form, was read before the Cambridge and Huntingdon branch meeting of the British Medical Association. That Mr. Stiles has had an ample share of experience in regard to this disease during this epidemic, appears from the fact that he had not fewer than three hundred cases under his care within the short space of sixteen days. He has come to the conclusion that "Diphthēria is a new disease, requiring new remedies." We hope that Mr. Stiles has not been led to adopt this belief merely on the ground that new remedies are called for—a fact which we are certainly not prepared to deny, although we would dispute his conclusions if drawn from such premises alone. We regret that he has not stated his grounds of belief on this point, as we can give little weight to his *ipse dixit*, after the elaborate reasoning of Dr. Wade on the other side.

The author lauds in the highest terms Beaufoy's concentrated solution of chloride of soda, which he employs in every case—topically and internally. Referring to Dr. Laycock's lecture, he considers that the solution acts by destroying the parasitic fungus. He prescribes at the same time tincture of the sesquichloride of iron with tincture of calumba; and he has met with great success in the treatment of Diphthēria since adopting this method.

Another statement of interest in Mr. Stiles' paper is, that he, in two out of three cases in which he applied blisters, observed the vesicated surface to become covered with a diphtheritic exudation. He has seen also an exudation of a similar character over leech bites. Dr. Wade says that he has heard of the formation of these false membranes on surfaces not mucous, but has never seen them.

III. *The World of Mind: an Elementary Book.* By ISAAC TAYLOR. Jackson and Walford, London, 1857.

The Human Mind, in its Relations with the Brain and Nervous System. By DANIEL NOBLE, M.D., &c. John Churchill, London, 1858.

WHAT is the relation of psychology to physiology? and what the place which mind ought to hold in a system of physiology? To which questions may be added this other—What is the proper method of exposition in unfolding those departments of animal physiology in which the mind and the body stand mutually related?

In these days when physiology, the most fundamental of the medical sciences, but at the same the youngest, is attracting so

much attention, is being so diligently cultivated, and is exerting so wide an influence over the whole range of medical science and medical practice, it is of paramount importance that her foundations be well and securely laid. And in these days of rapid change in science—of change with progress, but of change, also, with at least occasional retrogression—it is equally important, from time to time, to consider well whether they be so or not. During the last thirty or forty years—nay, the last fifteen or twenty years—physiology has undergone a marvellous revolution, extending alike to its principles and its details, and consisting quite as much in the rejection of old, as in the acquisition of new materials—in the disfranchisement of its Old Sarums, as in the enfranchisement of its Manchesters. Within that time physiology may be said to have been taken to pieces, and reconstructed anew—her foundations re-examined, and to a great extent relaid—made wider as well as surer—and to rest now, as formerly it did not, on a basis broad enough, and strong enough, to bear and to hold the whole living organized creation—living vegetables equally with living animals—the *proto-coccus nivalis* and the *monas crepusculum*, as well as the oak and the lion—the lowly beings, animal and vegetable, “of whom as many as there were men in the army of Xerxes might be marshalled in open order upon a sixpence,” equally with beings of the order of which that army was composed. No physiologist now-a-days would think of explaining *all* the phenomena of *vitality* by a reference to such first principles as sufficed with the late Dr. Bostock, or even with the late Mr. Herbert Mayo, whose regards were mostly centred on the facts of human physiology, or, as illustrative of these, on analogous facts in the history of the more perfect of the lower animal orders.

But, vast as is the progress which physiology has made since the times of Bostock and Mayo, it is conceivable that, in the changes it has undergone, it may in some respects have suffered loss; and peradventure that, in sweeping away the rubbish of the old physiology, our modern physiologists may have swept away with it something that was *not* rubbish, but good and true, and very precious.

Our own belief is, that, in respect of that department of physiology to which the questions placed at the beginning of this article apply, this has happened. Our firm conviction is, that while, five and twenty years ago, it stood on an intelligible and sound footing, it does so no longer; and that it now rests, besides, on a footing which is continually shifting, being sometimes based on one ground, sometimes on another. In short, it seems to us that, in this whole department of our science, our modern physiologists have lost their footing—have gone astray, and got enveloped in a fog. They take up mind, and drop it, as suits their fancy or their convenience. They seem to think it is something they have no

real concern with—something “foreign to the proper business of their science,” which they are half afraid of, as if it might burn their fingers; or, at least, regard as a jargon of metaphysics, which will not incorporate with neurology. And yet they feel that they cannot altogether cast it aside—that they must take account of it, and deal with it. Discarding the old heading, “*The Animal Functions*,” under which their predecessors (*e. g.*, the venerable Alison) gave us “the history and explanation” of the living being *Man*, as he is revealed to his own consciousness, and as he stands out to the view of his fellow-man; and as the two walk arm-in-arm, or sit at table together, and socially talk or sympathetically laugh and weep together*—discarding, we say, this fine old heading, and the treatment of their subject which it includes, and substituting for it the heading, “*The Functions of the Nervous System*,”† they give us what we may best convey our idea of by saying, that it is something intermediate between the play of Hamlet, with Hamlet *all but* left out, and the play of Hamlet *mostly* read backwards. For neither is the play wholly read backwards, nor is Hamlet altogether left out. In one, or in a series of sections or chapters, we have the functions of the brain, and of the cord, and of the nerves, made the subject of consideration, in which mind is not so much as named in the heading, and is in the treatment kept well in the background; while in another we have *sensation*, the *senses*, and the organs of the senses—mind here unaccountably cropping up and standing first. Further still, in a separate division, we have “*The Voice and Speech*” fully treated of, even in those of their treatises which include general physiology, and embrace the dumb animals; while in the chapter on “*Motion*,” or “*Muscular Contractility*,” an apology is made for our being put off with a meagre account of those functions of locomotion which, in their kind and degree, are common to all animals, and with the entire omission of all notice of the functions of the skeleton in relation thereto—functions these (active and passive), which, linked directly with the *objects* of animal life (“in which mental acts are essentially concerned”), may be said peculiarly to constitute *the life*—or what Gilbert White calls “*the life and conversation*”—of animals, and specially to determine as

* “The provisions of nature, in the constitution of each individual of the human species, are not confined to his own immediate wants. They extend to his adaptation for social intercourse; to the relief of his sufferings by the sympathy, and the increase of his enjoyments by the participation, of others; and to the cordial union and co-operation of numbers in prosecuting objects and surmounting difficulties, for which the exertions of individuals would be inadequate.”—Alison, *Outlines of Physiology*, 3rd edition, p. 393.

† “What a difference of system this points at!” Cullen, in preface to “*First Lines*,” in allusion to the addition of a very few words made by Boerhaave, at the end of forty years, to one of his aphorisms. So too—“Putant homines rationem suam verbis imperare, sed fit etiam ut verba vim suam super intellectum retorqueant.”

well the conditions of animal existence, as the modifications of animal form; while the exercise of them, involving, above that of all others, a continual wear and tear of substance, necessitates, above the requirements of all others, continual supplies of food, together with all else in the *organic* life of animals that this necessity implies. Alas! how is the gold become dim! how is the most fine gold changed! since the days, not yet thirty years ago, when Alison (psychologist and physiologist both, and of no mean order) gave us an exposition of this department of our science, which, alike in its groundwork and its details, to this day contrasts favourably, we think, with that of those (and these not a few) in this country and on the continent, who have come after him, and have superseded him as a guide and an authority in what he was fond to call the "noble" science of physiology.

As to the causes which have led to this change—to this mutilation of mind by our physiologists, and to its almost complete expurgation by them from their science, they are very various. We will not mention, although we believe it to be the case, that psychology has never acquired its due and rightful ascendancy among our English physiologists, who have of late taken the lead in giving tone and character to physiology. But we will say—and let us say it at once and boldly—that one cause lies in the *undue* prominence which has of late years been given to what is called "the reflex function" of the spinal cord, which, crammed down the throats of our physiologists in the first instance, whether they would or not, gained at length the firm footing in physiology it has *temporarily* got, through the untiring perseverance of the late Dr. Marshall Hall, and which function of "reflex" agency, we (who have strong convictions the other way) regret to say has, under the fostering care of Dr. Laycock and Dr. Carpenter, been extended to the brain. So great is the ascendancy which "unconscious (and purely organic) reflex agency" has acquired in physiology, that we not only breathe by it, and eat and defecate by it, but walk by it, and talk by it. "Automatic agency"—*i. e.*, an agency of or belonging to an automaton, a machine—has supplanted "habit," viewed as mind become expert in act through use of its own inherent power; and to "unconscious cerebration," it is now suggested, we owe even the highest achievements of human genius. We will not charge these physiologists with materialism. They disavow it themselves, and we do not think them really chargeable with it, at least in its ordinary and vulgar sense. But we will say, that the kind and extent of power they assign to living nervous matter, in relation to mind, are such and so great as, in our judgment, to degrade the mind to the level of a spiritual puppet—or, in effect, to put the sovereign prerogatives of mind into commission, or under trust.

We are glad to see that, in his work before us, Dr. Noble, although to no small extent imbued with the spirit of this school

of physiologists, discountenances this doctrine of unconscious cerebration :—

"I conceive that the particular facts which seem to countenance the theory of unconscious cerebration, will certainly admit of some more obvious and simple interpretation, than one which renders it necessary to regard nerve-substance as elaborating and perfecting thought *without thought*—a process, it appears to myself, which would be not altogether unlike the production of melody by a notoriously unmusical instrument, without the sensible manifestation of sounds." *

And he pays this compliment to Dr. Laycock's arguments in support of his doctrine of "the reflex function of the brain," that "it is not very obvious how the evidence of facts can be made to corroborate them, or otherwise;"† while, with respect to Dr. Marshall Hall's theory—premising that we have never yet seen any attempt made fairly to meet the objections which Dr. Alison, following Whytt (particularly in his "Remarks on the Sympathy of the Nerves"),‡ long ago urged against it, both in his "Outlines of Physiology,"§ and in the pages of the *British and Foreign Medical Review*||—we rejoice to see indications of renewed opposition to it. At the last meeting of the British Association, Professor Owen read a paper from the pen of Mr. G. H. Lewes (a gentleman who is earning for himself as high a reputation in physiology, as he has already acquired in general literature, and as a novelist), on "The Spinal Cord, a Sensational and Volitional Centre;" and in the *North American Medico-Chirurgical Review* for May last, we have a paper by Dr. George Paton, of Galt, on "The Perceptive Power of the Spinal Cord"¶—in both which papers we have *facts*, bearing out the inferences implied in their

* Pp. 94, 95.

† P. 109.

‡ Edinburgh, 1764.

§ Third edition, pp. 211–12, taken in connection with p. 385, *et seq.* See also his paper on "The Physiological Principle of Sympathy," in *Edin. Med. Chir. Trans.*, vol. ii., p. 174, *et seq.*

|| Vol. iii., p. 29, *et seq.*

¶ Were it not that the author's meaning sufficiently appears from his paper, this title would be as exceptionable as the expression, "unconscious cerebration." But, with Dr. Paton, it is not really the cord in the spinal column, it is the mind, that is conscious of and perceives what is perceived, and is consciously felt in consequence of the impressions made upon the cord. This organized and living structure furnishes the conditions under which sensations are felt, and it forms the medium through which different mental acts affect various muscles; nay, nor these only, but likewise all the vital organs and their functions. This has long been acknowledged on all hands; and this being the case, we cannot (with all due respect for the ingenuity and perseverance of Dr. M. Hall) perceive that any great effort of genius was required to show, that (as in his experiments) all functions of our bodies in which mental acts are, in the natural state, essentially concerned, must be liable to excitement, and so far (to use an expression of Dr. Alison's) to be *imitated*, by *injuries* of different portions of that part of the nervous system which—so essentially requisite in order to these acts, and to their agency on the body, and so carefully constructed with that view—is (it is worth while observing) so effectually protected naturally from injury.

respective titles, and which we would commend to the serious attention of the devoted adherents of the late Dr. Marshall Hall.

And to bring to a conclusion this branch of our subject, we will merely express our gratification at the *havoc* which Dr. Brown-Sequard is just now making of long-established notions in neurology, and particularly at his calling in question—what seems to be held no less than a first principle in the science—the distinction between the grey or vesicular nervous matter, “as the seat of *primary change*,” and the white or fibrous, “as a mere *conductor*, or channel of transmission,” of the influence originating in the grey. “There is nothing,” says Mr. Lewes, “like the sharp angle of a paradox to prick the reader’s attention;”* and it may, perhaps, aid us in the object we have in view in this article—which is, to assert for mind its own proper rank, as a power in nature of the first magnitude, as well as its proper place in physiology—if, with Mr. Lewes, we go a step further, and confidently affirm, on the ground of *fact*, “that both contractility and sensibility (sensation, perception, will, mind) are manifested by animals *totally destitute* of either muscles or nerves;”† nay, if we affirm that, in man himself, there is a stage in his history when his mind, latent it may be, exists in his body independently of nervous matter, because prior to the formation or evolution of this matter from the *homogeneous* germinal membrane, of which alone, at this stage, his body consists.

Revolutionary these remarks may seem, and their spirit wanton. But believing the doctrines assailed to be no true doctrines, or, some of them, at least, to be of that order which can neither be proved nor disproved, and the whole basis of this department of animal physiology, as sometimes treated, to be unsound, we deem it right in the interest of physiology to say what we think without reserve. Our desire is simply to show cause why the existing system of physiology, as it relates to the purely “animal functions,” should be reconsidered—to move for a new trial, and to pray the court—shall we say of “*Common Pleas*?”—that mind may again be put in possession of its lawful rights in relation to the nervous system, as lord paramount therein, and the nervous system denuded of powers and offices which do not of right belong

* Sea-Side Studies, p. 389.

† “Some physiologists, indeed, misled by the *a priori* tendency to *construct* the organism, in lieu of *observing* it, speak of the muscles and nerves of the simplest animals; because, when they see the phenomena of contractility and sensibility, they are unable to dispossess themselves of the idea, that these *must* be due to muscles and nerves. Thus, when the fresh-water polype is seen capturing, struggling with, and finally swallowing a worm, yet *refusing* to swallow a bit of thread, we cannot deny that it manifests both sensibility and contractility [both instinct and instinctive motion], unless we deny these properties to all other animals. Nevertheless, the highest powers of the best microscope fail to detect the slightest trace of either muscle or nerve in the polype.”—*Ibid. in loco*.

to it, otherwise than as the seat and instrument of the mind. And we trust our learned brother, Dr. Carpenter, will not consider that, in anything we have said hitherto, we have exceeded the license freely accorded to counsel.

What, then, to revert now to the questions we set out with—what is the relation of psychology to physiology, and what the place which mind ought to hold in a system of animal physiology? The answer to these questions will lie in the answer to be given to another question, namely, What is the proper object or subject-matter of animal physiology; or, what is it that it properly includes?

In as far as physiology is concerned with the powers or capacities and the actions of the *living animal body*, it is to *vitality* only and its laws that it traces phenomena; and so far psychology forms no part of it. But, as ordinarily understood, physiology takes account of *final* as well as of physical causes—of the *objects*, *ends*, or *purposes* of vital action, as well as of the conditions under which vital action occurs.* The word *function*, continually on our lips, clearly indicates how largely the notion of final causes is mixed up with that of physical causes in this science; while, in point of fact, we are at every point having an eye to the *uses* which every part of the body serves—to the *design* or *intention* of every vital action. But what, in the case of the *animal body*, is the main and highest use of this body, taken as a whole? Can any one doubt that it is to serve as the seat or residence, and the instrument of the incorporeal mind, which *animates* it during life? Take away, in any of the higher animals, the parts primarily subservient thereto—the whole brain and nervous system, the whole of the voluntary muscles and the bones—and how much of the body will remain? Very little indeed!—and this little just those parts whose only use was to maintain those others in a fit state in relation to the mind. But, independently of this consideration, which were warrant enough for including the mind—albeit it is not of the body—in any account we give of the latter, it is important to observe that not only is a large part—the far larger part—directly subservient to the mind, but the mind itself is essentially concerned in the functions—the whole actions, active and passive, of this part. The physiology of the eye is, by the common consent and agreeably to the ordinary language of physiologists, the physiology of *vision* as well as the physiology of the *organ* of vision,—the physiology of the ear, the physiology of *hearing* as well as the physiology of the *organ* of hearing “It is not (as Mr Taylor remarks) the nerve behind the tympanum—it is the mind that is conscious of sound; it is not

* Those who do not use or exactly approve of this language, must at least distinctly perceive and allow that the study of final causes, or teleology, ought to advance *pari passu* with that of every part of physiology—from which in fact it is most uniformly and continuously supplied.

the retina, but the mind that is conscious of light," (p. 310). The physiology of standing and of walking, of speaking, and laughing, and weeping, and blushing, is the physiology of will and of habit—of sensation, thought, and emotion, quite as much as the physiology of bones and muscles, of nerves, and glands, and bloodvessels. So true is it that, although mind and matter are two natures, not one—that, distinct as is the mind from the body which it inhabits, and as is our notion of mind from our notion of *vitality*, which is an attribute of the body—of organized matter, vegetable and animal—nevertheless, in the body (the animal body) mental acts are so intimately "*interwoven*" with certain corporeal acts as to constitute an *essential* condition to the performance of these—as essential a condition as atmospheric air to respiration, or light and heat to the decomposition of carbonic acid by living vegetables—nay, so interwoven with them as to constitute an essential *part*, so to speak, of the corporeal acts themselves. A physiology, therefore, of the animal body which should shut out the mind would be as incomplete and as useless as a *bateau à vapeur, moins la vapeur*. The psychologist, it may just be observed here, may, in treating of his proper subject, do, as respects the body, what the physiologist, in treating of his, cannot do as respects the mind—he may ignore it. "Mind (says Mr. Taylor) has no consciousness of nerves or of muscles:—volition is a purely rudimentary fact, having respect to nothing but the mental intention which is realized at the instant it takes place; how realized, the mind neither knows nor cares; but the physiologist may discover it if he can. . . . On the one side there is thought, or *mind in act*; on the other side there is *motion*, taking place in a mass, larger or smaller, heavier or lighter. The intervening apparatus we are unconscious of—we are quite mindless in regard to it: *it is to the mind as if it were not*."—(Pp. 137-38.) Herein lies the advantage the psychologist has over the physiologist. He needs not to know anything of nerves and muscles, or of the contractile irritability of these, or of "the pull upon the bony leverage." They are to him, and as respects the completeness of his task, as if they were not. It is far otherwise with the physiologist.

If, indeed, the physiologist desire or hope to give any true history or any useful account either of living animal orders around us, or of the living being *Man*, he must incorporate mind and body—and this, not merely because otherwise his physiology of the body will be unintelligible, but because the history he undertakes to deliver will be incomplete. For, when he professes to give us, as, along with "the physiological anatomy," Messrs. Todd and Bowman do, "the physiology of man," he promises a good deal more than the physiology of man's living body. "Human physiology," too, includes a good deal more than the physiology of the human body. The physiology of man is not

the physiology of his body only; it is the physiology of his mind and of his body as coexistent. Nay, it is in very truth, the physiology of his mind as existing in his body, and as acted on and acting *by* and *through* the nervous system therein, together with whatever else in the body is either specially subservient to the mind, or is requisite for the sustentation of the entire body as the hand-maid of the mind. Man's mind and man's body, it is true, are in themselves two distinct *natures*, not one; but they make up together not two, but one distinct *being*. What, therefore, God hath joined together, let not the physiologist put asunder. Apart from the mind, the living body has no existence, nor any history. And when it has served its purpose, it is resolved into air, earth, and water, without loss or change in either the quantity or the quality of these materials; while the mind (disembodied), eluding as well the gaze of the physiologist as the grasp of the anatomist and the chemist, and having in the last moments of its embodied state "affirmed and built itself upon a boundless futurity," goes to 'its own place.'

Taking this view of the relation of psychology to physiology, and of the place which mind ought to hold in a system of animal physiology, there is nothing we should desire more (having regard to the school to which we belong) than to see such a man as Dr. Noble—for whose abilities and candour the perusal of his work has inspired us with feelings of sincere respect—betake himself for a time, with Mr. Taylor for his guide (no vile Scotch metaphysician he), to the higher regions of pure mind, and thence, and in the full blaze of the light around him, look down on the world of nerve and nerve-force beneath; and, having done so, to give us another work on "Mind in its Relations with the Brain." We cannot but think that in many respects it would differ from the present; that his own exposition of mind would be more complete than that presented in his second chapter—more compact, at least, and more salient; that some questions on which he speculates with some degree of confidence he would refer to as lying beyond the limits of legitimate speculation; and that seeing in mind a *unity* he had no clear perception of before, as well as a *power* far surpassing anything he had ever dreamt of, he would shrink from the attempt either to assign the seat of consciousness, or to indicate the sites of either the emotional sensibility or the intelligence. For what if consciousness, which, from the statement of Mr. Lewes, appears to be a more general fact in animal physiology than the existence of a nervous system—what if, in as far as it is connected therewith, it be coextensive with the whole nervous system? What if the mind—"couched in its den behind its two windows"—sees "*at*" or "*in*" the retina, as well as "*by*" the retina? The impression which a careful study of "*The World of Mind*" has left on our own mind is, that there is that in the *human* mind which has no coefficient or correlative in the

nerve-force of the brain; that, linked as the mind is with the brain, it yet possesses an *unconditioned freedom* which, as it owes *every thing* to it, it holds in *its own keeping*;* and, further, that what in the nature of things it is possible for us ever to ascertain as to the purposes which the brain serves in relation to the mind, we must gather *mainly* from the study of those of the lower animals (their habits and organization) whose brains contain *every thing* that is to be found in ours: and for this reason, that (while, as Taylor observes, there is little if anything in human nature of which we can be warranted in denying absolutely the *elementary* existence in the animal nature—indeed, as he elsewhere admits, *nothing*) in them mind is *fixed*—thought, a *stereotyped* mechanic process—will, bound fast in fate. Their minds move on a single line, in a rut, which if they ever overpass, it is but a short way and for a brief space.† According to Archbishop Whately, speech is a *special* gift of God to man, and a standing evidence of divine interposition in man's behalf;‡ and in as far as it is so, and as thereby, and by means also of his free-agency—which lies altogether outside his brain—man's mind is raised above the brute mind, in so far will the physiologist be misled if he look for an *explanation* of the human mind, in the human brain.

Taking leave of Dr. Noble's work with this brief and passing notice, commending it heartily to our readers as the production of an able, and (what we estimate as highly) of an honest and independent mind,—and trusting he will pardon our commending to his own thoughtful perusal the work we have associated with his in this article—(and we would take the liberty of adding, if unknown to him, Dr. Alison's *Outlines of Physiology*§)—we shall devote our remaining space to a few remarks on Mr. Taylor's "World of Mind."

Dividing his subject into three parts—metaphysics, psychology, and logic, Mr. Taylor treats only of the first and second, reserving

* "Among those convictions which no sophistry can weaken longer than for an hour, this, of the *absoluteness* of that power of which our volitions are the result, is one of the most firm. The most subtle processes of logic still leave us in possession of the intuitive belief, that MIND is free, in *some sense*, in which nothing else in the world is free; and that whatever be the law of its action, it is a law differing essentially from physical law."—Taylor, p. 50.

† "The constructive orders around us, in setting about their day's work, go straight forward toward their end, losing no time, wasting no strength, in blunders, or in earning experience at a dear rate; they meet no vexations in attempting what they find at last to be impracticable. But then when the immediate end of animal labour is attained, when the task is completed 'according to order,' nothing more, nothing in the way of experiment, in the hope of improvement, is ever attempted. The boundary line which encircles the mechanic and constructive ingenuity of the animal orders has no parallax; it is fixed as fate."—Taylor, p. 181.

‡ Introductory Lessons on the History of Religious Worship, Lesson I.

§ Particularly chapters ii., viii. (§ 11), ix., xiii., xiv., xv., xvi.

the logic for another volume. We will only observe with reference to the first of these—the metaphysics—that we rejoice to see such a man—and an Englishman—planting both his feet firmly, and boldly taking his stand on the same ground, as on a rock, with that occupied by Reid, and Stewart, and Brown,—the ground of common sense,—and bearing his frank and hearty testimony to the soundness of the position which these Scotch metaphysicians made their starting-point,—namely, that “the only foundation of much of our belief, and the only source of much of our knowledge is to be found in the constitution of our own minds.”* Not treating his subject historically, while yet he begs to be understood and supposed that he has thus acquainted himself with it (p. 11), he does not so much as name those illustrious men, nor indeed does he refer to or name any, besides, in the course of his volume. But in section vii., in which he sets forth the “grounds of certainty in relation to metaphysical speculation,” he strikes the same chord, he speaks the same language which they do:—

“As to any of those instinctive convictions or assumptions which are the basis of our intellectual structure, and from which all reasoning must take its start, it would be a mere solecism to ask for *logical proof* of their certainty. No meaning can attach to the words in which such a demand might be conveyed. Propositions that are indeed susceptible of logical treatment, for the purpose of establishing them as certain, will always contain two or more ideas, the connection between which may be shown to be such as is therein affirmed, or the contrary. But an intuition, or an instinctive conviction has no constituents—it has no parts—there is nothing in it that is complex, or that implies any sort of interior relationship. We *believe* those things which may be shown to be certain or to be probable, by exhibiting their inferential connection with some other thing that has been assumed as indisputable, and which is anterior to the matter in question. But these intuitions, by the very terms in which they are conveyed, can have nothing anterior to themselves; nor can they ever come before us in the form of inferences that are logically valid. Why do you believe your own existence? There can be no room for a “why,” in this case: the *cogito—ergo sum*—is a mere quibble; it is an unmeaning play upon words”—(pp. 70-1). “As soon as I come to attach any distinguishable meaning to the *cogito*, I have laid hold of whatever may be contained in the *sum*; and *vice versâ*. The *ergo*, therefore, can express no inferential dependence of the one term upon the other.”

* The following sentence from the Philosophical and Literary Essays of Dr. Gregory, published as long ago as 1792, is worth while quoting as being, to our mind, a correct exposition of the principle of common sense in its application to physiology, and as indicating the amount of tedious and unnecessary labour which might have been spared to the students of this science if that principle had been strictly adopted:—“We can only hope to acquire real and useful knowledge of our science by attending to the frequent co-operation of *different kinds of causes*, with a *fixed distrust* of all philosophical notions and doctrines that have been inculcated on the subject,—but with *due regard* to the *natural suggestions* of the human faculties, and a *sacred reverence* for those *fundamental laws of human thought*, according to which even our observations must be made, as well as our inferences drawn, and our ultimate opinions formed.” (Introduction, p. xxiv.)

—(P. 73.)* “He who persists in the endeavour to push forward after the abstractive process has reached its end, can do nothing but exhibit himself whirling in an eddy, where he loses his hold of common sense”—(p. 74.)

Turning now to the strictly psychological division—which fills the greater part of the volume—we find that Mr. Taylor makes it his first business to consider the “breadth” of the world of mind. This world proves after due inquiry, to be coextensive, or nearly so, with the animal creation, and to be, at least very nearly, as to all the lower animal orders, “a land of pure delight” and of unceasing activity, in which there are no idlers nor any grumblers,—“a vast place of work, where labour is not toil, where there are no task-masters,”—where each and all are fulfilling the end of their being and finding their happiness in it. This whole chapter is a noble epic poem; and if said or sung by Jenny Lind or Mr. Dickens, would make every fibre thrill through every limb. Here is a verse or two of it—we wish we had room for more:—

“We may now fancy ourselves in the heart of that wilderness of life through which the Amazon rolls its volumes. Life, upon this broad surface, develops itself in all its power: the humid heat, the rampant growth of gigantic plants and trees, the crowding of all species—feeding upon never-exhausted stores, and in their turn devoured—all things favour the replenishment of this region with animation to the utmost extent that may be possible. What is aimed at, in

* Query?—Is it not better to show that these are *identical propositions*, the only difference being *in the words*, just as in mathematical reasoning, always referable ultimately to identical propositions:—as the French say, *Le même est le même: Voilà toute la mathématique*.

We cannot forbear taking occasion here to submit even for Mr. Taylor's consideration, but more particularly for that of those of our own profession who write “Elementary books” on physiology, and have to treat in connection with it of mental science, and who desire, as they needs must, to convey clear and precise notions of its fundamental truths,—the following extract from a letter, with which we were favoured some time ago, from one to whom the two worlds of life and mind have long been the “home of thought,” and who has done good service in both:—“It seems to me that good might be done, in the present state of this (the psychological) department of physiology, by impressing as forcibly as possible on those who will study the subject, this principle, that truth in all such inquiries, and in this period of science, is to be acquired and extended chiefly by giving *precision* to the *terms* used; and that when we do this, we shall find that we *simplify* them and *diminish* their number. Certainly we gain nothing, often lose, by attempting to make our meaning clearer by *adding* to the number of terms, always in these sciences injuriously *metaphorical*, used to express it. I think the most abstract notions in these studies are best expressed in as abstract a form as the definitions and axioms in mathematics and the exact sciences; and when that is done we shall find, I believe, that there is no disadvantage in having for those parts of the science, *only a single language*—if one that has been used by thoroughly informed men—any more than it would be a disadvantage to a mathematician not to be able to read Euclid in Greek. Certainly, it appears to me that no advantage, but decidedly the reverse, has resulted from the attempt to improve or extend our knowledge of the mental department of physiology by the study of Oken or other German metaphysicians—even of Morell—in preference to those of our own country.”

this commonwealth, and what is accomplished, is indeed 'the greatest good of the greatest number.' But as to these millions, many as they may be, each individual of them is required, from sunrise to sunset, or perhaps from sunset to sunrise, to look to himself, and to acquit himself well as the guardian of his particular life and happiness. Who then shall calculate the prodigious amount of labour that is summed up in this round of daily work? In this region there is often great noise; there is chattering, and chirping, and screaming, and wrangling: but as to the work that is done, it goes on silently; and not only silently, but without inflicting any suffering upon the work-people: the twang of the driver's lash is not heard in all this populous district. Works, admirably finished, are turned out here; but no brows are bedewed with sweat, no tears are shed upon unrequited toil; the bread that is eaten is not the bread of sorrows. The labour could not have been more easily performed, even had spirits from an upper world come down to do it. . . . A tropical wilderness, however, is not merely a great work-shop, but it is a theatre of gorgeous decoration; and here, although it is not so among ourselves, the work-people are all, and always, well dressed. Just now we have affirmed that animal labour is not a drudgery; and thus, and as it were to attest the fact, and as if nature would wish us so to interpret her dealings with her household—so it is, that these labourers are never to be seen otherwise than in holiday-trim. Throughout nature's *own* industrial districts, the work that must be done is effected by those who (as to many of them) are attired like princes; they are decked like the grandees of an Eastern presence-chamber."—(Pp. 121-23).

Mr. Taylor then asks—"But to what end all this embellishment? For whom, or for whose eyes, does nature thus richly decorate her children? Is it because ornament—beauty of form and colour, are good in the eye of the Creator? Is it to attract the listless admiration of man?" We regret that we have not time to follow him through these and other kindred inquiries,—as, *e. g.*, for whose ears, the sweet melody of the woods? for whose nostrils, the incense and sweet perfumes of earth? We may just state, however, that he finds the only *sufficient* answer in this,—the *happiness* of the animal orders themselves, the pleasurable gratification of their own eyes, and ears, and nostrils,—not, certainly, exclusively or chiefly those of man. "Man has walked the earth only during these last few days of planetary time. Creations, each of them gay and fair as this, have had their times, and have passed away, almost an eternity gone by"—(Pp. 125-26).

Having taken this wide survey of the world of mind, and having found mind to be, in its general aspect, a uniform principle throughout, Mr. Taylor then takes it into his laboratory for analysis (chap. x. *Rudiments of Mind*; and chap. xv., *Relative value of certain Terms*). He throws the concrete mass into his crucible, to separate the incidental and accessory from the necessary and essential constituents of mind. It comes out, under his hands, one undivided and indivisible element, possessed of a susceptibility or a sensibility towards matter, in which it is *passive*, and of an energy towards matter, in which it is *active*. This energy, which is but another word for Power, is an *initiative* prerogative of mind. It is this power, with its inherent sensibility,

that constitutes the mind. But this power is, in one word, the *Will*—"la *Volonté*." It can be nothing else. The mind in act is the will in act, exerting its initiative power; the mind acted upon is the will acted upon, in its susceptibility.* All else in the mind are but *states* or *conditions* of the will—*modes* in which it acts or is acted upon. It is the conscious will that feels, and perceives, and remembers; that loves and fears; the so-called *faculties* of sensation, perception, memory, emotion, have no existence in nature; and the names given to them are but convenient and varied popular expressions whereby we indicate to ourselves and others certain states or modes of the conscious will. In short, the will is the mind: it is there that the *personality*—the "Ego" lies.

All else, we say, that is in the mind, or of it (as to its make), which does not betoken *power*, belongs to the *passive* susceptibilities or capacities of the mind. And as the will is the mind, so these capacities are capacities of the will. Such are sensation and perception, emotion and memory. These are not *powers* of the mind, but *capacities* of the one power—will. It is the will that is sentient, and percipient, and emotional; it is the will that is retentive of what has once passed through its consciousness. Yet over these capacities, albeit inherent in itself, the will has no direct control.

As to sensation and perception, all that is truly active in respect of them lies in the *attention* they receive from the mind, and which the mind may give or withhold at pleasure. True, they may be strong enough to force it to give heed to them; but apart from this, the mind is passive with respect to them. They spring up necessarily when the occasions which excite them arise. One cannot open his eyes but he must needs see what is before them, whether he will or no; and his perception of it must needs be such as it presents itself to his mind—relatively to some other object or quality—black or white, square or round, near or distant. Here, agreeably to the language of Victor Cousin, "*nous ne sommes que simple spectateurs*." The truths which the mind apprehends, it does not make or create. The relations of things which it

* "There are (as Dr. Robert Jamieson observes, in perfect accordance with Mr. Taylor's views)—there are no mental powers, but only a mental power; namely, the will. . . . Humanity is the manifestation of the will of man. . . . Individuality is the will; personality is the will: the will is the man."—"Mind and Body—a Discourse on the Physiology of the Phrenical Action of the Cerebrum:" 1858.) The same, or nearly the same doctrine, is taught by Brown and by Victor Cousin. According to the former, mind is "one faculty, simple and indivisible— . . . the permanent subject of certain varying phenomena of thought and feeling, of which we are conscious," and "which, though expressed by a variety of terms, of functions, or faculties, are still but the *one* mind itself, existing in different states."—"Lectures," *passim*.) And Cousin asks—"Qu'est ce que vous appartient? C'est la volonté et ses actes."—"Introduction à l'Histoire de la Philosophie.")

perceives obtain independently of it. " Nous ne sommes là que simple spectateurs. La raison conçoit une vérité mathématique : peut elle changer cette *conception*, comme ma volonté a changé toute-a-l'heure ma *resolution*? Essayez et vous n'y parviendrez point; et non seulement en mathématiques, mais dans toutes les autres sphères de la raison, le même phénomène a lieu. En morale, essayez de concevoir que la juste n'est point obligatoire; vous l'essayerez en vain; la raison vous imposera toujours la même aperception. *Vous ne pensez pas comme vous voulez.*"*

" Facts are chiefl that winna ding,
And downa be disputed."

Nevertheless, in man, the will is free in the matter of attention, and its indirect power over its sensations and its perceptions is incalculably great. It is the same with the emotional capacities of the mind. The will cannot by any direct effort excite an emotion as it lists. One cannot laugh or weep at will, because one cannot at will produce the emotions of which these are the natural expression. Nor are the emotions of the mind strung together by association, or excited by suggestion, as ideas are. They are inseparably linked to certain perceptions or ideas, and in such manner, that when these are present they follow; and it is in so far only as the will can control the former, that it can control the latter. "Thou shalt not covet thy neighbour's wife," is an injunction to be obeyed, simply by not allowing one's self to think of his neighbour's wife in such a way as shall provoke the emotion of desire.

As to memory and recollection, it may be observed as to their essence, that what has once passed through the consciousness of the will adheres to it, is retained by it, and may come up afterwards at any time to its consciousness, and be recognized by it. But the mind—the will—cannot summon it up at its pleasure. It wells up spontaneously from the "depths" of the consciousness. To call up a particular thought implies (as Mr. Stewart long ago observed) that it is already in the mind; i. e., present to the consciousness. It is retained in the mind and reproduced in accordance with certain laws of association and suggestion—the reproductive suggesting element being some thought now present to the mind; or, as we think Mr. Taylor has very happily expressed it, it is "by help of something actually *in* view that we regain what is *out* of view"—it is "by the relationship of this to some element of the now-consciousness that we *regain* possession of it" (p. 223). And thus, as well as by the power which the will has to grasp and to detain it when it has regained it, and to make it a particular object of attention, its power over the train

* Introduction à l'Histoire de la Philosophie.

or succession of thought or of ideas indirect as it is, may be, and by cultivation especially comes often to be, very great.

But allowing that perception, and emotion, and memory are but capacities of the will, are not *abstraction*, and *imagination*, and *reasoning*, separate powers of mind, and of such a kind as to be rightly designated the "higher psychical powers?" Nay—they are simply the will in act, "at the impulse of some of its emotions or its tastes," "as related to some special occasion," which is different in each—(P. 218.) Abstraction is but an *analytic* act or operation of the will, whereby it "sets off one from the others, by noting their differences, among the objects, qualities, or adjuncts attaching to a concrete which is before it."—(P. 219.) Imagination is but a *synthetic* act or operation of the will, whereby at the impulse or under the guidance of a particular class of emotions, or of tastes and sensibilities, it forms a concrete out of the exhaustless stores of its materials; while reasoning, which has for its object the discovery or the exhibition of truth, is but the will in act, passing, as on stepping-stones, from one admitted fact to another, in order to reach a fact which it seeks to discover or to establish.

But we must pull up. It is scarcely fair to Mr. Taylor to follow him here unless we should follow him fully, which our limited space forbids, or unless we should follow him closely, which we are not now doing. Only, to give some significance and some degree of completeness to what we have now set forth as to the constitution of the mind, let us just observe with him, that "matter—the external world—taking a bearing upon mind, which in this respect is *passive*, and mind taking a bearing upon matter, in which respect mind is *active*," there arise out of this *interaction*, and because of it, the *conditions* of the life and growth of mind, its light and its heat, the air it breathes, and the food it feeds on. By this interaction the sparks are struck which fire the mind, and which develope—in the lower animal orders, in which mind, the will, is *fixed* (how fixed we neither know nor can comprehend)—this one power (will), with its capacities of action and affection, to the *full* measure and extent, always and in all species, which this fixation of its capacities allows—in man, in whose mind the will is *free*, this same one power, with its *boundless* capacities of action and affection, to an extent which *varies* immeasurably as to individuals, and may be either incalculably great or exceedingly small. "Throughout all species," says Mr. Taylor, "in the animal orders, mind invariably completes its intention; it makes full use of its powers, neither more nor less; and it does so with an undeviating regard to the law of its structure in each species, and it does so from age to age unchangeably. *But it is not so with man*"—(P. 190.) With him, the development of mind, beyond a certain point, is "*contingent*;" and there is in fact in this respect all the difference "that constitutes the differ-

ence between the nations of Western Europe, and the aborigines of the Australian continent.”—(P. 187). And, alas! as he adds, “when we come to look into the vast mass of what might be adduced in illustration of the immeasurable prerogatives of civilization, with its arts, its science, and its philosophy, and when we trace these great products of mind to their source in the *constant* elements of human nature, we are confronted with the perplexing fact, brought to view as it is by the comparison above stated, that these elements—these inborn energies—give evidence of their existence only in what must be regarded as *exceptive* instances. Take the human family, all races, and in all times, and then the *million* to a *few* have lived and perished in the unknowing, the unthinking, the comfortless, and the precarious condition of a savage, or of a semi-barbarous condition—certainly destitute of science and philosophy.”—(Pp. 187–88.)

This fact, as Mr. Taylor remarks, “demands some attention.” Much attention it receives from him; and, indeed, it may be said to form the starting-point from which he proceeds in a series of successive chapters (xiii. to xxv.), and in his own “terse and translucent style,” to deliver the physiological history of this one power—mind and its capacities. We regret that want of space absolutely forbids our following him through this history, to which he manages somehow to impart an interest, although the subject seems scarcely to admit of it, noways inferior to that—yet of a much higher order—which attaches, in the hands of De Foe, of Mrs. Stowe, of Thackeray, Dickens, and others, to histories which they have given us, and which everybody reads. His book is one of the most fascinating we have ever read, and, for a scientific work, one of the clearest. Mr. Taylor is a poet and a painter, as well as a logician and a philosopher; and as original in the treatment of his subject, as he is free from waywardness or eccentricity. His whole picture of humanity you feel instinctively, as you look at it, to be true to nature. It is yourself—as you are, and as you are conscious you feel and think, or as you know you might do or be—drawn to the life.

One word more and we have done. His book has, we would fain believe, inspired us with a deeper reverence than we have ever had before for the majesty of that nature which God has given us, and which, made in His own image, after His likeness, is destined for immortality—as well as with a livelier sense of the vastness of that scheme which He has devised, and of the exuberance of those provisions which He has made, for the *happiness* of countless millions of *sentient* beings—who live in the present, and to whom the future has no existence—to whom this earth is “Eden,” and “throughout which (as Mr. Taylor observes) *good* prevails, upon which *evil* makes no inroad, and upon which *organic pain* glances only for an instant.”