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ORDINARY MEETING, JANUARY 19, 1880.

THE REV. ROBINSON THORNTON, D.D., VICE-PRESIDENT, IN THE CHAIR.

The minutes of the last meeting were read and confirmed, and the following elections were announced :—

ASSOCIATES :—Rev. G. H. Fielding, M.A., London ; T. Gwyther, Esq., M.B., Torquay ; H. C. Malden, Esq., M.A., Brighton ; J. Foster Palmer, Esq., L.R.C.P., M.R.C.S., London.

Also the presentation of the following Work for the Library :—

"United States Geological and Geographical Survey bulletin."
From the same.

The following paper was then read by the Author :—

A CRITICISM ON PROFESSOR FERRIER'S "THE ORGAN OF MIND." By the REV. J. FISHER, D.D.

THE paper which we criticise is one of considerable length, occupying twenty-eight pages of the *Princeton Review*.

Professor Ferrier writes in academic style, and somewhat technical language; yet he is fairly easy of comprehension.

Almost at the outset he advises "the psychologists * and physiologists to join hands"; but, as he writes from the standpoint of mere physiology, he soon drops our grasp.

The paper might be divided into two parts,—"brain, the

* Page 100.

organ * of the mind," and "brain necessary to the movements of the limbs." But these parts are so mixed that an ordinary reader cannot easily separate them.

That part of it which refers to "brain necessary to the movements of the limbs" has not so great a degree of interest for us as for the physician, and we have little to say of it by way of criticism.

Some nine pages are chiefly occupied with the brain and nervous system as "necessary to the movements of the limbs"; and with describing the effects of lesion, or removal of the cerebral hemispheres, causing thereby paralysis in different classes of animals.

This part of the paper tells us, that "when the cerebral † hemispheres are removed in the frog, the consequences are not such as to indicate any very striking alteration in the powers or capabilities of the animal"; though it then "acts ‡ only in direct response to some form of sensory stimulation."

"What is true of the frog is" said to be "applicable to fishes § deprived of their cerebral hemispheres."

"In the case || of pigeons the phenomena are similar." But, "when we pass to mammals, we observe effects somewhat different from those seen in the classes of fishes, reptiles, and birds."

"The dangers ¶ to life," we are told, "from lesions, or complete removal of the cerebral hemispheres, increase as we rise in the animal scale." "In rabbits the destruction of the cerebral hemispheres . . . . . impairs the motor powers to a marked extent, and more especially in the fore-limbs." "In cats and dogs . . . . . the degree of paralysis is much more marked." "In the monkey, again, the paralysis of the limbs from lesions of the hemispheres is still more complete." And, "in man,** the annihilation of the functions . . . . . so paralyzes all the muscular powers that only the vegetative functions remain."

Knowledge is desirable, and to be sought after; but it is a question whether the knowledge man has gained by operating on and removing the cerebral hemisphere or hemispheres of the lower animals be an equivalent for the pain and torture suffered by the animals on which the operations were performed.

There are other interesting facts brought out in this part of the paper, such as that "the brain†† is composed of two halves,

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* Page 99. † Page 101. ‡ Page 102. § Page 102.
|| Page 102. ¶ Page 103. ** Page 104. †† Page 107.

each acting only on the opposite side of the body," that "extensive* lesions in one hemisphere, or destruction of the whole hemisphere by disease, may occasion no mental impairment"; that "destruction† of one hemisphere paralyses the opposite side"; that "the movements‡ of the tongue are almost completely bilaterally organised in each hemisphere," that "destruction of the lingual centre in one hemisphere does not paralyse the lingual movements"; that sometimes a person "can move his tongue§ and know the use of an object, but cannot name it."

We are thankful to the Professor for what he has told us of the connection of the brain with different parts of the body, and of the effect which the removal of the cerebral hemispheres or their destruction or lesion has on the power of motion of the limbs. But we do not agree with much that he says of brain as "the organ of mind," and we do not think that he has written at all correctly on this side of the question.

This is not to be wondered at. He is a physician, and may be fully competent to write on all departments of his profession. But mind belongs to intellectual or mental philosophy, a field and a study quite different from those of the anatomist.

Besides, the person who writes on mind needs to have been disciplined in the classes of the logician in order to acquire accuracy in the definition of terms, and precision in the use of language. That Professor Ferrier is not sufficiently accurate in the definition of his terms, and sufficiently precise in the use of his language, will be manifest as we proceed with our criticism.

The paper tells us that "the brain is the organ of the mind," but it does not define or give us the meaning of any of these terms. It does not tell us what we are to understand by *organ, brain,* or *mind.*

We do not object to the phrase, "brain the organ of mind," when used in a popular sense. But in a physio-psychological paper, or rather in a learned, scientific, and abstruse essay, on one of the great questions of the day,—the bearing of physiology on psychology,—especially as the writer tells us "the chief || object of the paper is to indicate some of the more important results of recent physiological and pathological researches into the functions of the brain, and their bearing on psychological questions,"—we do desire a clear definition of the terms, at the outset, and the use of very precise language in the whole treatment of the subject.

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* Page 106. † Page 107. ‡ Page 109.
§ Page 117. || Page 100.

Organ

is an instrument constructed by man for some definite purpose. It is wholly passive, and requires man to operate upon it.

A musical organ is an instrument "built" by man, for the purpose of producing musical sounds; but, in order to these sounds being uttered, the organ needs to be played on by man.

"Organ" is also the name given to a part of the human frame by which we have sensations. There are five organs, viz., the organs of sight, sound, smell, taste, and touch. The organ of touch is situated in every part of the frame, all the others are local, as that of sight, confined to the eye. All these organs are passive, and require to be operated on *ab extra*, just as the musical organ requires to be operated on *ab extra*.

And "organ" is the name given to a part of the human frame by which we do a certain act or work,—as the tongue by which we speak, the hand by which we write, and the foot by which we walk. These organs are also passive, being acted on by the will, or the Ego who wills the word or the act.

In the use of the word "organ" this distinction between active and passive should not be lost sight of; and we should remember that the organs of sense are always passive, requiring to be acted on; the organs of sight, sound, and smell, by waves of light, sound, and odour respectively; the organ of taste by sapid particles; and the organ of touch by something external to it.

Before we pass from the word "organ" we notice a mistake which the Professor has made with regard to the organ of speech, when he says, "articulate speech* gives man his special predominance over the other animals."

Speech is, indeed, an important faculty; but it is not "that which gives man the special predominance over the other animals." A considerable number of the human race have not the faculty of speech. Are we on that account to reduce them to a condition approximating to the other animals? It would appear so, if "speech give the special predominance." And some other animals make an approach towards "articulate speech"; must they, therefore, be more approximated than their fellows to the human race?

We admit that "articulate speech" makes one difference between man and the lower creation, and that the power of generalizing and framing abstract conceptions makes another;

* Page 116.

but the "special predominance" that man has over other creatures arises from his moral nature.

Man has a conscience, a witness for God, within him, which none of the lower orders have. He is a religious being, and this gives him his "special predominance over all other animals."

It has been well said that "man is man* from his mind; for the mind constitutes the man; and such as is the mind such is the man. By mind is here meant that which belongs to the intellect and will of man, and, therefore, his veriest life. Those who are stupid suppose that man is man owing to his outward form; those who are less so assert that man is man from the circumstance that he is able to speak; and those who are less so still say that man is man from the fact that he is able to think. Man, however, is not man owing to any of those things; but from the fact that it is in his own power to think what is true, and to will what is good; and that at the very time when he is thinking what is true and willing what is good, he is able to have an intuition of the Divine Being, and receive Him in a perceptible manner. In *this* it is that man is distinguished from brute animals."

Speech, in so far as it is produced by movements of the tongue, causing certain sound-waves, belongs to the phusis—to physiology. Speech, however, is not the result of the action of man's organs, but of the mind within him, which guides and controls him, and in so far belongs to the psuche—to psychology.

A necessary caution in this matter is, not to confound the organs with the person who has the organs. "Perception† must be the act of some being that perceives. The eye is not that which sees; it is only the organ by which we see. The ear is not that which hears; it is only the organ by which we hear. It is the spirit of the living man which sees and hears. And so of the other organs."

Brain

is a material substance, consisting of invisible atoms. It is a part of the phusis of physical nature, and belongs to physiology.

As the brain is a material substance, it has the properties, attributes, and qualities of a material substance. Extension, resistance, hardness, softness, weight, colour, roundness, circularity, are properties of brain.

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* Gorman's *Psychology*, p. 287. † Hamilton's *Reid*, p. 246.

The brain is not by itself alone an organ, by which we have sensation. It is in connection with the whole nervous system, specially with the spinal cord, which may be regarded as the true nerve-centre; and thus the whole nervous system, "nerves* and brain together, forms the sensorial organism essential to the immediate production of those mental phenomena which constitute our sensations."

"The nervous† matter is of the same texture as the substance of the brain, in continuity with it, and forming one mass," and the whole system is built up of nerve-threads and nerve-corpuscles. Sensory nerves‡ go from the periphery to the brain, and motor-nerves go from the brain to the muscles." And, as the whole nervous system forms one organism, the sensorial affection may be immediate, and not progressive.

The Professor admits that the whole organism is necessary. He speaks of "certain" centres§ in the spinal cord, medulla oblongata, cerebellum, mesencephale, and basal ganglia"; and again he says, "it is not merely the brain . . . but the brain in connection with the whole sensory and motor apparatus to the tips of the fingers."

It thus appears that the organism of sensation is "a complex apparatus," the brain being only a part of it, and the other parts being as essential as the brain.

Now, to call the brain a single organ, and afterward to slip in the whole nervous system along with it, is not according to correct definition and precise use of language. It is also contrary to sound logic, and seems as illogical as reasoning from a particular term to a universal; though it is quite in harmony with the author's speaking of "mind‖ incerebrate and mind incorporate" as synonymous phrases.

Instead, therefore, of saying, "The brain is the organ of the mind," we should say the whole nervous system, brain, spinal cord, and nerves, to the soles of the feet, as well as "to the tips¶ of the fingers," forms an organism, through which, by means of the five organs of sense, the mind is furnished with sensations.

The brain is connected with all these organs, and as all these are passive, so is the brain a passive instrument, and not a self-acting machine.

The brain is not *one* but many, divisible into numberless atoms, "which exist near to each other, but are as little one as

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* Brown's *Philosophy*, i., pp. 448, 458.
† *Ibid.*, p. 445.
‡ *Fortnightly Review*, vol. xviii., p. 718.
§ Pages 104, 112.
‖ Page 99.
¶ Page 112.

if they existed in different planets of our solar system, or in planets, or suns of different systems.*

The brain is always changing. "The cerebral cortex,"† says the paper, "is constantly receiving new accretions, and undergoing novel combinations." As well as every other portion of our visible body, our brain "is transitory,‡ undergoing ceaseless flux." And, even if science succeed in detecting all the movements of the brain, it would only be the external mechanical movements that would be discovered.

Mind

is a spiritual substance, and belongs to psychology; and "an enumeration of its various states constitutes our definition of mind."§

"Mind is that which reasons, imagines, wills, loves, fears, perceives, remembers, compares, is susceptible of all the various emotions, and is the only subject of feeling and affection."‖

Mind is One.

"The mind is one, and indivisible.¶ Our feelings are states of something which is one and single, not a plurality of substances; for the principle of thought is not divisible into parts." That the Ego is one, we need no other witness than our own consciousness; and "the unity of consciousness is a fact known to us by much better evidence than the existence of matter."**

"The sentient mind is essentially one, not extended and divisible, but incapable by its very nature of subdivision into integral parts, and known to us only as the subject of our consciousness in all the variety of successive feelings which we comprehend under that single name."††

But though not capable of division, it is capable of extensive analysis, as it exists in different states; yet every thought and feeling is as single and indivisible as the mind itself, being the mind existing at a certain moment in a certain state.

Mind a Substance.

We have said that mind is a spiritual substance. But may it not be an imaginary, rather than a spiritual, substance?

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* *Brown*, vol. iv., p. 410.
† Page 124.
‡ *Contemporary Review*, vol. xxv., p. 128.
§ *Brown*, vol. i., p. 292.
‖ *Ibid.*, p. 157; vol. iii., p. 66.
¶ *Ibid.*, vol. iv., p. 421.
** Cook's Lectures, p. 60.
†† *Brown*, vol. iv., p. 424.

As Lewis says that "the idea of spirit, as separate from matter, is imaginary."* Or may it not be the shadow of something, "the suggestive aspect of something," as others appear to say? Or may it not be beyond our power to conceive of mind as a substance, as Professor Allman says "the power of conceiving of a substance different from that of matter is beyond the limits of human intelligence?" †

Substance means that in which properties and attributes inhere. Attributes and properties imply a substance of which they are the manifestations. They cannot exist separate from substance. Fear must exist in some mind; and colour must exist in some body.

There are two substances in nature,—matter, of which the human brain forms a part; and spirit, of which the human mind forms a part. And we have as clear ideas of mind as we have of brain, the essence of each being equally unknown to us. "Sensation convinces us that there are extended substances, and reflection that there are thinking ones. We perceive not the nature of extension clearer than we do of thinking."‡

The attributes and properties of one substance cannot be transferred to another. The attributes, properties, and qualities of mind cannot be predicated of material brain atoms; and the attributes, properties, and qualities of brain atoms cannot be predicated of mind.

"Anger and fear are qualities incapable of being exhibited as functions of brain matter" §; and, on the other hand, extension, resistance, gravity, colour, are terms incapable of application to mind.

Tyndall, however, ascribes to brain matter what philosophers ascribe to mind. He affirms the idea of self-determining as the attribute of a molecule. He says, "given the state of the brain, and the corresponding thought might be inferred. Or given the thought, and the state of the brain might be inferred."‖ But he admits that this is all mere assumption when he says, "molecular groupings and molecular motions explain nothing."¶

Not One Entity.

May not mind and brain be one entity, with two aspects, a unity with two faces; or may not the one be the substratum, and the other the aspect of it?

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* *Problems*, 430. † Sheffield Address. ‡ Stewart's *Diss.*, 112.
§ *North British Review*, vol. liii., p. 125.
‖ *Victoria Institute*, vol. vii., p. 137. ¶ *Ibid.*, p. 141.

Our author says that "mental phenomena are the subjective aspect of the functions of sensory and motor substrata; that they are reducible to correlation with the activity of certain simple motor and sensory elements; that cerebral states include our volitions and emotions; and that sensory centres are registers of sensations." Again, he speaks of "feelings and emotions with their physical substrata, and of the elementary substrata of mental phenomena."*

These, and other expressions in the paper, imply that the phusis and the psuche are different sides of one and the same substance; or that the psuche is the aspect and the phusis the substratum.

Bain says, "the arguments for the two substances . . . . . have lost their validity . . . . . the one substance with two sets of properties, two sides, physical and mental . . . . . appears to comply with all the exigencies of the case."†

Huxley says, "Matter and spirit are merely symbols by which we represent the forces which are supposed either to excite or bear up the thought. Matter must be reduced in thought to force; and spirit is likewise force. So far they are identical."‡

Tyndall supposes that there is "but one substance, matter possessed of two sets of properties, of a physical and a spiritual side, making up a double-faced unity."§

According to Spencer, "body is to be regarded as a modification of mind, and mind as a modification of body, both being different modes of one single substance."‖

We do not know how far our author goes with these writers; but when he says "the cerebral cortex is the physical substratum, and the states of consciousness are the subjective aspect"; ¶ that as "the cerebral cortex changes the consciousness changes correspondingly, the one being the substratum, the other the aspect of it," he appears to give up what dualists hold to be the key of their position; and we do not think that, taking his stand where he does, on the relation of mind to brain, as aspect and substratum, or substratum and aspect, he could maintain the position of the dualist against the authors referred to.

But if the whole nerve organism be the elementary substrata of mental phenomena, and the mental phenomena be merely the subjective aspect of these substrata, and if we have a double-faced unity, having a physical and psychical side, every

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* Pages 111, 112, 122, 123, 124.
† *Mind and Body*, p. 196.
‡ *North British Review*, p. 307.
§ Cook's *Lectures*, p. 83.
‖ Gorman's *Psychology*, p. 165.
¶ Page 124.

atom of which has a physical and psychical side, it follows that when one side, the physical substratum, is removed, the other side, the psychical aspect, goes with it; when an atom of the cerebral cortex goes, a corresponding portion of the state of consciousness goes with it. The Professor, however, tells us that, "one whole hemisphere of the brain may be destroyed, and yet the mental operations, the states of consciousness, remain complete";* the substratum may be removed, and the psychical aspect still remain. The cerebral cortex is not, therefore, the substratum of the mental aspect; for one half of the cortex may be destroyed, and the whole of the mental aspect remain. And mental phenomena are not the subjective aspect of the functions of sensory and motor substrata, for the substrata may be gone, and yet the mental phenomena remain complete. He cannot carry out his principle of substrata and aspects, and therefore it is a false principle.

It has been said that "the distinction† between mind and brain does not demand a corresponding opposition in their substance." But if different properties or attributes cannot coinhere in the same substance, it follows that, as the properties of mind are different from those of brain, and cannot inhere in brain, and the properties of brain are different from those of mind, and cannot inhere in mind, mind and brain must be different substances. And, "as the phenomena‡ or properties of brain are essentially different from those of mind, we are forced to conclude that brain and mind are two distinct substances; and that the mind is not material, nor the brain mental."

"To assert§ that brain and mind are one entity, and that the opposite qualities of brain and mind co-inhere in one and the same substratum, is to assert that a thing can be, and not be, at the same time and in the same sense." It has been well said, that "the distinction between mind and matter stands like a reef in the tumbling seas of philosophy; and its roots take hold on the core of the world."

Mind, not Brain, thinks.

Professor Ferrier says, "cerebral‖ states include our volitions . . . . . and emotions." But cerebral states are states of the material atoms of the brain, and volitions and emotions

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* Page 106, "Functions of the Brain." Cook's *Lectures*, p. 78.
† G. H. Lewis, *Fortnightly Review*, vol. xix., p. 479.
‡ Hodge, vol. ii., p. 92. § Cook's *Lectures*, pp. 85, 23. ‖ Page 112.

are mental states, states of the mind, not of the brain; the former belonging to the phusis, and the latter to the psuche.

He tells us that "it is not merely the brain which thinks, but the brain in connection with the whole sensory and motor apparatus of the organism, and, therefore, our thoughts may thrill to the tips of our fingers." * It is not, however, the brain that thinks, but the man. "There is an energy behind the molecular movements, working by law, and guided by intelligence."

While our author says, "the brain in connection † with the whole sensory and motor apparatus of the organism thinks, and mental phenomena are the subjective aspect of the functions of sensory and motor substrata, and should be reducible to correlation with the activity of certain simple motor and sensory elements," others speak out more plainly on the subject.

Voght and Cabanis say that "the brain secretes thought as the liver secretes bile." ‡ The liver secretes bile, as bile is material; but the brain does not secrete thought, as thought is spiritual. According to Baron d'Holbach, "thought § is the agitation of the nerves, and the result of corporeal organization." But the nerves are only matter, and their agitation cannot result in thought. Huxley says, "thought || is as much a function of matter as motion is." "But motion and thought stand in very different relations to matter." Motion and change of matter are one thing, but thought and change of matter are two very different things.

All these writers make mind a product of brain, and ignore the distinction between atoms and mind. But that brain atoms should develop into thought is a notion which neither observation nor reason sanctions. Science, philosophy, and common sense are all against it.

Carpenter speaks of "the physical ¶ change being translated into the psychical," but adds, we know nothing about it. If he knows nothing about it, he should have said nothing about it, and not have affirmed an impossibility, the translation of matter into spirit; for, "between thought and the physical phenomena of matter there is no conceivable analogy." **

A Connection.

Brain organism and mind are two distinct and separate

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* Page 112. † Pages 111, 112.
‡ Cook's *Lectures*, p. 42; *British Quarterly*, vol. lxii., p. 117.
§ *Hodge*, vol. i., p. 254. || *British Quarterly*, vol. lix., p. 114.
¶ *Principles of Mental Physiology*, pp. 12, 13; Gorman's *Psychology*, p. 144. ** Allman's *Sheffield Address*.

substances,—the one, a material substance, consisting of elementary atoms; the other a spiritual substance, consisting of feelings, thoughts, and emotions; yet they stand in intimate and close connection with each other.

They are so connected that, when the functions of the material organism are interfered with, the phenomena of the mental factor are deranged. If the body or the mind, or both, be in a diseased state, there may be delusions.* But the connection between mind and brain is a mystery. The whole relations of the two are inconceivable to us. How they act and re-act on each other we cannot tell. The gap between them is wide, and the passage unthinkable.

Mind is not conscious of its dependence on material organs; and is not enchained in any special organs. But as certain parts† of the nervous and cerebral centres are more connected with one set of sensations than another, so certain parts of the same centres may be more connected with one train of thought than another.

"The state of the viscera‡ has an influence on our psychical tone; and, again, our feelings influence our organic functions." But *mens sana* and *corpus sanum*, though desirable, are not "essentially correlatives," as there is often a *mens sana* connected with a *corpus insanum*.

Though the functions of the brain organism are connected with the phenomena of mind, and a certain affection of the nervous system produces a certain affection of mind, yet philosophers maintain that mental events have nothing in common with the molecular movements of the nerve centre. They cannot be reduced into one another; yet the stroke which paralyzes the brain may paralyze reason, memory, and will.

Sensation.

What do the brain and nervous system, as an organism, do for the mind? Through the organs of *sense* they furnish the mind with those feelings called sensations.

"A sense is the capacity§ of the mind for a distinct class of sensations in connection with bodily organization"; and a sensation is an affection of the mind arising from physical impressions on some one of these organs. But the transition from the impression on the organ of sense to the mental feeling is a mystery to which we have no key.

We have no sensations which do not come to us through

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* Page 124. † Page 123. ‡ Page 121. § Cairns's *Logic*, p. 9.

these five organs of sense. And the brain and nerve organism give us nothing but sensations. We can have no sensations, or feelings, which come in by the organs of sense, unless we have the organs. Nor can we form any idea of these sensations, or feelings, unless we have the organs.

When the organs of sense are acted on *ab extra* they give us sensations, which are feelings, or mental states. More than this they cannot give us. And how the feeling arises in connection with the impression on the nerves of the different organs is a mystery, and likely to remain so.

While the brain and nerve organism, through the organs of sense, furnish the mind with sensations only, their sound condition and healthy exercise are largely necessary to the functions of the faculties of the mind.

Idea.

"An idea, or notion, is simply a feeling involving a reference to some other thing."* "And sensations neither become nor produce ideas of any kind; but merely present occasions for the exercise of other mental principles, by which the various ideas are formed."

The paper, however, seems to say that ideas, as well as sensations, come in by the brain as the organ of mind; for it speaks of "sensory and motor ideation, of auditory ideation, and of the revival of sensation in idea,"† and adds, "the revival of a sensation in idea must possess essentially the same quality." Ideation, however, is neither sensory, motor, nor auditory, but mental.

A sensation cannot be revived in idea; but, if you place yourself in circumstances exactly similar, you may have a sensation exactly similar to the former one. And the idea of a sensation does not possess essentially the same quality, and "produce the same corporeal manifestations," as were caused by the sensation itself.

Again, the paper speaks of "the centres of sensory and motor ideation."‡ Ideation, however, belongs to mind: sensory and motor belong to brain and nerve matter. The one belongs to the psuche, the other to the phusis; and, therefore, we cannot speak of sensory and motor ideation without confounding mind with brain matter.

Again, it speaks of "auditory ideation,"§ and on the same page of auditory sensation. The one phrase is correct, the other not. The auditory sense furnishes us with auditory

* Cairns's *Logic*, p. 10. † Pages 122, 123. ‡ *Ibid.* § Page 119.

sensation, not auditory ideation. All our senses together do not give us ideation. The paper, however, admits that idea belongs to the mind, not to the organs of sense, when it says, "an idea in the mind, which we desire to retain, is kept there by the restraining influence which, through those higher centres, we can exert upon the other centres."*

Consciousness.

The Professor uses the term "consciousness" in a manner tending to give us an incorrect view of brain as the organ of mind. He speaks of "attentive† ideation by which consciousness is kept concentrated on certain phenomena," where he uses "consciousness" instead of "mind," for attention is just the mind concentrated on certain phenomena. And he speaks of "the brain as the organ of consciousness," where he uses "consciousness" instead of "sensation." This, however, is not to be wondered at, as, on the same page, he uses the phrase "sensation or consciousness," making sensation and consciousness synonymous.

"Consciousness‡ is applied to every state of mind to represent it during its continuance, merely as a feeling. It denotes the mind's capability of knowing each of its states; and it refers exclusively to what is in the mind itself."

The paper speaks of "our states of consciousness, actual and potential, in the cerebral cortex"; but our states of consciousness are states of mind, and in the mind, not states of matter, and in the cerebral cortex. It also speaks of "continuous§ registration of our conscious experience in the cerebral cortex;" but conscious experience, or consciousness, is mental, and cannot be registered in the cortex. It also says, "impressions‖ on sensory nerves do not affect consciousness merely as facts, but have certain qualities which express themselves subjectively as feelings." Impressions on the sensory nerves, however, give us sensations and nothing else.

It has been said that, "some¶ change in the condition of the matter of the brain is the invariable antecedent of each sensation, thought, and emotion," and our author says, "all consciousness** implies cerebral activity"; and Allman says, "when†† a thought passes through the mind it is associated

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* Page 123. † Pages 113, 122. ‡ Cairns's *Logic*, p. 8.
§ Page 124. ‖ Page 121.
¶ Huxley, *Fortnightly Review*, vol. xvi., p. 557.
** Page 113. †† Sheffield Address.

with some change in the protoplasm of the cerebral cells." But all this is a mere assumption. Consciousness is not the result of a number of concomitant movements in the material frame, but a state of mind.

Our author says, "mental phenomena* are reducible to correlation with the activity of certain simple motor and sensory elements." This almost reduces mental phenomena to motion, and comes nearly up to Spencer's view that "thought is nothing more than converted heat," or a mode of motion. But this, again, is all mere assumption, for "there is nothing† more ridiculous than to imagine that any modification of matter should produce thought."

Allman says, "consciousness is never manifested except in the presence of cerebral matter, or of something like it."‡ In the name of philosophy, as well as science, we ask the President of the British Association what he means by the something like it. He says, again, "now we may indicate some point which would refer consciousness, as well as life, to a common material source."§ But materialism can indicate no point which refers consciousness and life to a material source. Consciousness always comes from consciousness, and life from life.

Dr. Pye Smith says, "the physiology‖ of the nervous system has thrown more light upon the phenomena of consciousness than was gained by the acutest minds of all ages without the help of anatomical methods." But this is what Goldsmith calls "*a bounce*"; for, to discover consciousness, which is a mental state, among the bones and muscles, the nerves and sinews, of the human frame, by the help of the scalpel of the anatomist, would be a feat indeed.

Memory.

Our author writes very erroneously on the subject of memory. He confounds perception with memory when he says, "It is necessary¶ for perception that there should be a registration of sensory experiences, by which alone it is possible for present impressions to be compared with former ones." He says "the organic** modifications of the cells are the basis of memory and ideation, and the foundation of all knowledge and thought." But memory, ideation, knowledge, and thought are all mental, not material,—are in the mind, not in the cells of the brain.

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* Page 111. † Gorman's *Psychology*, p. 179. ‡ Sheffield Address.
§ *Ibid.* ‖ *Ibid.* ¶ Page 114. ** *Ibid.*

He speaks of "the sensory* elements of ideation stored up in centres"; but the centres are only numbers of atoms, and atoms cannot contain ideas. The one cannot be stored up in the other, as the one is mental and the other material. He says "the sensory centres are the seat of sensation, sensory memory, and ideation."† But memory and ideation are mental states, have their seat in the mind, and not in nerve centres.

Again, he says that the "motor‡ centres are the origin of motor stimulation, and the organic basis of motor memory and motor ideation"; that "the motor centres are distinct from those which perceive and register sensations"; that "the sensory centres§ are registers of sensations in which they are stored up and capable of re-presentation in connection with their respective associations." But the acts of perceiving and registering are acts of the mind, and not of numbers of material atoms; and sensations are mental states, which can neither be re-presented nor stored up in bundles of atoms. He also speaks of "the motor memory‖ and ideation of the right hand," but memory and ideation belong to the mind, and not to the hands, whether right or left.

He says, it is "through¶ the brain that we live subjectively, both in the past and present." It is, however, rather through memory that we live subjectively in the past, and through consciousness that we live in the present. Both of these belong to mind, and, therefore, it would be more correct to say, it is through the mind that we live subjectively. Moreover, it has been said that life is manifested primarily in the heart, not the brain; and it is as much through the blood, passing through the heart, that we live, as through the brain.

The atoms of the brain are continually changing, and, therefore, form a poor basis for memory. But "there is something** imperishable in memory, which is inexplicable on the supposition that the mental faculty is a mere function of any perishable organ like the brain,—something which appears to necessitate the conclusion that the mind, of which memory is a faculty, has its foundation deep down in spirit."

The paper says, "We retain an idea in the mind by the restraining influence which, through these higher centres, we can exert upon the other centres through which it may tend to diffuse itself."†† Think of the Professor saying to a student, "Keep that idea in your mind." The student asks, "How shall I do so?" The Professor replies, "By the

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* Page 115. † Page 116. ‡ *Ibid.*
§ Page 129. ‖ Page 119. ¶ Page 124.
** *Contemporary Review*, vol. xxv., p. 134. †† Page 123.

restraining influence which, through the higher centres, we can exert upon the other centres through which it may tend to diffuse itself"; and to help the student to do so the Professor might add, "The frontal lobes are the substrata of these controlling influences." We would say to the student, "Keep the idea in your mind by attending to it."

Personal Identity

is the property of every person. It is witnessed to by consciousness, and no other proof is needed than our own consciousness.

The paper is very erroneous on the subject of personal identity. It tells us that "the sum* of all our states of consciousness constitutes our personality,—our Ego; that these states of consciousness are in the cerebral cortex, which is continually undergoing novel combinations; that the cerebral cortex is the physical substratum, and the states of consciousness are the subjective aspect; that as the cerebral cortex changes, so the states of consciousness change accordingly, the one being the substratum, the other the aspect of it; and that therefore it is incorrect to say that our personality retains its identity."

Such is our author's own conclusion, drawn fairly from his own premises, laid down and reasoned out in his paper. But the conclusion which denies personal identity must be a false conclusion, and therefore the premises from which the conclusion is drawn must be false premises. The argument which requires us to give up our personal identity is a false argument. But the argument of our paper that our states of consciousness are in the cerebral cortex requires us to give up our personal identity, and therefore it is a false argument.

Our author makes personality equivalent to cerebral manifestation when he uses the phrase "personality, or cerebral manifestation."† Personality, however, does not consist in the sameness of the cerebral cortex or other parts of the brain, but in the sameness of the Ego; and consciousness tells us that the Ego is one, not many.

He tells us our consciousness of personality "is possible only through the continuous registration of our conscious experience in the cerebral cortex."‡ But this registration is mere assumption, of which we have no proof; and even if such

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* Page 124. † *Ibid.* ‡ *Ibid.*

registration were effected, it could not give us identity, as the cerebral cortex is momentarily passing away.

The Professor admits that "it is incorrect to say that our personality retains its identity,"* and says that "our personality changes every moment." He thus abandons personal identity. It also follows from his reasonings that when the registration in the cortex ceases, the personality ceases; and, as a matter of course, when the personality ceases, the person, the Ego, also ceases; and thus we reach the terminus of all materialism.

The CHAIRMAN, having conveyed a vote of thanks to Dr. Fisher for his very careful paper, called upon the Honorary Secretary to read some communications referring to the paper.

The Honorary Secretary then read the following which had been received from Mr. F. BATEMAN, M.D., of Norwich:—

"The subject introduced by Dr. Fisher is one especially calculated to interest the members of the Victoria Institute, treating, as it does, of the mysterious connection between matter and mind. It is especially interesting at this juncture, when, as you are aware, there is a certain school of modern philosophers who are trying to materialise everything, ignoring man's spiritual and metaphysical attributes, the belief in which, they regard as a relic of mediæval superstition. They go so far as to assert that mind, thought, and consciousness, are bodily functions, and simply the result of some molecular or atomic change in the brain. However, evidence is daily accumulating of a scientific character, which directly tends to controvert the materialistic tendencies of the day, and to show that what has been termed the 'slippery force of thought—the *vis vivida animæ*'—cannot be weighed in the balance.

"If I understand the author right, he contends for the *Immateriality* of Mind. I agree with him, but I think he has failed to state his case as clearly and as forcibly as he might have done. In speaking of Dr. Ferrier's definition of the 'brain as the organ of mind,' Dr. Fisher complains that we are not told 'what Dr. Ferrier wishes us to understand by *organ*, *brain*, or mind.'

"Now, this is not the time or place to enter minutely into this question, a subject which I have treated at some length in my work on 'Darwinism tested by Language;'† I wish, however, to say that I so far agree with Dr. Ferrier, that the brain is undoubtedly the *material* organ of mind, and that by it our thoughts become manifested to the outer world, for each of our faculties manifests itself by means of matter, and the material condition which renders the exercise of a faculty possible is an organ; but it is important *not* to confound the faculty itself with the corporeal organ upon which the *external* manifestation of this faculty depends.

"I would illustrate my meaning by an allusion to the electric telegraph, an apparatus by which ideas and words are transmitted from mind to mind, with a rapidity to which ordinary language cannot attain. Now, the electrical battery may be not inaptly compared to the brain, and the telegraph

* Page 124.

† Dr. Bateman's paper on this subject will be found in vol. vii., p. 73.

wires to the nerves which emanate from the cerebral organ to supply the various structures engaged in articulate language. If the battery be out of order, or the telegraph wires be broken, this 'lightning language,' by which mind speaks to mind, becomes impossible. Precisely in the same way, a certain normal and healthy state of cerebral tissue is necessary for the *exterior* manifestation of our mental faculties, but this is a very different thing from saying that the cerebral organ is the '*Seat* of the Mind,' and that the brain secretes thought, just as the liver secretes bile, whereas it is simply the material organ by which our intellectual faculties become *externally* manifested."

Also the following from Mr. C. B. RADCLIFFE, M.D. :—

"The paper is not all that I could have desired; the purely physiological part of Dr. Ferrier's work is the part which I think alone demands attention, and this part is not touched upon. I greatly wish the paper had been a criticism of the opinion of men like Bain and Herbert Spencer. Dr. Ferrier simply follows men like these at a humble distance when he talks about mind, and he has not a word to say for himself which is in any sense original. He believes, as do his masters, that mind is a function of brain and other nerve-centres. Dr. Ferrier is an accurate and painstaking experimentalist, and highly deserving of praise on this account. He is, in my opinion, very one-sided. He may be right in the main in what he attempts to prove—that there are *centres* in the cortex of the brain which rule the movements of the tongue in speaking, of the hand in handling, and so on; but I am disposed to agree rather with Drs. Brown-Séquard, Dupuy, and others, and think that many of his experiments are fallacious. But whether he is right or wrong does not matter. He has no fact which gives additional support to the notion that mind and live brain are convertible terms, and those who believe in the spontaneity of mind, have nothing to fear in what he says and does. To deal with Dr. Ferrier on his own special grounds would require a long paper and many diagrams."

The discussion, which was of a general character, was taken part in by Admiral Fishbourne, C.B., R.N., Mr. J. Enmore Jones, Mr. L. Dibdin, the Rev. J. W. Buckley, and Admiral Nolloth, C.B., R.N. The author having replied,

The meeting was then adjourned.

Since the meeting the following additional communications have been received :—

Dr. ALEXANDER HARVEY, Emeritus Professor of Materia Medica in the University of Aberdeen, writes as follows to Dr. Fisher :—

"I have read your criticism with great satisfaction, and I may say that I agree with you in all, or almost all, you say."

Mr. J. M. WINN, M.D., writes :—

"It may be some satisfaction to those members of the Victoria Institute who have not sufficient leisure to study the physiological aspect of Dr. Ferrier's researches, and who may fear that his experiments will tend to shake the general belief in the independence of the human mind,—it may, I say, be a relief to such persons to be assured that Dr. Ferrier has utterly failed to establish the phrenological doctrine, that the faculties of the mind can be localized in the brain.

"In January, 1877, when I had the honour to deliver an address before a meeting of members of the Victoria Institute, on 'Materialistic Physiology,' I, for the second time, challenged the neurologists to show that any

one really great fact had been elicited since the discoveries of Sir Charles Bell and Marshall Hall. The nerve-fibres of sensation and motion have been traced further towards the circumference of the brain, but we are as ignorant as ever of the properties of the caudate nerve-cells of the cerebral convolutions; we can only surmise that it is through them that sensations are perceived and volition exercised. As yet, I have received no answer to my challenge.

"The centres of motion and sensation are far from being accurately determined; what right then have Dr. Ferrier and other physiological psychologists to assume that they can locate the higher faculties of the mind in the grey cortex of the brain. A scientific worker like Dr. Ferrier may make a thousand experiments without having the good fortune to hit on a valuable discovery; we cannot, therefore, place him in the same rank with those who have been able to establish a great and general principle.

"I am happy to have this opportunity of congratulating Dr. Fisher on the skill and boldness with which he has insisted on the line of demarcation existing between brain and mind, which remains as distinct as it was in the days of Plato."

Mr. J. Foster Palmer, L.R.C.P., writes:—

"Dr. Fisher's view appears to be that because Professor Ferrier is a physiologist, therefore, he does not understand the rules of logic, and because he does not understand the rules of logic he is not competent to write on mental philosophy. It may be necessary for those whose sole object in writing is to impress on others their own views, to hedge their statements well round with logical arguments, but the physiologist proceeds on an entirely different plan. He sets forth the results to which his own observations lead him, in plain language, leaving others to judge for themselves,—confirming his statements if they find them true, and refuting them if they are based on errors of observation. It has been truly said by Reid that no mental philosopher can delineate anything except the condition of his own mind. It is only by comparing the observations of a very large number of unprejudiced observers that any general result can be arrived at.

"I have a few words to say on Dr. Fisher's definition of the word 'organ.' 'Organ is an instrument constructed by man for some definite purpose, and requires man to act upon it.' The facts in the case are particularly unfortunate in not agreeing with this definition, *e.g.*, the organs of sense are certainly not made by man, and they are not acted upon by man, but by the external stimuli (waves of light, sound, &c.), nor can any organ of the body, strictly speaking, be acted upon by that of which it forms a part. An organ may with more propriety be considered a medium of communication by means of which some operation is performed. But if Dr. Ferrier has made an arbitrary division in calling the brain the organ of the mind, Dr. Fisher has done the same to a greater degree in including with the brain the entire nervous system to the extremities of the nerve-fibres, and at the same time excluding the organs of sense, or such portions of them as remain after the removal of the nerves. The terminal fibres of the optic nerve, for example, constitute the retina, which forms the entire fundus of the eye. If the retina and ciliary nerves were taken away there would remain nothing but a series of lenses, which could no more be called an organ of sense than could a pair of spectacles. Either the organs of sense must be included with the brain and nervous system as the *organ* which connects the mind with the external world, or the portions of the nervous system must be differentiated. In this case it would be the centres of ideation, or, in more general terms, the grey matter, of the brain which is the actual connecting medium, or organ, between the mind and the nerve-fibres."