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978-1-108-00451-0 - On the Relation Between Science and Religion

George Combe

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For centuries, scripture and theology were the focus of prodigious amounts of scholarship and publishing, dominated in the English-speaking world by the work of Protestant Christians. Enlightenment philosophy and science, anthropology, ethnology and the colonial experience all brought new perspectives, lively debates and heated controversies to the study of religion and its role in the world, many of which continue to this day. This series explores the editing and interpretation of religious texts, the history of religious ideas and institutions, and not least the encounter between religion and science.

On the Relation Between Science and Religion

George Combe (1788-1858) rose from humble origins to tour widely in Europe and the United States lecturing on phrenology, the popular Victorian belief that character traits were determined by the configuration of the skull. His most famous book, *The Constitution of Man*, published in 1828, put forward a naturalist agenda and sold approximately 350,000 copies, distributed by over 100 publishers, by 1900. In 1857, Combe published *On the Relation between Science and Religion*. He describes his childhood bafflement as to how God governs the world, his delight on observing the laws of nature, and his disillusionment with human social organisation. He denounces dogmatism and sectarianism, and argues insistently that religious leaders should encourage the study of science as revealing God's governance, rather than discourage it. He proposes that phrenology sheds light on the divine purpose and moral laws through an improved understanding of the workings of the human mind (identifying 'affective' and 'intellectual' areas of the brain responsible for traits such as 'benevolence', 'wonder', and 'hope'), and criticises both scientists and religious leaders who maintain that higher thought and moral behaviour has nothing to do with the brain. His book ranges widely across the concerns of Victorian educated classes, referring to books (including Paley's *Natural Theology* as well as the phrenology works of Gall and Spurzheim), statistics on church attendance, popular views on Eastern religions, spiritualism, and Roman Catholicism, and current affairs. It is a fascinating document of its time, and addresses questions many of which still resonate today.

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ON
THE RELATION
BETWEEN
SCIENCE AND RELIGION.

BY
GEORGE COMBE.

Ταρασσει τοὺς ἀνθρώπους οὐ τὰ πράγματα, ἀλλὰ τὰ περὶ τῶν πραγμάτων
δόγματα· οἷον θάνατος οὐδὲν δεινόν, ἐπεὶ καὶ Σωκράτει ἀν' ἐφαίνετο· ἀλλὰ
τὸ δόγμα τὸ περὶ θανάτου, ἐκεῖνο τὸ δεινόν ἐστίν.—ΕΠΙΚΤΕΤΟΣ, *Enchir.* 10.

TRANSLATION.

"Men are harassed not by things but by the notions they form of things: death, for example, is nothing terrible, for if it were, it would have appeared so to Socrates; but the notion that death is something terrible, is the really terrible thing."

"Impiety clears the soul of its consecrated errors, but it does not fill the heart of man. Impiety alone will never ruin a human worship. A faith destroyed must be replaced by a faith. It is not given to irreligion to destroy a religion on earth. It is but a religion more enlightened which can really triumph over a religion fallen into contempt, by replacing it. The earth cannot remain without an altar, and God only is strong enough against God!"—LAMARTINE'S *History of the Girondists* (vol. i. p. 156; Bohn, 1846).

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TO CHARLES MACKAY, Esq., LL.D.

MY DEAR SIR,

A friendship of long duration, admiration of your genius, and cordial sympathy with the purposes to which you have devoted it, induce me to dedicate this volume to you as a mark of affection and esteem.

I am,

My Dear Sir,

Yours very sincerely,

GEO. COMBE.

EDINBURGH, 31st *March* 1857.

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The substance of this work appeared first in the *Phrenological Journal*, vol. xx., published in 1847.

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INTRODUCTION.

THE present work first appeared in 1847 as a pamphlet, and attracted considerable attention. It has for some time been out of print, and as it continues in demand, I have been led by circumstances to enlarge it in the present edition. As the investigation contained in it is of great extent, and embraces a consideration of the present religious creeds of Europe, I shall introduce it by a brief notice of the incidents which led me to take an interest in the subject. By pursuing this course, I shall be under the necessity of introducing a portion of my personal history—which may expose me to the charge of vanity and egotism; but on the other hand, the narrative will shew that the questions here discussed have long formed topics of earnest and serious consideration in my mind, and that the views now advanced are brought forward in no light spirit, but are founded on deep and solemn convictions.

An event so common and trivial as almost to appear ludicrous when introduced into a grave discourse, but which is *real*, gave rise to the train of thought which is developed in this work. 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 in-

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stantly put the question to her, “*How* will God reward me?” “He will send you everything 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 dimensions, 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 afterwards, 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 exercises his jurisdiction.

Some time afterwards, I read in the Edinburgh Advertiser, that Napoleon Buonaparte (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,

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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 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 recognise 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 before 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 Assembly of Divines at Westminster ; and read orthodox sermons

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and treatises by various distinguished authors. In the Old Testament there were narratives of God's government of the Jewish nation, by the exercise of special acts of supernatural power, and I 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 practised 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 favour.* 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

* See examples in point in Chapter I.

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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 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.

During the time these speculations engaged my attention, my mind opened to the import of the Calvinistic theology which had formed the staple of my religious instruction. I was taught to repeat the Catechism from which an extract is given on page 186, and I attended regularly a church in which Calvinism was preached by one of the ministers, in a form which, to me, was very terrible. Conscious of being no better than my fellow-creatures, I could discover no reason why, if any were to be passed over to the left hand at the day of judgment, I should not be one of the number. The narrative of the sufferings and death of Jesus Christ, excited in me only strong feelings of compassion for Him, and of indignation against his persecutors. I was overwhelmed by the terrors of a future judgment, and wished myself an inferior animal without a soul. So deep and habitual was the gloomy impression, that summer was rendered appalling by the prospect of thunder storms, in one of which I might be struck instantaneously dead and precipitated in a moment into everlasting misery. In the autumn evenings, I used to climb high up on the rocks of Edinburgh Castle, which overhung my father’s house, and gaze with intense interest on “The Evening Star,” or planet, that shone with resplendent brilliancy in the wake of the departed sun; I longed to see into its internal economy, and thought: “Oh! could I but discover that summer and winter, heat and cold, life and death, prevail in you as they do here, how happy should I be! I should then believe that this world

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is not cursed, but that you, the planet,—and we, the earth,—are both such as God intended us to be !”

The distress occasioned by these impressions was aggravated by finding such doubts and difficulties described in the Catechism “as punishments of sin,” and ascribed to “blindness of mind, a reprobate sense, and strong delusions.” I believed this to be the fact, because at that time I had not heard or read a word calling in question the absolute truth of the doctrines of the Catechism. The only information I then possessed about “unbelief” and “unbelievers” was derived from sermons preached against them ; and it was not till a much later period that I became convinced that the feelings now mentioned arose from the intuitive revulsion of the moral, religious, and intellectual faculties with which I had been endowed, against the dogmas of Calvin.

The only relief from these depressing views of man’s qualities and condition was afforded by the perusal of “Ray on the Wisdom of God in Creation,” and subsequently “Paley’s Natural Theology.” At first, I feared that their views also were “strong delusions,” but as my understanding gained strength, these works confirmed my faith that God does govern the world ; although, owing to their containing no clear exposition of the *manner* in which He does so, they conveyed rather an impression than a conviction of the fact. Moreover, as I never saw any person *acting* on that faith, it maintained itself in my mind chiefly as an impression ; and it thus remained for many years, 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 my attempts to discover *how* this government is effected. Intercourse with society revealed to me that my earnest and literal application of the Calvinistic doctrines was idiosyncratic, and that ordinary believers were in the habit of modifying the sense in which they accepted them, pretty much to suit their own tastes. When I suggested that this was practising conventional hypocrisy, I was told that no other course was left

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open to a young man who depended on public opinion for success in his profession; for were he to disclose his dissent from the religious standards of the country, he would be branded with the stamp of infidelity, suspected of immorality, and obstructed in every step of his career. Besides, it was hinted that Scripture itself recognises the admissibility in such cases of compliance with the established forms of worship, even when these are idolatrous. See 2 Kings, chap. v., verses 17, 18, and 19.*

The 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 revolutions of the planets and their satellites, the conviction that God governs in that system was at once irresistible, complete, and delightful. The planets, however, were far away, and I longed to discover the same order and harmony on earth; but in vain.

My next studies were Anatomy and Physiology. From these sources new light broke in upon my mind. Clear, however, as the examples of Divine government afforded by these sciences appeared to be, I found no application made of them beyond the domains of surgery. No practical inference was deduced from them 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 in the qualities and relations of matter, it presented

* "Naaman" (the leper, captain of the host of the King of Syria) "said" (to Elisha who had cured him by bidding him wash in Jordan), "Shall there not then, I pray thee, be given to thy servant two mules' burden of earth? for thy servant will henceforth offer neither burnt-offering nor sacrifice unto other gods, but unto the Lord. In this thing the Lord pardon thy servant, that when my master goeth into the House of Rimmon to worship there, and he leaneth on my hand, and I bow myself in the house of Rimmon: when I bow myself in the House of Rimmon, the Lord pardon thy servant in this thing. And he said unto him, *Go in peace.* So he departed from him a little way."

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extraordinary illustrations of Divine government. 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 admitted of even mathematical and arithmetical computation, and 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 labour; 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.

I first read the work of Mr Malthus in 1805, and he appeared to me to prove that God reigns, through the medium of fixed natural laws, in another department of human affairs—namely, in that of population. The facts adduced by him shewed that the Creator has bestowed on mankind a power of increasing their numbers much beyond the ratio of the diminution that, in favourable circumstances, will be caused by death; and, consequently, that they must limit their increase by moral restraint; or augment, by ever-extending cultivation of the soil, their means of subsistence in proportion to their numbers, or expose themselves to the evil of being reduced by disease and famine to the number 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 honoured 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.

Bishop Butler also threw a flash of light across the dark

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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 did little to elucidate 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.

Although, in this manner, partial light appeared to dawn on the government of physical nature, the administration of the moral world remained a complete enigma, and it was not until a comparatively recent period that glimpses of order began to appear in it also. It was Dr Gall's discovery of the functions of the brain that led me by imperceptible steps to the views on this subject which are presented in the present volume ; and they rest on it alone. I mention this fact, because I am well aware that this discovery continues to be ignored or rejected by almost all men of science, and by the people in general of Europe. Nevertheless, I have a complete conviction, founded on observation and experience extended over forty years, that, although far from perfection, it is essentially founded in truth, that its doctrines require only to be tried by the standard of nature to be accepted by men of ordinary honesty and intelligence, and that enough is ascertained to warrant the inferences here deduced.

It becomes important, therefore, in support of the basis on which the most important conclusions of this work are founded, to endeavour to throw light on the causes of the long rejection of Phrenology.

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In 1812 I attended a course of Lectures on Anatomy and Physiology delivered by Dr John Barclay, then the most esteemed teacher of these sciences in Edinburgh; and after a display of the mechanical structure of the brain, by slicing it across from side to side, commencing at the top, which occupied four hours, I heard him declare that the functions of its different parts were unknown. I had previously studied mental philosophy in the standard works on the subject, and knew that in them no exposition was given of organs by which the different faculties act, or are influenced. When, therefore, Gall's doctrine that particular mental powers are connected with different portions of the brain was announced in England by Dr Spurzheim, I was convinced that neither anatomists, physiologists, nor mental philosophers, were in possession of any knowledge whatever on the subject; nevertheless, they rejected it with contumely and disdain. At first I was led away by the boldness and confidence of their condemnation; but after attending a course of lectures by Dr Spurzheim, and seeing the evidence he presented in proof of the discovery, I was puzzled to account for the unmeasured abuse that was heaped on it by men of almost all conditions and attainments, in absolute ignorance of its merits.

In the course of reflection, it appeared to me that this state of public opinion arose from inattention to two facts which were indisputable, and which were decisive as to the competency of the objectors, in the actual state of their knowledge, to pronounce any rational judgment on the subject: these were—First: That structure does not reveal the vital functions of organs; and, Second: That we have no consciousness, of the functions of the different parts of the brain. Now, the acutest intellect having no knowledge of the functions of the brain except that derived from structure and consciousness, was absolutely incapable of telling whether Gall's views were true or false. Nevertheless, this was the actual condition of mind of the opponents, and it continues to be the state of most of those who reject Phrenology in the present day.

On the 5th May 1819 I communicated these propositions to Dr P. M. Roget, who had then published in the Supplement to the Encyclopædia Britannica a pretended refutation of Gall's "Cranioscopy," &c., and challenged him to confess or deny their

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truth and relevancy in relation to the question in hand.* But he answered that the essential point at issue is: "Whether there really exists such a uniform correspondence between certain forms of the head, skull, or brain, and certain characters of mind, as can be distinctly recognised by observation;" and that, in his opinion, the evidence derived from the observations of Drs Gall and Spurzheim "is quite inconclusive." In reply, I wrote that if the object be important, and if there be *no method* of attaining it, except that followed by Gall and Spurzheim, why, if their evidence was insufficient, did he not proceed to observe nature and seek for evidence of his own? He rejoined: "My comments of course applied solely to the evidence brought forward by its founders, Drs Gall and Spurzheim; I accordingly thought it right to omit all reference to my personal experience on the matter, more especially as I was not exactly writing in my own name; and I felt it nowise incumbent on me to lay the foundations of any similar system myself, or presume to direct others in the pursuit, by laying down a plan of operations to be followed for that purpose."

I have referred to this correspondence because it represents the condition of mind of the men who rejected Dr Gall's discovery forty years ago, and whose writings and authority formed the public opinion on it at that time. I can safely affirm that, after the most careful study of the objections, the conviction was irresistibly forced on me that their authors *had not made themselves acquainted* with the evidence adduced by Drs Gall and Spurzheim, and had never seriously considered the propositions that *Gall's method is the only one by which the object can be reached*, and that every person who has not resorted to the practice of it, is absolutely and necessarily ignorant whether his discoveries are true or false.

The only exception to this style of condemnation known to me was presented by Mr John Abernethy, who said: "I see no mode by which we can with propriety admit or reject the assertions of Drs Gall and Spurzheim, *except by pursuing the same course of investigations which they themselves have followed*; a task of great labour and difficulty, and one which, for various reasons, I should feel great repugnance to undertake."†

* See the correspondence in my translation of Gall on the Cerebellum, p. 217.

† Memoir of John Abernethy, by George Macilwain.

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These observations are worthy of the honest and powerful mind that uttered them. The study *is* difficult, perhaps the most difficult of all subjects of scientific inquiry. The difficulties arise from the following circumstances. Phrenology is the Physiology of the Brain; and is not, and cannot become, an *exact*, but must ever remain an *estimative* science. In no department of Physiology can mathematical measurements be applied to determine the *size* of organs, on which, *cæteris paribus*, the amount of their vital power depends. We must *estimate* their size by tact, improved by experience. Again, the force of a vital function cannot be mathematically measured, but must be *estimated*. In Phrenology, therefore, we have to learn—1st, To know the exact situation of each organ; 2dly, To estimate its absolute size, and its size in relation to the other organs; 3dly, To discover the primitive faculty on which each particular mental manifestation depends; to *estimate* the strength of that faculty; and then to compare its strength with the size of its organs; 4thly, To discover by observation and experience what changes in the *direction* of the faculties are occasioned by the combinations of their organs in different degrees of relative size; 5thly, To estimate the effects of temperament and training on the *strength* and *activity* of the faculties; 6thly, To pursue these inquiries in a wide field of active life, and to devote time, observation, and intelligence to the study, with a sincere desire to arrive at truth. All this *is possible—has been done*—and may be accomplished by an inquirer of adequate ability who will qualify himself for conducting it by obtaining knowledge of the method and principles through which success can be attained. But it is no undue pretension to affirm that not one of the persons who so authoritatively pronounced Phrenology to be false, *had* qualified himself, in this manner, to form a judgment on the subject. In point of fact, as already observed, they were wholly unaware of their own incompetence, for the reasons before assigned, to form any rational opinion on its merits.

Yet the generation of Lecturers and Professors,* Preachers,

* The University of Edinburgh possesses two Professors who form exceptions to the observations in the text. Professor Gregory has long been a strenuous advocate of Phrenology; and Dr Laycock, Professor of the Practice of Medicine, without enrolling himself as a Phrenologist, recognises the soundness of its general principles, and applies them to cerebral pathology.

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Reviewers, mental philosophers, and the reading public, who continue to reject Phrenology, have almost universally derived their opinions of it from the representations given by those guides whom they implicitly followed in their youth. Lord Jeffrey denied that the mind in its higher functions uses organs at all; and Dr William Stenhouse Kirkes, in his *Handbook of Physiology* recently published, informs us that “the reason, or spirit of man, which has knowledge of Divine truths, and the conscience, with its natural discernment of right and wrong, *cannot be proved to have any connection with the brain.*”^{*} The reader will judge of the soundness of this statement by comparing it with the observations made on pages 27 to 32, and 42 to 44, of this volume, and also the facts adduced in the Appendix, No. II.

The young men of the present generation continue to imbibе the prejudices of their teachers without examination, and to retail them. Two examples have recently appeared in Edinburgh. Mr Edward Haughton, M.R.C.S.E., has published “The Criticism of an Essay” (by Mr Herring) “on Phrenology, read at the Hunterian Medical Society;” which criticism is remarkable only for puerility of thinking, and ignorance of the writings of the controversialists who have preceded him; and obviously owes its origin to a desire to gratify “Dr J. Hughes Bennett, Professor of the Institutes of Medicine in the University of Edinburgh, &c., &c.,” to whom it is dedicated. The views of Phrenology communicated by this gentleman to his students may be inferred from the “Criticism.”

The second example is afforded by Mr Thomas Spencer Baynes, LL.B., in a eulogy by him on Sir William Hamilton, published in the “Edinburgh Essays.” He informs us that Sir William “proceeded to test the worth of Phrenology by an examination” of the facts on which it “professed to be wholly founded.” “He selected several of the leading points laid down as the physiological basis of the system, such as the relative size and function of the cerebellum, the age at which the brain is fully developed, the presence and value of the frontal sinus—and found, after a series of experiments, that the dictum of the phrenologist on each point was not only

* 3d Edition, p. 453.

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erroneous, but absolutely false." This is strong language ; and Mr Baynes, after what I am about to mention, will perceive that he has exposed himself to the application of it to himself.

First—Sir William Hamilton, in contradiction to the Phrenologists, asserted that "the cerebella of the two sexes absolutely are nearly equal,—the preponderance rather in favour of the women." But Dr John Reid, Chandos Professor of Anatomy and Medicine in the University of St Andrews, afterwards published* the average result arrived at by him, after weighing 53 male brains and 34 female brains, as follows :—

Male.	Female.
Cerebellum, 5 oz. 4 dr.—	4 oz. 12½ dr. ;
difference in favour of the male, 7¾ dr.	

Dr Reid's investigations were continued by Dr T. B. Peacock. He informs us that his tables† include the weights obtained by both Dr Reid and himself, and "are based on 356 weights of the encephalon." He states the average weight of the cerebellum in 57 males between 25 and 55 years of age, at 5 oz. 2·6 dr.—and in 34 females between the same ages, at 4 oz. 12·4 dr ; making a difference in favour of the male of 6·2 dr., in direct contradiction to Sir William Hamilton's assertion.

Secondly—As to the Frontal Sinus. By an arrangement between Sir William Hamilton and me, Professors Christison and Syme, and the late Dr John Scott, were chosen as a court of inquiry to test the validity of Sir William Hamilton's objections against Phrenology, and they began with the frontal sinus. After hearing Sir William Hamilton at great length on the subject, the umpires unanimously set aside all the skulls produced by him, as insufficient to support his propositions ; and the proceedings under the reference never went farther. Their verdict is printed verbatim in the *Phrenological Journal*, vol. v., p. 34.

Thirdly—Mr Baynes alludes to a correspondence between Sir William Hamilton and Dr Spurzheim, and says : "But the points at issue were never brought to a decision, as Dr Spurzheim refused to submit them to any adequate and impartial judges, demanding instead that they should be discussed before a popular assembly, and decided by the voice of a public

* London and Edinburgh Monthly Journal of Medical Science for April 1843.

† Published in the same Journal for August and September 1846.

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meeting. *Of course Sir William Hamilton had too much respect for himself and the scientific questions at stake, to bring them before such an utterly incompetent tribunal.*" Now, this statement betrays culpable ignorance of the facts, or a reckless disregard of truth; for Sir William Hamilton addressed his first attack on Phrenology and Phrenologists to a popular audience of ladies and gentlemen assembled by advertisements, and he renewed his assaults before the Royal Society of Edinburgh, also a public body. (See Phrenological Journal, vol. iv., p. 378.) In a letter dated 18th February 1828, "Dr Spurzheim returns compliments to Sir William Hamilton," and says, "Sir William Hamilton *publicly* attacked Phrenology before Dr Spurzheim visited Edinburgh; it is now Sir William Hamilton's duty to prove *publicly* his assertions. Dr Spurzheim, therefore, repeats for the fourth and last time that he is willing to meet Sir William Hamilton before the public." Again, on 29th February 1828, Dr Spurzheim writes that he "would have thankfully availed himself of a private meeting with Sir William Hamilton, and received from him private instruction in Anatomy and Physiology; but since Sir William *publicly* attacked Phrenology and its believers, Dr Spurzheim can meet him only before the public." (Phrenological Journal, vol. v., pp. 39-42.) In the words in italics, Mr Baynes has, through sheer ignorance, I presume, of the facts about which he was writing, pronounced a severe censure on the object of his eulogy. Neither party, probably, desired to constitute the public a "tribunal" to "decide" the questions at issue; but as Sir William Hamilton, by addressing a popular audience, had obviously intended to influence public opinion *against* Phrenology, Dr Spurzheim was certainly entitled to insist on having a public opportunity to refute his objections.

So little consideration have physiologists bestowed on the question of the best *method* of discovering the functions of the brain, that Dr Carpenter, no mean authority, says* that "All our positive knowledge of the functions of the nervous system in general, save that which results from our own consciousness of what passes within ourselves, and that which we obtain from watching the manifestations of disease in man, is derived from observations of the phenomena exhibited by ani-

* Principles of Human Physiology, p. 681. *Fourth Edition*.

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mals, made the subjects of experiments ; and in the interpretations of these, great caution must be exercised." Here, then, Dr Gall's method of comparing the strength of particular mental manifestations, such as Benevolence, Self-esteem, Love of Children, and so forth, in healthy human beings, with the size of particular parts of their brains, as a means of discovering the healthy functions, is absolutely ignored ; while we are referred to consciousness as one source of knowledge of these functions, in utter disregard of the fact that consciousness does not reveal to us even the existence of the brain, much less its functions. If it did, how could men like Jeffrey and Dr Kirkes deny the necessity of organs of any kind in performing the higher operations of the mind ? He refers to morbid manifestations of mind, or Mental Pathology, as the second source of knowledge ; but in regard to all other vital organs, it is held that Pathology is rendered much more instructive when preceded by a sound physiology ; in other words, it is advantageous to know the function of an organ in its healthy state, in order to arrive at a sound judgment concerning the effects of disease in altering that function.

Dr Draper, an eminent American physiologist, entertains views widely different from those of Dr Kirkes. He says : " Nearly all philosophers who have cultivated, in recent times, that branch of knowledge (Metaphysics), have viewed with apprehension the rapid advances of Physiology, foreseeing that it would attempt the final solution of problems which have exercised the ingenuity of the last twenty centuries. In this they are not mistaken. Certainly it is desirable that some new method should be introduced, which may give point and precision to whatever metaphysical truths exist, and enable us to distinguish, separate, and dismiss what are only vain and empty speculations."*

Religious prejudice has constituted another obstacle to the progress of Phrenology. The functions of the brain being unknown, and the whole phenomena of consciousness having been habitually ascribed to an immaterial mind acting independently of organs, there was a shock to religious feeling

* Human Physiology, &c., by John W. Draper, M.D., *New York*, 1856, p. 259.

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against Dr Gall's discovery, which expressed itself in a variety of ways. No rational person is ever heard casting ridicule and reproach against the structure and functions of the lungs, the heart, the stomach, or any other organ, the structure and uses of which are known; because these are acknowledged to bear conspicuous indications of Divine Wisdom and Goodness. But, apparently owing to the structure and functions of the brain being unknown, they met with very different treatment. Gall's description of its uses was made the subject of every vulgar jest that petulant ignorance could invent; the cry of materialism was raised against it; and it has been charged with degrading man to the level of the brutes. These objections appear to me to be the consequences of sheer ignorance. I have accompanied religious and intelligent persons to the Phrenological Museum, and shown to them the small brain that is invariably accompanied by idiocy; casts of the heads of executed criminals, exhibiting a large development of the base, and a deficient development of the upper or moral and religious portions of the head, and often a deficient development of the anterior lobe, devoted to intellect. In contrast to these, I have drawn their attention to casts of the heads and brains of men of high moral, religious, and intellectual endowments, and pointed out the differences in the proportions of these regions, between their heads and those of the criminally disposed. And I have placed before their eyes a large collection of the skulls of men and women of different nations, and pointed out the predominant development of the moral and intellectual regions in the most highly civilized, and the defective development of these in the savage and barbarous races; and I have said to these visitors: "These forms and proportions are natural: they proceed from God's laws governing our organism: Gall did not make them; he only called attention to their significance." But even such an appeal was ineffectual to rouse their serious attention. Their minds were so completely preoccupied by spiritual notions, that the ideas of the brain being an Institution of God, and of its different forms and proportions having any significance worthy of their attention, did not penetrate their intellects. They continued to laugh and joke, and object, and ridicule the whole subject, as if the brain were mere waste matter

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placed within the skull to give it weight, and keep it steady on the shoulders. I recollect, in particular, addressing in this manner one very intelligent religious person, of some scientific and literary attainments. He afterwards wrote an article in the North British Review, in which he spoke sneeringly of Dr Gall as “the man of bumps;” apparently without considering that God made the brain, and that as the brain gives form to the skull, it follows that if Gall be “the man of bumps,” *a fortiori* is the Deity “the God of bumps!” The writings of religious men against the Physiology of the Brain are full of similar stolid manifestations of impiety.

How differently Mr Abernethy looked on the human structure is beautifully expressed in the following extract from his Memoirs before cited. He mentions that Galen said: “In explaining these things” (the structure and functions of living organisms and the laws by which these are regulated), “I esteem myself as composing a solemn hymn to the great Architect of our bodily frame, in which I think there is more true piety than in sacrificing whole hecatombs of oxen, or in burning the most costly perfumes; for, first, I endeavour from His works to know Him myself, and afterwards, by the same means, to shew Him to others, to inform them how great is His Wisdom, Goodness, and Power.”

It is only the circumstance of little having been known of the structure* and functions of the brain before Dr Gall discovered them, that, in my opinion, can account for such irrational treatment as Phrenology has received from the religious world. But in this respect, it has only shared the fate of all other important discoveries that have gone greatly beyond the limits of contemporary knowledge. The earth continued to whirl men round on its surface every twenty-four hours, while they were stoutly denying that it did so; and they in vain appealed to the evidence of their senses to prove that it stood still. The solution of the question lay beyond the sphere of their senses. In like manner, our contemporaries are actually manifesting their different emotional and intellectual faculties with a degree of energy, corresponding, *cæteris paribus*, to the size of their brains, even when they

* See evidence as to the discovery of the structure of the brain, in the Appendix, No. III., to my work, “Phrenology applied to Painting and Sculpture.”

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are using those very organs in denying the fact. They in vain appeal to the testimony of their own consciousness for evidence to support their denial ; for, as the proof of the rotation of the globe lay beyond the domain of the senses unaided by science, so, as already observed, the evidence of the functions of the brain lies out of the region of consciousness. So thoroughly, however, was the conviction that the earth stands still, ingrained in men's minds by the appearances of the heavens and the earth ; so strongly was it supported by tradition as ancient as the human race, by books of the highest scientific authority, and by religion ; that even after demonstrative evidence was produced of the fact of its motion, men could not imagine or believe it, but retained the established convictions and transmitted them to their children. In 1671, thirty years after the death of Galileo, and two years after Newton had commenced lecturing in Cambridge, Dr John Owen, the most eminent divine among the Independents, describes the Copernican System as "the late hypothesis fixing the sun in the centre of the world—built on fallible phenomena and advanced by many arbitrary presumptions against evident testimonies of Scripture, and reasons as probable as any which are produced in its confirmation." (*Prelim. Exerc. xxxvi. to Hebrews*, § 16, p. 636 ; *Edit.* 1840.)

A parallel example of the extreme difficulty which even superior men experience in embracing new ideas is presented by the cases of Dr Thomas Brown and Dr John Abercrombie. Both of these persons were practising physicians in Edinburgh, and both of them published works on mental philosophy. As physicians, both of them treated mental maladies as diseases of the brain ; but, as metaphysicians, both discussed mental phenomena as if the mind were wholly independent of organs ! A general reference to the brain as the organ of the mind may be found in their works, but they ignored the dependence of particular mental powers on particular portions of the brain, and were blind to all the consequences that flow from this fact. In like manner, so deeply and extensively is the conviction entertained that the feeling and thinking entity of man is something which acts independently of matter, and so strongly does this notion appear to be supported by consciousness ; by nearly the universal acknowledgment of man-

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kind, past and present; by the authority of the profoundest investigators of mental science; and by nearly all the religious teachers of all countries,—that no amount of evidence of the influence of the brain on the mental manifestations has been able to shake the belief of the great majority of the people of this age on the subject. It was only after successive generations, denying the earth's rotation, had been buried, and after the lapse of ages, that prejudice so far gave way that the demonstration of its motion was allowed to reach the minds of the young in their education. After this was achieved, the new doctrine was regarded by all instructed persons as a fact which had always been true, and with which every other well-ascertained phenomenon in nature was, and always had been, in accordance. It is probable, therefore, that it will be only after several more generations, practically denying the functions of the brain, have passed away, that serious attention will be generally bestowed on the evidence of its being the organ of the mental functions, and the chief instrument by means of which the government of the moral world is conducted; and only after the lapse of a long series of years will a just appreciation of the importance of Gall's discovery have so far triumphed over an ignorant prejudice against it, that it will be generally taught to the young as science. When this shall have been accomplished, educated men will allow that it has always been a fact, and they will proceed to bring their other ideas of nature into harmony with it, and to act upon them. The confusion which has so long appeared to reign in the moral world will then probably begin to disappear, and man will find himself master of his own destinies, to an extent of which at present no adequate conception can be formed.

But the grand religious objection to Phrenology has been, that it leads to materialism. It appears to me that man possesses no faculties which enable him to discover the essence of things, and that, therefore, he is incapable of arriving at any certain conclusion concerning the nature of the thinking entity in man and animals. But even assuming that it is the living brain which thinks and feels, those who urge this as an objection, appear never to have considered that if *God* has seen proper to employ the ten inorganic substances named on page 23 (to which Dr George Wilson has added

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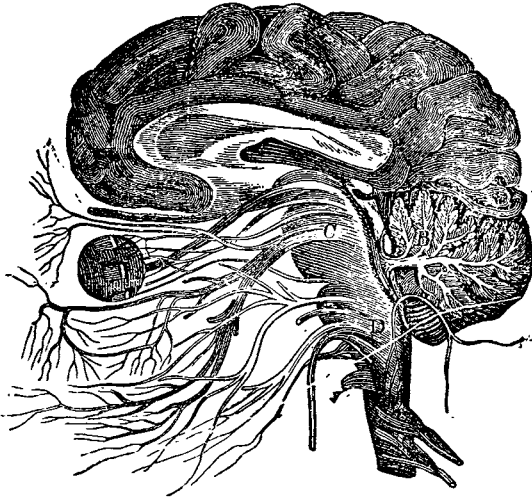
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Fluorine), as materials with which to constitute the body and brain, and to endow them, while so employed, with all the vital and mental functions they possess, cerebral matter cannot be to *man* a fit object of aversion, contempt, and ridicule. I beg religious readers to look on this figure



Here we perceive the nerves of all the senses entering into the brain, and the spinal cord proceeding from it; and we know that the cord sends forth nerves, one set of which conveys the mandates of the will down to, and the other conveys sensation up to it from, all parts of the body. I appeal to every reflecting person who believes in God, whether this complicated structure, with these connections, should continue to be treated only with contumely and aversion, as has been the practice in times past, or whether we should not approach the investigation of it with that seriousness of feeling which we exhibit in studying the other portions of the human structure which we believe to be of Divine origin. This appeal is specially necessary, because it is chiefly through the influence of religious persons that, even in the few schools into which Physiology has been introduced as a branch of instruction, the functions of the different parts of the brain, as organs of particular mental faculties, continue to be deliberately excluded.