of forces, that, acting separately on a body would cause it to move, act simultaneously on that body, so that no motion results from their action, they balance each other, and the body remains in equilibrium. Forces thus acting are called pressures. Pressure, then, is a certain effect of heavy bodies at rest. And this effect is distinguishable from all other effects, such as motion, change of figure, etc.

The idea of solid pressure, then, is a complex idea, and is the result of the activity of several organs. The qualities of solidity (which is extension) and rigidity are perceived by certain perceptive organs. Individuality conceives matter, or body, as something which is here solid and rigid. The conception of force is obtained from motion—it is the CAUSE of motion, and is, therefore, conceived by Causality. The conception of one force acting on a body, and being neutralized by another force acting on the same body in an opposite direction, is the simplest notion of pressure; and for this notion Locality, Eventuality, and Causality, appear to be required.

The concurrent activity, then, of several organs, is necessary for obtaining this complex idea of solid pressure. We have perception, conception, and the abstract conceptions of causation, in combination with a previous knowledge of motion, and comprised in a former induction of force as the cause of motion—all combined to produce the idea of solid pressure. Thus the mechanical idea of solid pressure is not a mere perception of phenomena, on the one hand, nor a mere conception of the understanding, on the other, but is a combination of both. The phenomena of motion are perceived, and the induction of force is made. The phenomena of solid, rigid bodies at rest are perceived, and, by aid of the former

induction of force, the new induction of solid pressure is made.

It is, perhaps, impossible to ascertain the precise part which each organ plays in making the induction of solid pressure. It is evident, however, that Causality plays an important part. And the elementary truths which occur to the mind while the idea of solid pressure is distinct and clear, and which are expressed as axioms in statics, seem to show that Causality is an important element in the main idea. Those axioms are all statements of what EFFECT certain forces (CAUSES), acting under given conditions, will produce. And such propositions can be affirmed and assented to by Causality alone.

The idea of fluid pressure includes the conception of a fluid body, and of two or more forces acting on that body. A fluid body is one whose parts are moveable among each other by the application of very small forces, and which, when pressed in one part, transmits that pressure equally in all directions to every other part. Fluid pressure, then, is a certain effect of fluids at rest. And this effect is distinguishable from the effects of fluids in motion.

The idea of fluid pressure, then, is a complex idea, and is the result of the activity of several organs. The essential mechanical character of a fluid is the mobility of all its parts, which is perceived by certain perceptive organs. Individuality conceives matter, or body, which is thus mobile. The conception of force is obtained from motion; it is the cause of motion, and is, therefore, conceived by Causality. The conception of a force acting on a fluid body, and being neutralized by one or more forces, will demand the activity of Locality, Eventuality, and Causality. Thus, the idea of fluid pressure is also a combination of perception, conception, and induction. Whatever may be the precise part which each organ plays in obtaining this idea of fluid pressure, we see that, as in solid pressure, Causality does much. And the elementary truths which arise in the mind when the idea of fluid pressure is vivid and clear, and which constitute the axioms of hydrostatics, seem to indicate the importance of the idea of causation to the main idea.

Those axioms are statements of what EFFECTS will flow from certain forces (CAUSES), when acting under given conditions. And those axioms can be affirmed alone by Causality.

Aristotle knew the properties of the lever, and many other mechanical truths, yet he failed to construct a science of mechanics. Professor Whewell asks, why he failed, and why Archimedes succeeded? Aristotle collected facts; he compared, classified, and generalized those facts. "The error of Aristotle was the neglect of the idea appropriate to the facts, namely, the idea of mechanical cause, which is force; and the substitution of vague or inapplicable notions involving only relations of space, or emotions of wonder. The errors of those who failed similarly in other instances, were of the same kind."\* Aristotle applied certain geometrical properties of the circle, as mechanical causes, to explain the mechanical effects of the lever. He sought to explain the phenomena, but his idea of cause was inappropriate to the known facts. The law or rule of phenomena may be expressed by geometrical properties and proportions, but mechanical effects result from mechanical causes. Aristotle failed, then, in consequence of erroneous ideas of mechanical causation. And Archimedes succeeded, because he rightly applied the idea of force as a mechanical cause to explain mechanical effects. Thus the importance of the conception of causation, as one element in the induction, is evident. But Archimedes' conception of causation is not such an abstract idea of cause as we express in the axiom—THAT EVERY EVENT MUST HAVE A CAUSE; on the contrary, it is the conception of causation, combined with a knowledge of motion, as the originator and producer of motion. It is not the general idea of cause, independent of phenomena, but the conception of a special cause in connection with certain mechanical phenomena, considered in the relation of cause and effect.

If Aristotle had asked himself the distinct question, Can a mechanical effect be produced by a geometrical cause? no doubt he would have been puzzled as much as we are to con-

\* Whewell's *History of the Inductive Sciences*, vol. i., p. 83.

ceive a GEOMETRICAL cause, and he might then have sought after an appropriate cause.

The idea of causation is manifested by the cerebral organ named Causality. This organ conceives a certain cause, that is, a power or efficacy in operation producing motion, and which is named force. We perceive the sequence of phenomena which occur, and Causality conceives that they **MUST** occur. We perceive only a few instances in which they occur; but Causality affirms that, under similar conditions, they must **NECESSARILY ALWAYS** occur. Causality steps beyond generalization to universalization. Causality enables us to state certain elementary truths of forces, with as clear an idea of their universality, as we possess of the geometrical ideas of space, or the arithmetical ones of number. And thus the mechanical sciences are founded on certain universal and necessary truths in the domain of causes.

In this contribution, I have endeavored to point out the nature of induction, as a process distinct from generalization. I have selected for illustration those instances of induction which occur at the threshold of physical science, and one of which is the basis of that mighty fabric, modern astronomy. I have shown the conceptions which constitute the idea, and endeavored to point out the mental faculties whence those conceptions flow. But, in order fully to discuss the philosophy of induction, it is necessary to study examples of induction, selected from every division of our knowledge; and in that study many questions arise, such as—Is a belief in the uniformity of nature connected with inductive reasoning? Whence flows that belief? Is analogy the ground of antecedent probability? Whence flow the fundamental ideas of the several sciences? These, and many other questions, require investigation, as connected with, if not a part of, induction. The present contribution, then, so far from exhausting the subject, merely introduces it. A careful study of the progress of science, especially of her inductive steps, is necessary for rightly estimating the intellectual characters of those great men in science to whom we are so much indebted.

We must ascertain the condition in which Archimedes, Ga-



lileo, Kepler, Newton, and Gall, found and left science, in order to know for what we are indebted to each. The result of two thousand years' observation and study of celestial phenomena, was an accurate knowledge of the laws of those phenomena, ability to calculate celestial motions, and to predict appearances; and then, with a profound knowledge of matter, motion, and forces, Newton explained the phenomena on mechanical principles, by an extension of terrestrial physics to comprehend the laws of the heavenly orbs. The development of the philosophy of induction requires a careful study of each induction which leads to, and is contained in, that vast one—UNIVERSAL GRAVITATION.

We censure Aristotle for erroneous physics, especially for assuming that the celestial motions are different from the terrestrial. We know that his assumption greatly retarded the progress of sound mechanics. Yet we have fallen into a similar error, in tacitly assuming, because we have divided our knowledge into separate classes, and imposed on those classes distinct names, as mechanics, acoustics, optics, that the primary causes of the phenomena in these sciences are physically different. We know now, however, that in those three sciences we are engaged in the investigation of laws of equilibrium and motion, resulting from the operation of forces.

History shows us how tardy philosophers have always been to regard facts in a light different from that in which they have been accustomed to view them. The announcements of Galileo, Harvey, Young, and Gall, all met with a like reception. The mental habit which has connected a series of facts with some principle, is not easily broken. It is difficult to forget. It is nothing less than a mental revolution to sever the connection between a principle which has long been connected with and governed a series of facts, to throw down that principle from its supremacy, to banish it from the mind, and to adopt another principle in its stead. Many men, even of admitted great intellectual powers, have failed to effect such an intellectual revolution. It is evident, that for such failures we ought not to blame them; perhaps we ought to pity them, as partakers with their less gifted

neighbors in a common infirmity of mind. Mr. Brougham could not sever the connection between the emission theory of light and certain optical facts, although it was well known that that theory could not explain all the facts. Mr. Jeffrey could not sever the connection in his mind between the theory of association of ideas and certain mental facts, although it was equally well known that that theory could not explain all the facts. The doctrines of Young and those of Gall were put forward to comprehend and explain the respective facts. These critics did not attempt to show that the doctrines failed to embrace and explain the facts. They did not point to any flaw in the inductions contained in those doctrines. Yet they denounced the method of investigation as opposed to right inductive reasoning, and the doctrines obtained as unphilosophical. They then exerted all their power to put down the doctrines; and thus, probably without knowing it, evinced a spirit similar to that of the enemies of Galileo. Their virulent and unscrupulous opposition failed to put down the doctrines, but it retarded their reception. Young's doctrine, the undulatory theory, is established. And Gall's doctrine is established, and become the science of PHRENOLOGY.

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## EARLY SHOP-SHUTTING.

### ADDRESS TO THE MERCHANTS AND SHOP-KEEPERS OF EDINBURGH.

GENTLEMEN—While a great movement has been made in London, Liverpool, Manchester, Newcastle, and other large towns in England, which is successfully bringing about an abridgment of the hours of business, it has been the subject of general surprise that more has not been done to attain that object in Edinburgh, where nine tenths of the business is transacted in about six hours per day (between ten and four), while

the average time of keeping the shops open is at least thirteen hours (from eight in the morning till nine in the evening). And it is for the purpose of calling your attention to the subject, and the advantages that would arise to yourselves, your families, and your assistants, by having one uniform hour of opening and closing your shops throughout the whole year, and shortening the present hours of business, without any injury to the interests of the community, that I now take the liberty of addressing you.

I am confident few among us would assert that they would lose any thing by adhering to such an arrangement, and fewer still that less bread or beef would be eaten, less tea drunk, or fewer clothes worn, in consequence of the bakers, the butchers, the grocers, or the drapers shutting their shops at seven; while the benefit that would arise to all concerned would be very great, were the time thus gained properly spent. And I may say, in passing, that in all cases where the assistants have got an additional hour or two per day, it is now known that they have improved, not abused it, as has been gratuitously assumed, and have shown themselves abundantly deserving of such a privilege; and I see no reason to doubt that, if the assistants and apprentices in our city had the opportunity, we should soon see them set about extending their knowledge, by establishing lectures, attending classes, and otherwise fitting themselves for the higher duties of life.

The attempt that was made last winter by one of the trades to shut at seven was defeated; 1st. For want of a proper plan having been organized for carrying it into effect; and 2d. The hour of seven was not found to be over convenient for some of those who lived at a distance from their shops, and those who could not get away to dinner till near five o'clock, and disliked being hurried back from their comfortable firesides, to wind up the affairs of the day and shut at seven, forgetting all the while, however, that their assistants were remaining in comparative idleness in the shop, and not doing so much business as to pay for the gas that was consuming; and 3d. By the selfishness of a few, in keeping open their shops beyond the hour agreed upon. In some of the towns above named, this third cause has been completely cured, by the "inhabitants withdrawing their support from

the selfish dealers, whose bad taste and avarice set public opinion and the general wish of their fellow-tradesmen at defiance, by keeping open beyond the concerted hour ;" and I have no doubt, that should a fair arrangement be come to in Edinburgh, the public will also mark any who, from sordid motives, refuse to add to the comfort and improvement of so large a portion of the community as assistant shopkeepers compose, by falling in with the wishes of their brethren.

The cure of the first and second causes of failure is in our own hands, and I hope all the leading, influential, and public-spirited men among us will soon take up the matter, and improve upon past experience. Let a general meeting of shopkeepers be called, and arrangements entered into for carrying out the proposal of opening and closing all shops at one uniform and exact hour throughout the year, or whatever resolutions the general voice of the meeting may agree upon (though the above appears to be the most approved plan in the towns referred to, and will ultimately work best).— Let the town be divided into districts, in each of which two or three influential, but working men should be appointed to form a standing committee to carry out the resolutions of the meeting, to wait upon all shopkeepers in their respective districts, and endeavor to obtain their consent to the proposed plan ; and were additional committees of two or three from every interested trade formed to act with them as auxiliaries, they might be very useful in managing any peculiarities or difficulties about their respective trades which stood in the way of shortening their hours. For instance, were it found quite impracticable for grocers to shut at seven, their committee, by calling a meeting, or taking the general voice of that trade, might manage to get them to shut at eight or nine, instead of ten, eleven, and twelve, as at present ; and were these committees to meet at a convenient hour in the evening, once or twice a week, and fully arrange the whole matter, I have little doubt that a satisfactory agreement would speedily and effectually be arrived at by a great proportion of the trades in this city, to shut, at latest, by seven o'clock all the year round.

The shopkeepers in the business towns of the South are carrying this into effect, and I would rejoice to see the same

abridgment of labor and consequent privileges introduced here; but the internal arrangements in England, where all the assistants are boarded and live with their masters in their places of business, are so different from ours in Scotland, where both master and assistants generally live at considerable distances from their places of business, and all separately, as to render it desirable that, should any change be attempted, the peculiarities of our circumstances should be taken into account, and such alterations made as would be most convenient, and suited to those peculiar circumstances in which we are placed, and, at the same time, characterized by permanency; for I doubt it will never be found to work so well, shutting some months in the year at one hour, and some months at another, as having one fixed hour throughout, since it cannot be expected that the public will keep these changes in mind, and consequently irregularities and disappointments will follow.

I have thought over a plan which I am sure would suit a great majority of the trades in Edinburgh; and however absurd the suggestion may be thought at first sight, I shall submit it to your consideration, and explain, as shortly as possible, my proposals for carrying it out, and leave it for discussion, should any meeting be held. It is simply to OPEN OUR SHOPS AT NINE, AND CLOSE THEM AT SIX DAILY; and I am confident, from inquiries I have made, that ample time would be found between these hours to transact more business than most of us are at present doing, and altogether answer our other arrangements in Scotland better than shutting at seven.

Were both masters and assistants breakfasting before their shops opened at nine, and taking a cold, substantial lunch in the shops at mid-day, the business would proceed smoothly and unbroken; and by closing the doors as the clock struck six, all could leave instantly for dinner, and not be required to return. The assistants and apprentices could reach the lecture or class rooms by half-past seven, where they might spend two hours to much advantage. The additional hour gained in the morning would allow healthful out-door exercise, bathing, or time to prepare their studies.

If this arrangement were tried, ALL MEAL HOURS WOULD BE ABOLISHED; and who have not felt the endless annoyances

arising from themselves and assistants going home to meals? In most shops, breakfast hours commence at eight, and continue till about eleven; dinner hours about one, and seldom terminate till six. In fact, in shops where there are half a dozen or more assistants, you can scarcely ever calculate on having them all at their posts at once. In England, even where there are fifty hands in a house, dinner occupies only one hour for the whole; while in shops here, where there is seldom above a tenth part of that number, five or six hours are occupied, or, at all events, completely broken, by the present system of dining, and those hours, too, generally the very busiest part of the day. Each gets away at least two hours for breakfast and dinner; and it would come quite to the same thing as to time, were they getting those two hours after six, instead of during the busy time of the day, when they are chiefly required to be at the receipt of custom; nay, I believe the assistants would positively prefer it. There would thus be only one uninterrupted spell at business daily; and the assistants would gain three hours, while only one would be given by the masters, supposing those who now open at eight and shut at eight, were to open at nine and shut at six.

Were this carried out, ALL HANDS WOULD BE AT THEIR POST DURING THE WHOLE NINE PROPOSED BUSINESS HOURS, and would undoubtedly do more efficient work than by the present going-out-and-in, broken-time system; while our business habits would be improved in activity, by condensing the work of the day into nine regular hours; for I am by no means advocating the abridgment of our hours in Edinburgh on account of any hard work—quite the reverse; it is from the irksomeness of waiting at our shops so long, when so much shorter time would not only answer the same end, but give us all several additional hours daily, to cultivate and improve the faculties which our Creator has given us.

It cannot be wondered at, "that there is no class of society equal in status with us, who, as a body, are so unacquainted with science and general literature—no class less familiar with the data and principles, whether of sound political, economical, or ethical opinions;" when it is considered that we are generally apprenticed at twelve or fourteen years of age, and are occupied at business, on an average, twelve to fourteen hours

a day, which, as we advance in the world, is often increased by our anxious after-hours' reflections how we may most profitably increase our business, and arrange our future plans. There is no obstacle more likely to impede the proposed change, or argument more likely to be advanced in favor of the present late hours of business, than "old custom," and the difficulties of getting out of our acquired habits. "But this monster evil is of modern growth. The old citizen was accustomed at four o'clock to quit his shop, which was left in charge of a mere lad till five o'clock, and then closed for the night. Fortunes were made, nevertheless, and the public convenience as well provided for as now;" and it is only about a quarter of a century since an English philosopher exclaimed, when he no doubt saw this evil increasing, that "THE MAN WHO SUBJECTS ME TO TWELVE HOURS' TOIL IN THE DAY, MAKES MY SOUL A SLAVE, AND CONDEMNS ME TO PERPETUAL IGNORANCE;" an awful truth, which "old custom" may never have called us to reflect upon, but which, nevertheless, deserves our most serious consideration.

It is now nine centuries since that great economizer of time, King Alfred of England, divided the day into three equal parts of eight hours each, viz., "eight hours each day he gave to sleep, diet, and exercise; eight to the affairs of government; and eight to study and devotion." A more wise division of the twenty-four hours is not to be found; and it would be well for this country, were the labors of all confined to eight hours a day, and sufficient opportunities provided, during the time thus saved, for educating the masses, who are now growing up in ignorance. But our object in the meantime should be "to compress the labors of the day into so many consecutive hours as shall suffice for their due performance—to redeem the extra time, which is absolutely wasted in unemployed attendance at the counter—and to devote that time to the bodily and spiritual health of man, without trenching upon the duties, and obligations, and reasonable requirements of the shop;" and it is hoped that a general meeting will soon be called, to take the subject into consideration. I am, gentlemen, yours devotedly,

A SHOPKEEPER.



## MATERIALISM AND IMMATERIALISM,

AND

## THEIR MORAL AND RELIGIOUS BEARINGS.

[THE following observations appear to us so rational and soberly expressed, and withal so well calculated to dispel the alarm of those who see nothing but danger and impiety in the doctrine of materialism, that we cannot refrain from laying them before our readers. They form part of a notice of *VESTIGES OF THE NATURAL HISTORY OF CREATION*, in the *PROSPECTIVE REVIEW* for March, 1845. We regret to observe, that the reviewer, who, in general, discusses candidly the opinions expressed in the *VESTIGES*, has allowed himself to speak so unjustly of Phrenology, as to say that "the proofs to which it appeals, when proof of its truth is asked, are similar to those of astrology, viz., specimens of remarkable predictions."—ED.]

The supposed tendency of modern physiology to materialism has peculiarly alarmed Protestant divines. We are not concerned with the truth or falsehood of the opposite theories which have been advanced on this subject; but with their religious aspect. The author of this volume is a decided materialist; but he holds that this does not in the slightest degree affect the truth of theism; since the development of faculties whereby we surpass the brutes, is precisely that which puts us into contact with Deity. The whole subject of materialism has been so involved in verbal controversy, that we desire here to try to clear off much that is extraneous.

First, let it be observed, that if (according to a current opinion) materialism consists in supposing that the soul possesses weight, extension, visibility, and other properties of matter, all the ancients were materialists. Beyond a doubt, Job, Ezekiel, and John, equally with Plato, Cicero, and the Christian fathers, conceived of spirit as nothing but thin matter—vapor or gas; and the philosophic idea of spirit now current in the regions of learning, is not older than the days of

the European schoolmen. It is at once evident that the recent philosophy cannot be of essential moment to religion. But such a view of materialism is, for many reasons, unsatisfactory. Electricity, light, and heat, are regarded, even by those moderns who hold the corpuscular theory concerning the two last, to be void of gravitation, and (we believe) of inertia. Yet it is evidently materialism to teach that the substance of the soul is made of these ingredients.

Next : to those who will have it that nothing is spirit which has a proper attachment to space or time, we think it may be fairly replied, that our souls do not fulfill this condition. If we know any thing about them at all, it is that they stand in most intimate relation to our bodies, and are susceptible of change, growth, and decay, with the progress of time.

But we believe the real question under debate may be fairly stated as follows :

The immaterialist alleges that that entity or essence, a result or action of which is consciousness, thought, feeling, voluntary motion, serves NO OTHER PURPOSE than to produce these very phenomena ; and does not act (within the sphere of our ordinary experience) except in organized bodies. The materialist, on the contrary, alleges that the substance, or force, whereby we think, feel, and move, subserves not only these functions in the bodies which we call animated, but OTHER FUNCTIONS LIKEWISE in UN-organized bodies, popularly called inanimate. Which of the two doctrines is true, appears to be an intelligible and legitimate question of natural philosophy. There is no self-inconsistency in either assertion. Facts must decide between them, and dogmatism, for or against, appears to us equally out of place. The immaterialists, however, are—we are disposed to say habitually—guilty of misrepresentation ; as though their opponents said, or ought to say, that there was any “likeness” between thought and matter. This would be about as absurd as to hold that attraction was like matter, or, indeed, the soul like thought. We know nothing of substance except by the phenomena displayed ; and we infer similarity of substance only from similarity of phenomena. Motion of the limbs being one marked symptom of life, as soon as it was discovered that galvanism would move the limbs of a dead animal, a link was found between life

and those forces which animate unorganized matter. Vastly more proof than such an isolated fact is needed to demonstrate their identity; but other facts of the same kind may (for aught we know) be hereafter elicited. Meanwhile there is no absurdity in auguring that materialism may in time be proved true, nor is it unprofitable to seek out experiments which may help to test it. The controversy must be decided by physiological and physical discoveries, not by internal speculation, nor by imagined religious necessities.

But we cannot stop short here. We further assert, that the doctrine of materialism, if it be ever so true, ought not to affect any doctrine of morality or of religion, rightly so called. To put this in a strong light, let us be allowed to make an extravagant supposition, which will give every advantage to the opposite argument. Suppose that a future Mr. Crosse should succeed in constructing a living dog out of inorganic matter, by a series of galvanic operations, and that this dog should display all the sagacity and affections of other dogs; this would be the most decisive imaginable proof of the identity of that substance by which brutes think, feel, and live, with electric and other forces which act on unorganized matter. Yet such an experiment would not have the most remote tendency to undo our experience and our internal perceptions that truth, justice, disinterestedness, humility, compassion, purity, are better than their opposites; it could not justly lower our reverence and admiration for the great Power who presides over the universe which we behold, or alter in any point the posture of our hearts and spirits toward Him. The sphere of religion is the inner and moral world; and as no external discoveries of philosophy change the moral and spiritual nature of man, fear of any permanent harm to religion from this quarter is vain. Unwillingly, however, we must confess, that such fears do TEMPORARILY verify themselves. For if the professors of religion proclaim that certain doctrines of philosophy are subversive of religion, too many are found to take them at their word.

No doubt it is a prevailing idea, that the doctrine of immaterialism is essential as a foundation for that of future retribution. Rightly to discuss this question might need half a volume. Here it may suffice broadly to protest against bas-

ing such a doctrine on physical subtleties. The experience of the old Platonists and other schools which committed this error, might sufficiently warn us against it. A man who believed his soul to be immortal, because it was, an unchangeable atom in which his self consisted, was irresistibly carried to believe his PAST as well as his FUTURE immortality; and, therefore, lost all idea of "person" in connection with his soul. As Archbishop Whately well states it, "They believe, not their souls, but the substance of their souls, to be immortal;" and, personality being dropped, Pantheism crept in, which was nothing but veiled materialism in its most objectionable form. Equally clear is it, that the immortality of the lowest brutes—a limpet or a fly—perhaps even that of the souls of vegetables, follows from the same reasoning—as may be seen, indeed, in Butler's Analogy—and all moral import in a future existence becomes more than problematical. But the very basis of the theory is in direct collision with notorious fact. It is pretended that the soul is unchangeable: when we have all the proof possible that it changes from day to day, and nothing but hardy denial on the other side. And if it be ever so immaterial, it still remains, that what had its beginning at birth, may have its end at death. In short, no arguments on this subject are worth listening to, but such as touch the conscience and turn on moral feeling—on our hopes and fears—remorse or aspirations. The doctrine of a life to come is worthless for religious purposes, except so far as the argument is religious, not physiological or metaphysical.

One other ground of fear from materialism derives too much countenance from a prevailing doctrine of phrenologists. It is supposed that a materialist must, of course, be a necessarian, and must deny that men can be justly praised or blamed, rewarded or punished. We know that a necessarian may, with logical consistency, hold that it is right to punish a man, as we would whip a dog, merely because experience shows the efficacy of the motive; but, although this satisfies the lower demands of economics, it by no means meets what we believe spiritual religion and sound morality to require. To hold that self-reproach and penitence is self-delusion, does appear to us a grievous and immoral error; and we regret that the author of the *Vestiges of Creation* does not express

himself more decidedly against it, when he approaches the topic. He distinctly recognizes the reality of self-control; and therefore we hope, that if he had the opportunity of further explanation, we should be satisfied with his view. Having said thus much, we must add, that we cannot ourselves see any proper connection between materialism and the doctrine of necessity. The latter controversy is notoriously an entangling one. *SPIRITUAL* fatalists are not at all rare among contemplative and even devout persons; and as far as we can see, the difficulties in the way of believing in human free agency are equally great, and need to be met by the very same considerations, in the immaterialist as in the materialist theory. No materialist has any right to argue, that as a planet moves without power of self-control, so also must the human brain act, if its forces are merely material ones. For the pretended analogy would quite as well prove that it cannot hope and desire, meditate and reflect, as that it cannot act freely upon itself. Into such false analogies those are, perhaps, peculiarly apt to fall, who have studied inanimate more than animate or rational nature; and it is hardly fair to charge on materialism, AS SUCH, the errors which arise out of an undue encroachment of physiology on the domain of morals. The writer before us certainly is not chargeable with the least taint of skepticism concerning the reality of ethical laws. As he emphatically says (p. 383), "An individual, a party, a people, can no more act unjustly with safety, than I could with safety place my leg in the track of a coming wain, or attempt to fast thirty days."

Let what we have already stated be distinctly remembered, that we are not *ADVOCATING* materialism, but simply keeping the path of inquiry open, by protecting this theory against the charge of a necessary alliance with skepticism and irreligion.

## THE ORGAN OF LANGUAGE AND ITS FUNCTION.

BY MR. RICHARD CULL.

THE knowledge we possess of the organ named Language, and its function, is so vague and imperfect, that, in Dr. Gall's own words, we may continue to anticipate a reader's surprise at its defective condition: "L'on trouvera fort singulier sans doute, que ce soit précisément au sujet de cette faculté et de son organe que mes travaux laissent le plus à désirer." Gall foresaw that his views would be modified by the application of a more accurate and a more extended knowledge than he possessed, of the objects which are in relation to the organ; but he claims the unalterable truths of his own facts, adding, "Je m'en tiendrai uniquement aux faits. Les faits resteront immuable, dans le cas même où ma manière de les envisager subirait encore des modifications."\*

The two propositions, 1. That the manifestation of verbal language depends on a cerebral organ; and 2. That the cerebral organ lies on the posterior part of the super-orbital plate, are firmly established by Gall's observations.

The organ, however, is stated by Dr. Gall to consist of two organs, the one situated behind the other, and both lying on the posterior part of the super-orbital plate. He describes the function of the posterior organ as the memory of words,† of names‡ (the names only of persons and things, corresponding to the proper and common names of grammar, appear to be here intended§), and of phrases.|| And he designates the organ by the terms, "Sens des mots, sens des noms, mémoire des mots, mémoire verbale;" and adds the German term, "Wort-Gedächtniss," which is verbal memory.¶ He describes the function of the anterior organ as the memory of words, the desire to study languages, the disposition for criti-

\* Gall sur les Fonctions du Cerveau, ed. 1825, T. v. p. 13.

† Ibid. p. 12.

‡ Ibid. p. 25.

§ Ibid. p. 24 et 28.

|| Ibid. p. 75.

¶ Ibid. p. 12.

cism (meaning lingual criticism), and, in general, for all that relates to literature.\* And he designates the organ by the terms, "Sens du langage de parole, talent de la philologie, etc.;" and adds the German term, "Sprach Forschungs-sinn," which is philology.†

Although Gall describes these as distinct organs, and treats of their functions under separate heads, yet he considers the sense of words but as a part of the sense of speech; and thus, by implication, he deems both the organs to be necessary for spoken language. His words are, "Nous n'avons pas donné dans les gravures de chiffres particuliers à la partie dont il est ici question (l'organe de la mémoire des mots), parce que nous avons considéré le sens des mots comme n'étant qu'un fragment du sens de langage de parole."‡

Dr. Spurzheim admits only one organ of Language, which "makes us acquainted with arbitrary signs, remembers them, judges of their relations, and gives a disposition to indulge in all exercises connected with words."§ He compares the function of the organ of Language in relation to language, to the other intellectual faculties in relation to their objects. "It seems to me that the organ of words must have its laws as well as those of Color, of Melody, or any other faculty; now the law of words constitutes the spirit of language. I am satisfied that this opinion is correct, because the spirit of every language is the same, just as the essence of all kinds of music is alike; that is, the laws or principles of music, and of language, rule universally, and are constant; they are only modified in different nations by modifications in their organs, and dissimilar combinations of these in each."||

Mr. Combe is "disposed to coincide with Dr. Spurzheim in this view; and perhaps by analyzing the source whence the structure of language proceeds, we may obtain some light on the origin of a taste for the spirit of languages, as distinguished from the power of learning and recollecting words."¶

Mr. Combe then examines a supposed language, which is produced by an imagined national development, for the purpose of stating an hypothesis of the seat of the philological

\* Gall sur les Fonctions du Cerveau, ed. 1825, T. v. p. 30 et 31.

† Ibid. p. 30. ‡ Ibid. p. 18. § Spurzheim's Phrenology, 4th ed., p. 294.

|| Ibid. p. 287. ¶ Combe's System of Phrenology, 5th ed., vol. ii., p. 133.



talent, in order to direct the observations of other inquirers on this highly interesting subject. Mr. Combe's hypothesis is, that the talent for acquiring languages depends, 1st. On the organ of words; and 2d, On the capacity to enter into the mental states of other nations; which "power is conferred chiefly by Secretiveness, Imitation, Individuality, and Eventuality, aided, of course, by the other primitive faculties."\*

In the treatise on Phrenology in Chamber's Information for the People, Mr. Simpson says, "The prevailing opinion is, that the faculty of Language has less to do with this power (acquiring languages) than Individuality, Imitation, and some other faculties."

It appears to me, that, with the exception of a few who have adopted Gall's views, the bulk of British phrenologists have received those of Spurzheim on the organ of Language.

Dr. Broussais adopted Spurzheim's; and it appears from the subjoined quotation, that the French phrenologists in general have likewise done so: "Gall admit d'abord deux organes, un pour la facilité et le goût d'apprendre des langues, la philologie, et l'autre pour retenir les mots; cette division n'a pas été acceptée."†

"Dr. Vimont draws the following conclusions from the facts which he mentions:

"1st. That in man and animals a faculty exists, the function of which is to recall sounds, whether articulated or not articulated.

"2d. That the talent called '*sen des langues*, talent du philologie,' is not the result of a special faculty, as Gall pretends, nor a mode of judgment of the faculty of verbal memory, as Spurzheim announces, but arises from the higher intellectual faculties, which the faculty of verbal memory may powerfully aid.

"3d. That projecting eyes, or eyes having a pouch under the lower eyelid, described as the characteristic of the organ of verbal memory, or philology, large, are not the constant signs of a considerable development of these two faculties, although

\* Combe's System of Phrenology, 5th ed., vol. ii., p. 134.

† Broussais, Cours de Phrénologie, p. 604.

they accompany them so often as to merit the attention of phrenologists."\*

It is familiarly known that Dr. Gall had but an indifferent verbal memory; and his eye indicated only a moderate size of the organ of Language. Dr. Spurzheim had an excellent verbal memory, and his eye indicated a full-sized organ. The following statement of Mr. Combe's is highly interesting: "I have seen the skull of Dr. Spurzheim, in the possession of the Phrenological Society at Boston, U. S. There is in it a large transverse depression in the posterior portion of each super-orbital plate, indicating a large organ of Language. He spoke and wrote several languages successfully."† Dr. Broussais had an excellent verbal memory, and his eye indicated a full-sized organ of Language. Of Dr. Vimont's memory and organ I can obtain no satisfactory information.

In order to arrive at more exact and positive knowledge of the organ or organs which manifest verbal language, a series of accurate and extensive observations are necessary, 1st, On the sphere of action of the mental faculty named Language, and 2d, On the objects in external nature which are in relation to the faculty of Language. These objects are words. The philosophy of words has been only partially applied to illustrate and determine the special function of the organ named Language. Indeed, phrenologists, and those read in phrenological literature, like the bulk of the scientific public, not only take little or no interest in the philosophy of verbal language, but too commonly treat both the subject and its students with contempt. The motto which Sir George Mackenzie presented to Dr. Spurzheim—*RES NON VERBA QUÆSO*—is not unfrequently quoted to condemn the study of words. And that opinion of Locke's, which phrenologists have so generally adopted, on the subject of teaching boys the Latin and Greek languages, is often quoted, with its superadded phrenological authority, to deprecate philological studies. It may be remarked, that, for such applications, neither Locke nor Phrenology is responsible. The importance of an accurate knowledge of the several objects which are in relation to the several cerebral organs, in

\* Vimont's *Traité de Phrén.*, tome ii., sec. ix., quoted by Mr. Combe in the *System of Phren.*, 5th ed., vol. ii., p. 136.

† Combe's *System of Phrenology*, 5th ed., vol. ii., p. 132, foot note.

obtaining exact knowledge of function, was fully known to Gall. He knew that what he wrote of colors, in relation to the organ of Color, is applicable, *MUTATIS MUTANDIS*, to the science of verbal language in relation to the organ of Language: "J'avoue que pour parler pertinemment de tous les objets qui rentrent dans la domaine de la physiologie du cerveau, il me faudrait faire des traités beaucoup plus complets que mon ouvrage ne le comporte; il faudrait des connaissances presque universelles—chose impossible, mais qui doit engager un jour les connoisseurs à faire l'application de l'organologie à chaque partie en particulier."\* The present is an attempt to apply the philosophy of verbal language toward the elucidation of the special function of the organ of Language.

It appears, from the ordinary grammatical classification of words, that nouns-substantive alone are considered to be names. Dr. Gall seems to have adopted that opinion.† But all words are names:‡ they are names of things, their qualities, conditions, and relations; of events, their conditions and relations; of time, of space, and of number. A proper use of verbal language consists in the right application of words, as the names of things, their qualities, conditions, relations, etc., to designate those things, qualities, conditions, relations, etc., as occasion demands. The right application of words constitutes precision of language, which is the corner-stone of oratory, and, indeed, of all other speech. Precision of language in discourse depends on three distinct circumstances, viz., one of thought and two of words. 1. The thought must be clear; for want of clearness in the thought necessarily produces obscurity in the language. 2. The knowledge of the words must be accurate; for, through ignorance of the signification of words, an improper word may be chosen to designate the

\* Gall sur les Fonctions du Cerveau, T. v. p. 88.

† Ibid. p. 24 et 25.

‡ "I maintain," says Horne Tooke, using the word thing in an extended signification, "that the adjective is equally and altogether as much the name of a thing as the noun-substantive. And so say I of all words whatever. For that is not a word which is not the name of a thing. Every word, being a sound significant, must be a sign; and if a sign, the name of a thing. But a noun-substantive is the name of a thing, and nothing more. And, indeed, so says Vossius; '*Nec rectius substantivum definitur, Quod aliquid per se significat. Nam omnis vox ex institutio significans, aliquid significat per se.*'—*De Analog.*, lib. i. cap. 6" Horne Tooke's *Diversions of Purley*, part. ii. chap. vi. Of Adjectives.

thing, quality, or condition which is intended. And, 3. The memory, which is amply stored with words of known power, must be ever ready with the appropriate word at the precise moment it is wanted; for the non-readiness of the memory may occasion an improper word, although of kindred signification, to be adopted, simply because it occurs to the mind in the absence of the right one.

Most languages contain some duplicate words, which are called synonyms, and which are commonly supposed to be more numerous than they are; for, on investigation, many reputed synonyms are discovered to be words only of a kindred signification, which, besides expressing the same radical idea, express also some adjunct. Thus, of the words orator, declaimer, haranguer, and holder-forth, each signifies a public speaker, and so far they are synonyms; but each word expresses something in addition to what is conveyed by the passionless term public speaker; hence they are not synonyms, but are words of a kindred signification. It may be remarked, that the term orator signifies one whose speaking is of so high a character as to obtain admiration and respect; declaimer, one whose speaking is less marked by logical conclusiveness than by meretricious ornament; haranguer, one whose speaking commands no respect; and holder-forth, one whose speaking is contemptible. Examples of other kindred nouns will occur to the reader. Many verbs, too, of kindred signification are sometimes mistaken for synonyms. And the same is true of some of the particles of kindred signification. Wishing to avoid unnecessary extension of this paper, I forbear giving examples of mistaken synonyms of verbs, and of particles; the foregoing illustration of the nouns is perhaps sufficient to exhibit the province of the intellect in apprehension, and of the faculty of language in verbal expression, in discourse.

There are certain deviations from the adoption of the appropriate word, which do not injure the precision of language, while they confer additional power and elegance on the discourse; such are epithets instead of adjectives, which are frequently adopted, especially by orators and poets. Thus, in order to express the idea, a brave man, instead of the adjective brave, an orator might adopt the epithet, lion-hearted. In this, and other examples of well-chosen epithets, the intended

quality is brought before the mind with more life and power, than when the appropriate adjective, which is the passionless name of the quality, is adopted. The epithet lion-hearted conveys much more to the mind than the adjective brave; for it expresses not mere braveness, but lion-braveness; the lion being esteemed the bravest animal, the superlative degree of braveness is signified; and not only this, but a noble braveness, for nobleness is a quality attached to the braveness of the king of beasts. Now, to apprehend all this, which the epithet lion-hearted flashes on the mind, the faculty of Comparison is brought into play, which it is not for the apprehension of the adjective brave; and this circumstance, without calculating the number of other faculties which come into action along with Comparison, is sufficient to indicate the source of the greater power of the epithet. It is true that the epithet expresses a high degree of braveness, and even surpasses what is expressed by the adverb very in the phrase, "a very brave man;" but the main source of the epithet's energy is in its power to awaken, and bring into combined action, a greater number of the mental faculties, in order to grasp the signification. Thus the epithet not only takes a deeper but a broader hold of the mind than the adjective.

There are metaphors, and other verbal figures of speech, which some persons have supposed were invented by the orators and rhetoricians of antiquity, for the unworthy purpose of deception; but which, in fact, were the necessary result of the gradual extension of language to meet the demands for expressing an ever-increasing knowledge. The proximate and remote significations of words contained in lexicons, are records of extended and varied significations, which have been added to the primitive sense of the words. This may be illustrated by examining the applications of the English word *rising*. This word is the name of an action, by which an object is moved from a lower to a higher place. The addition of particles will express rising from, or toward, any given object; the additional notions, also, of speed, delay, acceleration, resistance, non-resistance, alone, with company, are expressed by various other adjuncts. When an object is *rising*, as a ball thrown up by the hand, there is a continual increase of distance between it and the hand, which is so ob-

vious a circumstance of the action, as to occasion the adoption of the word rising to name several other actions in which an increase of distance is observed, and to name even actions and conditions, in which that circumstance is conceived to be observable; the sun is rising; a horse is rising four years' old; prices are rising. The action may be applied to the mind, as indeed it is, by the adoption of the word rising, to denote its progress and improvement in knowledge, or influence, rank, and wealth. Again, with certain adjuncts, it may signify, to become superior to, to excel, to conquer, to humble another. All these, and several other significations, are given by extending the primitive one to denote actions and conditions, which are more or less similar to the original act.

The department of the science of language, which considers the laws of these variations in the application of words, is named tropology. Tropes are classified in accordance with their peculiarities; as metaphor, metonymy, synecdoche, etc.

There are other rhetorical figures, such as prosopopœia, erotesis, paralepsis, and the like, which do not spring solely from the language, which are not verbal figures, but are modes of thought and feeling, as well as of expression. An analysis of these figures, in relation to the development of the cerebral organs, and a phrenological distribution of them in accordance with their sources, is yet a desideratum in the philosophy of the human mind. The consideration of these figures, being unnecessary to the subject of this paper, will not now be taken up.

A speaker, whether in oratory or conversation, apart from gesture, action, and facial expression, is not dependant on mere verbal language to convey his notions. It will be observed, that his verbal language is accompanied by the expressive powers of his tones of voice. These tones consist of something more than that stress which is laid on the appropriate syllables of words, and by the situation of which alone, many verbs are distinguished from substantives. The tones of voice enforce, animate, and economize verbal language; they exhibit connection and disconnection of thought; they mark certainty and uncertainty of knowledge; they express each emotion with every degree of intensity which is felt by man. They constitute a language, which may appropriately



be named a tone-language. This tone-language is adopted to supplement verbal language; and we all feel its powerful influence in conversation, in oratory, in the strife of debate, and in the drama.

Tone-language is a part of music. It was probably the origin of all music. It must be studied as music; and it can be successfully studied only by those having a musical ear. These vocal tones have distinctions under the general terms, pitch, loudness, quality, and duration;\* and they can be written on the musical staff with as much precision as ordinary music itself. This tone-language is perceived by the same faculties which perceive music. It is the melody of speech; the term melody being adopted in the same restricted sense, as when applied to song, in the term melody of song, where it designates the path of the voice in singing (irrespective of articulation) through the degrees of pitch of the musical scale. The term melody of speech, then, designates the path of the voice in speaking (irrespective of articulation) through the degrees of pitch of the musical scale.

This tone-language is the natural voice of the emotions; it is instinctive, and naturally significant. Observation shows, that in conversation we spontaneously adjust the tone-language to appropriately enforce, animate, and supplement our verbal language; few persons, however, so well adjust them in public speaking, and still fewer in public reading.

Some remarks on the tone-language of man and other animals, as a natural means of communication, will be offered in a separate paper on the general subject of expression. In this paper, I have endeavored to state the several opinions which are entertained on the function of the organ named Language; I have drawn attention to the fact that all words are names; have stated and illustrated the origin of verbal figures of speech; and, finally, have noticed the tone-language which supplements our verbal language, and which, united with it, constitutes human speech.

\* These distinctions are described in my papers on the musical faculties, *Phren. Jour.*, vol. xii., p. 249.



## MERIT AND DEMERIT,

AS AFFECTED BY

## THE DOCTRINE OF MORAL NECESSITY.

It has been stated as an objection to the doctrine of the necessity of the human will, that merit and demerit are in direct opposition to it, and that it is only on the supposition of free will that these words can have any meaning, and the corresponding sentiments a legitimate existence. In point of fact, however, merit and demerit, duly analyzed, themselves are found to be a part of that very system of responsibility which rests so firmly on the basis of necessity. To show this, let us examine in what circumstances the feeling of merit and of demerit first begins to be experienced.

Philosophically speaking, we never attach a feeling of merit or of demerit to any action done by ourselves or others, except where there has been a struggle between a higher and a lower desire, which has ended in the one case in the ascendancy of the moral impulse, and in the other, in the triumph of the propensity. Thus, when an idiot, from defective development of brain, habitually indulges in the most vicious conduct, we never think of ascribing blame or demerit to him; because we know that he has no restraining power, and any feeling of that kind manifested toward him could not be productive of benefit to him or to us. In like manner, while we think of an angel with feelings of respect and admiration for the mental purity described as characterizing such beings, we do not, and, from this very purity, cannot, connect the idea of merit with their conduct. Or, let us suppose a human being possessed of such an exquisitely proportioned development of brain, as to cause his every feeling, thought, and action, to be pure, moral, and excellent, and to render the very idea of wrong highly painful to his mind, it is clear that such a being could have no merit in doing good, and that he himself would be conscious that he was entitled to none. He would feel the pleasure of obeying the dictates of his facul-

ties, to be, in itself, his highest and most delightful reward. Some, no doubt, would attribute merit to him; but they would do so under the erroneous impression that he was constituted as they themselves were, was beset with the same temptations, and had labored successfully to resist them; and they would say, that in this resistance his merit consisted. The few, however, who examined more closely, while they would respect, love, and admire a being endowed with such qualities, would never think of ascribing merit to their possessor for acting in accordance with their dictates.

But as soon as a STRUGGLE between the propensities, which look to self alone, and the moral sentiments, which look to the welfare of others, terminates in favor of the latter, we say that the individual has merit; and he himself is conscious of being on that account entitled to a certain degree of praise or consideration. Two things are in harmony here. First, the action implies a denial of selfish desire, and a regard to the well-being of others; and the having accomplished this self-denial not only gratifies the moral faculties which influenced him, but gives rise to a feeling of self-merit, depending mainly on Self-esteem. Secondly, the very circumstance of the good being done TO ANOTHER, by the constitution of our nature, excites Conscientiousness in the object to make a grateful return; Benevolence to aid and do good to his benefactor; Veneration to look up to him with respect; and Love of Approbation to express that respect; all which manifestations being in perfect harmony with the benefactor's own feeling of merit, gratify his Self-esteem and Love of Approbation, and operate as strong inducements or motives to him to follow the dictates of the moral sentiments on all future occasions. And hence, as mankind act always from their strongest desires, merit, and the respect shown to it, are not only necessary in themselves, but strictly in harmony with moral necessity.

If, again, the struggle terminates in the ascendancy of the propensities, SELF is then set against society. By the constitution of our minds, neither Conscientiousness, Benevolence, nor Veneration, can look up to, respect, or sympathize with meanness and degradation. The Self-esteem of the individual is disagreeably affected by the result of the struggle, and a

feeling of dissatisfaction arises; he feels degraded, and his moral dignity diminished. His own mind is in perfect harmony with the feeling of demerit and dissatisfaction then felt by others, and hence a powerful motive to a better decision in other cases. In short, here is the responsibility which nature has attached to his failing to obey her dictates, when she made the moral sentiments paramount in authority. Different individuals are moved by different motives, and nature has wisely surrounded man with a variety of these, all tending to the same good end, and all giving rise to pain, when not listened to or obeyed; and in this way, even faculties whose object is exclusively selfish, are made to co-operate in leading to virtuous conduct.

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THE  
HEADS AND MENTAL QUALITIES  
OF EMINENT INDIVIDUALS.

BY MR. CHARLES PRENTICE.

It was long ago said, by the acutest of all physiognomists, Shakspeare, "There is no art to find the mind's construction in the face;" and, in truth, the dreams of the amiable Lavater are ill calculated to guide us in discriminating the characters of those with whom we are daily brought into contact. Phrenology alone supplies a nearly unerring guide to the important features of character, which any impartial person may verify by daily experience; but it is perhaps more interesting to remark the psychical characteristics of those whose writings, or whose actions, have indicated the presence of unusual ability.

When Sir W. Scott's brain was examined after death, it was stated loosely to be "not large." This gave occasion to the opponents of Phrenology to vent the hasty objection, that this was in direct contradiction to the essential position, that size, other things being equal, is a measure of power; a proposition, by the way, as unassailable as that "the greater con-

tains the less," and which is recognized in the latest work on physiology published in Britain (Todd and Bowman's *Physiol.*, vol. i., p. 367). This special objection has been answered by observing, that the coronal height of Sir Walter's head was not taken into consideration;\* but it appears to me, that an equally good refutation may be deduced from even a cursory examination of his writings. These are remarkable for the predominance of no one mental quality, but an equable and delightful melange of several. His life shows that the organs of the propensities did not predominate; and his works evince that the intellectual and moral elements of his character were in beautiful harmony. The organs which give the most showy appearance to the frontal aspect of the head, are Causality and Wit in excess, both of which Sir Walter manifested in a considerable but not very high degree. Had he possessed a very predominant Causality, he would either never have attempted romance-writing, or his fictions would have been metaphysical and prolix, would have dwelt too much upon principles, and would, consequently, have wanted that terse delineation of character and incident, so fascinating in his writings. That he did not possess an excessive development of Wit or Ideality is equally obvious; thus the humor which he so happily displays in his prefaces and novels, and which was partly the result of his Secretiveness, nowhere predominates, and he does not select characters as stalking-horses, under cover of which he may expend his redundant humor, as is the case with his countryman, Smollett, whose writings, on that account, want much of the interest inseparable from a feeling of the probability of incident and character. With regard to Ideality, his metrical romances please by precisely the same qualities which distinguish his prose writings, and

\* [We disbelieve the statement that Sir Walter Scott's brain was "not large;" and repeat here what was mentioned five years ago, in vol. xiv., p. 104, that "we have good authority for asserting, that one of the medical gentlemen present at the post-mortem examination thought it, on the contrary, *LARGE*, and was even struck with its unusual size." The information which had reached us on the subject was, on 10th April, 1840, communicated by us in writing to the medical gentleman referred to, and we are not aware that it has ever been contradicted by him, either then, or since the publication of the above-quoted statement.

An article by Mr. Combe, "On the Size of Sir Walter Scott's Brain," will be found in vol. xii., p. 44.—ED.]

they nowhere display extravagant imagery, or over-gorgeous coloring, so apt to be found in the writings of those who have an excess of Ideality, nor that metaphysical mysticism which results from a very large Causality, when combined with Wonder. It is to the latter organ that all his deviations into the improbable, or into the incredible, are referable, when they do occur, which is not often, and always confined to supernatural occurrences. Causality, Comparison, Wit, Ideality, Eventuality, and Individuality, largely developed, aided by Secretiveness and Wonder, with an excellent temperament, and the early direction of his tastes to local antiquities, appear to me to have raised Sir W. Scott to the enviable rank he occupies, as the first master of fiction; but had any one of the four first-mentioned faculties excessively predominated, his writings would probably have failed of securing that extensive and permanent popularity which they enjoy. Lord Byron contrasts strongly with Sir Walter, than whom he possessed larger Causality, Ideality, Language, and Concentrativeness; his poetry was soon recognized as superior, but his crude attempts at prose fiction were immeasurably below those of the great northern "master of the spell." Lord Byron also evinced much larger Destructiveness than Sir Walter, which would increase the size of his head, without adding materially to his literary abilities.

The predominance of a single faculty, or, rather, two faculties, Wit and Language, is strikingly manifest in the writings of Rabelais, so popular in their day, but which now can hardly be read without disgust. Swift, who has been unworthily styled the Irish Rabelais, possessed more intellect but less learning than Rabelais; and his writings, which, like those of the Frenchman, abound unpleasantly with coarse humor, are yet distinguished by profounder views, and a more masculine understanding. The portrait of Cervantes appears to indicate the presence of several intellectual faculties, somewhat as in Sir Walter Scott; and in him we always find the humor subordinate to the intellect. A large endowment of several intellectual faculties is clearly essential to great success in literature or science, but excessive development of the propensities or sentiments would be unfavorable; the latter conferring too much sensitiveness to opinion, and inability to bear un-

ruffled the inevitable attacks of slander and envy; while the former prompts to self-indulgence and indolence—fatal clogs to genius. This was so much the case with the Emperor Victorinus—who appears to be the historical parallel of Henry IV. of France—that his surpassing abilities were rendered of no avail to himself or the empire, by the undue activity of one propensity. His character is thus represented by Julius Aterianus: “Victorino qui post Junium Posthumum Gallias rexit, neminem existimo præferendum; non in virtute Trajanum; non Antoninum in clementiâ; non in gravitate Nervam; non in gubernando ærario Vespasianum; non in cursurâ totius vitæ, ac severitate militari, Pertinacem vel Severum: Sed omnia hæc libido et cupiditas voluptatis mulierariæ, sic perdidit, ut nemo audeat virtutes ejus in literas mittere, quem constat omnium judicio, meruisse puniri.”—*HISTOR. AUGUST.*, p. 137.

It is equally interesting to contemplate the comparative range of ability evinced by men of science; some (and the majority) obtaining eminence only in one department, while a few others were capable of a more extended and arduous range of intellectual exertion; and these various talents we shall generally find accounted for by the different developments presented by such individuals.

Of the older naturalists, almost all were men possessed of extensive information in other branches of knowledge; for the little that was known of natural history was easily acquired by men whose observing faculties were so strongly developed as those of Gesner, Aldrovandus, Clusius, Fabricius, etc. But as observations multiplied, and exactness was more valued, it became necessary to bestow more time and labor to master a single department of knowledge, and it was from this that one set of faculties, the perceptive, came to be nearly exclusively cultivated by the herd of scientific men; and as the ancients employed chiefly Imagination in their parody of nature, so the mass of the moderns came to apply observation, pretty much to the exclusion of Imagination, and, in many instances, of reflecting intellect. This has imparted a mental idiosyncrasy to professedly scientific men, which is sufficiently obvious.

But though crowds of facts were accumulated by the in-

dustry of numerous and inferior laborers in every branch of natural science, yet, necessarily, little method was at first employed, or if artificial systems rose into temporary notice, it was only that they might be destroyed by new and incompatible facts, which every day elicited: thus, in one branch of natural science only, in looking at the host of crude and abortive arrangements given by Boitard in his *TAXONOMIE BOTANIQUE*, from Dioscorides down to Adanson, we see how vain it is to attempt the formation of systems, till a sufficient number of facts be verified to allow of successful, because extensive, generalization. But at last Bernard de Jussieu came and marshaled the hosts of isolated truths which others had discovered.

The same occurred in the study of anatomy and physiology; there were many who, like Ruysch, Pecquet, Malpighi, Leuwenhoeck, and others, made numerous and correct observations, without being able to combine them into a well ordered system, till Haller, with an intellect and imagination no less remarkable than his powers of observation, did for physiology what Jussieu did for botany, and, at a later day, Cuvier for zoology. But these men, who, so to speak, were elevated on a pedestal erected by the labor of others, were all possessed of capacious and general intellectual powers; and it may be truly said that Harvey, Haller, and Bichat; Linnæus and the first Jussieu; Fabricius, Redi, Spallanzani, Reaumur, and Cuvier, though differing much among themselves, yet offer a mass of intellect, which might have "furnished forth creation." These were not merely observers, whose highest pride it was to have ascertained a fact, but who were capable of appreciating the value of the fact in the plan of nature; not makers of bricks, but builders of temples.

A curious, but hardly a just retribution, has taken place in the predominance of one set of faculties over another, which formerly held them in severest thrall. The school of Aristotle, which subsisted with pretty absolute, though occasionally disputed sway, till the days of Ramus and Bacon, was chiefly upheld by the aid of Veneration and the Imagination; men bowed with as much submission before the awful aristarch of science, as before the living hierophant of Rome, and those who disputed the authority of the first, were precisely



those who questioned the legitimacy of the sway of the second. And now, when truth, however obscure or however minute, has enlisted the energies of the observing world in its service, we see that Veneration and the Imagination are proscribed, as incompatible with the scientific character: and the five senses, as inlets of all our positive knowledge, treat with disdain the suggestions of their once triumphant rivals, Veneration, Wonder, and Ideality.

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## MENTAL EXERCISE

### AS A CURE OF INSANITY.

In the third annual report of the managers of the State Lunatic Asylum, at Utica, New York (for 1846), the following valuable remarks are made by the enlightened superintendent, Dr. Brigham. After mentioning that schools for the patients are in successful operation, and that his confidence in their utility has been increased by experience and observation, he says:

"Many cases, we believe, cannot be improved but by arousing and calling into exercise the dormant faculties of the mind. Hence we have found our schools particularly beneficial to the demented, and those approaching this condition. In such, the active state of the disease, which originated the mental disturbance, has passed, and left the brain and faculties of the mind in a torpid state. In these cases, medicine is generally of no use; and, as we have said, they cannot often be much improved, but by exercising the faculties of the mind.

"But others are also benefited by devoting a portion of every day to mental improvement. To those who are nearly or quite well, and who remain with us for fear of relapsing at home, or for other reasons, our schools afford enjoyment and often means of improvement which they highly value.

"Those that are uneasy and nervous, that are constantly restless and disposed to find fault and to annoy the attendants, and quarrel with all about them, because they have nothing else to occupy their minds, are also much benefited by the exercises of a school. We are every day surprised at the good effect they have upon this class of patients. Daily, for two hours, one in the forenoon and one in the afternoon, twenty of this class of patients assemble with alacrity in one school, and after singing a hymn, read, spell, answer questions in geography and arithmetic, and use the black-board with the quiet and good order noticed in other schools.

"Once a month all the schools assemble in the chapel for a general examination in the various branches taught, and for declamation, and the reading of compositions. With but very few exceptions, all our household are interested in these exercises, and pleased to attend.

"If we are not greatly deceived, our schools and other mental exercises have been very beneficial to our patients; contributing largely to their contentment and cheerfulness, and giving to them a look of intelligence which they would not have, but for the adoption of the course we have mentioned.

"Our observation for many years, in various lunatic asylums, led us, a long time since, to regard the want of MENTAL OCCUPATION as the greatest want in modern institutions for the insane. Go into any such establishment and you will find some few, in winter a very few, at work, some playing cards or other games; yet a still larger class will be found sitting about, listless, inactive, doing nothing, saying nothing, taking no interest in any thing going on around them, gathering around the stove or place that is heated, looking forward to nothing but the hour of eating and retiring to sleep. For a short time each day, when the physician passes around, they will exhibit a little animation, and say a few words, and then relapse into their former condition.

"When the weather is pleasant, some of them walk or ride out occasionally for a short time, but this, to many of the class we are describing, after a few times, seems to be a mechanical kind of business, and confers but little enjoyment; they notice nothing and say nothing during the walk or ride, or after it. These patients make but little trouble in an asy-

lum, and are very apt to be overlooked and neglected, and if not already demented soon become so. They are thought not to require much attention, as they have good bodily health, and are quiet; consequently they generally receive but little notice.

"BUT THIS CLASS REQUIRE GREAT ATTENTION; they need mental exercise; they should attend school, and have their minds aroused into mental activity, for an hour or two every day. Soon, by this course, their memories will improve; they will become interested in singing or study, and, by perseverance, some will be cured, and many, very many, rendered capable of much enjoyment, and be kept from sinking into a state of hopeless dementia.

"Governed by such views, we have rarely repressed any new method proposed by the patients themselves for exercising and improving their minds. Hence we have a DEBATING SOCIETY, that meets once a week, which is conducted not only with good order, but with ability. Occasionally original plays are acted. Albums are circulated, also a weekly newspaper, handsomely printed with a pen; all of which interest and amuse many, and do harm to none.

"In addition to maps and a globe, geographies and historical works for the school, where those that are about well attend, we have a large library from which the patients obtain books three times in the week. We have also a very large supply of newspapers and magazines.

"In some halls reading parties are formed, for the purpose of reading aloud new and useful works, as, for instance, at the present time, in one hall the 'Narrative of the United States Exploring Expedition' is being read; and in another, 'Wiley and Putnam's Library of Choice Reading.'

"By these means, we have the satisfaction of seeing many patients not only recover from their mental disorder, but that their minds have been improved, a fact of which they themselves are conscious, and for which they feel grateful. In repeated instances, we have been informed by the relatives and neighbors of patients who have here recovered and gone home, of their increased intelligence and marked improvement of mind.

"Our teachers spend all their time with the patients, but

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have no labor nor any other duty to attend to, than to interest the patients, and contribute all they can, by their presence and conversation, to their contentment and enjoyment. Thus they join in their amusements and walks, and are their constant companions.

"The relief which they afford the attendants is great, and enables us to dispense with some that would otherwise be necessary. We are satisfied, that an establishment like this can be better managed, and with equal economy, by having an arrangement by which some should devote their time to the ordinary duties and labors of the halls, while others should have nothing to do but to accompany the patients, and endeavor to instruct and amuse them. The latter having nothing to do with any coercive measures, the patients do not become prejudiced against, and will readily hearken to their suggestions. Thus they serve as a constant guard, and by their presence and management prevent outbreaks and disorder, and make coercive measures, restraint, and seclusion, rarely necessary.

"They also, by their conversation and presence, quiet the timid, console the desponding, and, by attention to ALL, contribute to the contentment and cheerfulness of the patients, and, as we believe, essentially aid in curing them."

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## MUSICAL PERCEPTION.

BY MR. E. J. HYTCHE.

As Charles Lamb is often referred to as being devoid of musical perception, a few passages may be cited from his *Elia*-papers, in which his case is stated with much precision. In his "Chapter on Ears," Lamb writes as follows: "To say that this heart never melted at the concourse of sweet sounds, would be a foul self-libel. 'Water parted from the sea' never fails to move it strongly—so does 'In Infancy.' But they used to be sung at the harpsichord by ———. So when my

friend (Novello) commences upon one of those solemn anthems which peradventure struck upon my heedless ear some five-and-thirty years since, waking a new sense, and putting a feeling of old religion into my young apprehension—a holy calm pervadeth me, and I am for the time—

——— rapt above the earth,  
And possess joys not promised at my birth.

I even think that **SENTIMENTALLY** I am disposed to harmony, but **ORGANICALLY** I am incapable of a tune. I have been practicing ‘God Save the King’ all my life—whistling and humming it over to myself in solitary corners; and am not arrived, they tell me, at many quavers of it. Scientifically, I could never be made to understand (yet I have taken some pains) what a note of music is, or how one note should differ from another—much less in voices can I distinguish a soprano from a tenor. Only sometimes the thorough bass I contrive to guess at, from its being supereminently harsh and disagreeable.” The amiable essayist was, however, it appears, unable to endure discordant sounds; for he intimates—“I am constitutionally susceptible of noises; a carpenter’s hammer in a warm summer’s afternoon will fret me into a more than midsummer madness.”

I am not aware whether there is any cast of Lamb extant; but the fact that he was unable to distinguish notes in vocalization, implies a defective development of the organ of Tune, the true source of that “organic incapability” of which he complains. It is pleasing to find the difference between the appreciation of music and a mere regard for it because of its sentimental effects, so well discriminated in the passages cited. Many persons confound the sentimental addiction to music with judgment in modulated sound; and hence they are surprised when they find the presence of the feeling, though the organ of Tune is feebly developed. It will, however, be found, that while such persons profess an attachment to music, simply as music—and none else can abstractedly be regarded as a lover of music—they have, in reality, a very obtuse perception of tones, and are moved solely because it arouses certain feelings, either of a joyous or a pensive character.

## THE LAW OF COPYRIGHT.

BY GEORGE COMBE.

SIR—During the whole period of the recent controversy regarding the amendment of the law of copyright, I preserved silence; being aware of the tendency of self-interest to bias the judgment: but now, when the question is settled, and is not likely to be revived during the lives of the existing generation of authors, I am desirous of placing on record the views which occurred to me on the subject, and which are in some respects different from any which I saw stated by the learned and able writers who took part in the discussions. As the results at which I have arrived seem to be directly, and, I hope, logically, deducible from the principles of Phrenology, they may, perhaps, not inappropriately find a place in your pages.

With the view of avoiding details, which now possess no interest, I shall proceed at once to the main point in dispute between authors and the public. The former claimed a perpetual property in their works; while the advocates of limited copyright opposed their demand, as unfounded in justice, and detrimental to the public interests. The opposition was maintained chiefly on two grounds, viz., 1st, That property is the creature of the law; that authors, therefore, have no inherent right of property in their works; and that any extent of exclusive privilege of publication conferred on them by the legislature, is a boon for which they should be grateful, but which they had no right to demand; and, 2d, That the public interests require that a limit should be set to copyright, otherwise authors, or their representatives, might capriciously withdraw the most valuable and useful works from circulation, or sell them at a price so extravagantly high that only the affluent could procure them.

The first argument, that authors have no inherent right of property in their works, appears to have been drawn from an opinion of Bentham, expressed in his *Theory of Legislation*.

"Property and law," says he, "are born together, and die together. Before laws were made there was no property; take away laws and property ceases." Phrenologically and philosophically, this dictum will not stand investigation. The organ and faculty of Acquisitiveness are inherent not only in man, but in many of the lower animals, and give rise in both to an instinctive sense of property. Lord Kames justly remarks, that man "is a hoarding animal, having an appetite for storing up things of use;" and Chancellor Kent, of the State of New York, says, that "the sense of property is inherent in the human breast; and the gradual enlargement and cultivation of that sense, from its feeble form in the savage state, to its full vigor and maturity among polished nations, forms a very instructive portion in the history of human society."\* I need not enlarge on this proposition, because it is admitted by phrenologists in general, and is, besides, placed in the clearest light, and very ably supported in Mr. Hurlbut's excellent lecture on "The Right and Moral Relations of Property," published in vol. xv. p. 97 of your journal, to which I beg leave to refer.†

Co-existent with this sense of property, we find in man organs of Conscientiousness, Benevolence, Veneration, and Intellect, and the corresponding mental powers, evidently intended to serve as guides to his general conduct, and, consequently, to the proper exercise of his acquisitive propensity. Human laws are, or at least ought to be, simply transcripts of the dictates of the latter faculties, enlightened by knowledge and experience. Laws may regulate, but cannot confer, any just rights. They may legitimately expound, define, and protect them; but the moment human legislators assume the power of creating rights which nature has not previously bestowed, they commit injustice, and prepare the way for the introduction into society of insecurity and suffering.

Mr. Locke observes, that "the labor of a man's body and the work of his hands, are properly his;" and it seems no undue stretch of the proposition to affirm, that equally should the labor of his brain, embodied by the work of his hands, be his. The man who procures from nature, or obtains by purchase,

\* Kent's Commentaries, ii. 318.

† See Hurlbut on "Human Rights," published by Fowlers & Wells New York



certain raw materials, and by his own labor and ingenuity works them up into a machine or piece of furniture, is recognized by all civilized nations as the exclusive proprietor, in perpetuity, of the article produced; and I am at a loss to discover on what principle it can be maintained that an individual, who, from original invention, or the current science and literature of his age, composes a book, should not possess the exclusive right, in perpetuity, to this product also of his labor and ingenuity. But it is argued, in the

2d place, that the public interests require that limits should be set to copyrights, otherwise authors or their representatives might capriciously withdraw valuable works from circulation, and thereby retard the progress of society in virtue and civilization. It is a very ancient, and a very sound maxim, that "*nunquam aliud natura, aliud sapientia dicit*;" in other words, nature is so constituted that it is never necessary to rob an individual of his just rights, in order to promote the real advantage of society. The rights of the one, and the interests of the other, are in all cases compatible; because the same great Being who laid the foundations of society in the nature of man, also conferred on the individual his rights; and He is too wise and powerful to have rendered the two conflicting. A few elucidations will, I hope, show that the case of copyright forms no exception to this general rule.

Books may consist, 1st, Of new ideas never before published to the world; 2d, Of the science and literature of past and present ages, mixed up with the author's own observations and reflections; or, 3d, Of the expressions of fancies, emotions, and passions, common to the human race, but invested with a peculiar charm by the author from the manner in which he embodies them. Newton's *Principia*, Harvey's work on the Circulation of the Blood, and Sir Charles Bell's *Dissertations on the Functions of the Spinal Nerves*, all of which communicated discoveries, may be selected as specimens of the first class; Dr. Neil Arnott's *Elements of Physics*, of the second; and Campbell's *Pleasures of Hope*, of the third. I ask, then, what does a perpetual copyright in such works imply? Not an exclusive proprietorship in the ideas and reflections, in the fancies, passions, or emotions, embodied in them; but simply in the author's peculiar mode of expressing them—in that com-

bination of words which he employs in order to convey them to the world. The ideas themselves, with all their consequences and applications, are left free as air to the public, although the copyright of the work in which they are embodied be preserved inviolate to the author and his heirs. In our own day, Sir Charles Bell's discovery of the nerves of motion and feeling is transferred to every systematic work on physiology in Europe and America, although the copyright of the special essays in which he announced it still belongs to his representatives.

In regard to this class of works, then, there is no reason for maintaining that the public interests require that the discoverer's copyright should be limited.

In regard to the second class of books, I trust that I do no injustice to Dr. Arnott in saying, that all the principles of science which enter into his treatise, pre-existed in the works of his predecessors, and that the peculiar merit of his composition, in my opinion, consists in the clear arrangement and perspicuity of elucidation of his propositions. If a perpetual copyright were granted to Dr. Arnott, it is clear that the whole principles, or, in other words, the entire raw material of the work, would be left as free to the public as they were before he wrote. The only thing of which it would then be in his power to deprive them, would be the advantage of that *CURIOSA FELICITAS DOCENDI*, in which his peculiar merit consists. But the talents which produced these results were conferred on him, as an individual, by the Creator, when He gave him a peculiar conformation of brain, and a temperament characterized by fineness and activity; and it is difficult to discover on what principles of justice society can consistently deprive him of the advantages of that gift, or limit his enjoyment of it, while they respect the right of property in perpetuity in tables and chairs, made by the hands of far less talented and less accomplished men.

It is argued, however, that were the law to recognize a perpetual copyright in this work, Dr. Arnott, or his heirs, might capriciously deprive the public of the instruction which it contains. In so far as regards the author himself, nature has given a pretty effective guarantee against such an unreasonable course of conduct; because a brain in which the or-

gans of Benevolence, Conscientiousness, Love of Approbation, and Reflection were so deficient as to render the individual capable of acting in such a manner, could not compose such a work. It is an extreme supposition that his heirs, or his assigns, might be so infatuated—it is supposing them to be insane, and, nevertheless, at large; but as such an occurrence might happen, I shall, for the present, assume that it actually does present itself, and inquire into the means which nature has provided for the protection of the public interests in such an emergency. They are simple.

The ideas contained in the work are public property; and all that is wanted is a re-expression of them in such a form as may supply the void occasioned by the withdrawal of Dr. Arnott's treatise. The power of composition depends on temperament and cerebral development, and nature has not confined those gifts to Dr. Arnott. She has ushered into the world other brains and temperaments, capable of running the race in which Dr. Arnott has conquered; and if his work were withdrawn, and the public needed his ideas, other individuals would speedily appear to supply the desired information. In point of fact, every author on science knows and feels that he holds his place only until an abler brain appear to wrest the laurels from his brow and the bread from his mouth. He stands in a situation similar to that of the champion of England in the barbarous age of pugilistic combats. From the first hour of his publication to the last day of his fame, he is exposed to the challenge of every rival who chooses to enter the field with a view to occupy his place; and as the public never fails, sooner or later, to award the prize to the highest merit, he holds his supremacy only while he is able to distance every competitor. The law which limits his copyright may despoil him of his bread, before such a rival has appeared. It may wrest from him, and deliver over to men of inferior capacity, the profits of his genius, at the very time when these men acknowledge that they cannot, by the exercise of their own powers, rival him in the career of public usefulness. If they could do so, there would be no need of infringing his rights; for the publication of a treatise of higher merit would extinguish his work, and bring it to an end by natural dissolution. Even assuming that it might be centuries before a

writer appeared, capable of producing such a clear, eloquent, and instructive elucidation of the principles of mechanical science as the work in question, this would only present stronger motives to Dr. Arnott's representatives to enlarge its circulation; but if they were so insane as not to do so, the inherent rights of all authors should not be violated because the representatives of one happened to be mad.

This argument applies to works of every kind, the substance of which consists of useful and practical ideas. The law which regulates patents for mechanical inventions, denies to all individuals the exclusive use of principles; and, in like manner, no author claims, or can justly pretend to, an exclusive right to particular ideas, facts, notions, or scientific postulates or inductions. All that he contends for is the right of property in his own special combinations of the elements of thought—leaving to all the world the free privilege of making similar, or better, combinations of them, at their own discretion, and to the buyers the right of preferring the works which they find to be most instructive.

The third class of publications embraces novels and poetry; in short, all works of fiction and fancy. What would a perpetual copyright of such works imply? It would confer no exclusive property in the emotions, incidents, and ideas, which form their substance; but solely in the special combination of words by which these are expressed. On one occasion, Mrs. Siddons happened to read one of the sublimest passages of Shakspeare in the presence of the late Mr. Sotheby, the translator of Oberon and other works. When she paused, he exclaimed, "Fine words! grand words!" and after a few moments added, "Now, these words would not have occurred to me!" This remark renders the thing which would be covered by the copyright of such works clear as the noonday sun. It would be, as in the other instances already cited, only the special combination of words by means of which the ideas and emotions are expressed; and the power of making this combination is a gift so peculiarly individual, that no species of property can surpass it in sacredness. It depends on a particular size and combination of cerebral organs, and a particular temperament, which impart strength, fire, refinement, and sublimity, to the products of the pen. If man can be said

to create any thing, it is such works as those of Shakspeare, Milton, Byron, Scott, and Campbell. These are pure luxuries to the public; they cannot justly be viewed as articles of necessity, because the ideas and sentiments contained in them may all be applied freely to general use. It is only the magnificent forms in which the inspired sons of genius have embodied them, that are claimed as sacred; and it appears to me to be a mere wanton exercise of power in the public to appropriate these, while a representative of the author is to be found alive on earth. The first and grand motive to the composition of such works is the conscious delight of creating them; the second, the love of fame; the third, the hope of doing good, directly or indirectly; and the last and least, the expectation of pecuniary profit. Every age produces its own sons of genius; and if, by such incredible suppositions as I have already allowed, the representatives of a Shakspeare or a Milton were to stop the sale of their works, no substantial interest of the public would suffer; for, even could the copies already issued, be recalled, new minstrels would arise, who, writing under the same native inspirations, and guided by the lights of science and of a more advanced philosophy, would, in all probability, sing new songs of emotion and fancy, not inferior to those of their predecessors, in fire, energy, and refinement, while they might surpass them in purity, truth, and all the grander elements of thought.

With all deference, therefore, to the able individuals who have controverted the title of authors to a copyright in perpetuity, it appears to me that justice supports their claim, and that the interests of society are not exposed to the least danger in granting it.

GEO. COMBE.

## MENTAL AND BODILY DECAY.

BY DR. CORDON THOMPSON.\*

GENTLEMEN—The object of these lectures is to illustrate the primary truths on which Phrenology is based. For this purpose, I have shown that the faculties of man are innate, uniform in character, and determinate in number and properties. I have next shown that the faculties are connected with the organization, and rise and fall with it. In the last lecture I traced the phases of development in man, from infancy to maturity. On these subjects I spoke of healthy persons, and of mankind in the aggregate, and not of exceptions, caused by disease or otherwise; on a future occasion, I shall endeavor to show that the exceptions are but the results of the same law under varied circumstances. It was shown on the last occasion, that the moral and intellectual man is developed along with the physical man. We traced man up to maturity; but maturity contains the seeds of necessary decay. Decline begins in one sooner than in another; there is great difference as to the length of time during which the energies of manhood, in different individuals, are maintained. The limits of mature age differ in the sexes: in females, it is usually from thirty to forty; in the male, from thirty-five to fifty. But many exceed or fall short of the usual limits; in short, figures here only indicate the average. In some persons, physical and mental qualities, station in life, exemption from toils and hardships, and from other causes involving serious wear and tear, cause maturity to be prolonged; while in others, harder circumstances and different natural qualities cause them to be more aged at fifty than others at sixty or more. The parts of the body most taxed fail first; and some of the organs of the senses are more delicate than others. In the like manner, overworking the body or the intellect, which is, in fact, overworking the brain, produces early decay. A single limb may early decay from excessive use. Under ordinary circumstances, man rises from infancy

\* Outline of a lecture delivered to the Sheffield Phren. Society, Nov. 27, 1844.

to manhood, and descends from manhood to decay. The transitions are gradual, and each change, like a dissolving view, seems to vanish into its successor. As man approaches the evening of life, conscious of the diminished power of body and mind, he seeks repose, and avoids the turmoil and the toil he formerly never shunned. His words are, "I am no longer young!"—a great truth taught by nature. The brain is less active in thought, less agitated with emotion, and the powers are sensibly diminished. Elevated sentiments become blunted, and whatever tends to ennoble man appears in age to shrivel up. The relish for active sports and gayeties is diminished, not merely from physical, but from mental unfitness; both mind and body desire repose. With this change, it seems as if the world had undergone a revolution. Each reasons according to his temperament; age deems itself wondrous wise, and, pressed by a more active race, consoles itself with scraps of philosophy and savory remembrances. The old man recurs much to the past, the record of many disappointments; and even where full fruition has been achieved, yet, the power to enjoy being diminished, the mere memory of past enjoyment ill compensates for the loss of the possession, and the conclusion is come to, that life is but a dream. Thus nature teaches truths before known, but never really believed or realized. The perceptive, affective, and intellectual powers, are diminished. It is not satiety and disgust that brings about the change, but age, dulling the edge, and producing a gradual degeneration in the senses and tastes, whether inward or outward. Hence, objects once all-engrossing become flat, stale, and unprofitable; but the objects have undergone no change, and will be as much enjoyed by future as by past generations. Gravity and prudence are qualities as natural to age as levity and haste to youth, and equally agree with the organization. As the passions are daily cooling down, the virtues of abstinence become more attractive, and men are prone to

"Compound for sins they are inclined to,  
By damning those they have no mind to."

The changes now described come not upon men of one disposition of character only, but on all. The old saying,



that an old head cannot be placed on young shoulders, is a truth founded on the inevitable changes which nature produces in men. There is a natural antagonism between youth and age, increasing as age advances. Thus Shakspeare says—

“Crabbed age and youth cannot dwell together;  
Youth is full of pleasure, age is full of care,” etc.

The changes of our organization determine the changes of character. (This subject Dr. Thompson illustrated by the remarks of many eminent writers, all bearing testimony to the same great truth.) The intellectual powers decline in the same manner as the effective and physical powers. In fact, in those who live long, the brain sensibly diminishes. Thus gradually fall the powers of men, till they sink at length into the weakness of childhood. The corporeal changes that precede and usher in age, are remarkable. The vegetative processes of the frame change. In early life, the fluid exceed the solid parts of the body, and the arterial system the venous. Hence the active nutrition, the roundness of form, and the rosiness of tint in youth. But the sallow complexion, the rigidity of fibre, comes with age. The arterial branches are contracted, and the vessels become daily more rigid, and the finer vessels are impervious to the blood. At the same time, the veins lose their firmness, and are filled with a dark purple fluid, unfit for nutrition, or to carry on life. The arterial blood, too, becomes less stimulant and nourishing. Hence arise loss of flesh, disappearance of the roundness of contour, and wrinkles of the skin, which does not contract in proportion to the waste of substance beneath it. The change is felt in the less vigorous and steady beating of the heart, the enfeebled action of the lungs, and the diminished amount of blood circulated, and with diminished force; hence an additional diminution of power in the brain. The general hardening and wearing away of parts, and the diminution of nervous power, explain why the gait is feeble and unsteady, the body stooping, and other marks of age apparent. The senses, one after another, fail and become obtuse; the impressions from without are superficial and faint, so as to be soon forgotten. Hence comes the treacherous memory of age, often the first indication of the inroads of time. First,

names escape, then events, and at last even the events of yesterday are forgotten, while those of early life are vividly remembered. The highest faculties, whether intellectual or moral, are the last to attain maturity, but the first to show marks of decay. They seem to require the greatest exertion of nature to arrive at their full power, and soonest fail. They may be compared to that most elaborate of vegetable productions, the flower, which no sooner blooms than decay approaches. These truths are important. It is natural that the old should become indifferent to passing events and desire repose. The change not only diminishes the susceptibility of impression, but renders the faculties sluggish; not only are they less easily roused to exertion, but the exertion is evanescent. There is one instinct that exerts the utmost influence on feeling and thought in the advance toward maturity; this power is one of the first to decline, and its decay produces striking changes in the character. Sudden transformations of character often occur toward the close of manhood; faculties, previously almost dormant, seem to awake, and those which were active before become inert. Thus, men have stepped from thrones into convents, and become devotees. But these changes are not found in age, still less in green old age. The reasoning powers, late in arriving at maturity, soon become more slow to act and more easily fatigued. How thoroughly the force of intellect is broken by age, is proved by the rarity of any man above sixty engaging in any new intellectual pursuit. Mental habits, like those of the body, establish their sway, and become a second nature; the powers are with difficulty exerted but in beaten tracks. Hence the dislike of the aged to what they called innovations. Among many illustrations of a striking character which might be adduced, is the fact, that the Reformation was chiefly opposed by the old and supported by the young. It has been observed, that no great improvements arise in the universities; this naturally follows from the fact, that the professors are chiefly elderly men, who pertinaciously cling to the past. The conclusion of the subject I reserve for another occasion. The horizon of man expands up to maturity—then gradually contracts, and we shall hereafter observe how it continues to contract, until it ends in dissolution

## VARIETY.

**LIFE OF DOCTOR SPURZHEIM.**—John Gasper Spurzheim was born on the 31st of December, 1776, at Longwich, a small village within the bounds of the Prussian empire. His father was engaged in agricultural pursuits, and was a man of very respectable standing in society. Young Spurzheim acquired the first rudiments of Latin and Greek in his own native village, and afterward obtained a thorough collegiate education at the University of Treves. While pursuing his studies here, the southern parts of Germany and Prussia were invaded by the republican armies of France; and Spurzheim, with many of the inhabitants, fled into Austria. About this time, Dr. Gall commenced lecturing at Vienna on his discoveries respecting the functions of the brain. He had then under his charge several of the public hospitals and institutions, and enjoyed extensive practice as a physician.

Spurzheim, having taken up his residence at Vienna, became interested in Dr. Gall's discoveries; and, though his parents had intended him for the clerical profession, and he had thus far pursued studies with that object in view, he determined to change his course and engage in the medical profession. He became Gall's assistant, and aided him in making most of his demonstrations and dissections. Spurzheim afterward became thoroughly versed in the anatomy of the brain, and made many important discoveries and improvements. But Gall and Spurzheim were not permitted long to pursue in peace their favorite pursuits. Being prohibited from delivering public lectures by the Austrian government, they determined to leave Vienna, which they did in 1805. They then spent nearly two years in visiting the principal cities of Germany, Prussia, Holland, and France, arriving at Paris in the fall of 1807. Spurzheim spent here eight years, assisting Gall in his public lectures, and in the preparation of their great work on the "Anatomy and Physiology of the Nervous System."

In the year 1813, Spurzheim visited Great Britain, and lectured in London, Edinburgh, and many other cities. He here encountered great opposition; his discoveries were ridiculed, denounced, and condemned; but nevertheless he made many converts to his doctrines. While lecturing in Edinburgh, he used to say to the Scots, "You are slow, but you are sure; I must remain some time with you, and then I will leave the fruits of my labors to ripen in your hands. This is the spot from which, as from a centre, the doctrines of Phrenology shall spread over Britain." This remark proved emphatically true. The Edinburgh Phrenological Society, and Journal, and the two Combe's have been most efficient agents in the propagation of Phrenology. Dr. Spurzheim spent in all about eight years in Britain—published most of his works here, and gained a great many friends and admirers in the British kingdom. He saw that his principles had taken a strong hold in this country, and in the year 1831 he returned to Paris, intending to make that his permanent residence;

but his wife dying the year after, he was induced to visit the United States. His great object was to study the character of its inhabitants, and make known his new discoveries.

In August, 1832, Spurzheim landed in New York, visited New Haven and Hartford, Ct., and then directed his course to Boston. Soon after his arrival here, he commenced two courses of lectures, one at the Athenæum Hall, in Boston, and the other at Harvard University, Cambridge. His lectures created great interest, and were attended by large audiences of the most intelligent and respectable citizens. Dr. Spurzheim, while not lecturing, was incessantly engaged in visiting the public institutions, in making calls, and in the reception of company. His labors proved too great for his health, though he had naturally a very strong and vigorous constitution. He soon fell a prey to a severe attack of fever, and died, Nov. 10th, in the fifty-sixth year of his age. His funeral obsequies were attended in the Old South Church, where an excellent oration was pronounced by the late Dr. Follen. An immense number of spectators were present. The death of no other individual in Boston ever caused so deep sympathy or awakened such universal interest. All felt that they were mourners; that they had indeed lost a friend and benefactor. A beautiful and affecting ode was sung on the occasion, written by Rev. Mr. Pierpont, of which the following is a stanza:

" Friend of man—of God, the servant;  
Advocate of truths divine;  
Nature's priest—how pure and fervent  
Was thy worship at her shrine."

The remains of Spurzheim were buried at Mount Auburn, where a beautiful monument has since been erected over his grave, through the munificence of Mr. Wm. Sturges, merchant of Boston. It bears on it as an inscription, simply the name of SPURZHEIM; this was regarded as a sufficient epitaph. Such was the life and death of this great man. His works containing his discoveries and labors, are the richest legacy which mortal man can possibly bequeath to posterity, and his name will yet be enrolled as one of the greatest benefactors of the human race.

ABERDEEN.—PRESENTATION TO MR. STRATON.—The friends and supporters of Phrenology in this city met on the evening of Tuesday last, in the Museum of the Aberdeen Phrenological Society, for the purpose of bestowing upon Mr. James Straton a substantial mark of their esteem, for the able manner in which, for years past, he has conducted the studies of the Practical Class in connection with the Society, and of their high approbation of his literary efforts in the cause of the science. The President, after alluding to Mr. Straton's services to the Society, during the whole period of its existence, and the important character of his late investigations, and their bearing upon the future progress of Phrenology, presented him with an elegant copy of Burns's Life and Works, and a purse of sovereigns. Mr. Straton made a suitable reply, and the meeting separated, much gratified with the opportunity which had been afforded them of acknowledging the praiseworthy labors of this able phrenologist.





ANDREW COMBE, M. D.

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## SECULAR EDUCATION.

BY GEORGE COMBE.

THIS article contains a farther elucidation and application of the principles advanced in my two preceding articles on "National Education," and on "The Relation between Religion and Science."

The word "secular" signifies "temporal, belonging to this world or life," in contradistinction to "spiritual," which designates things relating chiefly to eternity. Secular education, therefore, should mean education calculated to instruct us in the best means of acting with success the part allotted to us in this world, whatever that may be; and to train us to render that instruction practical. The object of the following pages is not to expound the details of a scheme of secular education, but to inquire into the kind of information which man stands in need of, in order to place him in a condition to act his part in this life with success; and to show that the communication of that information, whatever it shall prove to be, should form the grand object of secular education. After the object of secular education is understood, the means of accomplishing it will be more accurately judged of, and more easily realized.

The line of inquiry which I have followed is difficult and comparatively new. If, therefore, I shall succeed in conveying to the mind of the reader a general comprehension of the idea which I advance, I shall hope for his indulgence on account of the imperfections which must necessarily attend an attempt to treat so vast a subject in so brief a compass.

In the words of the great Reformer, "I think they are extremely mistaken who imagine the knowledge of philosophy and nature to be of no use to religion."—LUTHER, tom. ii., epist. 371

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THE question which at present engages so much public attention, viz., What should secular education embrace? appears to me to depend for its solution on the answers to some previous questions; viz., Does God really govern the world? Is the

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mode in which he governs it discoverable? If it be scrutable and intelligible, is it adapted to the nature of man? If man be capable of acting in harmony with it, what will be the consequences of his neglecting to make himself acquainted with it, and to adapt his conduct to its laws?

It will not generally be disputed, 1st, that secular education should include an exposition of every thing which is necessary to be known to enable us to act in harmony with the order of God's secular providence, if such an order exist—be discoverable—and be designedly adapted to the human faculties; and, 2dly, that it should embrace also such a training of all our powers, physical and mental, as may be necessary to establish in us the disposition to act habitually in harmony with that order.

In the early part of the seventeenth century, religious men believed that the government of the world was then administered by special acts of Divine interference in the affairs of man, in the manner described in the books of the Old and New Testaments. If this opinion was well founded, and if the same system of government is continued in the present day, then instruction in the principles and mode of action of that government should constitute the substance of SECULAR as well as of religious instruction; because such knowledge alone would reveal to man the influences by which his condition on earth is determined, and enable him to adapt his conduct to their agency. The curriculum of study in most of our schools and universities was instituted by men who believed not only that this system of government prevailed in their own day, but that it would continually exist; and this opinion influences the judgment of the great majority of religious persons to the present hour.

In a pamphlet on "The relation between Religion and Science," I endeavored to show that this belief is neither countenanced by science nor warranted by experience, as applicable to the times in which we live; but that, on the contrary, the world is now governed by natural laws designedly adapted by the Divine Ruler to the human mind and body, and calculated to serve as guides to human conduct. It is not necessary again to enter into the evidence and train of reasoning by which this conclusion was reached. I proceed, therefore, to

remark, that if the scheme of government by special interpositions of Divine power be not now in force, and if human affairs be ruled by God's providence operating through the medium of the constitution and relations of natural objects and beings, then a knowledge of these things and beings, and of their modes of action, will be a key to the knowledge of the order of God's providence in the secular government of the world, and will constitute valuable instruction for the young. It will unfold to their understandings and their consciences the temporal duties which God requires them to discharge, and the mode in which they may most effectually discharge them; and it will enable them to comprehend the rewards and punishments by means of which he enforces obedience to his requirements in this life.

As few persons doubt that God actually governs the world, we may assume this point to be conceded, and proceed to inquire whether the mode in which his government is maintained be discoverable by human reason. I beg to remind the reader that, if this world be not now governed by acts of special interposition of Divine power, and if it be not governed by natural laws cognizable by the human understanding and adapted to the nature of man, it must necessarily be a theatre of anarchy, and consequently of atheism; in other words, a world without the practical manifestation of a God. If, on the other hand, such laws exist (as science proclaims), they must be of Divine institution, and worthy of our most serious consideration.

Accordingly, the profoundest thinkers generally admit that this world is governed by natural laws;\* and hence the chief practical questions that remain to be solved are these:—Can human intelligence discover the means by which God governs the world? And, if it can do so, is it able to modify the action of those means, or to adapt human conduct to their influence? These topics, accordingly, shall form the first subject of the present inquiry.

In introducing them to the reader, perhaps I may be excused

\* See note I., in the appendix to "The Constitution of Man," and pages 5th and 6th of "The Relation between Religion and Science." Also "Answer by G. Combe to the Rev. C. J. Kennedy." I was indebted to Dr. Spurzheim's work on the Natural Laws of Man, for my first appreciation of the importance of these laws. (Published by Fowlers and Wells, New York.)

for stating the circumstances which first awakened in my own mind that deep interest in the subject which has induced me so often to address the public in relation to it.

By pursuing this course, I shall be under the necessity of introducing a portion of my individual history—a perilous thing for a living author to do, and one which naturally exposes him to the imputation of vanity and egotism: but as a counterbalance to this disadvantage, the development of the origin and progress of a writer's convictions may probably, with some readers, invest the abstract questions of which he treats with a greater living interest, while it will afford facilities to all for deciding whether he is laboring under an idiosyncrasy of perception and judgment, or is advocating, however inadequately and imperfectly, really interesting and important truths.

Fortified by these considerations, and soliciting the indulgence of the reader, I beg to mention, that an event so common and trivial as almost to appear ludicrous when introduced into a grave discourse, but which is *REAL*, led by insensible degrees to the convictions which I am now endeavoring to diffuse. When a child of six or seven years of age, some benevolent friend bestowed on me a lump of sugar-candy. The nursery-maid desired me to give a share of it to my younger brothers and sisters, and I presented it to her to be disposed of as she recommended. She gave each of them a portion, and when she returned the remainder to me, she said, "That's a good boy—God will reward you for this." These words were uttered by her as a mere form of pious speech, proper to be addressed to a child; but they conveyed to my mind an idea; they suggested intelligibly and practically, for the first time, the conception of a Divine reward for a kind action; and I instantly put the question to her, "How will God reward me?" "He will send you every thing that is good." "What do you mean by 'good'—Will he send me more sugar-candy?" "Yes, certainly he will, if you are a good boy." "Will he make this piece of sugar-candy grow bigger?" "Yes; God always rewards those who are kind-hearted."

I could not rest contented with words, but at once proceeded to the verification of the assurance by experiment and observation. I forthwith examined minutely all the edges of the remaining portion of sugar-candy, took an account of its dimen-

sions, and then, wrapping it carefully in paper, put it into a drawer, and waited with anxiety for its increase. I left it in the drawer all night, and next morning examined it with eager curiosity. I could discover no trace of alteration in its size, either of increase or decrease. I was greatly disappointed; my faith in the reward of virtue by the Ruler of the world received its first shock, and I feared that God did not govern the world in the manner which the nursery-maid had represented.

Several years afterward, I read in the Grammatical Exercises, an early class-book then used in the High School of Edinburgh, these words: "DEUS GUBERNAT MUNDUM," "God governs the world." "MUNDUS GUBERNATUR A DEO," "The world is governed by God." These sentences were introduced into the book as exercises in Latin grammar; and our teacher, the late Mr. Luke Fraser, dealt with them merely as such, without entering into any consideration of the ideas embodied in them.

This must have occurred about the year 1798, when I was ten years of age; and the words "DEUS GUBERNAT MUNDUM—MUNDUS GUBERNATUR A DEO," made an indelible impression, and continued for years and years to haunt my imagination. As a child, I assumed the fact itself to be an indubitable truth, but felt a restless curiosity to discover how God exercised his jurisdiction.

In the course of time, I read in the Edinburgh Advertiser, the newspaper taken in by my father, that Napoleon Bonaparte (instigated and assisted, as I used to hear, by the devil) governed France, and governed it very wickedly; and that King George III., Mr. Pitt, and Lord Melville, governed Great Britain and Ireland—not very successfully either, for I read of rebellion, and murders, and burnings, and executions in Ireland; while in Scotland my father complained of enormous excise duties which threatened to involve him in ruin. I saw that my father ruled in his trade, and my mother in her household affairs, both pretty well on the whole; but with such evident marks of shortcoming and imperfection, that it was impossible to trace God's superintendence or direction in their administration.

In the class in the High School of which I was a member, Mr. Luke Fraser seemed to me to reign supreme; and as I

felt his government to be harsh, and often unjust, I could not recognize God in it either. Under his tuition, and that of Dr. Adam, the Rector of the High School, and of Dr. John Hill, the Professor of Latin in the University of Edinburgh, I became acquainted with the literature, the mythology, and the history of Greece and Rome; but in these no traces of the Divine government of the world were discernible.

These were the only governments of which I then had experience, or about which I could obtain any information; and in none of them could I discover satisfactory evidence of God's interference in the affairs of men. On the contrary, it appeared to me, that one and all of the historical personages now named did just what they pleased, and that God took no account of their actions in this world, however he might deal with them in the next. They all seemed to acknowledge in words that God governs the world; but, nevertheless, they appeared to me to act as if they were themselves independent and irresponsible governors, consulting only their own notions of what was right or wrong, and often pursuing what they considered to be their own interests, irrespective of God's asserted supremacy in human affairs. Most of them professed to believe in their accountability in the next world; but this belief seemed to me like a rope of sand in binding their consciences. They rarely hesitated to encounter all the dangers of that judgment when their worldly interests or passions strongly solicited them to a course of action condemned by their professed creeds.

From infancy I attended regularly an evangelical church, was early instructed in the Bible, and in the Shorter and Larger Catechisms, and the Confession of Faith of the General Assembly of Divines at Westminster, and read orthodox sermons and treatises by various distinguished authors. In the Old Testament I read narratives of God's government of the Jewish nation, by the exercise of special acts of supernatural power, and understood this as a clear and satisfactory exposition of Divine government. In the New Testament, also, certain special acts of Divine interference with the affairs of men were recorded, which likewise gave me great satisfaction, as evidences that God governs the world; but I never could apply these examples to practical purposes.

I learned, in some way which I do not now recollect, that



during many ages after the close of the Scripture records, the Roman Catholic priesthood had asserted that such acts of special supernatural administration continued, and that they themselves were the appointed instruments through whose medium it pleased God thus to manifest his power. But I never saw instances of this kind of government in my own sphere of life.

In the course of time I read arguments and criticisms which carried with them an irresistible conviction, that these pretensions of the Roman Catholic priesthood had been pious frauds practiced on an ignorant and superstitious people! Here, then, was another shock to my belief that God governs the world; and the difficulty was increased by an obscure impression, that notwithstanding this denial by the Protestant divines, of the continuance of a special supernatural Providence acting through the Roman Catholic priesthood, they and their followers seemed to admit something very similar in their own favor.\* As, however, I could not discover by observation, satisfactory evidence of special acts of Divine interference in human affairs, taking place in consequence of THEIR solicitations, any more than in consequence of those of the Roman Catholic priesthood, I arrived at the conclusion that all special acts of Divine administration had ceased with the Scripture times; and thus I was again sent adrift into the great ocean of doubt, and no longer saw traces of the MANNER in which God governs the world in our day, whatever he might have done in the days of the Jewish nation.

As I advanced in understanding, my theological studies rather increased than diminished these perplexities. I read that "not a sparrow falls to the ground without our heavenly Father," and that "the very hairs of our heads are numbered;" which seemed to indicate a very intimate and minute government of the world. But simultaneously with this information, I was taught that God forgives those who offend against his laws, if they have faith in Jesus Christ and repent; and that he often leaves the wicked to run the course of their sins in this world without punishing them, reserving his retribution for the day of judgment. This seemed to me to imply that God

\* See examples in point in the pamphlet on "The Relation between Religion and Science," pages 1, 2, 3.

really does not govern the world in any intelligible or practical sense, but merely takes note of men's actions, and commences his actual and efficient government only after the resurrection from the dead.

On the other hand, when still a youth, I read "Ray on the Wisdom of God in Creation," and subsequently "Paley's Natural Theology," and these works confirmed my faith that God does govern the world; although, owing to my ignorance of science, they rather conveyed an impression of the fact, than enabled me to perceive the mode in which he does so. As, however, I never saw any person acting on that faith, it maintained itself in my mind chiefly as an impression; and not only without proof, but often against apparent evidence to the contrary. My course of inquiry, therefore, was still onward; and with a view to obtaining a solution of the problem, I studied a variety of works on moral and metaphysical subjects; but from none of them did I receive any satisfaction. In point of fact, I reached to man's estate with a firm faith that God governs the world, but utterly baffled in all attempts to discover how this government is effected.

This feeling of disappointment became more intense in proportion as a succession of studies presented to my mind clear and thoroughly convincing evidence, that in certain departments of nature God does unquestionably govern the world. When, for example, I comprehended the laws of the solar system, as elucidated by Copernicus, Galileo, Newton, and Laplace, and perceived the most perfect adaptation, harmony, and regularity pervading the evolutions of the planets and their satellites, the conviction that God governs in that system was at once irresistible, complete, and delightful. But the planets were far away, and I longed to discover the same order and harmony on earth; but in vain.

My next study was Anatomy and Physiology. From this source new light broke in upon my mind. When I saw and understood the mechanisms for the circulation of the blood, the nutrition of the body, the motions of the limbs, and the execution of the functions of vision, hearing, and smelling, again the conviction became intense that in the constitution of the human body also God's agency is clearly discernible. But then came the puzzling question—Why, if such be the case, does

God abandon this mechanism, after he has so exquisitely made it? That he does forego all subsequent care of it, then appeared to me only too obvious; for around me I saw disease, and pain, and death, and multitudinous evils, all arising from this mechanism becoming impaired in its structure or disordered in its functions.

Nevertheless, some facts transpired which seemed in contradiction to this supposed abandonment of the machine by its Author. I was told, for example, that every tissue of the body had received a conservative, and also a reparative power; that, in virtue of the former, it resists, up to certain limits, external injurious influences; and that when those limits have been passed, and the structure has actually been invaded, a process of reparation commences, the natural issue of which is restoration of the injured part. The granulation of flesh wounds, and the re-integration of broken bones, afford familiar examples of this process. In these instances, the wisdom, goodness, and power of God appeared actually woven into the texture of our frames. His government of our corporeal structure seemed so complete, that every muscular fibre, and every filament of nerve, obeyed his mandate throughout our lives, and not only when in health performed precisely the function which he had assigned to it, but, in disease, brought into active play powers which he had provided for the emergency, and which, although incomprehensible to human intelligence, entered on their protective and recuperative functions at the very moment when their agency was wanted.

Clear, however, as this example of Divine government appeared to be, I found no application made of it beyond the domains of surgery. No practical inference was deduced from it, to regulate human conduct in the ordinary circumstances of life. When I left the medical school, all traces of the government of God in the world were lost, and my feeling of disappointment returned.

Chemistry was the next science which engaged my attention, and it presented extraordinary illustrations of Divine government in the qualities and relations of matter. In the revelations made by this science, I discovered powers conferred on matter capable of producing the most stupendous results, yet all regulated in their action with a degree of precision that ad-

mitted even of mathematical and arithmetical measurement. In their reciprocal relations, I perceived an extent, variety, and wisdom of adaptation that captivated the understanding, and roused the most vivid emotions, as if of a present Deity. It is difficult to describe the effect which the first scientific demonstration of the chemical law in virtue of which water, when in the act of freezing, loses a portion of its specific gravity, and in its form of ice floats on the surface of the pool, produced on my intellect and moral sentiments. The adaptation of this quality to the preservation of the beings which inhabit the water, and to the due limitation of the influence of frost on the physical creation—the efficacy, simplicity, and unerring certainty of the means, contrasted with the vastness of the end accomplished—appeared irresistibly to proclaim the all-pervading God. Yet when I left the chemical laboratory and returned into the world of business, these delicious visions fled, and I could no longer trace the Divine government in the affairs of men.

In this condition of mind I continued for several years, and recollect meeting with only two works which approached to the solution of any portion of the enigma which puzzled my understanding. These were "Smith's Wealth of Nations," and "Malthus on Population." The first appeared to me to demonstrate that God actually governs in the relations of commerce; that he has established certain natural laws which regulate the interests of men in the exchange of commodities and labor; and that those laws are in harmony with the dictates of our moral and intellectual faculties, and wisely related to the natural productions of the different soils and climates of the earth. But in my early days, I found the truth and utility of Smith's doctrines to be stoutly denied by Parliamentary leaders and practical merchants; in short, by every body except a small number of thinking but uninfluential men. With this exception, our rulers, merchants, manufacturers, and even our divines, concurred in treating Dr. Smith's alledged discovery, that the relations of commerce are governed by natural laws instituted by God, as an idle dream; they pursued measures directly opposed to the principles which he taught as characterizing that government, and they confidently expected to reap a higher prosperity from following the dictates of their

own sagacity than from obedience to that wisdom which Smith represented as Divine. I perceived, indeed, that they were constantly disappointed in their expectations, and that the more they opposed the free intercourse of nations, the more their commercial prosperity was impeded; but all influential men thought otherwise, and these lessons led only to new experiments on their own principles—still avoiding most scrupulously every approach to the views advocated by Dr. Smith.

I first read the work of Mr. Malthus in 1805, and he appeared to me to prove that God reigned, through the medium of fixed natural laws, in another department of human affairs—namely, in that of population. The facts adduced by Malthus demonstrated to my mind that the Creator has bestowed on mankind a power of increasing their numbers much beyond the ratio of the diminution that, in favorable circumstances, will be caused by death; and, consequently, that they must either, by ever-extending cultivation of the soil, increase their means of subsistence in proportion to their numbers, or expose themselves to the evil of having these restricted by disease and famine, to the amount which the actual production of food will maintain. These propositions, like the doctrines of Adam Smith, met with general rejection; and their author, far from being honored as a successful expounder of a portion of God's method of governing the world, was assailed with unmitigated abuse, and his views were strenuously resisted in practice. Nevertheless, I saw clearly, as time wheeled its ceaseless course, that the results of human conduct corresponded with Mr. Malthus' annunciations; and that his opponents, who governed the United Kingdom according to their own maxims, were never able to screen the inconsiderate poor, who reared families without securing for them adequate means of subsistence, from the evils which he had pointed out as inseparably connected with their erroneous principles of action.

Bishop Butler also threw a flash of light across the dark horizon; but it was only a flash. He announced clearly the great principle of a moral government of the world by natural laws; but he threw little light on the MEANS by which it is accomplished. In consequence of his not understanding the means, his views in regard to the Divine government of the world, although in the main sound, are not practical. He was

compelled to resort to the world to come, in order to find compensation for what appeared to him to be imperfections in the moral government of this world, in some instances in which a more minute knowledge of the mode of God's present administration would have convinced him that the apparent imperfection is removable on earth.

During the continuance of these perplexities, this consideration presented itself to my mind—that in every department of nature, the evidences of Divine government, of the mode in which it is administered, and of the laws by which it is maintained, become more and more clear and comprehensible, in proportion to the exactness of our knowledge of the objects through the instrumentality of which it is accomplished. Wherever we are altogether ignorant of the causes of phenomena, or where our knowledge of them is vague and general, confusion seems to reign; while intimate knowledge uniformly reveals order and harmony—in other words, action characterized by the regularity of law. Moreover, I observed that in the physical creation, order is maintained, and an efficient government realized, by the endowment of every object with certain definite forces, which it displays with undeviating regularity, so long as its circumstances continue the same; and by the adjustment of the action of each of these forces to that of all the others with which it is connected. The balanced centripetal and centrifugal forces of the planets, for instance, produce their revolutions round the sun, and, at the same time, preserve them in their places. These endowments and adjustments of material substances forcibly convey to the human mind the impression of government and order instituted and maintained by a Being superior to man.

The following questions next presented themselves for solution:—Why should the traces of Divine administration become obscure in the moral department of creation? Why should we be so deeply in the dark concerning the laws according to which life, health, talents, dispositions, and individual and social happiness, are dispensed to man? It appeared to me that these questions might be best answered by asking others. Do we know intimately the causes which produce health and disease? These must regulate the endurance of life. Do we know the causes which give rise to the different dispositions



and capacities of men? These must be eminently influential in determining their individual lots. Do we know the precise social effects which these dispositions and capacities are fitted to produce, when permitted, in the case of each person, to act blindly, to act under false or imperfect information, or to act under a clear and correct knowledge of the real nature and relations of things? On the extent of this knowledge will depend our capacity to discern the causes of social happiness or misery. Do we know whether these causes and effects, whatever they may be, are subject to any extent to human control? And if so, how we may control them? If they are not subject to man's jurisdiction, do we know whether he has it in his power to modify, in any degree, his own conduct, in relation to their agency, so as to diminish the evil or increase the good which they are calculated to produce?

To nearly all of these questions only a negative answer could be given; and I suspected that in this ignorance lay the grand obstacle to the discovery of the mode in which God governs the organic and moral departments of creation; but time rolled on, and no new light appeared.

Hitherto, probably, I have succeeded in carrying the mind of the reader along with me; for many persons may have experienced doubts and difficulties similar to those now described: but from this point forward I fear that greater differences may arise between him and me. The facts on which the view to be now stated is founded have not hitherto been generally investigated with that seriousness and patience which are indispensable to their successful study; and hence their reality, and the importance of the lessons which they teach, are not appreciated. Nevertheless, long-continued and dispassionate observation having convinced me of their truth, and of the inestimable value of the consequences which flow from them, I proceed to describe, in a few words, the means by which these clouds of darkness were at length partially dispelled from my mind, and the moral horizon of the world, in some degree, cleared up to my mental vision.

In the course of time I became aware of the importance, in relation to this question, of certain facts which were previously generally known, but from which no practical conclusions had been drawn in regard to the mode in which God governs the



world. These were, that the Creator has conferred on man a system of organs of respiration; a heart and blood-vessels; a stomach and other organs of nutrition, and so forth; that to each of these he has given a definite constitution; that he has appointed definite relations between each of them and all the others, and between each of them and the objects of external nature; that life and health accompany the normal and harmonious action of the whole; and that disease, pain, and premature death, are the consequences of their disproportionate and abnormal action. Moreover, I saw that God had given to man faculties which enable him to observe, understand, and act according to, the laws which regulate the functions of those organs.

From that time the idea began to dawn on my mind that the study of the structure, functions, relations, and laws of these vital parts, is the true mode of investigating the principles according to which God dispenses life, health, disease, and death in this world; in other words, the mode in which he governs this department of creation. In maturing this idea, my late brother, Dr. A. Combe, was my constant coadjutor and guide.

It is unnecessary to carry the history of these personal difficulties farther. Let us now endeavor to bring this idea itself to the test of observation and reason. With this view we may select the endurance of life as the subject of our consideration.

That the endurance of life is governed by regularly operating laws, becomes obvious from the records of mortality. The records of burials kept in the different countries of Europe present striking examples of uniformity in the number of deaths that occur at the same ages in different years. So constant are these results, while the circumstances of any country continue the same, that it is possible to predict, with nearly absolute certainty, that in England and Wales, of 1000 persons between the ages of twenty and thirty, living on the first day of January in any one year, ten will die before the first day of January in the next year.\*

\* I have selected the example of deaths from ages between 20 and 30, because, as will afterward be shown, during this interval the conditions of life seem to be to a great extent under human control. In later periods, from 70 to 80, or 80 to 90, they are not so. The human frame then obeys the law of its constitution—it decays and dies; but it does so under no inscrutable law. The causes of its

Uniformity in the numbers of events bespeaks uniformity in the causes which produce them; and uniformity in causes and effects constitutes the fundamental idea of government by natural laws. If, then, these deaths do not occur arbitrarily or fortuitously, but result from regularly operating causes, the following questions present themselves for solution:—Are these causes discoverable by human intelligence? If they are so, can that intelligence modify them? If not, can an individual adapt his own conduct to their operation so as to influence their effects? These questions are important equally in a religious and a practical point of view. If the causes are constant and inscrutable, and their effects irresistible, it follows that, in regard to death, we are subject to a sublime and mysterious fatalism; in short, that the Mahometan doctrine on this subject is true. If, on the 1st day of January in any one year, a thousand youths, in the vigorous period of life, know, with nearly positive certainty, that ere the clock strikes twelve on the night of the 31st of December, ten of their number will be lifeless corpses; and if, nevertheless, not one of them be able to discover who are to be the victims, or to employ any precautions to avert the blow from himself,—what is this but being subject to a real fatalism?

If, on the other hand, the causes ARE discoverable, and if the individuals subject to their influence possess also the power of modifying them, or of accommodating their own conduct to their action, and of thereby changing their influence on their own condition for good or evil, the Divine government will present a widely different aspect. Instead of a system of mysterious fatalism it will be one of causation, regular in its action, scrutable in its principles, designedly adapted to the physical, moral, and intellectual nature of man, and as such presented to him for the cognizance of his intelligence, the respect of his moral feelings, and the practical guidance of his conduct. In discovering the causes of the ten deaths and their modes of operation, we shall acquire a knowledge of the principles on which God administers life and death to men at the age between

decay are palpable, and the effects are obviously designed. The individual who suffers has then no duty but submission to the will of the Being who conferred life on him at first as a gratuitous boon, and who is entitled to withdraw it when the objects for which it was given have been accomplished.

twenty and thirty. We shall obtain a glimpse of the order of God's secular providence in this department of his kingdom. If this view be erroneous, there appears to be no alternative to the conclusion that, in regard to life and death, we are the subjects of a fatal despotism. Let us inquire, then, whether the causes be scrutable, and whether human power is capable of modifying their influence.

If we desire to know by what laws God governs the sense of hearing—that is to say, under what conditions he bestows this boon upon us, and continues it with us—we shall best succeed by studying the structure and modes of action of the ear, and examining its relations to the air, to the constitution of sonorous bodies, to the brain, and also to the digestive, respiratory, and circulating systems of the body, on the action of which the sense of hearing indirectly depends. It is no abuse of language to say that, in studying those details, we should be studying the conditions under which, within certain limits, we may retain, forfeit, improve, or impair the sense of hearing pretty much at our discretion. In the structure, the functions, and the relations of the ear, we should discern the manifestations of God's power and goodness, and a clear exposition of the principles on which he administers this sense. In the means by which we are permitted, within certain limits, to destroy or to preserve, to impair or to invigorate our hearing, we should discover the evidence of his government not being a despotism or a fatalism, but a system of regular causation adapted to our constitution and condition, and presented to us for the investigation of our intelligence, and the guidance of our conduct. In the constitution of the sense and the appointment of its relations, which man cannot alter, God's sovereignty is made apparent. By connecting certain beneficial consequences with the actions done in accordance with that constitution and those relations, and certain painful consequences with actions done in discordance with them, which consequences also man cannot alter, the Divine Ruler preserves his own sway over the sense and over all who possess it; while by endowing man with intellect capable of discovering that constitution and its relations, with religious emotions enabling him to respect it, and with power within certain limits to act in accordance or discordance with it, and thereby to command

the favorable or the adverse results at his own pleasure, human freedom is established and guaranteed; and man appears as a moral, religious, and intelligent being, studying the will of his Creator in his works, worshipping him by conforming to his laws, and reaping the rich rewards of enjoyment destined to him as the consequences of his fulfilling the objects of his being. By those means the Divine government is maintained simultaneously with man's freedom.

The same propositions may be predicated in regard to all the senses.

The question next occurs, Does this mode of government stop with the senses? It appears to me not to do so, but to extend to every organ of the human frame. As already observed, God has bestowed on man lungs and other organs of respiration; a heart and other organs of circulation; a stomach and other organs of nutrition; a brain and nervous system, which are the organs of thought, sensation, and will: to each of these he has given a definite constitution, and he has appointed definite relations between each of them and all the others, and between each of them and the objects of external nature. These constitutions and relations have been established with design, viz., the design of conferring on man life and health until he shall reach the age of threescore years and ten. They have been framed and appointed by Divine wisdom and intelligence; and every part of them operates with undeviating regularity. Life and health, then, are the result of the normal and harmonious action of the whole of them; disease, pain, and premature death, are the consequences of their disproportions and abnormal action.

Now, no reasonable doubt can be entertained that man has received from his Creator faculties of observation and reflection, which, when assiduously employed, render him capable, to a constantly increasing extent, of observing, understanding, and acting in conformity with the constitution, functions, and relations of these organs, and thereby securing the enjoyment of life and health; but, if he choose, he may neglect them, and suffer pain, disease, and premature death. Hence it seems to follow that God has revealed to man the laws according to which he dispenses life and health; and actually invited him

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to take a moral and intelligent part in acting out the scheme of his providence for his own advantage.

The practical conclusion which I draw from these considerations is, that an intelligent individual who should know the structure, and functions, and laws of health of the vital organs of the human body—the quality (that is, whether strong or weak, sound or diseased) of the constitution which each of the thousand persons had inherited from his progenitors—and the moral and physical influence to which each should be subjected—could predict with a great approximation to accuracy, which of the thousand would die within the year. If this view be correct, the ten deaths in the thousand, which, in the present circumstances of social life, appear like the result of a fatal fiat, would become merely the exponent of the number of individuals in whose persons the conditions of health and life had *DE FACTO* been so far infringed as to produce the result under consideration; without necessarily implying either that these conditions are in themselves inscrutable, or that the course of action which violates them is unavoidable. The sway of fatalism would disappear, and in its place a government calculated to serve as a guide to the conduct of moral and intelligent beings would be revealed; a government of which causation, regular in its action, certain in its effects, and scrutable in its forms, would constitute the foundation.

Moreover, it would follow from this view, that in the administration of God's secular providence in consigning ten individuals out of the thousand to the grave, and leaving nine hundred and ninety alive, as little of favoritism as of fatalism is to be discovered. The only sentence which each individual would find recorded regarding himself would be, that he must either obey the conditions of health, or suffer the consequences of infringing them.

It may be objected that it is impossible for any one individual to acquire all the requisite information; but this objection is foreign to the question. The real point at issue is, whether, if our instruction were directed by a just appreciation of these principles, it would be possible for an intelligent person between twenty and thirty years of age, to acquire from his parents, his teachers, his medical advisers, books, and his own observation

and experience, a knowledge of the conditions of life and health IN RELATION TO HIMSELF? and whether, if instructed in them, and trained from infancy to venerate and observe them as Divine institutions, and supported in doing so by social manners and public opinion, he could then, in an adequate degree, comply with the conditions, and escape from the supposed fatal list? I can perceive no reason for answering in the negative. If, in the first hundred years after the members of any community began to act on those principles, one individual in the thousand could escape from the list, and reduce the mortality to nine, the principle would be established; and the question in subsequent centuries would be only how far this knowledge and obedience could be carried.

In point of fact, the records of mortality PROVE that the view now stated correctly represents the principle on which the continuance of life is administered by the Divine Ruler of the world. When read in connection with history, these records show that if the intelligence, morality, industry, cleanliness, and orderly habits of a community be improved, the result will be an increase in the duration of life in that people. Thus, in 1786, the yearly rate of mortality for the whole of England and Wales was one in forty-two: or in other words, one out of every forty-two of the whole inhabitants died annually. In the Seventh Annual Report (p. 19) of the Registrar-General. it is stated that the rate of mortality for the whole of England. on an average of seven years, ending in 1844, was one in forty-six. Allowing for some errors in the earlier reports and tables. the substantial fact remains incontestible, that the average duration of human life to each individual is increasing in England and Wales, and from the causes here assigned.

Moreover, Professor Simpson, in a recent pamphlet on the value and necessity of the statistical method of inquiry as applied to various questions in operative surgery, presents direct evidence in support of the proposition which I am now maintaining.

The following table, he says, calculated from the bills of mortality of London, demonstrates statistically, that, in consequence of improvements in the practice of midwifery (and I should say also, in consequence of the improved habits and condition of the people), the number of deaths in childbed in



that city in the 19th century was less by one half than that which occurred in the 17th century. The table is the following :

*Average number of Mothers dying in childbed in London from 1660 to 1820.*

YEARS.	PROPORTION OF MOTHERS LOST.
For twenty years ending in . . 1680 . . 1	in every 44 delivered.
For twenty years ending in . . 1700 . . 1	" 56 "
For twenty years ending in . . 1720 . . 1	" 69 "
For twenty years ending in . . 1740 . . 1	" 71 "
For twenty years ending in . . 1760 . . 1	" 77 "
For twenty years ending in . . 1780 . . 1	" 82 "
For twenty years ending in . . 1800 . . 1	" 110 "
For twenty years ending in . . 1820 . . 1	" 107 "

It is probable that in the earlier years included in this table the records were more imperfect than they were in the later years, and that the difference of the mortality is in consequence exaggerated; but, again, making every reasonable allowance for errors and omissions, the grand result is still the same, a diminution of deaths from a more rigid conformity to the conditions according to which the Ruler of the world dispenses the boon of life.

Farther—the records of mortality, when arranged according to the different classes of society, and different localities of the same country, indicate the soundness of the same principle. In the pamphlet on the "Relation between Religion and Science," p. 24, I cited the following results presented by a report of the mortality in Edinburgh and Leith for the year 1846 :

The mean age at death of the 1st class, composed of gentry and professional men, was . . . . .	43½ years.
The mean age at death of the 2d class, composed of merchants, master-tradesmen, clerks, ect., was . . . . .	36½ years.
The mean age at death of the 3d class, composed of artizans, laborers, servants, ect., was . . . . .	27½ years.

It is a reasonable inference from, although not necessarily implied in, this table, that the 3d class furnished a larger proportion of the ten deaths in the thousand persons between the ages of twenty and thirty than the 2d, and this class a larger proportion of them than the 1st; and, as God is no respecter of artificial rank, that the differences in the proportions were



the result of the individuals of the 1st and 2d classes having fulfilled more perfectly than those in the 3d, the conditions on which he proffers to continue with them his boon of life. Again, Mr. Chadwick testifies that "while one child out of every ten dies within the year at Tiverton—and one tenth is the average of the county—one in five dies at Exeter," in consequence of deficient sewerage and improper habits in the people. The reports of the Registrar-General of England afford overwhelming evidence of a similar kind. The same conclusion follows from these facts—that life is administered according to regular laws, which the inhabitants of some localities obey to a greater extent than those of others: in other words, that a knowledge of the causes which favor the endurance of life, and of those which produce disease and death, is an acquaintance with the order of God's providence in this grand department of the government of the world. And if this be the case, can we doubt that the relations of cause and effect, in virtue of which life is preserved, and death ensues, were rendered by God cognizable by the human understanding, with the design of serving as guides to human conduct?

The suggestion here presents itself, that as an intimate knowledge of the structure, functions, and laws of the vital organs of the body, is apparently the true key to the right understanding of the order of God's secular Providence in dispensing health and life, and disease and death, to individuals—it is possible that, in like manner, an intimate acquaintance with the functions, relations, and laws of the faculties of the mind, may open the path to the discovery of the mode in which the Divine government of the MORAL world is conducted.

By the moral government of the world, is meant the control and direction maintained by the Divine Ruler over human actions, by means of which he leads individuals and the race to fulfill the objects for which he instituted them. The problem is to discover the MANNER in which this government is accomplished. As observed in the pamphlet on Religion and Science, our ancestors in the seventeenth century believed this government to be conducted by special acts of supernatural interference on the part of God with human affairs. Science has banished this idea, and has substituted in its place the notion that the moral world also is governed by natural

laws ; but it has made small progress in unfolding what these laws are, and how they operate. The consequence is, that, at this moment, even enlightened men have no systematic or self-consistent notions concerning the mode in which the Divine government of the moral world is conducted. They acknowledge in words that there is a Divine government in the moral as well as in the physical world, and that it is by natural laws ; but here they have stopped, and most of them are silent concerning the mode of that government. In consequence of the exclusion, effected by science, of the notion that special acts of Divine interference now take place in human affairs, the religious teaching founded on that principle has become effete. It has not been formally given up, but it is no longer of practical efficacy. Hence, we are at this moment really a people without any acknowledged, self-consistent, satisfactory, or practical notions concerning the moral government of the world ; in other words, concerning the order of God's providence in governing the actions of men, and educing from them the results which he designed.

How is this deficiency to be supplied ? Apparently in the same manner in which we have supplied our other defects of knowledge of the order of God's providence in the physical and organic kingdoms. Do we know intimately the machinery by means of which the government of the moral world is maintained and conducted ? The answer must be in the negative. Have we any science of mind resembling in precision, minuteness, and certainty, the sciences of astronomy and chemistry ? Monsieur De Bonald, in words quoted by Mr. Dugald Stewart, answers the question. "Diversity of doctrine," says he, "has increased from age to age with the number of masters, and with the progress of knowledge ; and Europe, which at present possesses libraries filled with philosophical works, and which reckons up almost as many philosophers as writers ; poor in the midst of so much wealth, and uncertain, with the aid of all its guides, which road it should follow—Europe, the centre and focus of all the lights of the world, has yet its PHILOSOPHY only in expectation."\*

\* Stewart's Preliminary Dissertation to the Encyclopædia Britannica, vol. i., p. 230

If the science of mind be as indispensable to our understanding the MANNER in which the Divine government of the moral world is conducted, as is the science of matter to our comprehending the order of that government in the physical world, and if Monsieur De Bonald's description of the condition of mental science be correct, there is no cause for surprise at the darkness which envelopes us in regard to the government of the moral world.

It is too certain that Monsieur De Bonald is in the right; for although man has received a material body, has been placed in a material world, been subjected during his whole life to material influences, and can act on the external world only through the instrumentality of material organs, nevertheless, in the most esteemed treatises on the philosophy of mind, moral and intellectual faculties are described without mention of special organs, or of the influence of these in modifying the manifestations of the faculties; and without taking notice of the relation of each faculty and organ to the other faculties and organs, or to external objects. Here, then, a dark abyss of ignorance, apparently impassable, breaks off all practical knowledge of the connection of the body with the mind, and of the organs by means of which the mind acts, and is acted upon, by the external moral and physical creation. And if our knowledge of the order of God's providence can increase only with our knowledge of the MEANS OR INSTRUMENTS through which he administers it, are we to sit quietly down, and allow this state of ignorance to continue forever?

The cause why it has continued so long appears to me to be obvious enough. In a state of health, most men have no consciousness of the existence and interposition of material organs in thinking. They are conscious of thoughts and feelings, but not of organs; and people have been taught to ascribe all the phenomena of consciousness to MIND ALONE. Consequently, they are offended with those who refer such phenomena in any degree to the influence of organs. Nevertheless, facts which are revealed by the most ordinary OBSERVATION, show that our mental manifestations are influenced, at every moment of our lives, by the condition of the organs. The question then occurs, May not the key to a knowledge of the manner in which God governs the world of mind be

found in the study of these organs, and their laws and relations? One point seems to be clear enough; namely, that if God HAS instituted mental organs, and ordained their functions, their constitution and laws must be adapted to the constitution and laws of all the other departments of creation; and that, therefore, a correct knowledge of the relations of the world of mind to the world of matter, must be unattainable while we remain in ignorance of the mental organs.

A knowledge of these organs, therefore, and their relations and laws, appears calculated at last to form a bridge across the abyss of ignorance, which has hitherto concealed from our view the manner in which the Divine government of the moral world is conducted.

Let us inquire, then, whether the system of Divine government before described, stops with the inorganic and organic departments of creation; or whether it extends into the domain of mind. One of the most striking anomalies in the moral government of the world consists in the wide-spreading magnitude and frequency of crime. Is it possible to discover whence it arises? Is it a direct result of the institutions of the Creator, or does it spring from abuses of faculties that are in themselves good? Statistical inquiries into human conduct present the same striking indications of uniformity in results as do those into the endurance of life. Mons. Quetelet furnishes us with the following table relative to crime in France:

YEARS.	Accused and brought personally before the Tribunals.	Condemned.	Number of inhabitants for each person accused.	Number condemned out of each 100 accused.	ACCUSED OF CRIME.		Proportion between these classes.
					Against the person.	Against property.	
1826	6988	4348	4457	62	1907	5081	2·7
1827	6929	4236	4593	61	1911	5018	2·6
1828	7396	4551	4307	61	1844	5552	3·0
1829	7373	4475	4321	61	1791	5582	3·1
Total.	28,686	17,610	4463	61	7453	21,233	

"Thus," says Mons. Quetelet, "although we do not yet possess the statistical returns for 1830, it is highly probable that we shall find, for that year also, one person accused out

of every four thousand four hundred and sixty-three, and sixty-one condemned out of each one hundred accused. The probability becomes less for 1831, and less for the succeeding years. We are in the same condition for estimating by the results of the past, the facts which we shall see realized in the future. This possibility of assigning beforehand the number of the accused and condemned which should occur in a country, is calculated to lead to serious reflections, since it involves the fate of several thousands of human beings, who are impelled, as it were, by an irresistible necessity, to the bars of the tribunals, and toward the sentences of condemnation which there await them. These conclusions flow directly from the principle, already so often stated in this work, that effects are in proportion to their causes, and that the effects remain the same if the causes which have produced them do not vary.”\*

The same uniformity is observable in Great Britain. A return to the House of Commons, dated 22d May, 1846, shows the number of persons committed to prison for each of seventeen different denominations of offences, including robbery, house-breaking, arson, forgery, rape, and so forth, for two different periods of five years each, one while the offences were capital, and one after they had ceased to be so punished. The result is the following :

Number of persons committed for the foregoing crimes during the five years immediately preceding the abolition of the punish- ment of death, . . . . .	7276
Number of ditto during the five years immediately succeeding the abolition of the punishment of death, . . . . .	7120

The first aspect of these facts suggests the idea that fatalism is the principle of government in the moral world also; and the questions must again be solved—Whether the causes which produce these constant results are scrutable by man? and if so, whether he is capable of modifying them; if not, whether he is capable of adapting his conduct to their action in such a manner as beneficially to vary their results? It is remarkable that in all ages, lawgivers have acted on the principle that human volitions are absolutely free; for they have directly forbidden certain actions, and enacted punishments against those who committed them, without making any inquiry into the power of their subjects to obey the law. Even in

\* Sur L'Homme, etc., tome ii., p. 168.

modern times, and in the face of statistical returns such as those now quoted, showing a constant succession of crimes only partially influenced in amount by the punishments inflicted, and proclaiming, with trumpet tongue, the existence of causes lying deeper than mere punishments can reach, the rulers of nations proceed in their course of assuming absolute freedom. They proclaim the law, and inflict punishment for disobedience, irrespective of the mental condition and physical circumstances of their subjects. They have partially succeeded in checking crime, but they must confess also to much failure and disappointment. What, however, is the sound conclusion to be drawn from the facts before us?

The regularity observable in the numbers of criminals indicates the existence of regularly operating causes of crime. The first step in the investigation, therefore, must be to discover these. Several causes are generally recognized by reflecting men, such as, want of education, bad example, destitution, and so forth. These, however, do not serve to account satisfactorily for the phenomena; for out of a thousand persons all equally deficient in education, equally exposed to bad example, and equally destitute, only a definite and constant number (say ten) will become criminals in any one year in which the external circumstances of all continue unchanged. This fact shows that the primitive causes of crime, be they what they may, affect some and not other individuals; and until we discover what these are, we shall never understand whether crime is a direct or a contingent result of the Divine institutions; nor whether human intelligence is capable of modifying these institutions so as to diminish or remove it. Moreover, until we make this discovery, these causes, although removable, must and will produce unvarying and constant results, as if they were the mere instruments of an overwhelming fatalism.

The solution of this problem extends far beyond the department of mere criminal legislation. It involves the whole question of God's government of the moral world; of man's freedom, and of the nature of his responsibility in this world. If the common assumption that the will of man is ABSOLUTELY free were founded in fact, then God could exercise no direct control over the moral world; for the control of a superior necessarily implies limitation of freedom in the servient agent.



if, on the other hand, he exercises an inscrutable and irresistible sway, dooming thousands to commit crime, and to become the victims of the tribunals erected and administered by their more favored brethren, every notion of a moral government of the world must be abandoned. On such a supposition man could enjoy no freedom, and his only duty would be that of submission in despair.

I have already hinted at the causes why this branch of knowledge is involved in such apparently hopeless obscurity. The means by which the Creator conducts the moral administration of the world have been unknown, and hence his scheme of government could not be comprehended. If there be any part of the human system by means of which all the desires, emotions, and intellectual powers of man act, and are acted upon by external objects and beings, it appears to follow, that by studying its constitution, functions, laws, and relations, in the same spirit and manner as we do those of the ear, or the eyes, or the lungs, and with analogous objects in view, we may be able to discover the mode in which it has pleased God to govern the world of mind; and that then also we may be in a condition to judge whether the causes of moral actions in general are subjected to any natural laws, and whether the moral being himself can exercise any control over those laws, or modify their results by accommodating his conduct to their sway. If there be organs subject to natural laws, which subserve the action of all the mental powers of man, the Divine government may have its foundation in, and maintain its authority by means of, those organs and their relations, just as that government is maintained over health and life through the medium of the laws to which the vital organs have been subjected. If man be capable of discovering those organs, of modifying them, or of accommodating his conduct to their action so as to vary their results, then will he, within certain limits, be a free and intelligent agent; and his responsibility will be established by the fact, that over the constitution, relations, and laws of the organs and faculties themselves, and the consequences of good and evil attached to the use and abuse of them, he will have no command; while, by choosing between obedience and disobedience, he will enjoy that kind of freedom which consists in selecting results.



The constitution of the human mind appears to be adapted to such a system of things as is here supposed. Man has received animal propensities and moral sentiments, every one of which has a legitimate sphere of action, accompanied by enjoyment; while each may be misapplied, and thereby become an instrument of suffering. He has received also intellectual faculties enabling him to observe the qualities of things that exist, and reflecting faculties that enable him to perceive causation. These endowments would be absolutely unsuited to a sphere of being in which there was no fixed order of cause and effect. They presuppose regular causation; and in bestowing them, the Creator has obviously invited us to study the means by which he executes his secular providence and to accommodate our conduct to its laws. In submitting these means to our cognizance, he presents to us a practical revelation of the course of conduct which he desires us to pursue in order to work out our own enjoyment in this world. Is it not true, therefore, that in the endowment of objects and beings with specific qualities and modes of action, which we cannot alter, God maintains his supremacy; while in enabling us to discover these, and to modify our conduct in relation to them, he bestows on us all the freedom compatible with our subjection to the government of a superior Being?

It is of no consequence to the validity of this argument, in what part of the body the organs of the mind are situated. Their mere existence warrants the inference, that they serve as the media through which God maintains his government in the moral world. The reader, therefore, may, if he please, reject Phrenology as an idle dream, if he only admit that in this life the mind is not a disembodied spirit, but acts and is acted upon through the instrumentality of organs, the condition of which affects its powers of manifestation.

Let us assume, then, but only for the sake of illustration, that the brain is the instrument by means of which the mental faculties act, and are acted upon by the external world, and let us try to solve the problem of the moral government of the world by means of this hypothesis. Suppose that each primitive animal desire, moral emotion, and intellectual faculty, is connected with a certain portion of the brain; and that (age, exercise, health, constitution, and all other things being the

same) each organ acts with a degree of energy corresponding to its size. Suppose, farther, that in ten individuals out of a thousand, the size of the animal organs in relation to the moral and intellectual is PLUS, and that in the other nine hundred and ninety the balance of size is equal between these different groups of organs, or that it predominates in favor of the moral and intellectual—we can easily comprehend that in social circumstances in which stimulants are applied to all the faculties, the animal desires may be prone to attain a criminal ascendancy in the ten individuals in whom their organs are in excess; in other words, that these may be the ten offenders in the thousand.

If all the organs, wherever situated, were instituted by God; if the connection between their size, health, and other conditions, and the energy of their action—and also the subordination in authority of the animal to the moral—were established by him; if certain spheres of action were assigned by him to each of them, and certain consequences attached to under-action, moderate action, and over-action—also to action in accordance with the constitution of external objects and beings, and other consequences to action in discordance with that constitution; then it appears to me that a knowledge of these particulars will, to a certain extent, constitute information concerning the means by which God administers the moral and intellectual government of man.

If, farther, we assume that man, without being able to alter the fundamental constitution and relations of any one of these organs, has, nevertheless, received faculties which enable him to observe and comprehend them, and to modify his conduct in relation to the consequences of their action, we should again have an example of human freedom existing within prescribed limits, combined with stable, regular, undeniable Divine government. Suppose, for example, an individual to exist, in whom the size of the animal organs so far predominated over that of the moral and intellectual organs, that, in ordinary circumstances, he could not avoid yielding to external temptation to vicious indulgences; still, if either he, or the society among whom he lived, possessed the knowledge of the cause of his proclivity to fall into crime, he himself, by changing his circumstances, or they, by doing so for him, might avert the crime, by withdrawing him from the temptation.

According to this view, the tables of crime adduced by Mons. Quetelet and others, would indicate only the number of individuals whose mental organization is so deficient, or so unfavorably balanced, that they are unable to resist the external temptations to crime to which they are exposed; but would not warrant the conclusion, that the better constituted members of society, if they knew the peculiarities of that organization, and used all the means which that knowledge would place in their power to rescue the individuals from temptation, might not diminish the number of offenders and offences to an extent as yet unascertained.

The limits of a pamphlet do not allow me to enter on the consideration of acts of mere vice, imprudence, or folly; or to show their causes, and the nature of the consequences by which they are followed. This has, to some extent, been attempted in my other works; and I can now only remark, that the principles here expounded apply to them all.

These illustrations are introduced merely to call attention to the proposition, that if there be now no special interpositions of Divine power in human affairs, it appears to follow, that the Divine Ruler must either govern through the constitution and laws which he has bestowed on the inorganic, organic, and moral elements of creation, or (in so far as man can perceive) not govern at all. Moreover, there appears to be no road open by which human intelligence can discover the principles according to which the Divine government proceeds, in administering the details of secular life, and can learn to act in accordance with them, except that furnished by the study of the instruments through which it is accomplished.

If the main idea here insisted on be sound, it will present secular education in a new light. Instruction concerning the qualities, modes of action, and relations of sublunary things and beings, instead of being godless, will prove to be an exposition of the means by which God's secular providence is administered.

The next question, however, is, Will this knowledge be of itself sufficient to induce and to enable the young to regulate their conduct in accordance with the natural laws? Certainly not. The following desiderata will still need to be supplied.

Knowledge directly addresses the intellect alone ; but the intellect is more the regulator than the source of active power. The latter comes chiefly from the propensities and sentiments. We must, therefore, train ALL the propensities and sentiments, under the direction of the intellect, to act in harmony with the secular arrangements of God's providence. The sentiment of Veneration, for example, must be trained to respect, to hallow, and to obey the laws prescribed for human conduct in the constitution of nature. This sentiment is distinct from the intellect, and may be led to regard almost any object as sacred. In ancient Egypt, it was trained to venerate reptiles ; in ancient Greece and Rome, to reverence images as gods ; in modern Roman Catholic Rome, to invest with sanctity the Pope ; in Presbyterian Scotland, to venerate the Bible, and the clergy who expound it ; but in no country with which I am acquainted, has it been trained to regard as sacred the order of God's secular providence revealed in nature.

The liability of this sentiment to take almost any direction given to it in youth, appears to me to explain the widely different responses which the religious consciences of men differently educated give to the same question. The Roman Catholic religious conscience regards it as sinful to eat flesh on Fridays ; while the Protestant religious conscience considers this observance to be superstitious. In Scotland, the Protestant religious conscience considers it sinful to engage in any amusement or recreation on Sunday afternoon ; while on the continent of Europe, the religious conscience, both Protestant and Catholic, generally views recreation on the Sunday evening as perfectly permissible.

The inference which I draw from these and similar well-known facts is, that it is possible to invest almost any object or observance with a religious character, provided the sentiment of Veneration be trained in childhood and youth to reverence it, and be supported through life by the sympathy of public opinion in its favor. If this conclusion be sound, and if the secular arrangements by which God exercises his sovereignty in this world, be worthy of the respect of his rational creatures, then it would be a legitimate and useful practice to present these arrangements to the young as objects of regard. When they had been trained to respect

them, perhaps the knowledge thus hallowed might exercise some influence over their practical conduct.

There are other two sentiments belonging to the higher class of faculties which strongly influence conduct, namely, Hope and Admiration of the wonderful, the great, and the good. These are the fountains of trust, expectation, faith, and joy in believing. Experience proves that they are distinct from the intellect, and that, by early training, they may be directed to very different classes of objects and observances. I should propose, therefore, to present the order of God's secular providence, as revealed in nature, to these sentiments also, as objects worthy of regard, and should train them to see God himself revealed in his works. A child thus reared, might perhaps, when he grew up to man's estate, consider himself as exercising faith, trust, and confidence in God himself, when he yielded obedience to his laws; and he might be led even to believe that God would render the order of his providence conducive to good, however darkly and imperfectly this tendency might be discerned, in some of its parts, by those of his creatures, who continued to be the ignorant slaves of prejudice and passion.

It is impossible in a pamphlet to enter into a full exposition of this subject. Suffice it to observe, that ALL the faculties should be trained in youth to respect and obey God's natural laws; and that I venture to hope for practical results only after this has been accomplished. The reader is requested to aim at grasping the GENERAL IDEA which is here expounded, irrespective of the completeness or perfect accuracy of all the details.

It will be objected, perhaps, by some individuals, that such a training of the moral and religious sentiments would be a complete desecration of them; that it would bind the free and immortal spirit in the trammels of material laws; render its actions and aspirations ever subservient to low calculations of secular good and evil; and, in short, put an end to spiritual life, and all those inward communings of the soul with God, which constitute the grand sources of the enjoyment and consolation afforded by religion.

The answer to this objection is easily given. The education and training now proposed, would leave every man free

to follow the bent of his own inclinations in regard to the whole spiritual kingdom, and its interests and objects. The only effect of it would be, to place the religious emotions, and all the other faculties, under the restraints of God's natural laws, when they acted in sublunary scenes and dealt with temporal duties.

Farther, the religious sentiments are not singular in being fountains of inward light. EVERY FACULTY has its inward lights as well as they. An individual, for example, who has an active temperament and large organs of Acquisitiveness, is inspired by brilliant aspirations after unbounded wealth, and pictures to himself unlimited happiness in its attainment. But the modes of producing and attaining riches are really regulated by natural laws; and these will, in point of fact, determine his failure or success, whether he believes in their influence or not. To follow the inward lights of his Acquisitiveness, therefore, irrespective of these laws, is not to enjoy a rational freedom, but to yield to the blind impulses of an inferior propensity.

Similar remarks apply to the inspirations of the religious emotions. While their action is confined to the interests of eternity and the spiritual kingdom, the laws of that kingdom are their proper guides; but when they issue forth into the sphere of temporal objects, they come under the jurisdiction of the laws of God's secular providence as certainly as the animal propensities themselves. They can accomplish no terrestrial good, except by conforming to these laws; while they must produce unequivocal evil whenever they transgress them. This view of the strict subjection of man to the order of God's secular providence is offensive to many religious persons; but it is so, in my opinion, only because, owing to the imperfections of their education, they either do not know the laws of that order, or have not been trained to reverence them as sacred.

When the structure and functions of the eye are studied in relation to the qualities and laws of light, an exquisite adaptation of the sense to external luminous bodies is discernible. The same observation applies to the ear and sonorous bodies; to the lungs and the respirable gases; in short, to every organ and function of the body, with which we are sufficiently ac-



quainted. No human sagacity, however, can yet predicate the precise use of the spleen, and, in consequence, its adaptation to its objects is a mystery. It appears as an unmeaning mass, amidst objects resplendent with design. Similar remarks apply to the brain. To many who have studied the functions of its different parts, there appears the same admirable adaptation of THEM to the external world, and to the order of providence embodied in the constitution of that world, as is recognized in the case of the organs before named. We discover organs and faculties of observation directly related to the qualities of external objects and beings; organs and faculties related to their phenomena; organs and faculties related to their agencies, and the consequences which they produce; and organs and faculties related to the interests of man as an individual, and as a social, a moral, and a religious being. On contemplating these endowments and relations, and the order of God's providence administered through them, the intelligent mind thrills with vivid emotions of love, gratitude, and admiration of their Great Author. A "present Deity" is felt to be no longer a figure of speech, or a flight of poetry, but a positive and operating reality. We not only feel that we "live, and move, and have our being" in God, but become acquainted with the means through which his power, wisdom, and goodness affect us, and discover that we are invited, as his moral and intelligent creatures, to co-operate in the fulfillment of his designs. The beautiful exclamations of King David, "If I climb up into heaven, Thou art there; if I go down to hell, Thou art there also: if I take the wings of the morning, and remain in the uttermost parts of the sea, even there also shall Thy hand lead me, and Thy right hand shall hold me," become positive scientific truths; and man takes his true station as the interpreter and administrator of nature under the guidance of Nature's God.

In the days of Lord Bacon, philosophers speculated and reasoned concerning the constitution of nature, without sufficiently observing its qualities and phenomena. He recommended to them to observe first, and to reason afterward; and so thoroughly has this counsel been followed, that in modern times, scientific reputations are built up almost exclusively on observations. Science has, perhaps, to too great



an extent, fallen into the hands of men in whom the observing organs predominate over the reflecting; and it is now rather an exception than a rule to see practical conclusions regarding what men should do or abstain from doing, drawn from even the most elaborate expositions of natural science. There is a gulf between science and daily life, and another between science and religion; and the schoolmaster, who, under an enlarged and enlightened view of the order of God's providence, should be the expositor of that order to the young, pursues his daily routine in comparative ignorance of his high vocation, and is humbly estimated and poorly requited by a society nearly as ignorant as himself.

To those who are not acquainted with the functions of the different parts of the brain and their relations, this organ, like the spleen, still appears a mere unmeaning mass of matter lodged in the interior of the skull, and these views of its importance may seem to be a hallucination or a dream. But, as already observed, if they acknowledge the existence of mental organs at all, instituted by God, the conclusion appears to follow that those, wherever situated, are the direct instruments by means of which he exercises his secular dominion in the world of mind; and I hope, therefore, to be pardoned for the earnestness of this appeal in favor of the study of their functions.

If there be any degree of truth in the views now propounded, the question, "What should secular education embrace?" may be easily answered. It should embrace instruction in the qualities, modes of action, relations, and purposes of the things and beings by means of which the government of the world is maintained; and also TRAINING of the whole faculties, animal, moral, and intellectual, to ACTION in conformity with the order of Providence.

The particular branches of instruction should be the following:

READING and WRITING as the means of acquiring, recording, and communicating knowledge.

ARITHMETIC, ALGEBRA, and GEOMETRY, as instruments of numeration and calculation.

GEOGRAPHY. The object of this science is to describe the natural and artificial boundaries of the different countries of

the world, and their sub-divisions ; also to enumerate the towns, rivers, lakes, etc., which they contain. With these should be combined a description of the inhabitants, institutions, soil, climate, and produce of each country, and the relations of these to the objects and beings of other countries. Simple descriptive Geography addresses chiefly the intellectual faculties of Form, Size, and Locality. When enriched by the additions now mentioned, the science would interest the feelings, and excite the reflecting powers.

**NATURAL HISTORY** embraces the description of all the objects of the mineral, vegetable, and animal kingdoms. In teaching it, the young should be trained to accurate observation of objects, and of their qualities, relations, and modes of action.

**CHEMISTRY.** This science expounds the minute composition of natural objects, and the proportions and laws of combination of their parts, with their modes of action. It affords striking examples of design, order, and invariable sequence, in the constitution and modes of action of material objects ; and may be used to demonstrate to the young that the material world is actually and practically governed by Divine wisdom.

**ANATOMY and PHYSIOLOGY.** These sciences unfold the structure, functions, relations, and laws of the different parts of which organized bodies are composed. When to these elements of instruction is added information concerning the external circumstances, and also the modes and degrees of action of the organs, which produce health and disease, and the certain connection between infringements of these conditions, and pain and suffering, and eventually premature death ; the pupil may be led to comprehend that his health and life are, within certain limits, committed to his own discretion, and that the Divine power is constantly operating in and through his organs for his advantage and enjoyment, while he acts in conformity with the laws of his constitution.

**NATURAL PHILOSOPHY** treats of the qualities, relations, and modes and laws of action of bodies, apart from their chemical and vital phenomena. Like chemistry and physiology, it addresses in an especial manner the reflecting intellect of man, and is calculated to expand his mental powers. By in-

creasing his knowledge of the scheme of creation, it puts it in his power, to a certain extent, to co-operate in the plans of Providence for his own improvement.

**THE PHILOSOPHY OF MIND.** The objects of this science are the external senses, and the internal faculties of emotion, observation, and reflection. It can be studied successfully only by means of reflection on consciousness, and observation of the organs of the several faculties, and the influence of their size, age, health, disease, and training, on the mental manifestations. The mind of man, in so far as he is concerned, forms the centre to which the objects of all the other sciences are related; and his deepest interest is involved in knowing accurately what these relations are, and how he may regulate his conduct in conformity with them.

**LITERATURE, POETRY, PAINTING, SCULPTURE,** and all the useful and ornamental arts, find their principles in the constitution of the human faculties, and their relations to the objects of external nature, and cannot be thoroughly and scientifically understood until these are comprehended.

**NATURAL RELIGION** belongs to Secular Education, and should aim at teaching the young to comprehend that the whole objects and phenomena treated of in the sciences, are the institutions of God; that the relations of the human mind and body toward them are fixed and unalterable; that the whole are, to a certain extent, cognizable by the human faculties; and that we are bound by duty to God, as well by a regard to our own welfare, reverently and diligently to study these, and to regulate our own conduct in conformity to their modes of action. Above all, the pupil should be **TRAINED HABITUALLY TO ACT** on the knowledge thus communicated to him.

I do not mean that all the arts and sciences should be taught to every child, in the manner and to the extent in which they are now expounded in our universities and higher seminaries of education. All I here propose is to unfold principles and views which may form the groundwork, and serve as guides to the practical evolution of a sound system of secular education. The details will be best reached after we have agreed upon the outline. If every teacher will view himself as commissioned to communicate to his pupils practical instruction concerning the order of God's secular Providence, and the

MEANS by which it is administered, and to train them to act in accordance with it—the things necessary to be taught, as well as the best mode of teaching them, will speedily be discerned. If the reader will visit our common schools, and estimate the things at present taught, and the modes of teaching, with this idea in his mind as his standard, he will speedily be able to judge to what degree they are fulfilling the object of training the young to act in accordance with the order of God's secular Providence. Even our churches may be submitted to the same test with advantage; for they also profess to show the way in which man should walk on earth, as well as to point out the gate that leads to heaven. Their *SECULAR* instruction, therefore, must be perfect or imperfect, in proportion to its success in expounding the means by which we may discover and fulfill the requirements of God's natural laws.

The arts of reading and writing have hitherto been considered the chief elements of secular education for the people; while Bible precepts and catechisms have been viewed as constituting religious instruction. But, if the principles now expounded be correct, the imperfections of this curriculum will be obvious. Reading implies merely the knowledge of the written or printed artificial signs or words, by means of which any nation or tribe express their thoughts; and writing is the forming of these signs ourselves. The signs do not convey their own meaning; they are merely sounds and forms; and we must be instructed in their meaning before we can derive any substantial benefit from them. Instruction in the objects, qualities, relations, and modes of action of the beings and things which the words are employed to designate, should, therefore, go hand in hand with the teaching of words themselves.

In regard to religious instruction, again, the Bible constitutes the only directory recognized in Protestant countries concerning the mode of securing everlasting happiness. The object of the school for religion, therefore, may be held to be to unfold the means by which eternal interests may be best secured, and to train the young to practice them.

Although the Bible contains, as subservient to this end, numerous valuable precepts for regulating secular conduct, yet, not being intended to supercede the use of observation

and reflection, it embodies no complete exposition of the special natural agencies by means of which the order of God's secular Providence is now executed and maintained. Moreover, it does not expound the arrangements in nature by which even its own precepts in regard to the duties and interests of this life are enforced and rendered practical. Hence secular instruction, such as is now recommended, is necessary to render practical the moral precepts even of the Bible itself. Every precept of the Bible, therefore, which has a counterpart in nature, and which is supported and enforced by the order of God's natural Providence, may legitimately be introduced into secular schools.

It is impossible, however, to draw a precise line of demarcation between secular and religious education, because, in point of fact, when we instruct children in the order of nature, and train them to reverence it, we teach them religion as well as science. Those doctrines only which rest exclusively on the authority of supernatural revelation, seem to belong peculiarly to the school for religious teaching.

It appears to me that it would be difficult to exaggerate the beneficial effects that might eventually be elicited from a scheme of secular education founded on these principles. The young, trained to direct their observing faculties to the study of the things and beings which exist, as instruction addressed to them by God, and their reflecting faculties to the study of the causes of natural phenomena ; and taught, moreover, to comprehend, that, to the action of these causes, certain consequences have been attached by Divine intelligence, which, at every moment, affect their own condition, and which they can neither alter nor evade, but to which they may, or may not, as they choose, accommodate their conduct—the young, I say, thus instructed and trained, might, perhaps, at last be enabled to comprehend that they are actually placed under a real and practical Divine government on earth, and they might be led to feel some disposition to act in harmony with its laws.

The general soundness of the argument now maintained is supported by facts open to the observation of all. What is called the "common sense" of mankind, has induced them in all ages, in spite of the diversities of their religious creeds, to act on the foregoing views of the government of the world,

so far as they have been able to comprehend them. They have generally believed instinctively in a Divine government, and at the same time in human freedom. They have endeavored, when sick, to escape from disease and death by removing what they believed to be their causes; they have pursued happiness by following what they conceived to be the natural roads that led to it; and they have also acknowledged and approved of the consequences attached by nature to virtue and vice—however far short they may have fallen, either in successfully warding off disease and death, in attaining temporal felicity, or in avoiding immorality. The doctrine, therefore, which I am advocating, would, if carried into effect, confer on common sense—in other words, on the operations of our instinctive principles of action—some degree of the clearness, consistency, fruitfulness, and utility of powers guided by science and religion, instead of leaving them to grope in the dark, and to act at hazard. Farther, many reflecting men are distressed by the discord which reigns between the popular expositions of religion and the obvious dictates of science. But the doctrine now advanced, by opening up comprehensible and practical views of the order of God's providence on earth, would enable them in some degree to establish harmony between their religious and scientific convictions. Again, by investing all God's secular institutions with that character of sacredness which truly belongs to them, it would add a new and an elevated motive to the intellect to discover and apply all natural truth.

I am well aware, however, that some persons may regard these views as doctrinally unsound. But is there no error in the religious opinions of such men themselves? Must the minds of every succeeding generation in this great country be forever cribbed and cabined in the dark formulas of the seventeenth century? Will science not yet assert its own fountain to be in God? Will man never venture to take his place as the moral and intelligent co-operator with his great Creator, in carrying into effect the secular objects of Divine wisdom and goodness? If he will do so, let him shake off the trammels of bygone ages, rouse the mighty energies that have been conferred upon him; and, with his feet upon the earth, and his whole mind directed to God, intrepidly follow the beacon lights presented by nature to his reason, and fear neither disparagement

to his Maker, nor peril to himself, while he travels in the paths of science, and adopts its revelations as assistant guides to his temporal conduct.

Above all, let not the laity, in their zeal for the holiest of causes, allow themselves to trample science under foot. It comes from God, and is addressed by him to our intellects and our consciences for the guidance of our secular conduct. Let them not desert the standards of Divine truth unfurled on the fields of nature, in order to prostrate themselves before those raised by fallible men; but let them embrace and reverence every truth in whatever record it is to be found.

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#### PERSECUTION FOR OPINION.

It is no sophistical assertion to maintain, that, amidst all our boasted illumination, the principle of persecution, however formally rejected in theory, is upheld in practice in all its pristine authority; that, being brought home to every man's door, and exerted on every petty occasion, there is as little real freedom allowed to unpopular thinking as in old times, when the trade of persecution was exclusively committed to the Ecclesiastical Courts and Star Chambers. We have neither space nor disposition to demonstrate this odious truth by example. The fact is too much of a noonday sun splendor to require such illustration; and it is enough to point to the state of parties in this country, and to the leaven of religious intolerance that has festered them into their dangerous fermentation. At no period of our domestic history was caution more necessary in the assertion of individual opinion; at no time was the face of science cloaked by more conventional plausibilities, or disfigured by more illogical concessions to dominant presumption.

—ATHENÆUM.

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#### CURE OF RELIGIOUS MELANCHOLY.

I HAVE authority from the records of physic, as well as from my own observations, to declare that religious melancholy and madness, in all their variety of species, yield with more facility to medicine, than simply to polemical discourses, or to casuistical advice.—DR. BENJAMIN RUSH.



## DESTRUCTIVENESS AND COMBATIVENESS IN THE CARNIVORA.

BY CHARLES PRENTICE.

I HAVE heard an objection adduced by no mean authority against Comparative Phrenology, which it may be worth while to consider. It is this—that the skulls of neither the lion nor tiger display the phrenological organ of Destructiveness in a pre-eminent degree, compared with the skulls of many other carnivora. When we look at the heads of the large felinæ, we are struck by the breadth of the head behind the ears, and by the prominence of the zygomatic arch, which imparts a more striking air of ferocity to the physiognomy of an animal than mere width of the skull; but on stripping the thick integument from the head, and cutting through the enormously convex zygoma, we find a thick mass of muscle filling the cavity between the malar and temporal bones and internal face of the zygoma, to which the breadth of the head is in a great measure owing. The SKULL of neither the tiger nor lion displays such remarkable breadth in the region of Destructiveness, as do the skulls of many other carnivora; and, paradoxical as the statement may appear, I think this is in precise harmony with their actual disposition, and that they do not exhibit any thing like the same real ferocity as some of the smaller digitigrada, in which Combativeness and Destructiveness, especially the latter, are more strongly indicated, both in the skull and character.

These organs are especially given to overcome resistance, and to destroy, by their deadly energy, any opposition which the possessor, whether biped or quadruped, may experience; but it is obvious that very few animals (perhaps only one, which the lion and tiger never attack,) are capable of offering much, far less effectual, resistance to animals so powerfully endowed with offensive weapons, and the concomitant muscular strength to use them, as these two tyrants of the forest. The unlimited power of destroying which such an endowment confers, is well calculated to make the animal rather prodigal in

the use of such means. The same has been seen in men who gave no promise of the ferocious cruelty they subsequently displayed, till in the possession of despotic power. Tiberius, Commodus, and Maximin, are cases in point. Again, the Spaniards and Dutch were guilty of monstrous barbarity to the autochthones of their South American colonies, merely because they possessed irresponsible power; though, had they remained subject to the restraints of civilization, such detestable characteristics would have been manifested in a very inferior degree.

We see in nature means exactly proportioned to ends, the former not exceeding the latter, but being merely sufficient; therefore, a FULL possession only of the impulse to attack and destroy, being all that was requisite for the existence of carnivora so powerfully endowed, we find such a development only of the phrenological organ in the skulls of the larger cats. Had it been otherwise, they would have been more dreadful than they are; and, instead of being the agents of repression of the fecundity of the Pachydermata and Ruminantia, they would have been the exterminators of those orders. It should also be remembered, that these fearful qualities, so modified in man by moral and intellectual counteractions, have no such antagonists in the carnivora.

Much has been said of the ferocity of the tiger and lion, and much is now being said by popular lecturers of the enormous destructive energy of the microscopic inhabitants of infusions; but difference of size makes it fearful to us in the first instance, and almost ridiculous in the latter, just as a Micromegas would be disposed to consider the fiercest conflicts of man and animals in our globe altogether contemptible.

It may safely be averred, that neither the tiger nor the lion ever displays extraordinary courage; they both prefer man for prey, when experience has shown them how physically weak and incapable of resistance he is; while the timid antelope, clumsy ox, and terror-stricken horse, are ill calculated to resist their means of offence, or call forth any necessity for courage on the part of the powerful assailants. When driven to bay they do indeed show much ferocity; but can this be called courage? It is the mere effect of despair, which equally impels the stag to turn upon his pursuers, and to perish with his

enemies. Although Destructiveness is decidedly the largest organ in the skulls of the larger cats, and will consequently decide the cast of character, I contend it is not so very largely developed as to communicate an insatiate propensity to destroy, without reference to food or safety. The tiger is perhaps the most ferocious of the large cats, but it is also the least sagacious, and natural sagacity or educability is a great modifier of these more dangerous propensities; but I could adduce many anecdotes to prove that the lion rarely displays gratuitous cruelty, and that what has been said of the tiger is much exaggerated. In the ZOOLOGICAL JOURNAL, vol. i., pp. 542-554 (Pl. xxi), there is a full description by Dr. Horsfield of the *Felis Macroscelis*, the disposition of which is described as being remarkably playful, and devoid of ferocity, though it is endowed with remarkably muscular limbs; "and in point of size," says the doctor, "our animal is superior to the panther, from which the leopard has not as yet been clearly discriminated; BUT, BY THE STRENGTH AND SIZE OF ITS EXTREMITIES, IT APPEARS MORE NEARLY ALLIED TO THE TIGER THAN WITH THE PANTHER OF THE OLD WORLD, OR THE JAGUAR OF AMERICA." And yet, as I said before, its habits, both in the wild and domestic state, are described as comparatively harmless; it is not feared by the inhabitants of Sumatra, badly armed as they are, as it preys only on large birds, and the small deer which constitute so curious a feature of the zoology of the East Indian Archipelago.

It is in the lower and smaller tribes of carnivora that we must look for the greatest ferocity; in these we find a corresponding development of the cerebral organs, and it is their office to check the fecundity of far more fertile tribes of animals than either Pachydermata or Ruminantia. Compare the skull of the tiger with that of the polecat, marten, weasel, or otter, and the square, full proportions of the skull behind the origin of the zygoma is much more striking in the latter; and if we consider the natural history of these smaller animals, we shall find them displaying far more ferocity than the lion, tiger, or jaguar. The cats require their Destructiveness to be aroused by a living prey; not so the wolf, hyæna, and dhole, which will worry an apparently dead quarry. Again, the dogs and musselidæ are generally remarkable for the tenacity with which they pursue their prey—which appears to me to be owing to

the energy of Destructiveness in these tribes ; whereas the cats, it is well known, desist after the first or second unsuccessful attempt : it is true, they are not so capable of prolonged motion as the other tribes ; but there must be cerebral endowment to correspond. The fierceness and courage of the weasel and ferret are very remarkable ; a rat, weighing four or five times as much as either, falls a certain prey, yet it will inflict severe wounds on its assailant, and for a time the superiority will appear on its side—but by degrees the indomitable ferocity of the weasel or ferret prevails over the weaker impulses of its prey, which resigns itself the victim of a stronger will, overcome, and, as it were, fascinated. The weasel is well known to attack and destroy the hare and rabbit, but the disproportion of size is greater than between the elephant and lion, which latter never voluntarily attacks the former, though it may be compelled to do so in self-defence. The weasel has been known to show a threatening front to man himself, otherwise than in defence of its young, which will give temporary courage to the most timid animals.

The same is predicable of birds of prey : the larger of these, especially the vultures, condors, etc., do not possess the same degree of courage and ferocity as their smaller congeners ; the harpy eagle may possibly be an exception, but, being a rare bird, its ferocity may be exaggerated. The want of courage in the kite corresponds with its comparative narrowness of skull, and contrasts strikingly with the broad, flat head of the smallest of our indigenous falcons, the merlin ; the skull of the golden eagle is proportionally less wide than those of the sparrow-hawk, merlin, and the American *Falco sparverius*.

Again, there is an obvious difference in the manifestations of Destructiveness and Combativeness in animals. It is common enough with the smaller of the digitigrade carnivora to destroy apparently for the sake of destruction ; but the hawks, in which Combativeness is much more developed than Destructiveness or Secretiveness, never, I believe, kill more than a single victim at each meal, and that merely for the gratification of hunger.

All the cats, it is true, show Secretiveness ; but it is more indispensably necessary to them than to any other tribe of animals, their general great size rendering them otherwise easily

discoverable by their intended victims, and their incapacity for prolonged velocity of movement leaves no alternative between securing their prey by a spring, or dying by starvation. The lion and tiger, having once secured a sufficient meal, devour it quietly, and sleep till hunger demands a fresh supply; but the wolf, fox, otter, weasel, mephitis, viverra, ichneumon, etc., so far as their habits are known, all display an appetite for bloodshed, independently of any necessity for the gratification of hunger; and in their skulls, as no one can deny who has inspected them, that part of the brain assigned by phrenologists as the seat of Destructiveness and Secretiveness is more developed than in any other animals whatever.

It is rather remarkable that these same organs are more conspicuously evident in the smaller than in the larger cats (compare, for example, the skull of the wild cat (*FELIS CATUS*) with that of the tiger), as if an increase of cunning were necessary to supply the decrease of muscular strength; just as, in men, artfulness is rather an evidence of weakness than of power.

It is, I repeat, on account of the large size of the members of the genus *Felis*, that their ferocity has been magnified; but, personal considerations out of the question, I think any unprejudiced naturalist will admit, that these animals are greatly excelled in their more dreaded qualities by creatures whose much smaller size renders them incapable of inflicting serious personal injury on a human enemy.

In conclusion, I will select three animals, in one of which Combativeness is much superior to Destructiveness; in the second, Destructiveness is superior to Combativeness; and in the third, they co-exist pretty equally—and thus contrast their characters.

1. In some varieties of the spaniel, as the Suffolk water dog, I have seen combative courage present in the very highest degree, accompanied by remarkable width of the head, between, and rather behind the ears. This animal possesses great sagacity, has been accustomed to obey man, and consequently is easily governed by its master, soon contracts friendship for those who treat it kindly, and is neither sullen nor cruel, but of an open, social disposition; but in combats with other dogs, especially when unexpectedly and unjustly provoked, it displays the most desperate courage.

2. In the wolf, Destructiveness predominates over Combativeness, and the character is unamiable and treacherous accordingly; it displays no sociality, and will devour the wounded or sick of its own species. When it has gained access to a number of defenceless victims, it will destroy more than are requisite to satisfy hunger, but will rapidly retire when any thing calculated to excite suspicion occurs. If caught in a trap, it will allow itself to be taken out and hamstrung; for it is cowed by its position, and does not possess a predominant Combativeness; but when its life is threatened by dogs, its Destructiveness imparts energy and ferocity to its character, and it defends itself with the most desperate determination.

3. The bull-dog and blood-hound possess Combativeness and Destructiveness in nearly equally large proportions; neither displays a high degree of educability, unless the use which the latter can be induced to make of its nasal acuteness be considered such. Their dispositions are sullen and unsocial. They will attack animals much larger than themselves with reckless ferocity, and, not content with overcoming, will invariably destroy, if able. It is not easy to frighten them by a mere show of resistance; and they take a pleasure in conflict, which can only be accounted for by the presence of a powerful instinct.\*

1 OXFORD VILLAS, CHELTENHAM, NOV. 12, 1845.

\* This able paper is intended by Mr. Prentice merely as an ARGUMENTUM AD HOMINEM; for, as has been repeatedly urged, no exact conclusions can be drawn from the comparison of heads of animals of different species.—ED.

## CHARACTER OF MRS. HUMPHREY.

BY JAMES STRATTON.

THE subject of this notice belonged to a class of characters with whom almost every phrenologist is familiar, and of whom were he called on to declare his convictions openly before certain facts appeared, he would feel not a little embarrassed. For some twenty, thirty, or forty years, as the case may be, a fair exterior has been maintained, and even a respectable character in some particulars acquired; yet a glance at the development impresses a strong conviction that if a single circumstance occurs calculated to bring out a certain feature in bold relief, the whole aspect may be changed, and a fair character of forty years gives place in an hour to that of the polluted outcast, shunned by all.

The difficulty of dealing honestly with such a case is considerably increased, when, as in the present instance, the subject is a female—because, the peculiarities of female development and circumstances, lessen the chances of unamiable features of mental character being exhibited in a strong light. A striking feature of the present case is, that the female character is maintained throughout, even in the darkest deed, and the dying moments.

In recording her case, my object is twofold; first, to add an item to the mass of evidence already accumulated; and secondly, to exemplify the mode of estimating development mathematically.

A good cast of the skull, in the museum of the Aberdeen Phrenological Society, exhibits the following dimensions:

Breadth,	{ 5 to 5, 7 to 7, 8 to 8, 9 to 9, 5.1 + 5.7 + 5.1 + 4.3 = 20.3 ÷ 4 = 5.1, average.
Height,	{ 1 to 3, 22 to 13, 6 to 16, 2.6 + 2.2 + 4.2 = 9 ÷ 3 = 3, average.
Length,	3 to 30 = 6.8.

$5.1 \times 3 \times 6.8 = 104.04$  cubic inches, the absolute size of the



skull and enclosed brain, by the mode of measurement specified in my *MATHEMATICS OF PHRENOLOGY*.

The measurements of the regions separately are :

Anterior,  $2.2 \times 3.1 \times \frac{4.3}{3} = 9.548$ , say 10 cubic inches.

Coronal,  $4.2 \times 4.6 \times \frac{4.3}{3} = 27.048$ , " 27 " "

Lateral,  $3.3 \times 4.8 \times \frac{5.1}{3} = 26.928$ , " 27 " "

Posterior,  $4.5 \times 4.5 \times \frac{4.4}{3} = 30.375$ , " 30 " "

Add  $\frac{1}{10}$  not included in the above, 9.2

103.399 = proof 105.

The above dimensions being obtained, it is the simplest possible process to infer the size of the model, or equally balanced cranium, in which each of the regions would find its appropriate place, viz.: Divide the anterior by 1, the lateral by 2, the coronal and posterior each by 3, and a 0 to each of the quotients, when they represent the numbers required. Thus :

Anterior,  $10 \div 1 = 10 + 0 = 100$  cubic inches, size of model.

Coronal,  $27 \div 3 = 9 + 0 = 90$  " " "

Lateral,  $27 \div 2 = 13 + 0 = 130$  " " "

Posterior,  $30 \div 3 = 10 + 0 = 100$  " " "

The average size of the organs composing each region is, by the proposed scale, indicated by the size of the model to which it corresponds, and is simply a 0 annexed to our ordinary scale. The 0 may either be inserted or not, as may be thought most simple or convenient; but the size of organ meant, is, that it is equal to that in a model of the cubic inches represented when the 0 is annexed. In our present case, we have

Anterior, 100, size of model, and average of organs, or "10 moderate."

Coronal, 90, " " " { "9 rather small,  
or moderate."

Lateral, 130, " " " { "13 rather full,  
or full."

Posterior, 100, " " " "10 moderate."

Up to this point of our progress, the cerebral peculiarities are determined mathematically, and with almost fractional accuracy—with what, in practice, amounts to the same thing

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in many respects as entire accuracy; because the minute deviations from absolute truth which may be involved, and which are unavoidable in the present state of our knowledge, will be the same, and, of course, the result will be the same to all observers, however widely separated their field of observation may have ever been. It follows, that uniform and definite terms of size can be adopted and used with facility; the same terms conveying the same meaning to all parties on all occasions. Moreover, the terms of size being definite and positive, or absolute, the RELATIVE size or proportions are obvious on a glance at the figures.

It remains for the eye to determine what organs in each region are above, and what below, and how much (that is, how many sizes) either above or below, the equal balance, guided by the average above determined.

The eye being thus limited in its range to one region at a time, and a defined average size, it is presumed that difference of opinion to the extent of one size, in estimating the individual organs, will rarely occur, especially when, as in the present instance, there is no reason to suspect that the depth of the convolutions in any part of the head deviates from the normal proportions.

I shall here use the ordinary terms of the scale, but in the sense already explained, namely, that the expressions, "9 rather small, or moderate," "10 moderate," "12 rather full," mean, that the organs to which they are adhibited, are considered equal in size to the same organs in a model head of 90, 100, 120, etc., cubic inches.

Mrs. Humphrey's development may now be stated thus:

ANTERIOR REGION, "10 moderate."

ORGANS THE AVERAGE SIZE OF THE REGION.—Size, Weight, Number, Order, Eventuality, Time, Comparison, all "10 moderate."

ORGANS ONE SIZE ABOVE AVERAGE.—Individuality, Form, Locality, and Causality, all "11 moderate, or rather full."

ORGANS TWO OR MORE SIZES ABOVE THE AVERAGE.—None.

ORGANS ONE SIZE BELOW THE AVERAGE.—Wit, Color, Tune, "9 rather small or moderate."

ORGANS TWO OR MORE SIZES BELOW AVERAGE.—None.

CORONAL REGION, "9 rather small, or moderate."

AVERAGE.—Benevolence, Conscientiousness, Wonder, Ideality, and Imitation, "9 rather small, or moderate."

ONE SIZE ABOVE AVERAGE.—Firmness, "10 moderate."

ONE SIZE BELOW AVERAGE.—Veneration and Hope, "8 rather small."

LATERAL REGION, "13 rather full, or full."

AVERAGE.—Constructiveness and Cautiousness, "13."

ABOVE.—Destructiveness and Secretiveness, "14."

BELOW.—Combativeness and Acquisitiveness, "12."

POSTERIOR REGION, "10 moderate."

AVERAGE.—Philoprogenitiveness, Concentrativeness, and Self-Esteem, "10."

ABOVE.—Love of Approbation, "11."

BELOW.—Amativeness and Adhesiveness, "9."

Arranged in the usual numerical order, the development stands thus:

No.	Size.	No.	Size.
1. Amativeness, . . . . .	9	19. Ideality, . . . . .	9
2. Philoprogenitiveness, . . . . .	10	20. Wit, . . . . .	9
3. Concentrativeness, . . . . .	10	21. Imitation, . . . . .	9
4. Adhesiveness, . . . . .	9	22. Individuality, . . . . .	11
5. Combativeness, . . . . .	12	23. Form, . . . . .	11
6. Destructiveness, . . . . .	14	24. Size, . . . . .	10
7. Secretiveness, . . . . .	14	25. Weight, . . . . .	10
8. Acquisitiveness, . . . . .	12	26. Coloring, . . . . .	9
9. Constructiveness, . . . . .	13	27. Locality, . . . . .	11
10. Self-Esteem, . . . . .	10	28. Number, . . . . .	10
11. Love of Approbation, . . . . .	11	29. Order, . . . . .	10
12. Cautiousness, . . . . .	13	30. Eventuality, . . . . .	10
13. Benevolence, . . . . .	9	31. Time, . . . . .	10
14. Veneration; . . . . .	8	32. Tune, . . . . .	9
15. Firmness, . . . . .	10	33. Language, . . . . .	...
16. Conscientiousness, . . . . .	9	34. Comparison, . . . . .	10
17. Hope, . . . . .	8	35. Causality, . . . . .	11
18. Wonder, . . . . .	9		

Thus far we have been contemplating the development, the mental power and peculiarities, as indicated by the skull; but in order to aid comparison, and facilitate a just appreciation of the character, we shall now substitute the head, with its cor-

responding peculiarities, as it must have appeared in life. This change implies an addition of 26 cubic inches to the size of the skull, and a proportionate increase (that is, two and a half sizes by our scale) to the separate regions and organs. This change gives us—skull  $104 + 26 = 130$  cubic inches size of head, being the exact average size of the Scotch adult female head.

The regions will stand as follows, avoiding fractions:

Anterior,	12 inches,	120 model.	Average of organs, "12."
Coronal,	33 "	110 "	" " "11."
Lateral,	32 "	160 "	" " "16."
Posterior,	39 "	130 "	" " "13."

And the organs will be—

No.	Size.	No.	Size.
1. Amativeness, . . . . .	12	19. Ideality, . . . . .	11
2. Philoprogenitiveness, . . . . .	13	20. Wit, . . . . .	11
3. Concentrativeness, . . . . .	13	21. Imitation, . . . . .	11
4. Adhesiveness, . . . . .	12	22. Individuality, . . . . .	13
5. Combativeness, . . . . .	15	23. Form, . . . . .	13
6. Destructiveness, . . . . .	17	24. Size, . . . . .	12
7. Secretiveness, . . . . .	17	25. Weight, . . . . .	12
8. Acquisitiveness, . . . . .	15	26. Coloring, . . . . .	11
9. Constructiveness, . . . . .	16	27. Locality, . . . . .	13
10. Self-Esteem, . . . . .	13	28. Number, . . . . .	12
11. Love of Approbation, . . . . .	14	29. Order, . . . . .	12
12. Cautiousness, . . . . .	16	30. Eventuality, . . . . .	12
13. Benevolence, . . . . .	11	31. Time, . . . . .	12
14. Veneration, . . . . .	10	32. Tune, . . . . .	11
15. Firmness, . . . . .	12	33. Language, . . . . .	...
16. Conscientiousness, . . . . .	11	34. Comparison, . . . . .	12
17. Hope, . . . . .	10	35. Causality, . . . . .	15
18. Wonder, . . . . .	11		

Temperament active, constitution robust. Age at death, about 40 years.

Here we have a head of the average size, a mind of the average power of the Scotch adult female; with all the additional energy which an active temperament, a stout, healthy frame, and preponderating lateral region, are calculated to impart. The intellect is average as a whole, and the leading faculties of perception and reflection rather above average. Mrs. Humphrey was one of a family whose education was en-

tirely neglected ; it therefore is probable she could neither read nor write, so that her intellectual capabilities were confined to her natural shrewdness and sagacity. Her moral faculties are below the others, but not small, while Love of Approbation, Cautiousness, and Secretiveness, would give powerful aid in manifesting the virtues fashionable at the time in her class of society. It is, in short, a mind calculated to lead among the lower and rougher of the female ranks, and only unequal to the sterner tasks which some of the other sex perform.

From the evidence given on her trial, the statements of acquaintances, and other sources, I have learned that Mrs. Humphrey was active and bustling, fine skinned and healthy, stout, cleanly, tidy, and fond of dress ; smiling, affable, bland, and courteous to those present ; fond of gossip, tattle, railing, and detraction to those absent ; easily ruffled when crossed, and violent when roused. She could, nevertheless, restrain ebullitions of rage, and stifle, but not extinguish, resentment : she thus passed the greater part of her life with the character of a prudent, cautious, managing woman, in the multifarious duties which she undertook and discharged.

Her husband was a butcher, and kept a tavern. Mrs. H. sold the meat in a booth on the market-days, and managed the tavern when not required in the booth. In this she acquitted herself as a civil, obliging, and discreet hostess.

Her husband became an habitual drunkard. This was the frequent cause of quarreling and high words. One night, after being unusually outrageous and abusive, he went to bed, and fell asleep, as was his custom, with his mouth wide open. Mrs. Humphrey took some vitriol in a glass, went on her stocking soles, and poured it down his throat. He died on the second day after. Mrs. Humphrey was tried and convicted. She fainted while sentence of death was being pronounced, but passed through the subsequent steps of her existence with apparent calmness. She made a full confession of her crime. Her honesty, as regards property, was never called in question, even by public report, so far as I have been able to ascertain. On the scaffold she appeared resigned, took leave of the clergyman and others, dropt the signal, and never raised her eyes, or cast a single glance on the assembled multitude.

## MATHEMATICS OF PHRENOLOGY.

(No. 2.)

BY JAMES STRATTON.

GRATIFIED to find the conviction very unanimous, that our present mode of estimating size in phrenological observation is so imperfect as to warrant any change, however little, provided it be for the better ; and supported by some of the most eminent phrenologists, in the opinion that we are prepared to advance some steps in this department, I gladly avail myself of permission to submit a few statements, which are chiefly intended to elucidate more fully some of the points treated of in my first article on the MATHEMATICS OF PHRENOLOGY, and to which my wish to economize your space will induce me to make frequent reference for additional information.

The anxious desire which exists to effect improvement in our mode of observation, is, indeed, little to be wondered at, seeing that the instant we can substitute FACT for OPINION (well founded though it be), accurate measurement for empirical estimate, recognized standard value for variable, indefinite, individual judgment, we rank Phrenology among the "exact sciences," in the strictest sense of the term ; we invest our science with precise and uniform ideas of size ; we extend our field of accurate comparison over every accessible portion of the human race ; we secure the co-operation of many powerful minds who can admire no evidence short of mathematical demonstration, in cases where that may reasonably be required ; and we enable the intelligent, honest, scientific phrenologist, to take his proper place, apart from the ignorant, impudent, money-hunting quack, who can then, and then only, be tried by a standard which will secure his conviction, and before that tribunal from which there can be no appeal.

ABSOLUTE SIZE OF THE HEAD. This is necessarily the basis of all the subsequent steps in estimating development ; hence, it is of the utmost importance to be accurately determined ;

nevertheless, in prosecuting my investigations in the mathematics of Phrenology, nothing surprised me more than the fallacious nature of our ordinary modes of measurement for effecting this purpose. It soon appeared to me that it is far better to leave the eye alone to judge of the absolute size of individual heads, because, in so doing, the chances of error are considerably lessened; or, at any rate, the eye is not misled by trusting to a false guide. The few examples taken at random, and quoted in the following table, will make this point plain to such as may not have previously happened to notice it. The first column contains the sums of six measurements taken by a tape-line, as follows: 1. Greatest circumference of the head; 2. From the occipital spine over the top to the transverse suture; 3. From the occipital spine over Cautiousness and Caution to the transverse suture; 4. From ear to ear over Self-Esteem; 5. From ear to ear over Veneration; 6. From ear to ear over Comparison. The above series is, perhaps, as good for our present purpose as any other that could be taken by the same means. We shall judge of their accuracy presently.

The second column contains the sums of six measurements by callipers, as follows: 1. From Secretiveness to Secretiveness; 2. From Constructiveness to Constructiveness; 3. From Concentrativeness to Eventuality; 4. From ear to Concentrativeness; 5. From ear to Firmness; 6. From ear to Eventuality. This series is all taken from and to central points, and is, consequently, equal to any that can be taken and used in the same way.

The third column shows the absolute size in cubic inches, as determined by displacing water.

No. 1.	97	38	174	No. 8.	93	35	135
2.	98	37	165	9.	93	36	150
3.	98	38	180	10.	91	34	148
4.	95	38	180	11.	87	35	138
5.	91	35	155	12.	92	34	145
6.	85	32	117	13.	88	34	130
7.	89	34	135	14.	86	33	130

By comparing the above columns, without referring to the specimens measured, or aiding the memory and judgment by looking at the names, the fallacious nature of such measurements taken to ascertain absolute size will be obvious; they



are not simply useless, they are positively pernicious, because they mislead when trusted in.\* It can hardly be otherwise than that innumerable errors should be fallen into by those trusting to such measurements; for the fact cannot be got over, that an accurate estimate of the absolute size of the head is the basis of all subsequent steps in the taking of development.

It was after exhausting errors in attempting to obtain accuracy, first, by modifications of the ordinary methods, and second, by spherical measure, that I turned to the system followed in measuring certain classes of irregular cubes. In studying the various shapes which the human head assumes, I was led to the conclusion that, in the vast majority of cases, the form is so much more cubical than spherical, that it may be described as AN IRREGULAR CUBE WITH THE ANGLES ROUNDED OFF. This statement is, I believe, at variance with ordinary received opinions; but I must, nevertheless, submit it as a fact, and one of great importance in our present investigations.

On this system of measurement, I first tried the method of equidistant ordinates, but found that so tedious, and every means I could think of so complicated, as to be all but impracticable in measuring the head as a whole, and useless in measuring the separate regions, in which to be guided by anatomical points and lines, has been regarded by me as a first essential. My attention was then directed to accomplish the ends in view by the smallest possible number of measurements, and with the simplest possible instrument. When I found that the AVERAGE LENGTH was obtained by one measurement, I had hopes that the average breadth might be obtained by less than four, and the HEIGHT by less than three, measurements. With this view I made a great number of trials, but without success. I have found many cases where the breadth was obtained by three, frequently even by the average of two measurements; but other cases occur, in which three measurements are not sufficient to obtain the cubic results within the limits which I have assigned to admissible error, namely, five inches, or half a size, on the whole head. By the formula adopted, I have

\* The specimens measured are the casts of the following heads and skulls in the order of the table—Gall, Rev. Mr. M., Cordonnier, Linn, Eustache, C. Fisher, M'Innes, Greenacre, Hare, Burke, Martin, Burns, Swift, Wurmsier.

rarely seen this limit touched, and never passed, in any case which I could subject to proof. Moreover, it will be observed, that the measured size is, when not the same, always *BELOW*, never above, the proof dimensions; so that, in practice, by making a slight addition for any prominent single organs that are distant from the points of measurement, the absolute size is obtained within two inches on every shape of head short of monstrosity. This degree of accuracy is obtainable by eight calliper measurements; and six of these are again available in estimating the regions.

By the order of nature, it so happens that a large proportion of the heads in the same locality present a great similarity of form. It is legitimate to avail ourselves of this arrangement, for the purpose of abridging labor. A table of the average proportions for every size, may be prepared for every type of head. That being done, a single measurement (3 to 30, the average length) will lead to the line of the table in which the breadth, height, and cubic measure, of the corresponding type, will be found at sight.

The following is a specimen of a table which exhibits the size and corresponding proportions of the form of head most common in this country.

Its use may be exemplified thus: Suppose the average length (3 to 30) of the head to be measured is found to be 7·4. Following this number, on the same line will be found 5·5, the breadth; 3·4, the height; and 138 cubic inches, the absolute size of the head. If the head to be measured appears to be broader or narrower, higher or lower, than ordinary, it is then necessary that all the measurements be taken, and the dimensions found, either by multiplying the terms, or taking the average of the corresponding cubic measures.

## EXAMPLE.

Length,	7·4	Cubic measure,	138
Breadth,	5·6	"	149
Height,	3·3	"	126
			<hr/>
			3)413
			<hr/>

138 nearly.

By multiplication 137 nearly.

Such tables have other uses than that just stated—first, they

indicate to beginners the general laws of proportions; and, second, they serve to check calculations, in cases where proof cannot conveniently be obtained. But I beg, once for all, to say, that ease should never be thought of at the expense of accuracy. The vast and important problems connected with our science, which wait to be solved, will call for a degree of accuracy such as mere cursory observers will never approach.

AVERAGE.			Cubic Measure.	AVERAGE.			Cubic Measure.
Length.	Breadth.	Height.		Length.	Breadth.	Height.	
5.6	4.1	2.6	60	7.3	5.4	3.4	134
5.7	4.1	2.6	61	7.4	5.5	3.4	138
5.8	4.2	2.7	66	7.5	5.5	3.5	145
5.9	4.3	2.7	68	7.6	5.6	3.5	149
6.	4.4	2.8	74	7.7	5.7	3.6	158
6.1	4.5	2.8	77	7.8	5.8	3.6	163
6.3	4.6	2.9	84	7.9	5.8	3.6	165
6.4	4.7	3.	90	8.	5.9	3.7	175
6.5	4.8	3.1	97	8.1	5.9	3.7	177
6.7	4.9	3.1	102	8.2	6.	3.8	187
6.8	5.	3.2	109	8.3	6.1	3.8	192
6.9	5.1	3.2	113	8.4	6.2	3.9	203
7.	5.2	3.3	120	8.5	6.3	4.	214
7.1	5.3	3.3	124				

It may here be added, that, after measuring a few dozens of specimens by the method referred to, individuals possessing full average powers of observation, will rarely find it necessary, in ordinary cases, and where great accuracy is not required, to have recourse to actual measurement (though after some practice the whole can be easily done in from three to five minutes); the human head is an object which the eye can easily grasp—if I may so speak—and will, at a glance, in ordinary cases, form a very accurate estimate of the absolute size of. This statement may be doubted by parties not accustomed to estimate cubic measure; be it so. But all my experience warrants the affirmation, that if the head to be measured does not differ much from the ordinary shape which the observer has practiced measuring, he will find that, as a general rule, it is not difficult to say at sight what is the cubic measure within five inches of the truth. Such being the case, then, it is obviously better, even on the score of mere saving of labor, to practice measuring absolute size in preference to any other

mode ; which, though it may appear at first sight more simple, yet will not, after any extent of practice, enable the observer to estimate size with the same degree of accuracy.

The best rule for practice is to measure every head carefully, until the eye acquires precision, and the observer confidence ; after which, measure ordinary heads occasionally, to make sure that the eye retains its accuracy, and uniformly measure every head in any way remarkable for shape or size, when doubts are felt, or great accuracy required.

The proportional quantity of brain, which corresponds to different sizes of head, is somewhat variable, and requires to be noticed. Rules for estimating the brain, bone, and other coverings separately, have already been given. A few examples will here suffice to make the whole obvious :

Size of Head,	70 cub. in.	Brain,	40.	Coverings,	30 cub. in.
"	93 "	"	60.	"	33 "
"	122 "	"	80.	"	42 "
"	146 "	"	100.	"	46 "
"	160 "	"	110.	"	50 "
"	172 "	"	120.	"	52 "
"	190 "	"	135.	"	55 "
"	210 "	"	150.	"	60 "

Above, it will be seen, that the size of the brain increases more rapidly than the coverings, in proportion to the whole head. The first line multiplied by two would give size of head 140 cubic inches, brain 80, and coverings 60 cubic inches ; and multiplied by three, it would give head 210, brain 120, and coverings 90 inches ; while the above table, deduced from actual measurement and calculations, shows that a head of 146 inches incloses 100 inches of brain, and has only 46 inches of coverings ; and that a head of 210 inches incloses 150 cubic inches of brain, and has only 60 cubic inches of coverings.

It follows, as a matter of course, that if we assume 10 cubic inches to present a gradation in size (and it is the most convenient size perhaps that can be taken), a head of 140 cubic inches is not only equal to twice 70 in native power, but two sizes more, that is, equal to 160, as compared with smaller heads ; and that a head of 210 inches is equal to three times that of 70, and three sizes more. In practice it will be very near the truth to take 45 cubic inches as the size of the cover-

ings of medium heads; and it is only in very large and very small cases of adult heads, that it is necessary to substitute a different proportion in estimating development or mental power. I have throughout assumed, and necessarily so, that the coverings are constant as regards thickness. I believe that, as a general rule, they are sufficiently uniform for our purpose; but I have long suspected, that individuals in whom the lymphatic temperament preponderates greatly have thicker bone and integuments than those in whom the nervous preponderates.

The AVERAGE, MEAN, or medium size of head which prevails among different tribes and nations, is a point of great consequence to be known; but it is difficult, or at any rate laborious, to secure accuracy, as we shall see presently; but let us first distinctly understand what is the precise nature of the average or mean, which it is important to know. There are, strictly speaking, two average or mean sizes connected with our inquiry. First, the mean between the two extremes of size. Is this the important point to be determined? We shall discover whether it is so or not by reflecting on the points to be elucidated in this department. Let us see—

As size is, *CÆTERIS PARIBUS*, a measure of power, we conclude that among nations, as among individuals, force of character is determined by the average size of head; and that the larger-headed nations manifest their superior power, by subjecting and ruling their smaller-headed brethren—as the British in Asia, for example. Now, shall we discover the key to the superior power of the British character, by finding the mean point between the extreme sizes of head? Assuredly not; for we possess tolerably conclusive evidence, that as large heads may be found in Hindostan as in Britain, and as small heads in the latter as in any part of Asia; such being the case, it follows that the mean between the two extremes of size is the same in both countries; it therefore affords no key to national character.

But there is, as we have said, a second average or mean connected with our inquiry, which we will find more important to know, and which we may illustrate thus: Suppose that 1000 heads of any tribe or nation are measured accurately, the sums added together, and the result divided by 1000, the quotient

obtained would represent a head different, it might be, from any of the 1000; but if so, it is one which would represent the true size of the national head more accurately than any one of the 1000. Or suppose, again, that 10,000 or 100,000 heads were measured in the same way, the quotient then obtained might be slightly different from the former, considerably different from any one of the heads measured; but in so far as it differed from all the others measured, so much more nearly would it be a true representative of the national head to which it belongs. Let us, then, for the sake of simplicity, call the head thus represented the AVERAGE head, and the medium between the two extremes the MEAN head.

From the evidence which I have seen, I am led to suspect that the extremes of size (and of course the means also) are the same, or nearly so, in all countries. Be this as it may, the evidence is conclusive that the AVERAGE size of head differs to a very great extent in the different races, nations, and tribes, of which the human race is composed. Such being the case, it follows, that when we have discovered the average size of head of any tribe or nation, we are so far prepared to estimate its national power of mind and force of character. The following extract from the Mathematics of Phrenology, p. 187, will illustrate our position:

Average size of Caucasian head,	. . . . .	137 cubic inches.
" Mongolian,	. . . . .	127 "
" Malaynn,	. . . . .	126 "
" Ethiopian,	. . . . .	123 "
" American Aborigines,	. . . . .	122 "
" Asiatic,	. . . . .	119 "

The sizes are given as an approximation to the truth. From the small numbers of specimens of most of the races which have been measured, we are quite unable to be sure of accuracy; this, indeed, cannot be looked for until extensive series of measurements have been produced from each race on its native soil.

## MATHEMATICS OF PHRENOLOGY.

(No. 3.)

BY JAMES STRATTON.

In the preceding article, I offered a few particulars intended to elucidate more fully some of the points treated of in my *Mathematics of Phrenology* (p. 167.) In that article I confined myself chiefly to the measurement of the head as a whole, and the nature of average sizes. With the same views I now submit some additional particulars relating to the subsequent steps in the practice of observation.

MEASUREMENT OF PARTS.—In measuring the head in separate portions or regions, the structure of the brain must be kept constantly in view, and care must be taken, first, not to include any part in one region which functionally belongs to another; and, secondly, that the whole mass of the brain be included as nearly as possible in the first instance, in the sum of the parts; so that the same proof which certifies the absolute size of the head, may also certify that of its parts.

It is known that the brain is a fibrous structure, and that the medulla oblongata (M, fig. 1) is a common centre from which the fibres radiate to all parts of the convoluted surface. The fibres from the centre to the surface of the brain are supposed to be part and parcel of the cerebral organs. If they are so, each organ, or region composed of a bundle of organs, may be popularly described as originating in a point near M, fig. 1, and spreading outwards as it passes to the surface of the brain. Each region will then be of a pyramidal or conical shape, the base being the convoluted surface shown in the figures, and the apex being at M, fig. 1, 2, 3.

The surface of each region, that is, the base or broad end of the conical mass, is bounded by an irregular or waving outline, corresponding to that of the bounding organs which compose the regions. It would be desirable to adhere to these boundaries in taking our measurements; but in the present



state of our knowledge this is impracticable, if not impossible in most cases. Moreover, it is desirable, nay, indispensable, that the parts measured have the shape of some regular geometrical figure, any part of which may be measured separately, if that shall be found necessary at any of the subsequent steps of our progress. Now the natural boundaries of each region being a wavering line, it of course presents no regular figure, either round, oval, square, oblong, or triangular. It being impracticable then to adhere to the natural boundaries of the regions, it is believed that a sufficient approximation to accuracy may be obtained if we measure the largest possible portion, or nearly so, in each region to which a regular outline of surface can be easily and certainly found by observing anatomical points and lines; provided that the part measured always bears a proportional relation of size to the entire region. This is the plan which I have adopted. The superficial space of each region will therefore be a parallelogram, more or less long, more or less broad, according to the measurements of each individual case, and always below the actual size of the phrenological group measured.

I have adopted this plan the more willingly, perhaps, that it presents some peculiar advantages. It dispenses entirely with the ordinary "mapping" of the head, and thereby, first, enables those who know nothing of Phrenology to execute the specified measurements as well as those who do; and, secondly, it enables the mere anatomist to examine, to verify, or refute, the great leading features of Gall's physiology of the brain, by systematic measurements of anatomically defined portions. There have not been wanting (if my memory serves me right) opponents who maintained that, apart from the "arbitrary mapping," Phrenology had no support, and that anatomical measurements would overturn the whole. The results of such measurements applied to a tolerably extensive variety of cases, are given in the first article on Mathematics of Phrenology; copies of all the casts there quoted may be seen, examined, measured, or purchased in every town in the kingdom, and I wish the gentlemen joy of such victory as they are justly entitled to claim. If my object in these researches had been to serve their cause only, I could have seen no alternative as yet but to acknowledge a very signal defeat.

The accompanying figures will make the proposed method of measuring the separate regions plain. Fig. 1 represents a lateral vertical section, fig. 2 a horizontal, and fig. 3 a transverse vertical section, of the head.

The ANTERIOR, or intellectual region, is

Bounded by 13, M, 22, fig. 1.

And 32, M, 32, fig. 2.

The parts not included are shown between 9 and 32 on each side, fig. 2.

CORONAL, or moral region, is

Bounded by 13, M, 15, fig. 1.

And 19, M, 19, fig. 3.

The parts not measured lie between 12 and 19, fig. 3, on each side.

LATERAL, or aggressive region, is

Bounded by 9, M, 2, fig. 2.

And 12, M, 6, fig. 3.

The parts not measured lie below the line, 6, M, 6, fig. 3.

POSTERIOR, or domestic region, is

Bounded by 15, M, 1, fig. 1.

And 2, M, 2, fig. 2.

The part not measured lies below the line, M, 1, fig. 1.

The measurements of the regions are described in the Mathematics of Phrenology, pp. 196-198. A cast of the head of Dr. Gall, measured in this way, gives, in cubic inches,

Ant. 20, cor. 54, lat. 34, post. 46, add one tenth=15, entire 169, proof 174.

Before we can render the measurements intelligible and useful for the purpose of determining the size of individual organs and elucidating character, it is necessary to determine what sizes constitute an equal, normal, or model balance of head; because it is only when we know this that we understand whether any particular measurement, when obtained, is large, small, moderate, full, or whatever else it may be; whether any head measured is well balanced or otherwise, and where the balance is in preponderance or deficiency. In short, we must be able to understand, when the size of any region is determined, in what size of an equally balanced head the region in question would find its appropriate place. In the first article on Mathematics of Phrenology it is shown that in an equally balanced

Fig. 1.

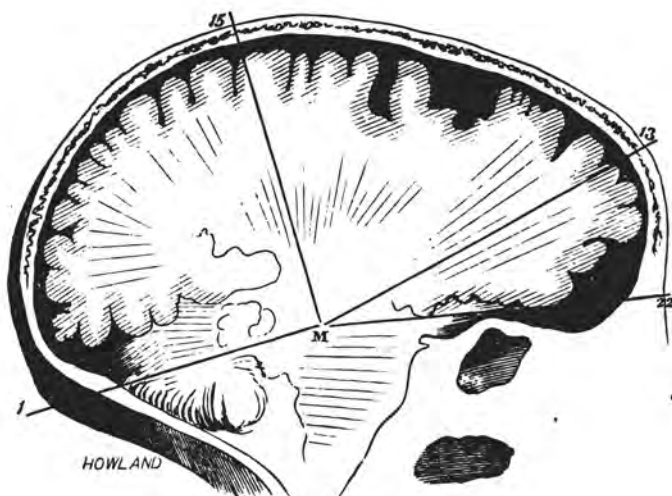


Fig. 2.

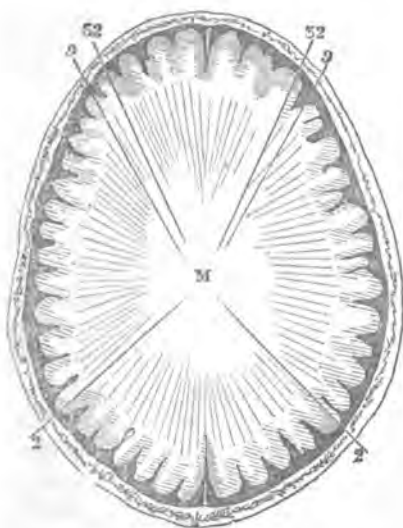
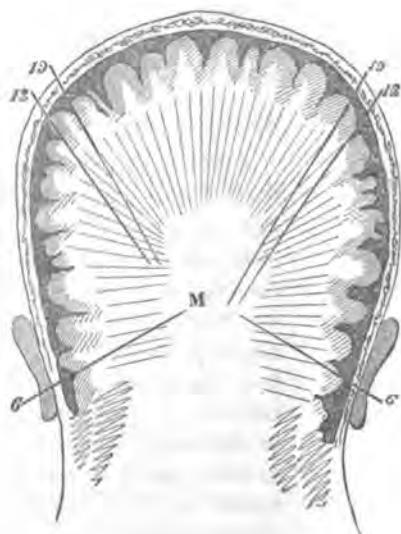


Fig. 3.



head (of any size, from the smallest to the largest), the regions measured in the manner specified are in the following proportion:

The Anterior region is one tenth part of the head.

" Coronal region is three tenths of the head.

" Lateral region is two tenths of the head.

" Posterior region is three tenths of the head.

Such being the case, it is a very easy matter when the measurements of the regions of any head are obtained, to discover what the balance of the head is. Thus: divide the cubic inches of the anterior region by 1, the lateral by 2, the coronal and posterior each by 3; annex a 0 to each of the quotients; they then represent the cubic inches of the corresponding model; or, in other words, multiply each quotient by 13, because it is a tenth part of the head required. Taking the previous example of Gall's head, we thus obtain:

Anter.  $20 \div 1 = 20$ , annex a 0 = 200 cubic inches size of cor. model.

Coron.  $54 \div 3 = 18$ , " = 180 " " "

Later.  $34 \div 2 = 17$ , " = 170 " " "

Poster.  $46 \div 3 = 15$ , " = 150 " " "

Absolute size of Dr. Gall's head, 174 cubic inches.

We thus complete the second step (the first is measuring the head as a whole, *Mathematics of Phrenology*, No. 2) in the process of estimating development, and now the individual peculiarities become apparent so far as the balance of the regions can exhibit them.

Up to this point the process is entirely mathematical, the sizes obtained are absolute or positive, and the figures (the number of cubic inches, imperial standard) can be understood in one sense only, by all parties, at all times, and in all places, however widely separated their fields of observation may have ever been. Up to this point, then, uniformity of estimate, definite language or terms of size, the use of one clearly defined and fixed value of scale, is secured in practice. And farther, the terms of our scale being positive or absolute, comparison, or relative size, becomes obvious on a glance at the figures; not only as regards the different sizes of heads, but the different regions of any one head may be compared with the others of the same head, and with those of any other head whatever which has been measured in the same way.

The scale proposed\* is a very simple modification of that in common use in this country. The terms 10, 20, 30, and so on up to 200, or higher, represent the cubic inches, or absolute size of the head, to which the mode of application cannot be misunderstood. But the application of the terms to express the size of the separate *regions* and individual *organs*, may require a brief explanation. There are two ways in which the sizes of parts may be expressed. First, by the inches and fractions which they really measure. This could easily be done—is done indeed in the first instance—with the regions, because we measure their size; but it is impracticable, if not impossible, to measure each individual organ.

We have just seen, however, that to know the number of inches in any part or region of the head, is chiefly useful for our purpose, by leading us to the equally balanced head to which the part corresponds. The force of this will be more fully perceived by looking again at the measurements of Dr. Gall's head. To see that the anterior region is 20 inches, the coronal 54, the posterior 36, and so on, as we have found, conveys little satisfactory meaning to the mind until the farther information is obtained, that 20 inches of an anterior region is that of an equally balanced head of 200 inches; and so with the others: all is then plain, because the positive information conveyed furnishes a standard of comparison which renders the whole intelligible. This leads us to the second mode by which the size of parts may be stated—that which we propose to adopt; namely, to designate the size of the regions and organs by that of the equally balanced heads to which they respectively correspond.

## \* PROPOSED SCALE.

C. inches.	C. inches
10.	120. Rather full.
20.	130. Rather full or full.
30. Idiocy	140. Full.
40. and	150. Full or rather full.
50. Infancy.	160. Rather large.
60. Small.	170. Rather large or large.
70. Small or rather small.	180. Large.
80. Rather small.	190. Large or very large.
90. Rather small or moderate.	200. Very large.
100. Moderate.	210. Very large or extra large.
110. Moderate or rather full.	220. Extra large.

Following this rule, we should say of the regions of Dr. Gall's head, that the

Anterior is 200, that is, "very large."  
 Coronal is 180, " "large."  
 Lateral is 170, " "rather large or large."  
 Posterior is 150, " "full or rather large."

Designating the individual organs of another head in the same way, we would say,

Amativeness 80, "rather small."  
 Adhesiveness 100, "moderate."  
 Self-Esteem 140, "full."  
 Benevolence 160, "rather large."

And so on with all the other organs.

For the sake of brevity, which is of some consequence in practice, the final 0 may either be inserted or omitted; it matters nothing which, provided it be distinctly understood and remembered, that 8, 9, 10, 14, 16, etc., means 80, 90, 100, 140, etc., in other words, that the parts, whether regions or organs, to which these numbers are attached, are understood to be of the same size, as the same parts must be in an equal balance or model head of the dimensions indicated by the attached numbers. For the same reason (brevity), I would advise to discontinue the use of the words, "small," "large," ect., and use the figures only in the sense just explained.

In availing myself of this opportunity—which, it is but justice to state, has been placed at my disposal in the most courteous manner—of giving my additional contributions, or rather illustrations, increased publicity, it was my intention to point out *one* method at least of rendering mathematical aid available in estimating the degree of preponderance, or deficiency, of the individual organs in each region. This intention I now think it better to drop for a time, and turn to another department of phrenological investigation. Some of the reasons for adopting this course may be briefly stated. The evidence I possess is conclusive to my mind, that it is but a very small minority of the phrenological public who as yet take any deep interest in this department of our science; by far the larger portion seem to look upon mine as a work of supererogation, or something very nearly approaching to it. I hope to show, in due time, that such is not the case, and that we are now pre-

pared to enter effectively into the investigation of some of the most important departments of Phrenology (*e. g.*, the mathematical demonstration of cerebral laws—so far as relates to the size of the head and balance of the regions) which could not have been effectively dealt with before—which never were attempted indeed, except in one or two instances, the records of which stand as rude though splendidly decorated memorials of how much ingenuity, time, and labor, may be wasted to little purpose, when efficient means are not employed in conducting the investigations. Another consideration is, that the course proposed will be attended with some important advantages. In prosecuting our inquiries, we may be led to detect errors, if any there be, in what has been already done; and many of the facts which it will be necessary to collect for immediate use, will be of great utility in enabling us to execute the remaining steps in estimating cerebral development, by means more sure, more scientific, and therefore more satisfactory to all parties.

Meantime I close, by briefly noticing a paper which has just appeared, purporting to do what I "have not done"—a paper upon which, after examining with some attention the first portion of it, I would not have felt myself justified in occupying a single page with any remarks of mine, had I not been requested by various parties to do so, and had not the article derived unmerited prominence from the respectable quarter in which it is permitted to appear. I allude to the article on Phrenology contained in the number of the *British Quarterly Review* for November 1, 1846.

After several pages of prefatory matter, the writer proceeds: "Thanking Mr. Stratton for what he has so well done for the cause of truth by his measurements, we address ourselves to the same task, and do what he has not done—bring Phrenology to the test of figures." If the reader will glance again at the paragraph beginning, "I have adopted this plan the more willingly," p. 399, I will leave him to estimate the lines quoted at any value he thinks proper. Let me guard against being mistaken, however. The writer has done something which I "have not done," and I hope I am incapable of ever attempting to do. We proceed to look at what he has done, and how he has done it.

"What then," he says, "is the size of an organ in the esti-



mate of a phrenologist's eye? It can only be its degree of prominence (or depression) as compared with the neighboring surface of the cranium, or its distance from some central point. Of the breadth of the organ it is impossible he can form any estimate except such as depends upon the breadth or size of the entire head. . . Will any phrenologist undertake to say that the organ of Benevolence occupies a greater relative portion of the surface of the cranium in one head than in another? that in one it encroaches upon Veneration, and in another Veneration encroaches upon it? We think not." Every phrenologist who has really studied nature thinks the very reverse is the fact; and if the writer will compare the head of Greenacre with that of the Rajah Rammohun Roy, and the head of Eustache with that of G. M. Gottfried—but above all, if he will take the trouble to learn how to mark the outlines of the organs on any cranium at sight (not a very difficult matter to do if he minutely study the indications of nature)—if he will so mark any dozen or more crania selected at random in any museum, or from any burial-ground, if he prefers it—he will never, in his life, repeat the sentences just quoted; at any rate, he will never do so under the conviction that he is stating the truth.

The reviewer then goes on, in some ten or twelve pages, "to bring Phrenology to the test of figures" in his own way; utterly oblivious, apparently, of nearly all that which he says I have "done so well for the cause of truth," and of how I did it. Neglecting the measurement of the regions altogether, he proceeds at once to determine the size of the separate organs by a new application of the well-known geometrical principle, that similar solids are to each other as the cubes of their homologous lines. After many months' experience, my opinion is, that the principle of homologous lines referred to may be applied for phrenological purposes, with the requisite degree of accuracy and great saving of time and labor; but, as in the case of every other application of scientific principles to scientific purposes, there are certain conditions essential to accuracy which can never be violated without vitiating, and thus rendering worthless, or something worse, every result so obtained.

One of the conditions essential to be observed in the appli-

cation of the principle of homologous lines to phrenological purposes, is, that the standard of comparison must be an equally balanced head of the same size and type as the head to be compared. Instead of attending to this condition, however, the writer takes as a suitable standard the cast of a skull which is not only very far from an equal balance, but very far from the type of some of the heads compared; besides which, the standard assumed is the representative of a head far beyond the age at which the human cranium ceases to be suitable for phrenological purposes. The STANDARD assumed is the head of an idiot, in short; for such Swift had the misfortune to become, several years before he died. What other conditions have been violated by the reviewer we need not stop to inquire. The neglect of the single one just specified would have been fatal to any series of results, however carefully in other respects they might have been obtained. His labors are like the first experiments of a school-boy with an electric-machine, or the initiatory attempts of a student at chemical manipulation, with whom successful experiments are rather more calculated than failures to excite surprise.

Thus far I can account for the errors committed by the reviewer, by simply supposing that he has paid but a very limited attention to the subject which he treats, and all the while giving him credit for being actuated by a sincere desire to reach the truth wherever that may lead him. But in what follows I am altogether unable to account for his errors on any principle which I could permit myself to name.

Glancing over the columns of his first table, many of the figures struck me as very different from what I would have expected from the peculiarities familiar to me of some of the cases quoted. This determined me to repeat some of the measurements. In the Museum belonging to the Aberdeen Phrenological Society, I found six copies of cases tabulated by the reviewer. Five of these, when proved in water, I found to be within an inch or two of the size stated by the reviewer, and, therefore, perfectly suitable for my purpose. After carefully marking the outlines of the organs on each cranium, I took the measurements, and a friend noted them as I read from the scale. They occupy the first or left hand column under each name in the following table. I then entered the corresponding meas-

urements of the reviewer in the second or right hand column. Thus placed, the figures tell their own story with sufficient plainness.

TABLE I.

		La Fontaine.		Burns.		Bruce.		Swift.		Stella.	
Occip. Spine to 22		7.5	7.54	7.6	7.68	7.9	7.8	7.5	7.97	6.7	7. 5
" " 34		7.7	7.45	7.6	7.49	7.6	7.4	7.5	7.76	6.9	7.61
Meatus to Meatus.		5.3	5.03	5.1	4.7	5.4	5.4	4.9	4.72	4.7	4.89
12 " 12		5.2	5.8	5.7	5.57	5.6	5.7	5.5	5.87	5.2	5.76
Meatus to Oc. Sp.		4.	3.82	4.1	3.94	4.2	4.57	4.1	4.4	3.5	3.97
" " 2		4.6	4.5	4.9	4.61	5.1	4.59	4.6	4.93	4.1	4.83
" " 3		5.	4.87	5.3	5.09	5.4	5.4	5.	5.24	4.5	5.05
5 " 5		4.5	4.06	5.2	4.9	5.4	4.8	5.1	5.87	5.	4.89
6 " 6		6.2	5.8	5.8	5.18	6.2	6.2	5.9	6.08	5.5	6.12
7 " 7		6.1	6.09	5.9	5.47	6.1	6.05	6.	5.87	5.6	5.98
8 " 8		5.3	5.41	5.6	5.28	5.2	5.25	5.5	5.76	5.1	5.46
Meatus " 4		5.8	5.12	6.	5.15	6.	6.	5.6	5.87	5.2	6.04
" " 10		5.4	5.25	5.5	5.18	5.6	5.6	5.3	5.37	5.	5.44
" " 15		5.8	5.61	5.6	5.28	5.7	5.65	5.4	5.56	5.	5.58
" " 14		5.7	5.55	5.7	5.28	5.7	5.4	5.1	5.35	4.7	5.33
" " 13		5.8	5.51	5.7	5.47	5.5	5.15	4.9	5.03	4.8	5.33
" " 34		5.4	5.27	5.5	5.09	5.4	5.1	4.8	5.03	4.6	5. 3
" " 30		5.4	5.13	5.2	4.8	5.2	4.9	4.7	4.82	4.4	4.93
" " 35		5.1	4.79	4.9	4.6	5.	4.7	4.	4.5	4.1	4.57
" " 22		5.3	4.98	4.9	4.7	5.1	4.83	4.6	4.72	4.2	4.73
" " 20		4.7	3.87	4.6	3.84	4.5	3.85	3.8	3.56	3.7	3.81
20 " 20		3.4	3.97	3.6	3.57	3.5	3.7	3.2	3.72	3.4	3.7
19 " 19		4.6	4.57	5.	4.8	4.4	4.65	4.8	4.93	4.7	5.11
28 " 28		4.4	4.42	4.2	3.93	4.	3.9	4.2	4.5	3.7	4.14
32 " 32		4.5	4.47	4.3	4.22	3.9	4.1	4.2	3.98	3.8	4.24

At this stage, my confidence in the reviewer's statements was so far shaken, that I would hardly have thought it worth the trouble to look into his second table; but my talented young friend, Mr. Arthur Beverly, had caught some glimpses of "how the land lay," and after going deliberately over the ground, furnished me with the following table. The first column under each name contains the measurements as given by the reviewer in his first table; the second column exhibited the corresponding homologous lines, as given by the reviewer in his second table. All the figures are copied from the review except the last two lines. The first of these exhibits the mean difference between the measurements and the homologous lines: the last line is a curiosity in its way.

TABLE II.

CUBIC INCHES.	La Fontaine. 149.5		Burns. 147.7		Heloise. 142.7		Lockey. 142.		Bruce. 136.5		Swift. 129.15		Haggart. 128.6		Pollard. 122.9		Stella. 119.2		M'Keon. 111.	
Meatus to 1	3.82	3.76	3.94	3.92	3.9	3.85	4.09	4.08	4.57	4.48	4.4	4.2	3.87	3.78	4.4	4.37	3.97	3.75	3.97	4.04
" 2	4.5	4.43	4.61	4.6	4.79	4.74	4.82	4.81	4.59	4.81	4.93	4.7	4.64	4.53	5.21	5.18	4.83	4.56	4.55	4.63
" 3	4.87	4.8	5.09	5.06	5.16	5.09	4.65	4.62	5.4	5.3	5.24	5.	5.23	5.11	5.52	5.49	5.05	4.76	4.97	5.05
" 4	5.12	5.04	5.15	5.12	5.68	5.61	5.46	5.43	6.	5.89	5.87	5.6	5.85	5.71	5.88	5.35	6.04	5.44	5.59	5.68
" 10	5.25	5.17	5.18	5.16	5.38	5.33	4.97	4.94	5.6	5.49	5.37	5.1	5.64	5.51	5.57	5.54	5.44	5.13	5.28	5.36
" 15	5.61	5.53	5.28	5.25	5.56	5.49	5.16	5.13	5.65	5.55	5.53	5.3	5.65	5.51	5.52	5.49	5.58	5.26	5.38	5.48
" 14	5.55	5.47	5.28	5.25	5.38	5.33	5.06	5.04	5.4	5.3	5.35	5.1	5.44	5.31	5.32	5.29	5.33	5.03	5.23	5.31
" 13	5.51	5.43	5.47	5.45	5.25	5.17	5.26	5.35	5.15	5.06	5.03	4.8	5.44	5.31	5.27	5.23	5.33	5.03	5.28	5.36
" 34	5.27	5.19	5.09	5.06	4.89	4.84	5.06	5.04	5.1	5.01	5.03	4.8	5.06	4.94	5.21	5.18	5.3	5.	5.1	5.18
" 30	5.13	5.04	4.8	4.78	4.7	4.64	4.97	4.94	4.9	4.81	4.82	4.6	4.93	4.81	4.96	4.93	4.93	4.65	4.99	5.07
" 35	4.79	4.72	4.6	4.59	4.73	4.69	4.58	4.55	4.7	4.61	4.5	4.3	4.62	4.51	4.5	4.58	4.57	4.31	4.45	4.52
" 22	4.98	4.91	4.7	4.68	4.55	4.49	4.77	4.75	4.83	4.74	4.72	4.5	4.72	4.61	4.8	4.78	4.73	4.47	4.86	4.94
" 20	3.87	3.81	3.84	3.82	4.01	3.93	3.99	3.97	3.85	3.77	3.56	3.4	4.96	4.84	3.68	3.66	3.81	3.59	4.14	4.21
12 " 12	5.8	5.72	5.57	5.54	5.09	5.03	5.64	5.62	5.7	5.59	5.87	5.6	5.54	5.41	5.52	5.49	5.76	5.44	5.69	5.78
5 " 5	4.06	4.	4.8	4.78	3.95	4.68	3.84	3.82	4.8	4.71	5.87	5.6	4.11	4.01	4.6	4.58	4.89	4.62	5.28	5.36
6 " 6	5.8	5.81	5.18	5.16	5.73	5.66	6.01	5.91	6.2	6.1	6.08	5.8	5.5	5.37	5.78	5.74	6.12	5.77	5.9	5.99
7 " 7	6.09	6.09	5.47	5.45	5.56	5.49	6.14	6.1	6.05	5.94	5.87	5.6	5.75	5.61	5.9	5.86	5.98	5.65	5.98	6.08
8 " 8	5.41	5.34	5.28	5.25	5.16	5.09	5.84	5.81	5.25	5.15	5.74	5.5	5.08	4.96	5.37	5.34	5.46	5.15	5.41	5.50
20 " 20	3.97	3.91	3.57	3.55	4.31	4.25	4.29	4.26	3.7	3.63	3.72	3.55	3.9	3.81	3.78	3.76	3.7	3.49	3.93	4.
19 " 19	4.57	4.51	4.8	4.78	4.66	4.60	5.36	5.33	4.65	4.56	4.93	4.7	4.41	4.31	4.91	4.88	5.11	4.83	4.97	5.05
28 " 28	4.42	4.35	3.93	3.92	3.84	3.79	4.29	4.26	3.9	3.83	4.5	4.3	3.93	3.84	3.68	3.64	4.14	3.9	4.61	4.69
32 " 32	4.47	4.40	4.22	4.21	3.99	3.93	4.66	4.63	4.1	4.02	3.98	3.8	4.	3.91	3.93	3.9	4.24	4.	4.65	4.73
Av. alter. } - or + }	-07		-02		-06		-0.25		-09		-23		-12		-03		-3		+09	
	143		146		137		140		128		111		118		121		100		117	

The reviewer tells us, p. 406—"We converted all the crania into crania having the same capacity (as Swift's), but each remaining similar to its original in form." It of course follows, then, that the homologous lines in the second or right hand column under each name, should all correspond to a cranium of 129.15 cubic inches (the same as Swift's), but retaining the form of the original. In short, all the sizes in the last line of the table, being those corresponding to the homologous lines in the right hand columns under each name, should have been 129.15 inches. It turns out that not one of them is what it should have been, by the reviewer's own showing! Bruce alone is nearly accurate, and all the others are far wide of the truth. Even the head of Swift has, by some mysterious means, been metamorphosed, in the reviewer's hands, from 129.15 to 111 cubic inches. Surely nonsense "could no farther go."

Let us "sum up and close accounts."

1. The reviewer, by his own statements, manifests the most profound ignorance of how nature should be observed in the department of science which he pretends to examine, and to judge of.

2. In applying a well-known principle to a new purpose, he has violated every condition essential to be observed in order to ensure accuracy in the results.

3. The measurements on which his calculations and reasonings are based, are so erroneous as to be unfit for any honest purpose whatever

4. Granting for a moment that his measurements are accurate, and that all the conditions essential to accuracy, in the application of the principle of homologous lines, have been complied with, the results given by the reviewer are neither what they should have been, nor what he says they are.\*

\* Thinking it possible that the discrepancies between the reviewer's measurements and those of Mr. Stratton might, in some degree, have arisen from the fact that the identical casts of the skulls in question were not in the hands of both, we carefully repeated some of the most important measurements of the casts used by the reviewer (those in the Edinburgh collection), and, on comparing our table with Mr. Stratton's, have found the figures of the latter to be sometimes exactly, and always very nearly, the same as our own. Mr. Stratton has sufficiently proved the error of the reviewer's numerical calculations; but we may add three instances, taken at random, of his figures in the right-hand columns of Mr. Stratton's second table. Meatus to 1 in Burns should be 3.767 instead of 3.92; 6 to 6 in Haggart, 5.507 instead of 5.37; 6 to 6 in Heloise, 5.541 instead of 5.658.—Ed.

BIOGRAPHICAL SKETCH  
OF  
THE LATE ANDREW COMBE, M. D

ANDREW COMBE, M. D., died at Gorgie Mill, near Edinburgh, on Monday the 9th of August, 1847, aged 49 years. Since 1820, he had labored at intervals under pulmonary disease, which frequently interrupted his practice, compelled him to spend several winters abroad, and at length, by wholly unfitting him for the active duties of his profession, gave him that leisure which he employed so usefully in the preparation of his well-known works on health and education. In April, 1847, hoping to receive benefit from a voyage, and desirous to visit a brother who had long been settled in the State of New York, he paid a short visit to America. Unfortunately the circumstances of the passage were unfavorable, so that his health was rather deteriorated than improved; but it was not till within eight days of his death that his condition became alarming. The immediate cause of that event was chronic disease of the bowels, which suddenly came to a crisis, and with such intensity as to defy every effort of medical skill. His sufferings were not great, and he displayed to the end that cheerfulness, serenity, and resignation, which were prominent features of his character during life.

Dr. Combe was born at Livingston's Yards, a suburb under the south-west angle of the rock of Edinburgh Castle, on the 27th of October, 1797.\* His father—who carried on the business of a brewer, and was remarkable for his worth and unassuming manners—had married, in 1775, a daughter of Abram Newton, Esq., of Curriehill, in the county of Edinburgh, noted among her acquaintances for her skilful domestic management, great general activity, and practical good sense. From this union sprang a family of seventeen children, among whom Andrew held the place of fifteenth child and seventh son. In

\* The mound connecting the King's Bridge with Bread street and Port Hope-toun, now occupies the site of the house where Dr. Combe was born.

those days, the neighborhood of his father's property abounded with offensive pools and ditches, the noxious influence of which (in conjunction with defective ventilation in small or overcrowded sleeping apartments, unsuitable diet, and inadequate clothing) must have been a potent cause of the disease and early mortality which prevailed in the family. Certain it is that the retrospect of his youthful experience and observation, afterward deeply impressed on him the importance of those hygienic observances which he has inculcated in his works, and the neglect of which, on the part of his kind, sensible, and conscientious parents, arose not from poverty or penurious dispositions, but from sheer ignorance of the laws of the human constitution. Two brothers and two sisters are all that now survive of this once numerous family. That Dr. Combe's constitution was originally so robust as it was, is doubtless attributable, in a great measure, to the fact of his having been nursed for fourteen months immediately after birth, at the healthy village of Corstorphine, by Mrs. Mary Robertson, a woman of uncommon vigor and activity of body and mind. This worthy person still survives, at the age of eighty-four. His conviction that mismanagement from ignorance was the great cause of the sufferings of the family, was strengthened by the fact that his father and mother both enjoyed sound constitutions; his father having died of apoplexy in his 71st year, and his mother of inflammation of the liver in her 62d year, without either of them having been, in the recollection of their children, previously indisposed to a serious extent. As a contrast, he had before him the family of an elder sister, eight in number, who were brought up in a healthy locality, and with more enlightened judgment, of whom seven are still alive, the youngest having completed his 32d year, and the only one who died having perished a few days after birth from exposure to cold.

Even from their earliest youth, he and his brothers were allowed to associate with their father's workmen, and also with the children in the neighborhood, most of whom belonged to the laboring class. So far from disapproving, as some may do, of the liberty thus given, he always looked back with satisfaction to having enjoyed such opportunities of cultivating his social faculties, training and strengthening his nervous system, and becoming acquainted with the condition, feelings, and habits



of an interesting, important, and numerous section of his countrymen. The notion, too generally entertained, that vice and vulgarity are the inseparable accompaniments of humble circumstances, he found to be unsupported by facts; and besides, experience led him to the conclusion, that where the individual is himself virtuously disposed, association with vicious or vulgar companions is distasteful to himself, and, therefore, that the danger of contamination is, in general, by no means imminent. Among children who are naturally well-disposed, the misdeeds of the vicious few excite abhorrence, rather than a wish to imitate them. It is evident, however, that the extent to which such freedom of intercourse ought to be permitted, must always depend much on the character of the individuals concerned. In this instance, the parents and children in humble life with whom the young Combes were allowed to associate, were favorably known to their father; for they lived under his eye, and their characters were observed to be good.

Having gone through the usual course of instruction at the High School, and attended the Latin and Greek classes during a session at the University,\* he was bound apprentice to the late Mr. Henry Johnston, surgeon in Edinburgh. His experience of a medical apprenticeship, confirmed by subsequent observation and reflection, made him ever afterward regard this kind of training as better calculated to produce idle and desultory habits than to cultivate the intellect or confer professional knowledge. To compound medicines and deliver them at the doors of patients, is certainly not the most improving of employments; and as he and his fellow-apprentices were forbidden to read in the surgery, a stealthy perusal of novels, in order to fill up the frequent intervals between graver occupations, could hardly be regarded as a more profitable exercise of the mind. However, he did see a little practice at this time, particularly in the workhouse of St. Cuthbert's parish, of which Mr. Johnston was the medical attendant; and, having latterly

\* He was a pupil of the late Mr. Irvine, at the High School, from October, 1805, to August, 1809; and in October of the latter year entered the class of Dr. Adam, who was then Rector. This celebrated scholar died in the following December, and was succeeded by Mr. Pillans. At the University, Dr. Combe attended Professors Christison and Dunbar for Latin and Greek. He liked the study of Greek, but did not pursue it so far as to retain more than a few of the roots.

been allowed to study under Dr. Barclay, Dr. A. Duncan, jr., and other medical teachers of the day, he was able, in 1817, to pass as a surgeon.

With the view of farther qualifying himself for medical practice, he next repaired to Paris, where two years were laboriously spent under the tuition of such men as Dupuytren, Esquirol, and Spurzheim. Before returning to Edinburgh in 1819, he undertook, in company with his friend Mr. A. Collie (afterward surgeon of H. M. S. Blossom, under Capt. Beechey), a pedestrian excursion in Switzerland and the north of Italy. It is suspected that the fatigue which he underwent on this occasion had the effect of weakening his constitution, and predisposing him to pulmonary disease. The trip was begun at the close of a long course of hard study, and without being preceded by the muscular training which was necessary to fit him for laborious journeys. Scantiness of pecuniary means, arising from an extension of the tour beyond the limits originally proposed, rendered forced marches indispensable; and it was not without difficulty that the travelers succeeded in getting back to Paris before their purses were empty. A still more direct cause of disease was the coldness and dampness of a bedroom which he unsuspectingly occupied in Edinburgh during the winter of 1819-20. But from whatever causes, so conspicuous did the symptoms of pulmonary disease become during the following spring, that his life was for some time despaired of. The progress of his disease is thus related by himself, in the fourth chapter of his *Principles of Physiology applied to the Preservation of Health*, etc., in illustration of the beneficial effects, in pulmonary cases, of increasing the action of the skin by sailing and riding:—"In spite of the best advice, I continued losing ground till the month of July, 1820, when I went by sea to London, on my way to the south of France; but, finding myself unable for the journey, I was obliged to return from London, also by sea. Being extremely liable to sea-sickness, I was squeamish or sick during the whole of both voyages—so much so as to be in a state of gentle perspiration for a great part of the time. After this I became sensible, for the first time, of a slight improvement in my health and strength, and of a diminution of febrile excitement. Some weeks afterward, I embarked for the Mediterranean, and encountered a succes-

sion of storms for the first four weeks, two of which were spent, in the month of November, in the Bay of Biscay, in a very heavy sea. For more than three weeks I was generally very sick, and always in a state of nausea; and during the whole time, although my bed was repeatedly partially wetted by salt water, and the weather cold, the flow of blood toward the skin was so powerful as to keep it generally warm, always moist, and often wet with perspiration, forced out by retching and nausea. The result was, that, on entering the Mediterranean at the end of the month, and there meeting fine weather, I found myself, though still more reduced in flesh and very weak, in every other respect decidedly improved; and, on my arrival in Italy, at the end of seven weeks, recovery fairly commenced, after about ten months' illness; and, by great care, it went on with little interruption, till the summer of 1821, when I returned home.

"To carry on what was so well begun, riding on horseback in the country was resorted to; and that exercise was found to excite the skin so beneficially as to keep it always pleasantly warm, and generally bedewed with moisture, even to the extremities of the toes; and in proportion to this effect was the advantage derived from it in relieving the chest, increasing the strength, and improving the appetite. A second winter was spent in the south with equal benefit; and in the summer of 1822, riding was resumed at home, and the health continued to improve. The excitement given to the skin by riding was sufficient to keep the feet warm, and to prevent even considerable changes of temperature from being felt; and rain was not more regarded, although special attention was of course paid to taking off damp or wet clothes the moment the ride was at an end. Strength increased so much under this plan, combined with sponging, friction, and other means, that it was persevered in through the very severe winter of 1822-3, with the best effects. For nine years thereafter the health continued good, under the usual exposure of professional life; but in 1831 it again gave way, and pulmonary symptoms of a suspicious character once more made their appearance. The same system was pursued, and the same results have again followed the invigorating of the cutaneous functions and of the general health by a sea-voyage, horseback exercise, and the regular

use of the bath. These, as formerly, have proved beneficial in proportion to their influence in keeping up warmth and moisture of the surface and extremities."

As indicated by the preceding extract, he was able to begin medical practice in Edinburgh in 1823, and to pursue it uninterruptedly for nine years. From the month of May, 1812, he constantly resided, when in Edinburgh, in the house of his elder brother George; and it was not till the marriage of the latter with Miss Siddons of London, in 1833, that he established himself in a separate residence.

Soon after commencing practice, he became deeply sensible of the deficiency of ordinary medical education, in not teaching with sufficient earnestness and perspicuity, the conditions which regulate the healthy action of the bodily organs—a knowledge of which conditions was, in his opinion, of prime importance in the prevention, detection, and treatment of disease. "It is true," says he, "that many medical men, sooner or later, work out this knowledge for themselves; but I have no hesitation in saying, that these are exceptions to the general rule, and that the greater number pass through life without a conception of its value in the prevention and cure of disease. Even those who ultimately become familiar with the subject, almost always attain their knowledge only after having suffered from the want of it, and rarely master it so completely as they would have done had it been made a part of their elementary education, to which they saw others attach importance. In my own instance, it was only after having entered upon practice that I had first occasion to feel and to observe the evils arising from the ignorance which prevails in society in regard to it."—(*Principles of Physiology, etc.*, ch. ii.) To the removal of this ignorance, he accordingly devoted himself with a zeal that never failed to distinguish his conduct when any end which he thought important and attainable was to be accomplished; and, in his own personal habits, he made a point of reducing to practice the hygienic principles, the efficacy of which he too clearly perceived.

In 1825 he graduated in Edinburgh. The conscientiousness, kindness, and sagacity, which characterized him as a physician, the extensive knowledge he had acquired of his profession, and the lively PERSONAL interest which he took in his pa-

tients,\* speedily brought him a flourishing practice, which became every year more extensive, till a return of the pulmonary symptoms obliged him, in 1831, to proceed once more to Italy. On this and all other subsequent occasions of passing the winter abroad, he was accompanied by his niece Miss Cox, to whom he was warmly attached, and to whose judicious and tender care, both at home and in foreign countries, he owed much of the comfort which he latterly enjoyed. His course of life, at this time also, is briefly recorded by himself, as an illustration of the benefit which may be derived, however slowly, by invalids, from a firm and faithful obedience to the laws of nature; each act of compliance being followed by its own reward, and contributing to make up a sum of improvement which at length becomes abundantly conspicuous. In the chapter last quoted, he writes as follows:—"In the autumn of 1831, the author went to Italy in consequence of pulmonary disease;†

\* Dr. Combe exemplified in his own conduct the principle which he thus recommends to attention in the 14th chapter of his *Physiology applied to Health*. etc.:—"Every one who has either attended invalids, or been an invalid himself, must often have remarked, that the visit of a kind and intelligent friend is highly useful in dispelling uneasy sensations, and in promoting recovery by increased cheerfulness and hope. The true reason of this is simply, that such intercourse interests the feelings, and affords an agreeable stimulus to several of the largest organs in the brain, and thereby conduces to the diffusion of a healthier and more abundant nervous energy over the whole system. The extent of good which a man of kindly feelings, and a ready command of his ideas and language, may do in this way, is much beyond what is generally believed; and if this holds in debility arising from general causes, in which the nervous system is effected not exclusively, but only as a part of the body, it must hold infinitely more in nervous debility and in nervous disease; for then the moral management is truly the medical remedy, and differs from the latter only in this, that its administration depends on the physician, and not on the apothecary—on the friend, and not on the indifferent attendant."

† He had gone this year to France for relaxation and change of air, and caught cold by sleeping in a damp bed at Tours. This made him hasten to Paris, where Dr. Spurzheim, who attended him, wrote to his relations in Scotland that he appeared to be dying. In order that no chance of recovery might be lost, however, Dr. S. advised him to go to Italy; and he accordingly passed the winter months in Naples, where he was so fortunate as to meet his friends Mr. Carmichael of Dublin, and the late Dr. Hirschfeld of Bremen. To these gentlemen he felt deeply indebted for the care and kindness with which they watched over him during a severe attack of inflammation of the lungs. The former he had long known, and respected highly, both as a medical philosopher and practitioner, and an enlightened phrenologist; while the latter, who was a younger man, and had studied in Edinburgh, had by his sound judgment and amiable qualities strongly attracted his regard. From Naples he went to Rome about the end of February.

which, in January and February, 1832, reduced him to such a state of debility as to leave no hope of his surviving the spring. Aware that his only chance lay in assisting nature to the utmost extent, by placing every function in the circumstances best fitted for its healthy performance, he acted habitually on the principle of yielding the strictest obedience to the physiological laws, and rendering every other object secondary to this. He did so in the full assurance that, whether recovery followed or not, this was, at all events, the most certain way to secure the greatest bodily ease and the most perfect mental tranquillity, compatible with his situation. The result was in the highest degree satisfactory. From being obliged to pause twice in getting out of bed, a slow but progressive improvement took place, and by long and steady perseverance continued, till, at the end of two or three months, he was able to drive out and walk a little every day. From month to month thereafter, the amendment was so gradual as to be scarcely perceptible; but, at the end of a longer period, the difference was striking enough. Thus encouraged, the author continued true to his own principles, in resisting every temptation to which improving health exposed him: and the ultimate result has been, that every successive year from 1832 up to the present time, 1841, has, with one or two exceptions, found him more healthy and vigorous than before; and that many of his professional friends, who long regarded his partial convalescence as destined to be of very brief duration, cannot yet refrain from an expression of surprise on observing it to be still perceptibly advancing at the end of ten years.\* He adds, that he publishes this example, "both because, as an illustration of the advantages of acting in accordance with the laws of our nature, it is as instructive as any with which he is acquainted, and because it strikingly

On his return to Edinburgh, the signs of the affection of the chest were found, by his friend Dr. John Scott, to be increased. There was contraction and flattening of the left side, more especially under the clavicle, to the second rib. The sound was dull, and all the signs of extensive and numerous caverns were discovered.

"From 1832 to 1842," says Dr. Scott, "the state of health remained nearly the same. The summers were passed with tolerable comfort; in the winters there were, on the slightest exposure, returns of bronchitis and pleurisy, with feverish fits and increased expectoration. There was considerable emaciation, but the countenance generally retained a natural and lively appearance. In the usual state of health, the pulse was 62, 64, to 66, seldom higher.



shows the gradual accumulation of almost imperceptible influences operating surely, though slowly, in restoring him to a degree of health and enjoyment which has richly repaid him for all its attendant privations. Had he not been fully aware of the gravity of his own situation, and, from previous knowledge of the admirable adaptation of the physiological laws to carry on the machinery of life, disposed to place implicit reliance on the superior advantages of fulfilling them as the direct dictates of Divine Wisdom, he never would have been able to persevere in the course chalked out for him, with that ready and long-enduring regularity and cheerfulness which have contributed so much to their successful fulfillment and results. And, therefore, he feels himself entitled to call upon those who, impatient at the slowness of their progress, are apt after a time to disregard all restrictions, to take a sounder view of their true position, to make themselves acquainted with the real dictates of the organic laws; and, having done so, to yield them full, implicit, and persevering obedience, in the certain assurance that they will reap their reward in renewed health, if recovery be still possible; and if not, that they will thereby obtain more peace of mind and bodily ease than by any other means which they can use."

In 1832, Dr. Combe was sufficiently recovered to be able to pass the ensuing winter in Scotland, and in 1833 to resume his practice. In 1836 he was honored with the appointment of Physician in Ordinary to the King and Queen of the Belgians, and for several months attended the Royal Family in Brussels, but the climate proving unfavorable to him, an alarming return of the pulmonary symptoms abruptly sent him back to recruit his health in his native land. Subsequently he continued to act as Consulting Physician to their Majesties, and occasionally paid them a visit. Six or seven years ago he was appointed one of the Physicians Extraordinary to the Queen in Scotland, and on 20th December, 1844, one of her Majesty's Physicians in Ordinary in that part of the United Kingdom. He was also a Fellow of the Royal College of Physicians of Edinburgh, and a Corresponding Member of the Imperial and Royal Society of Physicians of Vienna.

The winters 1842-3 and 1843-4 were spent by Dr. Combe in Madeira. He wrote thence two long letters respecting the



island and its climate and invalids, addressed to Mr. Charles Maclaren, the editor of the Scotsman, in which newspaper they were published in April and May, 1843.\*

In the beginning of 1845, he had a severe illness of a very singular character, "previous to which," says Dr. Scott, "there had been more signs of general feebleness and languor, with a partial failure of the remarkable mental powers with which Dr. Combe was endowed. This was shown more by a want of power of application to any subject for a length of time, than by any other symptom. The concentrative faculty, which was so remarkable in him, was feebler than usual. The clearness of mind and cheerfulness remained unchanged, but there was a slight failing of the usual brilliancy and power. This, however, was observed only by his nearer friends; to strangers nothing appeared. In the winter, the attack commenced by a slight bronchitis, followed by languor and weakness, and for some time there were feelings of complete sinking—more, however, revealed by internal consciousness than by any external signs. In the latter half of February, there was a continual necessity for stimulants and food every two or three hours, by night and by day, and these were required in quantities remarkable for one who had always been so abstemious." On the morning of 26th February, he lost all sensibility in the trunk and limbs, and summoned his relations around his bed, in the belief that his end was near. On this occasion, he expressed with great calmness and solemnity his resignation to the will, and perfect confidence in the unchangeable benevolence of God. "The same great and good Being," said he, "who rules here, rules every where. I have often thought," he added, "that death was not so painful as it is generally imagined to be; the energies sink so much and so gradually, that when it comes, it is but little felt." Speaking of his physiological writings, he said that they expressed his views too imperfectly, to warrant the expectation that these would soon be generally appreciated and cordially embraced. "Medical men," he continued, "act but little on the principles I have endeavored to expound. These principles have appeared to me more important than to most of

\* During the last twenty years he lived on terms of close and uninterrupted friendship with Mr. Maclaren, and occasionally contributed articles on medical, sanitary, and other subjects, to the above named influential journal.

them." He said that he looked upon the treatise on *Infant Management*\* as his best production, although it might not be so highly appreciated by the profession at large. "I should have been much gratified," he proceeded, "if I had seen them taking up earnestly and practically the principles which I think so important. Much is said about medical reform; but medical men might do much in reforming themselves individually, without any aid from acts of Parliament. This is the great thing necessary. I had lately some idea of addressing a letter to Sir James Graham, showing how much scope there is for this kind of medical reform; but all such projects must now be abandoned." His books, he said, were intended by him to be not merely read, but *ACTED ON*; and he wished his readers to feel, that a correct exposition of any department of nature carries with it a proclamation of the Divine will in reference to human conduct. "Science," he remarked, "can never be fully practical till it be expounded as the will of God. God is the centre from which emanates all that science makes known; and all science is but an expression of his will."

These remarks were made at a time when his functions were preserved in action by brandy and wine, administered under the constant superintendence of Dr. Scott, Dr. Farquharson, or his nephew Dr. James Cox; and notes of them were made at the time by the writer of the present narrative.

This was a crisis in the attack. The stimulants kept him alive till his system rallied, and, to the surprise of himself and his relations, he quickly recovered his strength; so that, at the end of a month, he was able to bear removal to Gorgie Mill. Here the change of air was so beneficial, that before the end of April he commenced a residence of five weeks at Helensburgh and Row, in Dumbartonshire, where he regained his ordinary state. By degrees he became stronger, and more like himself, than for many previous years.

His voyage to America in April, 1847, has already been mentioned. He landed at New York, and went as far as Philadelphia on the one side, and up the Hudson to West Point on the other. The uncommon heat of the season, and the unavoidable fatigue and exposure of traveling, which threatened serious

\* Republished by Fowlers and Wells, New York. Price for the revised and enlarged edition, only 50 cents. It may be ordered and sent by mail.

damage to his health, soon determined him to renounce all hope of the gratification which he had expected from a visit to New England; and, after a rapid homeward voyage, he arrived at Liverpool on the 25th of June. From this time to the 2d of August, he derived considerable enjoyment from visits to relations in the country near Edinburgh, and from frequent drives through picturesque districts in Linlithgowshire.

Just before his last attack of illness, he was actively engaged, at the request of the conductors of *The Times*, in preparing a communication intended for insertion in that journal, on a subject of the greatest moment within his peculiar branch of philanthropic inquiry—namely, the nature and causes of the ship-fever which had swept off within the preceding few months many hundreds of unfortunate Irish in their emigration to America. On his death-bed he committed the unfinished MS. of that communication to the care of his nephew Mr. Robert Cox, enjoining him to render it as fit for publication as possible, and to place it at the editor's disposal. It would, he said, have been a source of much satisfaction to him had he been able to complete it before he died, as he was earnestly desirous to contribute his exertions toward rousing the government and the public to a perception of the urgent necessity of immediately establishing a Board of Health, and adopting such preventive measures as might render impossible a recurrence of such miseries as had lately been endured. It seemed as if he felt that his recent opportunity of witnessing the condition of above 300 Irish emigrants on board the vessel in which he sailed from Liverpool to New York laid him under a kind of obligation to record his experience for the public benefit—and as if the performance of this obligation would have taken a burden off his mind. On examination of the MS., it was found to require but little alteration beyond an improved arrangement of some of the sentences, and the pruning of a few redundancies; and, notwithstanding the absence of the author's own finishing touches, it is not unworthy to constitute his final bequest to his fellow-men. Nearly three columns of *The Times* of 17th September, 1847, are occupied by this earnest appeal.

It may perhaps lend an additional interest to that letter, in the estimation of his friends, to state that the noxious influence which the effluvia of these suffering emigrants conveyed into

the cabin above (to which Dr. Combe was much confined by bad weather), in all probability hastened his death. The post-mortem examination of his body showed that the condition of his lungs was not worse than usual, and that his death was to be ascribed solely to disease of the bowels. Before leaving home, Dr. Combe's strength had been impaired by the exertion of making needful arrangements, and receiving the numerous friends who came to wish him a prosperous voyage, and whom he could not, without great violence to his feelings, avoid seeing and conversing with. Hence, when at sea, he was more than usually liable to injury from unfavorable circumstances. The miasma of the crowded hold penetrating into the cabin had, it is supposed, infected his feeble system, and been the cause of the almost constant discomfort and languor under which he ever afterward labored; and finally had brought to maturity the disease which terminated his life.

On his death-bed, Dr. Combe was most assiduously and affectionately tended by his valued friend Dr. Scott, who had been his chief medical adviser for many years, and on whose skill and sagacity he placed the utmost reliance. To Dr. Farquharson also, another excellent friend, he was indebted on this as on many former occasions, for numerous proofs of kindness and skill.

The post-mortem examination was made by Drs. Scott and Handyside; and as the case is one of considerable interest in a medical as well as a phrenological point of view, our readers will find, appended to the present article, the notes written by these gentlemen, and which they kindly enabled us to publish.

The most remarkable features of Dr. Combe's encephalon were, its beautiful symmetry, the perfect development of its parts, the firmness and healthiness of its structure, the plumpness or fullness of the cerebral convolutions, and the depth of the sulci between them. The parts of the hemispheres were so finely proportioned to each other, that none in particular appeared prominently large; but, on comparing together groups of the cerebral organs, the superiority of the upper region of the brain was strikingly manifest. These characters are in accordance with the fine balance and high efficiency of the mental powers of Dr. Combe. The form of his head exemplifies that of the mixed Teutonic and Celtic race which inhabits the

Lowlands of Scotland. It presents the elongated appearance, and the fullness in the region occupied by the organs of Philoprogenitiveness, Concentrativeness, Adhesiveness, Self-Esteem, and Love of Approbation, which are characteristic of the Celt; while there are large and massive anterior lobes, well developed both in the observing and reflecting compartments (the organs of Comparison and Causality however predominating)—together with the high and rounded coronal region which distinguishes the Teutonic race. The base of the brain, as in the Celt, is relatively narrow, and is small in the situation of Alimentiveness. The coronal aspect presents nearly the form of a perfect oval. No portion of the surface of the head is seen to project, nor are there any depressions except in the situations of two or three of the perceptive organs. Further particulars, including measurements, will be published hereafter, when an examination of the cranium, which is not at present accessible to us, shall have furnished additional data.

Dr. Combe was of a tall stature, his height being upward of six feet. His person was very slender, and, of late years, he stooped considerably in consequence of his feeble health. His temperament was nervous-bilious, with a slight infusion of the sanguine. The expression of his voice, countenance, and dark beaming eye, was that of intelligence, goodness, earnestness, and affection.

The works in connection with which the name of Dr. Combe is most familiar to the public,\* are—The Principles of Physiology applied to the Preservation of Health, and to the Improvement of Physical and Mental Education, of which thirteen editions have been called for since its first appearance in 1834; The Physiology of Digestion considered with Relation to the Principles of Dietetics, originally published in 1836, and now in the seventh edition; and A Treatise on the Physiological and Moral Management of Infancy; being a Practical Exposition of the Principles of Infant Training, for the Use of Parents—of which the first edition appeared in 1840, and the fifth in the present year. The first of these works is dedicated to Leopold I., King of the Belgians; the second, to the author's brother George; and the third to his valued friend Sir James

\* All of these works are republished by Fowlers and Wells, 131 Nassau street, New York.

Clark. In preparing them, his constant aim was to exhibit the relation subsisting between the rules of conduct recommended, and the particular laws of the organization according to which their influence is exerted, so that the recommendation might rest, as far as possible, on the foundation of nature and reason, and not on his mere personal authority. He wished to make his readers understand why certain courses are beneficial and others hurtful, so that every individual might be enabled to adapt his conduct rationally to his own peculiar circumstances. He urges, that as every organ of the body has a specific constitution, and is regulated in its action by fixed laws appointed by Divine Wisdom, success in avoiding causes of disease, and in removing them when they come into play, will greatly depend on the extent of our knowledge of the nature and laws of the various organs, and their relations to each other and to external objects. "In teaching dietetic rules and hygienic observances, therefore," says he, "the precepts delivered should be connected with and supported by constant reference to the physiological laws from which they are deduced. THUS VIEWED, THEY COME BEFORE THE MIND OF THE READER AS THE MANDATES OF THE CREATOR; and experience will soon prove that by his appointment, health and enjoyment flow from obedience, and sickness and suffering from neglect and infringement of them." The words we have printed in capitals express an idea on which he frequently dwells with earnestness in his works, and which he delighted in private conversation to enforce. "Wherever, indeed," says he, "I may have unintentionally mistaken or misrepresented the natural law, the inferences deduced from it must, of course, be equally erroneous and unworthy of regard. But in every instance in which I have drawn correct practical rules from accurately observed phenomena, I am entitled to insist upon their habitual fulfillment as a duty as clearly commanded by the Creator, as if written with his own finger on tablets of brass. Fallible man may obey or neglect the will of the Being who made him, and reap enjoyment or suffering as the consequence; but as he can neither create himself anew after a different model, nor alter the laws of that constitution which God has seen to be best adapted for him, his true happiness must necessarily lie in discarding the blind guidance of his own imagination, and follow-



ing, in preference, the dictate of a wisdom which never errs. Till this truth be universally felt—till we come to live, move, and act, under the habitual consciousness that the laws which regulate our bodily well-being are direct emanations of Divine omniscience and power, and not the mere offspring of human fancy—it will be impossible for us to escape the numerous evils inseparable from ignorance and its attendant rashness and presumption, or to secure for ourselves the many advantages and sources of enjoyment which a kind Providence has intentionally placed within our reach.”—(On Digestion and Diet, ch. vii.)

The extent to which the works of Dr. Combe have been circulated, and not merely read but studied, shows that he did not mistake the manner in which such instruction can be successfully communicated. Of the *Physiology applied to Health*, etc., 28,000 copies have been sold;\* of the treatise on *Digestion and Diet*, 15,500; and that on *Infancy*, 8000. This statement is exclusive of copies printed in the United States, where these works are believed to be circulated in still greater numbers than at home. We hope it is not presumptuous in us to express the opinion, that to the labors of Dr. Combe, as much as to those of any other individual, is attributable that strong desire for sanitary reform, which is now as universal among the educated classes of the people, as it has been rapid in its growth and beneficial in its tendency.

In 1838, he reprinted a valuable and important work by Dr. William Beaumont, surgeon in the United States Army, entitled *Experiments and Observations on the Gastric Juice and Physiology of Digestion*. To this he furnished a preface, notes, and a chapter of concluding remarks. In his own work on *Digestion*, Dr. Combe has turned the observations of Dr. Beaumont to most excellent account; and although, in the preface to the 5th edition, he speaks of that gentleman as “the late Dr. Beaumont,” we are happy to say that the report which had reached him of Dr. Beaumont’s death was subsequently discovered to be groundless—and that we have seen a letter from

\* So diffident was the author, that he had some hesitation in printing so many as 750 copies of the first edition. It was sold for £40 to an eminent publisher in Edinburgh, who, if we remember rightly, either declined to purchase the copyright of future editions, or offered only £20 for each—a sum which the author did not accept.



Dr. Beaumont himself, dated in 1846, in which he intimates the intention to resume his experiments on the curiously accessible stomach of Alexis St. Martin.

We have refrained from interrupting our sketch of the personal and medical career of Dr. Combe by any reference to his phrenological writings. With these, probably most of our readers are to a greater or less extent acquainted. In the preface to his work on *Mental Derangement* he gives the following interesting account of his introduction to what speedily became with him a favorite study. "When yet a student, I joined in the general burst of ridicule with which the phrenological doctrines were received at the time of Dr. Spurzheim's visit to Great Britain in 1816-17; a piece of conduct which is explained, though far from justified, by the circumstance, that I was then totally unacquainted with their nature and import. My attention was first seriously turned to the examination of these doctrines during my residence at Paris, in the autumn of 1818, when Dr. Spurzheim's *Observations sur la Phrenologie*, then just published, were happily put into my hands, at a time when, from there being no lectures in any of the Parisian schools, I had ample leisure to peruse that work deliberately. I had not proceeded far before I became impressed with the acuteness and profundity of many of the author's remarks on the varied phenomena of human nature, and with the simplicity of the principles by which he explained what had previously seemed contradictory and unintelligible; and, in proportion as I advanced, the scrupulousness of statement, sobriety of judgment, and moral earnestness with which he advocated his views, and inculcated their importance, made me begin to apprehend that to condemn without inquiry was not the way to ascertain the truth of Phrenology, or to become qualified to decide in a matter of medicine or of philosophy. I therefore resolved to pause, in order to make myself acquainted with the principles of the new physiology, and to resort, as he recommended, to observation and experience for the means of verifying or disproving their accuracy, before again hazarding an opinion on the subject. In carrying this resolution into effect in the following winter session, I had the advantage of being able to attend two courses of lectures delivered by Dr. Spurzheim, at Paris, on the Anatomy, Physiology, and Pathology of

the Brain and Nervous System, during one of which rather a striking confirmation of his doctrine occurred. In the middle of the lecture of 1st December, 1818, a brain was handed in, with a request that Dr. Spurzheim would say what dispositions it indicated, and he would then be informed how far he was correct. Dr. Spurzheim took the brain without any hesitation, and, after premising that the experiment was not a fair one, in as far as he was not made acquainted with the state of health, constitution, or education, of the individual, all of which it was essential for him to be aware of before drawing positive inferences; he added, that, nevertheless, he would give an opinion on the supposition that the brain had been a sound one, and endowed with ordinary activity: after which, he proceeded to point out the peculiarities of development which it presented." After giving the details of the case, which our limits prevent us from quoting, Dr. Combe goes on to say, that, altogether, the close coincidence between the facts, with which he himself happened to be familiar, and the remarks of Dr. Spurzheim, who had never seen the skull, and judged from the brain alone, as it lay misshapen on a flat dish, made a deep impression on his mind; as it went far to prove, not only that organic size had a powerful influence on energy of function, but that there actually were differences in different brains, appreciable to the senses, and indicative of diversity of energy in particular functions. He then proceeds to say:

"In continuing the practical observations which I had begun to make on living heads, I met at first with many difficulties, partly from unacquaintance with the local situation of the alledged organs, and with the limits of their respective functions; and partly also from want of experience in observing: and thus, while the general result seemed to be confirmed, many apparent exceptions presented themselves, and gave rise to numerous doubts. In extending my observations, however, for the purpose of substantiating these objections, natural solutions so invariably presented themselves, one after another, in proportion as they were scrutinized, that, after two years' experience, the conviction of the truth of the fundamental principles, and of the correctness of the functions ascribed to many of the larger organs, became irresistible; while I still hesitated in regard to several of the smaller organs, the evidence of which I had not sufficiently examined. Actuated by the natural feeling of improbability that so much should have been discovered in so short time by only two individuals, however eminent their talents and felicitous their opportunities, I still expected to meet with some important errors of detail, and, so

far from being disposed to adopt implicitly all the propositions of Drs. Gall and Spurzheim, I rather looked for, and expected to find, some hasty conclusions or unsupported assumptions; and my surprise was extreme to discover, that, in the whole extent of their inquiry, they had proceeded with so much caution and accuracy, as, in all their ESSENTIAL facts and inferences, to have rendered themselves apparently invulnerable.

"On finding their statements in regard to the conditions required for the healthy manifestations of mind, thus borne out, and aware that a true physiology of the brain should not only derive confirmation from its morbid phenomena, but that it was, in fact, the only basis on which an intelligible and consistent view of the pathological derangements of the mental faculties, and the means required for their cure, could rest, I resolved not to lose the favorable opportunity of prosecuting the inquiry, which then presented itself, in the announcement of a course of clinical lectures on mental derangement, at the Hospice de la Salpêtrière, by the celebrated Esquirol, the friend, pupil, and successor of Pinel. This course I accordingly attended in the spring of 1819, being the first which was given; and, amid the numerous forms of disordered mind, congregated in so large an establishment, I felt great interest in tracing the consistency which still appeared to obtain between the phenomena and the physiological principles unfolded by the teachers of the new philosophy. So closely, indeed, did the descriptions of the various forms and transitions of insanity, and the distinctive features of the numerous cases referred to by the Professor in illustration (the subjects of most of which were then to be seen in the asylum), correspond with the doctrines which I was engaged in studying, that I very naturally supposed that M. Esquirol himself must be a phrenologist."

In this supposition, however, he soon learned with surprise that he was mistaken; but at the subsequent stages of Esquirol's course, he failed to discover in the Professor's comments upon the doctrines of Dr. Gall, any facts or reasonings which tended to shake his own previous impression of their general soundness—and accordingly he continued his inquiry.

"Feeling at every step I made in the examination of Dr. Gall's discoveries, a deeper and deeper sense of their importance and practical usefulness if they should prove to be true, and having made myself sufficiently acquainted with his principles to be able to follow their application, I then entered upon the perusal of Dr. Spurzheim's French work, *Sur la Folie*, with much attention, and with constant reference to the cases and phenomena brought under review in the wards and lecture-room of the Salpêtrière; and, when thus employed, I became still more alive to the value of Phrenology as a branch of professional knowledge, and lost no opportunity of testing its evidences by a comparison with nature. Shortly after this, viz., in 1820, a treatise, entitled *De la Folie*, made its appearance from the pen of M. Georget, and met in many quarters with much com-

mendation, for the precision, consistency, and soundness of its doctrines. This work proved not only to be very ably written, but to be based throughout on the principles of Phrenology, and to be devoted in its whole substance, to the advocacy of the same doctrines in regard to mental affections, which, with some slight differences, it was the sole object of that previously published by Dr. Spurzheim, to inculcate. Of the latter, however, M. Georget made no mention whatever, although he referred to Dr. Gall's writings and lectures as the sources of many of his ideas; and, so oddly are opinions biased by preconceived notions, that it is said to have happened that the same critic, who expressed his disrespect for the views as published by the one author, bestowed his approbation upon them as coming from the other. I am uncertain whether this allegation be strictly correct; but I am quite secure in stating, that Dr. Spurzheim's book, although in substance the same, met with a very different reception from that published by Dr. Georget."

We need not add that a thorough conviction of the truth of the principles and leading details of Phrenology was the result of his investigations, and that he continued till his death to be one of the most earnest and uncompromising, but, at the same time, one of the most sober and cautious, of its cultivators and advocates. On 22d February, 1820, was instituted the Phrenological Society, of which he and his brother were two of the first four members who banded themselves together for the study and practice of the new opinions, and who were speedily joined by a goodly company of fellow-laborers. On 29th November, 1827, he was elected to the office of President, which he filled during the two following years. To the volumes of Transactions published by the Society in 1824, he contributed two papers—"On the Effects of Injuries of the Brain upon the Manifestations of the Mind," and "Observations on Dr. Barclay's Objections to Phrenology." In 1823, he joined Mr. William Scott, Mr. James Simpson, Dr. Richard Poole, and Mr. George Combe, in establishing The Phrenological Journal, of which he continued to be a proprietor till the completion of the First Series of ten volumes in 1837, and a contributor down to the year preceding that of his death. Latterly, however, the mental labor which he was constantly devoting to the composition of his physiological works, and to the improvement of the successive editions which were rapidly called for, rendered it impossible for him to write so much for the Journal as he had formerly done; but he continued to give his valuable advice and suggestions to the editor on all subjects concerning

which it was thought necessary to consult him. From first to last, indeed, many of the articles written by other contributors had the benefit of his revisal before being published; and he, on his part, was always desirous to submit his manuscripts to the judgment of his friends, and to obtain their criticisms on his arguments and language. The style of the first paper which he wrote for publication, was so imperfect, that, when submitted to his brother George for revisal, it underwent numerous alterations. At the first aspect of the havoc which had been made in its expressions and arrangements Andrew felt mortified and annoyed; but when he entered into the details, he adopted, and gratefully acknowledged, the value of the suggestions which had been offered for its improvement. In mentioning the circumstance afterward, at the distance of many years, he remarked that that criticism, which had at first appeared to him to be severe, had proved a valuable lesson, for it conveyed to his mind the first perception of the importance of style in didactic writing. From that time he studied with care the art of composition, and he frequently repaid, by his corrections on his brother's writings, that service which he acknowledged to have been done to himself at the commencement of his literary career. At no time, however, was Dr. Combe a fluent writer, when method and precision were called for. He laboriously arranged his thoughts in the order best suited for their clear enunciation; and in embodying them in language, his sole aim was to express his meaning with plainness, precision, and as small an expenditure of words as was compatible with making a strong enough impression upon readers of slow apprehension. For the latter purpose, he resorted largely and most usefully to repetition of the same idea in different language, and in connection with different illustrations. In composing, he deleted and interlined abundantly, and often re-wrote his sentences. Most of his letters, however, were written *CURRENTE CALAMO*.

We hardly need say that Dr. Combe regarded the notion that Phrenology can endanger true religion, as altogether groundless. On the contrary, it appeared to him that scarcely any thing can be pointed to "which shows a greater distrust in the ways of God, than the common practice of utterly disregarding, as unnecessary to the manifestations of mind, conditions which HE has in HIS wisdom seen fit to render essential

to its operations. It seems," says he, "to be the false dread of believing matter necessary to the workings of mind which leads to this practical impiety—as if we could gainsay or abolish what God himself has decreed to be right."\*

It was not till 1831 that Dr. Combe ventured to appear as the sole author of a volume. The work which he then published was *Observations on Mental Derangement*; being an application of the Principles of Phrenology to the Elucidation of the Causes, Symptoms, Nature, and Treatment, of Insanity. This treatise has long been out of print; and although, in 1841, a new edition was announced to be in preparation by Dr. Browne, of the Crichton Institution, near Dumfries, another announcement speedily followed, to the effect that the demands of that gentleman's duties upon his time had been found so imperative as to compel him to abandon his design. On this subject Dr. Combe himself writes as follows, in the preface to another of his works:—"As many inquiries continue to be made for a new edition of my *Observations on Mental Derangement*, I avail myself of this opportunity to state, that infirm health having prevented me from devoting much attention to the treatment of insanity for some years past, and consequently disqualified me for doing that justice to the subject which its later progress and inherent importance imperatively demand, I have, although with great reluctance, abandoned all present intention of reprinting the work."—(*Principles of Physiology applied to Health, etc.*, 11th ed., 1842.) We hope that means will yet be found to supply the deficiencies here indicated, so that copies of this valuable work may no longer be sought for in vain.

In the beginning of 1846, Dr. Combe's strong conviction of the importance of Phrenology to medical men induced him to write, at the expense of considerable labor, an Address to the Students of Anderson's University, Glasgow, at the opening of Dr. Weir's First Course of Lectures on Phrenology. It was delivered to a crowded audience by his brother, and subsequently appeared in the form of a pamphlet, as well as in our

\* Review of Abercrombie's *Inquiries concerning the Intellectual Powers*, in *Phren. Jour.*, vol. vii., p. 54; where the subject is treated of at some length. See also *Physiology applied to Health and Education*, chap. xi., at the beginning



own pages. (Vol. i., p. 44.) We cannot resist the inclination to quote from it a passage, in which he speaks of Phrenology in relation to himself and his medical career.

"Lastly," says he "(to come to my own experience), I have, for many years, declared that my obligations to Phrenology, both in my private and professional capacity, are very great—greater, indeed, than to any other single branch of science. When I began to avow belief in its doctrines at the outset of my career, I was warned that if I persisted in doing so, it would prove an almost insurmountable barrier in the way of my professional success. Trusting to the sustaining power of truth, I continued, nevertheless, to avow my convictions, and to advocate its cause, whenever the occasion required it; and the result amply justified the reliance which I placed on the omnipotence and stability of truth. My advocacy of Phrenology did not prove any impediment in my professional career; on the contrary, it in many respects extended my field of usefulness, and greatly contributed to my happiness, by giving a more definite and consistent direction to the faculties which I possess. No doubt, some who might otherwise have employed me, were at first deterred, by their prejudices, from doing so; but their places were more than supplied by others, who, in their turn, would not have sought my advice except for Phrenology; and, ere long, many even of the prejudiced ventured to return, and ultimately took place among my warmest friends. The truth is, that, in the long run, professional success or failure does not depend on a man holding this or that particular opinion which happens, for the moment, to be popular or the reverse. Success depends almost entirely on professional skill and attainments, on general soundness of judgment, on readiness in resource, moral integrity, kindness of disposition, discretion, and persevering industry. These are the qualities which elicit confidence in the hour of danger; and you may depend upon it, that if you give decided evidence of your possessing them in a high degree at the bedside of the patient, you will compel even the most prejudiced of your opponents to respect your opinions on this as well as on other subjects, even while they may differ from you. In the private relations of life, also, I have derived the utmost advantage from the lights of Phrenology, and have gained a firmer hold on the confidence of my patients, by pointing out to them its great practical value in conducting the intellectual and moral training of the young, in promoting mutual forbearance and general kindness of intercourse, and thereby adding to their general means of happiness. It is for Dr. Weir to dwell upon all these points in detail; here I can only give you, in a few imperfect words, the general results of my own experience, and leave you to attach what importance to them you may think they deserve. I owe this testimony to Phrenology; and now that I am cut off from the active duties of life, I rejoice in the opportunity once more afforded to me of repeating it before such an assembly as the present. Some among the young and ardent minds who now listen to my words may be impressed by them, and stimulated to the study of a science which, rightly used, may



not only greatly contribute to their professional success, but amply repay them for their trouble, by its utility in every relation of life.

"But while I estimate thus highly the value of Phrenology, it is right to warn you that it is of Phrenology as it exists in the minds of its well-informed cultivators, after years of study and observation, that I speak, and not of the fancy which many substitute for it in their own minds, and designate by its name. Of the latter kind of Phrenology, nobody can have a lower opinion than I have. It neither is nor ever can be of any use, either to its possessor or to others. The Phrenology which I have here recommended to you, is a science which cannot be mastered or judged of in a day, in a week, or in a month. Like other sciences, it must be studied before it can be known. Many entertain the notion that they have only to read a book or a pamphlet to qualify themselves to estimate its bearings, and pronounce authoritatively on its merits. This is a grand mistake; as well might we expect to become the equals of Liebig or Faraday, by reading a volume on Chemistry. Till we become acquainted with Phrenology in its details, with its evidences, and with its manifold applications to medicine, education, and morals, we are in truth as incapable of forming a correct opinion of its nature and uses, as we should be of those of Chemistry while in a similar state of ignorance."\* .

To The British and Foreign Medical Review, edited by his friend Dr. John Forbes, Dr. Combe contributed several papers.

About the year before his death, Dr. Combe formed the design of writing a treatise on the means of advancing medical science, and elevating the character of the profession. In his review of Dr. Parker's work, and the three Letters to Dr. Forbes, this important subject is touched upon in some of its aspects, but is neither so fully nor so systematically discussed as he conceived to be desirable. Unhappily, the state of his health prevented the completion of the intended work; but it is probable that at least some portion of the fragment which he has left behind him will be laid before the public. Among his papers there is likewise an unfinished essay, written in the present year, "On the Relation of Science to Education and Religion." His brother was, at the same time, and unknown to him, occupied with the same subject. George Combe's essay on "The Relation between Science and Religion" was hurriedly read by Dr. Combe in MS. just before his departure for

\* Dr. Combe has expressed his opinion of Phrenology, also in his *Physiology applied to Health and Education*, chap. xiii., p. 376; in his work on *Infancy*, chap. xv., p. 134, etc.; and in the *British and Foreign Medical Review*, No. 17, Article VII.

America, and was published during his absence. He communicated some valuable suggestions to his brother, of which the latter availed himself in that pamphlet; but, as already stated, he did not live to finish his own essay on the subject.\*

Although, as we have seen, Dr. Combe displayed great clearness and even vigor of intellect up to a late period, it would be a great mistake to infer that his mental faculties were not at all affected by the disease under which he labored. He himself and his intimate friends were painfully aware of the reverse. As his brain, though healthy, derived less stimulus than before from the blood, his mental energy and buoyancy decreased with his bodily strength; and in his later years his power of attention was soon exhausted, and the vigor of his judgment was diminished. In employing his mind, he acted on the same principles which guided him in managing his bodily functions. He never forced Nature to make an effort at a time when she was incapable of successfully doing so; nor did he draw upon her resources when he was conscious that she had done all that she could accomplish without exhaustion. In consequence, his later writings were penned chiefly in short paragraphs, at times when repose had accumulated a sufficiency of vigor; and he desisted from writing, the moment he had embodied in language the thoughts which he had elaborated, and expended the cerebral vigor which he had acquired.

The soundness of Dr. Combe's judgment, and the kindly interest which he took in the happiness of others, caused him to be frequently resorted to by his friends for counsel, whenever they found themselves in perplexing circumstances. For this and other reasons his correspondence was extensive, and much of it is of permanent value. Many of his letters may yet be recovered, and we hope that a selection from them will in due time be given to the public.

Dr. Combe's mind embraced in its sympathies a wide range of human interests. He was a zealous advocate of civil and religious liberty, and freedom of trade throughout the world. The passing of the Catholic Emancipation and the Reform

\* George Combe, entertaining no unusual apprehensions with respect to his brother's health, had gone to Germany in June. By post he received notice of Dr. Combe's illness, and the next morning read in a Cologne newspaper a notice of his death. His absence from Edinburgh during Dr. Combe's illness was a subject of deep regret to both

Acts, the abolition of the Corn-Laws, and every measure of a like tendency, gave him the liveliest satisfaction. He subscribed on two occasions to the funds of the Anti-Corn Law League, and entertained the highest respect for Mr. Cobden, with whom he was personally acquainted, and whom he rejoiced to reckon among the number of his friends and correspondents. In that gentleman's company, he last year spent most agreeably the greater part of a day at Kingston-on-Thames and Hampton Court. He fully sympathized with Mr. Cobden's feeling as to the pre-eminence of the moral consequences of free-trade—the linking of mankind into one universal brotherhood. It will readily be inferred that the recent agitation against the law of entail met his cordial approval; with Lord Kames he considered that when a lawgiver “ventures to tamper with the laws of nature,” endless and complicated mischief must ensue, even to those whom a vain attempt is made to benefit. So also, the late discussions in Scotland about Sunday-trains on railways, excited in him a keen interest; insomuch, that he had actually given orders for the purchase of shares in the Edinburgh and Glasgow Railway, with the view of affording, by his vote, a public testimony in support of that section of the partners, who, while explicitly recognizing the excellence of a weekly day of rest, look upon the virtual shutting up, for four-and-twenty hours every week, of the highway between two great cities, as a gross infringement of the rights of conscience, and a direct injury to the public. He saw much more of intolerance than of religion in the demands of those who—themselves claiming and enjoying an unbounded liberty to abstain from traveling, to any distance or on any occasion whatever, upon a Sunday—insist nevertheless on depriving all who hold other opinions as to sabbath-observance from enjoying a similar liberty of conduct. Within the last three months the public voice of Scotland has decided, in a manner not to be mistaken, that the means of traveling on Sundays shall be afforded to a reasonable extent; and Dr. Combe felt satisfied that such must speedily be the result of the discussions referred to. As the express object of his intended purchase of railway shares was the declaration of his opinion, we have felt it incumbent on us to mention here the light in which he viewed the conduct of the sabbatarian party.

The following beautiful delineation of Dr. Combe's character originally appeared in the Scotsman of 21st August :

"The decease of Dr. Combe will have taken no one who knew him by surprise, for he was for many years in that condition which makes life a greater miracle than death ; but it will not on this account be the less deplored, either as causing a blank in the circle of private friendship, or as the signification of a public loss. Dr. Combe belonged to that rare class of physicians who present professional knowledge in connection with the powers of a philosophical intellect, and yet, in practical matters, appear constantly under the guidance of a rich natural sagacity. All of his works are marked by a peculiar earnestness, lucidity, and simplicity, characteristic of the author ; they present hygienic principles with a clearness for which we know no parallel in medical literature. To this must be ascribed much of the extraordinary success they have met with, and on this quality, undoubtedly, rests no small portion of their universally acknowledged utility. Those, however, who look below the surface will not fail to trace a deep philosophical spirit as pervading these works, something arising from a perfect apprehension of, and a perfect allegiance to, the natural rule of God in our being. It has been a guidance—we would almost say an inspiration, of the author, without ever carrying him for a moment where ordinary readers could not follow him. Here, we think, is the true though latent strength of Dr. Combe's popular writings, and that which will probably give them a long-enduring pre-eminence in their particular department. We always feel, in reading them, that we are listening to one of those whom Nature has appointed to expound and declare her mysteries for the edification of her multitudinous family. In his own section of her priesthood, few have stood in his grade, fewer still become his superiors.

"The personal character and private life of Dr. Combe formed a beautiful and harmonious commentary upon his writings. In the bosom of his family and the limited social circle to which his weakly health confined him, he was the same benignant and gentle being whom the world finds addressing it in these compositions. The same clear, sagacious intelligence, the same entire right-mindedness, shone in his conversation. An answer to any query put to him, whether respecting professional or miscellaneous matters, was precisely like a passage of one of his books, earnest, direct, and conclusive. Whatever, moreover, he called upon others to do or to avoid, that he did, and that he avoided, in his own course of life ; for doctrine with him was not something to be treated as external to himself, but as the expression of a system of Divine appointment, of which he was a part. To his rigid though unostentatious adherence to the natural laws which he explained, it was owing that he sustained himself for many years in a certain measure of health and exemption from suffering, while laboring under the pulmonary disease which so often threatened to cut short his career. On this point, there is the more reason to speak emphatically, when we reflect that the years thus redeemed from the grave, were employed in that which will yet save many from premature

death; as if it had been his aim to show the value of even the smallest remains of life and strength, and thus advance one of the principles dearest to humanity. It was not, however, in any of these respects that the character of Dr. Combe made its best impression, but in his perfect geniality and simplicity, and the untiring energy of his practical benevolence. Here resided the true charm of his nature, and that which made him the beloved of all who knew him. No irritability attended his infirm health; no jealousy did he feel regarding those whom superior strength enabled to outstrip him in the professional race. Kindly and cordial to all, he did not seem to feel as if he could have an enemy—and therefore, we believe, he never had one. It might almost have been said that he was too gentle and unobtrusive—and so his friends, perhaps, would have thought him, had it not on the other hand, appeared as the most befitting character of one who, they all knew, was not to be long spared to them, and on whom the hues of a brighter and more angelic being seemed already to be shed."

The article here quoted, is reprinted in the concluding number of *The British and Foreign Medical Review*, where Dr. Forbes, in introducing it, pays the tribute of friendship in the following terms:

"We are indebted to the columns of that very superior newspaper, *The Scotsman*, for the following excellent account of an excellent man—if ever such there was. We have reason to believe, that it is from the pen of a celebrated writer, as well as a kindred spirit, who knew the deceased long and well—Mr. Robert Chambers.\* In all that is therein said in commendation of the character of Dr. Combe, we so entirely concur—and we speak from long personal intercourse—that if we could wish any of the expressions altered, it would be only that they might be made still stronger and more emphatic. Never, we will venture to say, did the ranks of Physic lose a more estimable member; and rarely—very rarely—has the grave closed over a gentler, truer, wiser, or better man. His loss to his friends is a loss that can never be supplied; his loss to the community is one of the greatest it could sustain in losing an individual. But he has fulfilled his mission, and done his work as far as was permitted. May they who are left to lament him, strive, as far as in them lies, to emulate his bright example."

In a will written with his own hand in 1844, Dr. Combe distributed the chief part of his property among his relations, preferring those who seemed to him to stand most in need of his benefaction, and leaving suitable acknowledgments to such as he felt himself indebted to for special services. He also made the following bequests, which we publish for the sole purpose

\* Only the two paragraphs descriptive of Dr. Combe's character, and which we have extracted above, are from the pen of Mr. Chambers.—*Ed. P. J.*

of letting it be seen what institutions he thought most deserving or requiring his support. "I leave £100 sterling to the Royal Infirmary of Edinburgh, an eminently useful institution; £50 to the Royal Edinburgh Lunatic Asylum; £50 to the Destitute Sick Society of Edinburgh; £50 to the Deaf and Dumb Institution; £50 to the Asylum for the Blind; £50 to the Phrenological Society of Edinburgh; and £20 to the Model Infant School in the Vennel. I select these as institutions about the utility of which there can be no doubt, and because they are not so well supported as they ought to be by the public. I ought to add that I make these bequests from no love of ostentation, but from a strong sense of duty. During my life, my health was always so precarious as often to make it doubtful whether I should be able to earn a subsistence, or be able to lay up any thing for my support in case of being long incapacitated for practice. I was therefore obliged to lay out less money for charitable purposes than I ought to have done, and the only compensation in my power is to bestow for similar purposes that which would have come with a better grace during my life." It is but justice to Dr. Combe to say, that, although his expenditure for charitable purposes was less than he desired, yet he was, for many years past, a liberal contributor to the funds of benevolent and useful institutions, besides responding with alacrity to all private claims upon his bounty. The amount of personal trouble, also, which he often took on behalf of those whom he thought he could be of service to—and this even when he had little strength to spare—was such as to excite the admiration of all who were aware of the circumstances.

Though endowed with all the gentle qualities and domestic affections which render the married state agreeable, Dr. Combe scrupulously refrained from matrimony, and would not have reckoned an opposite course the less culpable because sanctioned by a clerical benediction. His motive will be obvious on perusal of what he has written about hereditary transmission of disease.\* Except for the reason alluded to, he must long ago have ceased to lead a single life. Indeed, one of the striking features of his character was his attachment to, and

\* See *Physiology applied to Health and Education*, ch. x., p. 293; and *Management of Infancy*, ch. iii., p. 17.



sympathy with, women of intelligence and refinement. He counted many such among his intimate friends; and while he rejoiced in their society, he was ever ready to sympathize with them in their joys or sorrows, and to aid them with his counsel. The sacrifice of enjoyment which he made, at the call of what he considered to be duty, in leading a single life, will be best appreciated by those who knew him most intimately.

Dr. Combe was fond of harmless mirth, and possessed no inconsiderable talent for humor. In the domestic circle this quality displayed itself in streams of good-natured jocularly, and in his familiar correspondence the coruscations of his wit were frequent and effective. He was fond of children: and some who read these pages will remember the heartiness with which, in their early youth, they used to shout with merriment at the "funny faces" he made for their amusement; and the storms of glee that arose when, feigning unconsciousness, he allowed a regiment of his little friends to carry him in procession through the room, on the floor of which they would deposit their somnolent and rigid burden, celebrating their achievement by dancing and shouting around it.

His talent for languages was not so great as to make him love their study for its own sake. He could speak fluently French and Italian, and latterly acquired sufficient knowledge of German to be able to understand didactic works in that language without much difficulty. He was fond of the English classics, among whom our great Dramatist held the highest place in his estimation. In re-perusing the plays of Shakspeare, he constantly saw fresh reason for admiration of the profound knowledge of human nature, and wonderful power of terse and accurate description, which they display.

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REPORT OF THE POST MORTEM EXAMINATION BY DR. JOHN SCOTT

The skull was remarkably thin and regular in its walls; the internal surface more deeply marked by the blood-vessels than usual; the brain exceedingly healthy.

The thorax was much contracted on the left side, especially on the superior part, measuring fully two inches less than the right, and being flattened and depressed under the clavicle and the two first ribs. On removing the sternum, the RIGHT lung



was found very large, passing to the left side of the sternum, and filling a space in the left side of nearly two inches in breadth, and three in length. The right lung itself was inherent to the pleura costalis by scattered and firm adhesions. The lower surface was more especially attached to the diaphragm by very close adhesions. The lung in its texture was in some places, especially toward the lower part, congested, but every where pervious to air, and without any tubercles. The bronchial tubes were firmer and larger than natural.

The LEFT lung was contracted to a very small size, and adherent by very thick and strong false membranes; especially in the summit of the ribs, the adhesions were so strong that the lung was with difficulty removed. The summit was particularly indurated and infiltrated with black matter, but without any change in its structure. It also contained many large and small caverns. The lung was without any tubercle or cretaceous matter. The surface was black, and this color was found to pervade the pulmonary texture generally; the cellular appearance was, however, still visible. The upper lobe was dense in structure and hollowed out into numerous caverns opening into each other in some instances, in others single and of smaller size. These extended from the summit of the lung, and chiefly occupied the anterior part, and opposite the first and second rib. The bronchial tubes, some of a large size, opened directly into the caverns and were continuous with them. The longitudinal fibres in the larger bronchial tubes were particularly strong, and the circular ones in the smaller. The caverns themselves were remarkably regular in shape, especially when single, and were lined by a fine, smooth, thin membrane. The opening of both small and large bronchial tubes was easily perceived in them; they were more generally dilatations of the extreme terminations, than merely dilatations, of the large bronchiæ. There was no emphysema.

The lower lobe was fleshy, pretty firm, but retained more of the natural appearance than the upper. The heart was large, but not diseased. The kidneys seemed natural in structure, but were filled with a grayish-colored thick fluid. The colon and rectum were thickened throughout, and covered with minute ulcerations, some very small, and others of considerable size. The muscular and mucous coat of the rectum was thickened.

REPORT OF THE EXAMINATION OF THE SKULL AND BRAIN OF THE  
LATE DR. ANDREW COMBE, BY DR. HANDYSIDE, F. R. S. E.

A. THE CRANIUM.—I. Texture thin, the tables having closely coalesced; excepting, 1st, at the frontal sinuses, which are large and well developed; and, 2dly, on both sides of the longitudinal sinus, where the inner table of the cranium is opened up in texture over a greater extent than is usual.

II. Regularity and Symmetry remarkable, excepting that, 1st, on the left side of the vertex, the cranium is quite diaphanous; 2dly, the area of the cranium to the left of the mesial line is greater than on the right side; and, 3dly, the internal occipital protuberance and the crucial and lateral grooves on the two sides, are unequal in form and bulk.

B. THE ENCEPHALON.—I. General form a regular ovate; 1st, the longitudinal and oblique fissures are very deep, including a greater number of secondary fissures in the latter than is usual; depth of longitudinal fissures at splenium of corpus callosum,  $2\frac{1}{2}$  inches; depth at genu of corpus callosum,  $1\frac{1}{2}$  inch; 2dly, the sulci (anfractuosities) deeper than usual; greatest depth in left hemisphere,  $\frac{3}{4}$  inch; depth in right hemisphere,  $\frac{3}{8}$  inch; 3dly, the lobes and lobules, and other anatomical features of the encephalon, very strongly marked.

II. PROPORTION.—1st, the left side of the encephalon the greater; 2dly, the corresponding gyri (convolutions) of the opposite sides approach more to symmetry than usual.

III. BULK.—Greatest Length, 7 inches. Greatest Breadth,  $5\frac{1}{6}$  inches. Greatest depth, vertically to base of inferior lobe,  $4\frac{1}{2}$  inches—vertically to base of cerebellum,  $4\frac{1}{2}$  inches.

IV. WEIGHT (including pia mater), 57 oz. avoirdupois, [being about 7 oz. above the average; in Dr. Chalmers, 53 oz., Dr. Abercrombie and Baron Cuvier, each 63 oz., and Baron Dupuytren, 64 oz.]

V. STRUCTURE, perfectly normal, including the membranes and vessels. The cineritious matter is about a third narrower than usual, and devoid of the internal translucent pearly laminæ frequently observed. The encephalon in general is remarkable for its firmness of texture.

## VARIETY.

**CASE OF EXTRAORDINARY NATURAL PROPENSITY TO MURDER.**—Last year there was presented to me, in a city in Lombardy, a boy of four years of age, concerning whom I was previously told that he was a wonderful example of hereditary mental faculties, the exhibition of which was, in his case, as strong and characteristic, as if the son of a Cuvier, for instance, had given, even from boyhood, indications of a genius equal to his father's for the natural sciences. As soon as I saw him, I perceived that some good-natured imposition had been practiced upon me. He was of a nervous-lymphatic temperament, with fair and pearl-colored hair, and squinting eyes. The outline of his very pale face was oval, with a narrow, low, and retreating forehead, the frontal protuberances of which were but slightly marked. The whole of the back of his head was of an enormous size; and, what struck me most, the posterior two thirds of the squamous suture of the temporal bone presented a remarkably elevated convexity of a longitudinal segment of an ovoid. These were the boy's characteristic features. I asked, as if in jest, whether his father was a butcher. The answer was, that his father belonged to a wealthy and genteel family, and that he had gone through a regular course of studies at one of the universities. On my declaring that I was unable to discover in the boy any other mark of predominant psychical tendencies than that of an instinctive propensity to destruction and murder, the following statement was made before two witnesses, by an enlightened and most worthy priest, whose efforts were at the time directed to counteract, by education, the evil propensities in the boy's nature.\*

"This boy is exceedingly fond of handling knives; he constantly tries to steal one away from the dinner-table, that he may go out and play with it. His knife-playing consists in running against any one who comes near him, both with threatening gestures and words. He always uses the following Italian phrase:—'*Guarda che ti ammazzo*'—'*Take care, or I'll murder you.*' When he cannot get at a knife, he will lay hold of a nail, or a piece of wood, and go with it to his favorite sport. He will turn his weapons even against his mother, whenever she attempts to dispossess him of them. When he is alone, he attacks the walls and household furniture, trying to pierce them with his iron instrument, and still exclaiming, as usual, '*Guarda che ti ammazzo.*' He will sometimes even turn it upon himself, muttering, '*I'll murder myself.*'" I asked how he could possibly have inherited such a murderous disposition from

\* All matter-of-fact details contained in this statement are authenticated by autographic documents, which may be seen upon application to the Abbé Restani at Milan.

a well-educated father of the better class, and was then told his father's name. I must forbear entering into any biographical details concerning a man who, born in affluence, and well brought up, nevertheless plunged into vice and crimes, distinguishing himself for cruelty even among murderers. What it concerns us to know, and has been fully established, is, that this man became the author of the boy's life at a time when he had just committed a murder. I regret that I have not been able to collect information about the uterine stage of this boy's existence, and that I have not had an opportunity of examining him again. His mother, broken down with grief at seeing in her child the sad tokens of his father's disposition, is anxious to withdraw him from general observation.\*

We have here a striking confirmation of the truth of Gall's system, which indeed scarcely needs any now-a-days, when the facts which establish it have become so numerous as to render it all but hopeless ever to counterbalance them with an equal number of facts of an opposite character.

This is not, however, the object of the present communication. Besides that, we have here a singular phenomenon of cerebral influence upon the act of generation.

[The writer adds some speculations on the latter subject, which we omit, as too purely hypothetical to be satisfactory. All that can be warrantably affirmed appears to be, that the father's sanguinary disposition was transmitted to his son, and that, probably, the circumstances in which the child was produced gave still greater strength to the inherited tendency than it would otherwise have had.—ED.]

LECTURES ON PHRENOLOGY.—In January, Mr. C. Donovan, of London, delivered three lectures at the Literary and Scientific Institution, Stratford-on-Avon; in January and February, six to a class of subscribers, as many to a class of operatives, and eight to a select class in his own rooms, at Leamington; and in March six lectures at the Mechanics' Institution, Dublin. The last of these courses was preceded by an introductory lecture on the advantages, social importance, and fundamental principles of Phrenology, of which we observe a laudatory notice in the Freeman's Journal of 4th March. In December, Mr. E. T. Hicks delivered lectures on Phrenology and Mesmerism at Loughborough; and in January, Mr. A. T. Chalmers lectured on Insanity to the members of the Mechanics' Institution, Derby. On the evenings of 4th and 5th March, two lectures—one on "Man phrenologically and metaphysically considered," and the other, on "The state of Adam and Eve in Paradise"—were delivered before the members of the Sheffield Phrenological Society, by Mr. David M'Taggart, surgeon, of Halifax. This society, we may mention, has printed a diploma for honorary members, to serve as a testimonial of the skill and knowledge of such lecturers on Phrenology as may apply for,

\* It is worthy of remark, that this child, who was born when his father was already in the hands of justice, has been the object of his mother's unremitting and anxious solicitude.

and, after due investigation, receive it. "Our attention," says the Secretary, "was called to the growing necessity of something of this kind, by the fact, that an individual named Lundie, who, when lecturing here a short time ago, announced himself as a member of the Glasgow Phrenological Society, but was, subsequently, denied to be such."

**IRRESISTIBLE PROPENSITY TO STEAL.**—Phrenologists well know that a mental faculty, either from an undue development, or the force of circumstances, may have such energy as to be uncontrollable. The perseverance by many in eccentric or vicious practices, in spite of every external inducement, can be accounted for in no other way. The perception of good and evil, does not, of itself, confer the ability of following the one, and avoiding the other. The moral faculties are necessary to the preference of what is right. For this reason, the criminal should excite our pity more than our anger, and the law should be a schoolmaster to teach and improve, and not to revenge.

This is a truth recognized by believers in Phrenology. Would that it were so by the rest of mankind, then may we hope for a happy alteration in prison discipline. Until it be, the phrenologist should never lose sight of a fact which tends to strengthen his position. "Facts are stubborn things;" and their accumulation will eventually destroy all that is opposed to them.

How many unhappy persons habitually steal—persons far above want and its temptations. The writer is acquainted with such an one. She is a most inveterate thief, and is known for miles around her neighborhood. She is religious and industrious, and in some respects conscientious, for she is scrupulous in discharging her debts, and performing her promises. She is sensible of her infirmity, weeps when the "terrors of hell" are threatened her, offers ample remuneration when detected, and presents her only excuse, "That she cannot help it."

Unfortunately she has children who inherit her disposition. They steal as it were by instinct; and if ever they gratify their propensity where they are unknown, they will, doubtless, become the victims of the law.

The intellectually insane are not considered responsible; and every means is taken, by their guardians or the state, to shield them from danger, and prevent their commission of crime. Ought not the morally insane to have care bestowed on them? Yes; the more especially because, possessing intellect, their power and disposition for mischief are proportionably increased.

HENRY NORRINGTON.

**BRAIN OF THE GIRAFFE.**—At a meeting of the Paris Academy of Sciences, on the 12th February, 1844, a communication was received from M. Joly, of Toulouse, and M. Lavocat, of the veterinary school of that town, on the anatomy of a giraffe which died there a short time ago. The most remarkable facts noticed by them are the extraordinary length of the digestive tube of this animal, which measured about 200 English feet, and the great volume and numerous circumvolutions of the brain.

The weight of the brain in the animal dissected by them was 710 grammes, about a pound and a half English. In volume it exceeds that of the ox or the horse.—*ATHENÆUM*.

**LORD BYRON'S HEAD.**—The author of *Pen-and-Ink Sketches of Poets, Preachers, and Politicians*, which is reviewed in the *Athenæum* of 29th August, 1846, states that he saw in the house of Sir Edward Knatchbull, the dead body of Lord Byron, when brought to London in 1824. "The head of the poet," says he, "was covered with short, crisp, curling locks, slightly streaked with gray hairs, especially over the temples, which were ample and free from hair, as we see in the portraits. The face had nothing of the appearance of death about it—it was neither sunken nor discolored in the least, but of a dead, marble whiteness—the expression was that of stern quietude. . . . The forehead was high and broad—indeed, the whole head was extremely large—it must have been so, to have contained a brain of such capacity."

**LECTURES ON PHRENOLOGY.**—In June and July, Mr. C. Donovan delivered a course of nine lectures in Cork; and a wish having been expressed, chiefly by young men engaged in business, for a second course, he delivered six lectures in August. At the close of the latter course, thirty gentlemen, including three physicians, formed a class for the purpose of receiving instructions in manipulating the head. Thirteen ladies formed a similar class; and Mr. D. had, besides, several private pupils. Immediately after the first course, an open meeting, to which admission was free, was held in the theatre of the Philosophical Institution; and parties opposed to Phrenology were invited to attend. Only one of the prominent opponents appeared, and he, it seems, was totally unprepared with any kind of hostile argument. In the middle of September, Mr. Donovan was to deliver three lectures in Youghal, and he means to commence a course in Belfast early in October.

**DE VILLE'S COLLECTION OF SPECIMENS.**—It consists of about 2450 specimens, nearly 200 of which are skulls. The rest are, with very few exceptions, all ORIGINAL casts. Upwards of 1500 have been taken from the life at his own house. Of the skulls, about 14 are of men remarkable chiefly for their atrocity. The remainder, except a few which are in themselves very interesting, belong to the aborigines of various parts of the globe. Among the casts there are about 300 that have been taken from original moulds made upon skulls. A few of these are from the skulls of some of the most extraordinary men recorded in history. Descartes, for instance. There are many from those of executed criminals, and a large portion from the crania of aboriginal tribes. About 30 of these are of the ancient Peruvian stock. There is a very interesting series of casts from the heads of remarkable characters, together with casts of the exterior and interior of their skulls. Some of these were insane and idiotic, some of them poets, and the others desperate highwaymen. There is likewise a set, about 30 in number, from persons who died insane, from Esquirol's collection. The casts of young persons from the age of seven to eighteen



are nearly 80 in number. These are interesting in the extreme. They serve to illustrate various degrees of endowment from imbecility to brilliant capacity. In some cases the shades of difference as to form would not, except to a practiced eye, warrant the conclusion that there existed much diversity of power. There is a vast deal of information to be acquired in this department. A large number of these are accompanied by second casts (not duplicates), which were taken at intervals of two, three, and four years. The growth of the head after the age of thirteen is very considerable. Of this there are some very remarkable instances. There are some of precocious musical talent, some of arithmetical, some of mathematical, and some who were extraordinary linguists. About 170 casts have been taken to illustrate changes of form. The change is, in many cases, remarkably striking. In many instances, measurements have been made by me over various parts of the head; but it will not be necessary to mention more than one case now. A cast was taken at the age of sixteen, and another of the same youth one year and ten months after. The first measured from ear to ear over the perceptive organs  $11\frac{1}{4}$  inches, over reflectives  $12\frac{3}{4}$ ; the second measured  $12\frac{1}{4}$  inches over the perceptive, and 13 over the reflectives. The statement is confined to two measurements, because there can be no objection made on the score of hair. It should be added that the increase occurred chiefly in the frontal region; and that the growth was in the site of the organs that had been, during those two years, assiduously exercised. The series of 72 casts illustrative of the large and small developments of each organ is very instructive. These are from known characters, many of them being public men of distinction. There are about 80 casts of poets, novelists, and other literary men. Several of these are from among the peasantry. The casts of mathematicians and engineers are numerous; and their intellectual development forms a striking contrast to those I have last mentioned. Of dramatists, actors, musicians, painters, and sculptors, there is an extensive series, embracing the most celebrated modern ones; men eminent in different departments of art. There is a large series of casts (about 50), from persons devoted to religious pursuits. There are about 30 casts of the most eminent travelers and navigators of modern times. Some of these possess uncommon interest. There are also several casts of men who have obtained celebrity as prize-fighters. There is an extensive series of original masks, many of them being casts (chiefly posthumous) of some of the greatest statesmen and orators that this country has produced. And it is interesting to see how completely the developments correspond to the peculiarity of intellect displayed by each of them. There are also casts of men eminent in the learned professions. There are a few casts of Chinese, New Zealanders, and Esquimaux. There are several wax models of the dissected human brain, illustrating its anatomy after the manner of Gall, Spurzheim, and Reil.

Mr. De Ville collected also about 3000 crania of animals for the study and illustration of Comparative Phrenology. This part of his museum was but partially arranged, and never exhibited to visitors.



**POWER OF THE VOICE OVER CHILDREN.**—It is usual to attempt the management of children either by corporeal punishment, or by rewards addressed to the senses, or by words alone. There is one other means of government, the power and importance of which are seldom regarded. I refer to the human voice. A blow may be inflicted on a child, accompanied by words so uttered as to counteract entirely its intended effect; or the parent may use language in the correction of the child, not objectionable in itself, yet spoken in a tone which more than defeats its influence. Let any one endeavor to recall the image of a fond mother, long since at rest in heaven. Her sweet smile and ever clear countenance are brought vividly to recollection; and so also is her voice; and blessed is that parent who is endowed with a pleasing utterance. What is it which lulls the infant to repose? It is no array of mere words. There is no charm to the untaught one in letters, syllables, and sentences. It is the sound which strikes its little ear that soothes and composes it to sleep. A few notes, however unskilfully arranged, if uttered in a soft tone, are found to possess a magic influence. Think we that this influence is confined to the cradle? No, it is diffused over every age, and ceases not while the child remains under the parental roof. Is the boy growing rude in manner and boisterous in speech? I know of no instrument so sure to control these tendencies as the gentle tones of a mother. She who speaks to her son harshly, does but give to his conduct the sanction of her own example. She pours oil on the already raging flame. In the pressure of duty, we are liable to utter ourselves hastily to our children. Perhaps a threat is expressed in a loud and irritating tone; instead of allaying the passions of the child, it serves directly to increase them. Every fretful expression awakens in him the same spirit which produced it. So does a pleasant voice call up agreeable feelings. Whatever disposition, therefore, we would encourage in a child, the same we should manifest in the tone in which we address him.—CHURCH OF ENGLAND MAGAZINE.

**CONTENTION WITH DIFFICULTIES.**—You will see persons who seem to enjoy such advantages of birth and fortune, that they can have no difficulties to contend with, and some one of you may be tempted to exclaim, "How much is their lot to be preferred to mine!" A moderate experience of the world will teach you not to be deceived by these false appearances. They have not your difficulties, but they have their own; and those in whose path no real difficulties are placed, will make difficulties for themselves; or, if they fail to do so, the dulness and monotony of their lives will be more intolerable than any of those difficulties which they may make, or which you will find ready made for you. Real difficulties are much to be preferred to those which are artificial or imaginary; for, of the former, the greater part may be overcome by talent and enterprise, while it is quite otherwise with the latter. Then, there is no greater happiness in life than that of surmounting difficulties; and nothing will conduce more than this to improve your intellectual faculties, or to make you satisfied with the situation which you have attained in life, whatever it may be.—SIR B. BRODIE'S DISCOURSE TO MEDICAL STUDENTS.

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