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ORDINARY MEETING.*

ALEXANDER MCARTHUR, ESQ., J.P., D.L., V.P., IN THE CHAIR.

The Minutes of the last Meeting were read and confirmed, and the following Elections were announced :—

MEMBERS :—His Excellency Sir Thomas F. Buxton, Bart., K.C.M.G., Governor of South Australia, Adelaide ; Percy M. Van Epps, Esq., United States.

ASSOCIATES :—Captain Henry Hall, London ; Alex. Henwood Teague, Esq., F.L.S., Cornwall.

The following paper was then read by the author :—

ON SOME RELATIONS OF MIND AND BODY. By A. T. SCHOFIELD, Esq., M.D., &c.

THE subject on which I venture to offer a few remarks is not only one of great interest in itself, but it has the special character of being a subject of real practical value in the rational treatment of disease. Indeed, the whole science of mental therapeutics is founded on an intelligent understanding of the relations of the mental and the physical in man.

There can be no doubt in the minds of thoughtful men as to the fact of the great therapeutical influence the mind has on the body. But though some monographs may have been written from time to time on this subject—and it is incidentally touched upon in various works on the brain and mind—its practical application is of the most fortuitous and casual nature. It is difficult to understand why such a powerful means of cure is so systematically neglected, and even ignored, by the profession. I suppose it is because mental therapeutics have been practically for so long the real *modus operandi* of the vast army of charlatans, that the whole subject has acquired such a bad name that most men fear for their reputation if they touch it. Indeed, it is only because I have been taught practically so much of its real value, and feel so strongly that its continued neglect is no small blot on the present system of medicine, that I shall call attention to the wide powers the mind has over the body in relation to disease. My remarks will therefore fall naturally under two heads: the first being directed to what we should

* 7th of 31st Session.

understand by the word "mind" and what is known of its relations to the body; the second pointing out in brief the practical bearing of this knowledge on disease.

Our *ego*, or personality, as defined by Herbert Spencer, is "the permanent nexus, which is never itself in a state of consciousness, but which holds states of consciousness together." I think, however, we all feel, that though the conscious mind would fain arrogate the personality to itself, that personality holds a great deal more than mere "states of consciousness" together.

It is true that what is generally called Mind, whether by materialists or spiritualists, has hitherto been limited to conscious mind.

All writers on psychology take the ground that mind is consciousness. To talk of unconscious mind is said to be a contradiction in terms, and even the unconscious action of the brain, which is now universally acknowledged, was considered, as late as 1876, a most objectionable doctrine. Why the whole region of mind should be limited to consciousness I could never myself understand, although it is plain that the only mental processes we can fully trace are confined to those of which we are conscious. To grasp, however, the relation of soul and body and the scope of mental therapeutics it is necessary to take a wider view—one, indeed, which has long been before me, but which I have not hitherto ventured to formulate, until I recently came across some thoughts, on entirely original lines, ably expressed by the learned professor of Physics in Dublin, which seemed to endorse those suggestions which I have already laid before this Society.*

By mind, therefore, I think we should understand an external directing force that everywhere acts on matter, organic and inorganic. In the organic kingdom this mind is called "life"; for to me life is practically synonymous with mind—if by life we mean the power that purposively directs the

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* Since this paper was written I have seen in the *Pall Mall Magazine* for last year, in a paper by Mr. Zangwill, the following remarkable corroboration of the argument of this paper. What we are pleased to call our minds is made up of two parts, our consciousness and our subconsciousness; the latter is immeasurably the vaster portion. It is a tossing ocean of thoughts which feeds the narrow little fountain of consciousness.

movements of matter, whose first inherent quality is inertia. In the inorganic world mind is called nature with a big N, and its actions are called the "laws of nature." They are surely the laws of mind.

Briefly, the old couplet is the best summary of the relations of *mind and matter*—

What is matter? *Never mind.*
What is mind? *No matter.*

For to attribute the functions of mind to matter, and to regard the former as a sort of self-formed secretion of the latter, is to hopelessly and unintelligibly confuse things that essentially differ. Still, if any object to the application of the word "mind" to sub-conscious intelligence and acts, I do not press it; all I would urge is that the actions of both are spiritual or mental functions, and not material.

Regarding, therefore, as I do, mind as the universal directing agent and mover of matter, it appears to me that the conscious mind is a very small part of the whole even in us, while with regard to the unconscious organic creation generally it forms a most minute proportion. A coral island in the South Pacific is a mere ring of rock in the water, of insignificant size to the sailor; but to the biologist, or geologist, it is the highest peak of a stupendous structure that rises from the bottom of the ocean as a mountain, miles high. Commencing, as it does, in the very smallest beginnings, it remains unrecognised until it rises above the surface of the sea. We only see the top of this structure, and call it an island; indeed, it is all we are conscious of except by soundings, or occasional glimpses of what is beneath on calm days, or at low tides. In the same way, it seems to me the conscious is but a very small part of the vast sub-conscious mind, on which it rests.

The conscious mind has its seat, as we know, in the cortex, or surface, of the brain only: the unconscious mind is connected with—or may we not say is the source of?—all life that lies below, down to the purposive, or, if you please, "reflex" or automatic action of each cell. ("Reflex," by the way, is a very misleading word, for an action is never really reflected like a ray of light from a mirror, the process being a far more complicated one, and always involving the action of mind, or its equivalent.)

Consciousness is not, as far as we know, an inherent quality of the cortex nor of the mind by itself, but is the

result of the interaction of the two; for when the working of the cortex, and hence the harmony of the two, is disturbed, as by narcotics or a violent blow, it is lost. We are also by no means conscious of all that takes place even in the cortex, for innumerable sensations may, and do, continually reach it, of which we are wholly or partially unconscious. On the other hand, it would appear from recent researches that it is not possible to be conscious of any sensations that do not reach the surface of the brain.

The conscious mind has reason, feeling, and volition. By it, and by it alone, we direct and control the main expenditure of life and force. This, however, is not done so much by reason as by feeling—it is in the heart, not in the head, as Dr. Maudsley points out, that our deepest feelings are rooted, and he does ill service to the religious faiths who strive to base them on the feeble apprehensions of human reason; the driving impulse by which men are moved to act comes from feeling rather than reason.

"A psychology," he says, "which finds the motive power of action in knowledge might be likened to a science which should find the cause of the tidal movements not in the moon, but in the moonshine!"

The sub-conscious mind is on a lower plane, and runs largely in grooves of habit, and follows closely change of association and sensation; but its powers far exceed in the body those of conscious mind. The unconscious powers of life can make eggs and feathers out of Indian corn; and milk and beef out of grass. The new science relating to our protective organisms, so brilliantly worked out by Metschnikoff and others, shows they can carry on, without erring, a thousand complicated and purposive operations and form chemical combinations that no chemist can compass; work with ease and without fatigue, and are only hampered when interfered with by the conscious mind. This is seen when the sub-conscious mind takes up conscious acts, and transforms them into unconscious or sub-conscious habits. It is ever doing this through life; and ease and perfection in any pursuit entirely depend upon the degree in which it ceases to be connected with consciousness and is carried on sub-consciously. Playing the piano, skating, bicycling, skilled trades, and indeed almost everything, depend for their perfect execution on the power of the sub-conscious mind.

The pen of a ready writer, as Miss Cobbe says, seems to dip itself into the ink at the right time to form of itself all

the words, and even to select different words to begin each sentence and to avoid terminating them with prepositions, while all the time the conscious mind of the writer is deeply occupied with the plot. The marvels of playing a brilliant piece on the piano while at the same time conducting a vigorous flirtation show also the greatness of our unconscious powers, especially when we remember that Sir James Paget has pointed out that in rapid playing the finger moves twenty-four times a second, each movement involving at least three muscular acts which if multiplied by ten gives 720 muscular impulses *per second* for both hands.

It is likely that when habits, or artificial reflexes, are established in the brain, that the current of sensation and ensuing motion never goes up to the cortex at all for orders from the conscious mind, the action being short-circuited in the middle brain, and it is not only actions that are "short-circuited" by habits. Sights and sounds frequently repeated are arrested in our unconscious brain, and not allowed to rise to the level of consciousness. If we live near a boiler factory, we soon cease to hear it; or if, as in a friend's case, we live near a large dairy, where milk cans are washed at night, it soon fails to wake us. There appears to be in the sub-conscious mind some power of choice as to whether an impulse shall be short-circuited or sent on up to the cortex. By experiment, I find that if a man moves about the room in the morning when his wife is fast asleep, and makes loud noises of various kinds, they do not wake her; though it cannot be exactly from habit, for probably the exact noise has not been heard before, but rather from an unconscious knowledge of who makes it. On the other hand the faintest noise in opening the door—often heard before—wakes her up, because it suggests someone else entering. The lower mind seems to think it is the only sound-message requiring the attention of the cortex, and so sends it up. It is almost like the action of a private secretary opening all letters and placing a few before his chief, answering the rest himself. The unconscious mind we must remember is not only the active agent in all habits, but in all voluntary conscious actions as well. It is often forgotten that we cannot *will* the contractions of any muscles; we can only *will* the moving of leg or arm, and are quite unconscious of the process by which the act is carried out.

But the sub-conscious mind can do greater wonders than these. It not only carries on all the work of the body from

the action of the lowest cell, but it can use unconsciously the highest cortical centres of thought that are ordinarily worked by the conscious mind. If the conscious mind gives the cortex some work to do, such as solving a problem, recalling a sound, a name, or a place, meanwhile occupying itself completely in some other way, the sub-conscious mind will step in and do the work and give the answer in a surprising way—as O. W. Holmes says, "Our unconscious mind delivers the result at the doors of our consciousness just like a prepaid parcel"; or, on the other hand, it will work alone in forming impulses and recalling memories. This, however, requires time: for a man may try to recall a name and look in a directory for it; but though under his eye he fails to recognize it, for his unconscious mind has not yet had time to find it in his brain. Five minutes after he has closed the book he remembers the name, which he could not do though he actually saw it with his eye. (Carpenter.) That is to say, the visual impression on the brain, though conscious, fails to recall the mental record of the name, which the unconscious mind succeeds in a few minutes in doing. The other day, leaving home for Brighton, I was stopped at the door by a suggestion from my unconscious mind that I had not much money in my purse; I looked and found only a few shillings. I had previously opened my purse often that day, and the sight of these shillings was unconsciously registered in my cortex, and somehow this fact was presented by my lower to my higher or conscious mind at the door. How often in a similar way impulses and fancies of unconscious origin direct our steps and even save our lives. It is probable that the sub-conscious mind is ever working in the cortical region in the way of deepening impressions and memories. It has been well said in Germany, that skating is learned in summer, and swimming in winter. That is to say, that the man who has learned to skate one winter will begin the next winter a very much better skater than he left off: the movement and the impressions connected with skating having been deepened by the unconscious mind during the summer, and the same with the swimming.

But it will do more than this. Of all the thousands of impressions that are being received in the cortex, from various parts of the body, and from our special senses, but very few are even noticed by the conscious mind, though all are registered sub-consciously. We hear a slang expression, or a new song; we do not notice it particularly, but the sub-

conscious mind does, and the result is that we find ourselves unconsciously repeating the words, or humming the tune; and the curious part is, that we can often hum the air perfectly if we will do it with the sub-conscious mind, whereas, if we try to hum it consciously it goes from us. After a time, however, when its impression has had time to deepen, we can hum it at will. For the same reason we can often remember things better when we cease to try to do so with our conscious minds.

During sleep, for instance, thoughts range themselves anew. The powers of the unconscious mind can do more in this way than the most arduous effort, in arranging facts and ideas in due proportions. Hence we like to sleep over a thing before deciding, and Judges in a difficult case always like to take time to deliver judgment—often on the morrow.

More than this, we may read, hear, see, indeed do almost anything involving the highest centres of the cortex, unconsciously—the result being only recorded by our sub-conscious mind.

Our conscious mind, as compared with the unconscious mind, has been likened to the visible spectrum of the sun's rays, as compared to the invisible part which stretches indefinitely on either side. We know now that the chief part of heat comes from the ultra red rays that show no light, and the main part of the chemical changes in the vegetable world are the result of the ultra-violet rays, at the other end of the spectrum, which are equally invisible to the eye, and are only recognised by their potent effects. Indeed, as these invisible rays extend indefinitely on both sides of the visible spectrum, so we may say that the mind includes not only the visible or conscious part, and what we have termed the sub-conscious, that lies below or at the red end, but the supra-conscious mind, that lies beyond at the other end—all the regions of higher soul and spirit life, of which we are only at times vaguely conscious, but which always exist, and link us on to eternal verities, on the one side, as surely as the sub-conscious mind links us to the body on the other.

The mind, indeed, reaches all the way, and while on one hand it is inspired by the Almighty, on the other it energises the body cell or tiny amœba, all whose active life it originates. We may call the supra-conscious mind the sphere of the spirit life, the sub-conscious the sphere of the body life,

and the conscious mind the middle region where both meet.*

The powers of the unconscious mind are seen in a remarkable way in insanity. The sane man is one in whom the conscious mind—the middle part of the spectrum—rules. In an unsound mind, the supra, or sub-conscious, steps in, and, overpowering the conscious mind, produces ecstatic visions and phantasms, or coarse and sensual conduct. It is remarkable to note in this connection that when reason is even partially dethroned how the whole unconscious mind can unite in coupling the highest spiritual ideas with the lowest sensuality, as in some recent heresies. In defective intellects, where the conscious mind is weak, the power of the sub-conscious mind is remarkably seen. Miss Martineau tells of an idiot who had his hands washed and nails cut at 11.10, and who came of his own accord exactly at the same hour each day to have the operation repeated, though he knew nothing consciously of time.

Our conscious mind is like the yellow spot in the eye, which is really the conscious centre of vision, the images falling as a rule unnoticed on all the rest of the retina, and making an unconscious record in the brain. When the conscious mind is in abeyance, as in a dream or reverie, or artificially, as in hypnotism or narcotism, the unconscious mind emerges from its obscurity, and these and other impressions unconsciously formed upon the brain are seen and noticed for the first time, just as a receding tide lays bare the hidden parts of the coral mountain, *e.g.*, a servant in delirium spoke Latin and Greek words which she had absorbed unconsciously from her master years before.

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* The Spirit of God is said to dwell in believers, and yet His presence is not the subject of direct consciousness. We would include, therefore, in the supra-conscious all such spiritual ideas, together with conscience—the voice of God, as Max Müller calls it—which is surely a half-unconscious faculty. Moreover, the supra-conscious, like the sub-conscious, is best apprehended when the conscious mind is not active. Visions, meditations, prayers, and even dreams, have been undoubtedly occasions of spiritual revelations, 1 Cor. ii, 3–5 ; 2 Cor. iv, 7, 16 ; 2 Cor. xii, 2, are instances of the working of the spirit apart from the action of reason or mind.

A well known Christian teacher, the Rev. Dr. Andrew Murray, writes, "Deeper down than where the soul with its consciousness can enter, there is a spirit nature linking man with God, and deeper down than the mind and feelings, or will—in the unseen depths of the hidden life, there dwells the spirit of God."

If the unconscious mind be stimulated at such times it can exert extraordinary and apparently unlimited powers over the body. An actual blister can thus be produced upon the forehead by its powers, without any external application. Reveries and dreams, unconsciously fixing this mind on any part of the body, have produced the forms of letters and other marks.

Once more the unconscious mind is ever writing the record of the conscious mind on the body, in gait, in gesture, and in the lines on the face. This alone is a great subject, but we can only just name it in passing.

The bearing of all this on mental therapeutics is sufficiently obvious. Our field of action while embracing the whole mind is mainly the sub-conscious region, which not only can be treated without knowledge of the *ego*, but which can affect through its wonderful powers of nutrition and health of the body to an illimitable extent, and indeed is the real agent in most cures.

Bearing this somewhat lengthy preface therefore in mind, which will throw a light on all we yet have to say, let us proceed to consider *longo intervallo*, how the body affects the mind.

A great many manifestations that are classed as mental are really physical. If a piano produce discord, the cause may be mental or physical—it may be the result of the discordant mind of the bad player, or of the discordant tones of the untuned strings. In the same way, we often blame the player (or the mind), when it is the instrument (or the brain) that is at fault.

This instrument can only perfectly respond to the mind when it is in health itself, and this health depends mainly on the quantity and the quality of the blood that is supplied to it; on the proper working of the system that carries off the drainage, or refuse, from it; and on the amount of exercise and rest the cells themselves get.

We need not say more on this head in the present learned audience, but only ask them to remember, that if the mind can profoundly affect the body, the body can profoundly affect the mind through the brain which is its organ, which is dependent on physical conditions for its proper use.

In disease the mind has special power over the body. The very word dis-ease is coined to express a mental idea "ease" and not a physical change.

The cortex, or surface of the brain—the seat of conscious

mind—is a special factor for good or evil in every disease. Every organ and function is represented there, and there brought into vital unity. Prof. Laycock says, "The hemispheres, as the organ of thought and mental action proper, are in unity with all the processes of life whatever; whether they be termed vegetative or animal."* Indeed, the unity of the body and to a great extent of the "ego" is formed in the cortex. All tissue nutrition is influenced from this great centre, and most physiological acts can be arrested mentally by its action. It controls unconsciously anabolic and katabolic cell action; and there is no doubt that a sound, cheerful mind, acting through it, is a great protector against disease of all sorts, and if disease has a hold a cheerful mind can often cure it.

Mental therapeutics can be applied to the body in one of three ways:—

1. *By the unconscious mind directly*—in spiritual or physical influences and surroundings.
2. *By the unconscious mind acted on by the conscious indirectly*—in rousing faith in persons, remedies or places, &c.
3. *By the unconscious mind acted on by the conscious by direct effort*—in determination to get well, to shake off illness, ignore pain, &c.

With regard to the ailments for which mental therapeutics is useful, it is a powerful means of cure in all organic and inorganic diseases; while in hysteria and allied neuroses it is the only reliable means of permanent efficacy.

Let us, then, first consider the influence of the mind in ordinary diseases.

Putting aside all those cases which get well without any means (the cure of which we maintain is solely effected by the action of our sub-conscious mind), we will give just one or two special illustrations of this influence.

At the siege of Breda, in 1625, the whole garrison was down with scurvy; the Prince of Orange smuggled into the town three small phials of essence of camphor, and his physician put three or four drops into a gallon of water, and the men recovered and saved the town.

As to this we may remark that it is a matter for curious conjecture as to how far generally the cures we now attri-

* *Mental Physiology*, vol. ii, p. 144.

bute to drugs in homœopathic or other doses will be considered in the future to be the results of the powers of our unconscious minds.

A patient, suffering agonies with toothache, was told by a medical man to apply to the tooth a silver coin wrapped in silver paper. Believing it to be infallible, she did so several times and was relieved. One day, however, she was told the remedy was wholly mental, and at once it was powerless. Here is an instance of the pernicious effects of the conscious mind inhibiting after first aiding the sub-conscious.

Unzer, in 1771, says: "The expectation of the action of a remedy often causes us to experience its operation beforehand." I have just received a remarkable illustration of this that, however, goes beyond this statement. A colleague of mine gave a patient the other day some opium pills to produce sleep, but forgot to mention their object. Last week he found the pills had not acted as hypnotics, but in a totally different manner, though the patient had had no better sleep. Another patient thought she had taken a large dose of rhubarb, which was effectual; she discovered afterwards that she had forgotten to take the medicine.

Hunter says, "By my will I can fix my attention on any part until I have a sensation in that part"; while Müller affirms that it may be stated as a general fact, that any state of the body which is expected with certain confidence will be very prone to occur as the mere result of that idea. It is easy to produce symptoms by suggestions. If, for instance, you press some particular part of the spine of a neurasthenic, and say, "Do you feel any pain here?" he may say "No." But if you persist in your suggestion for half-a-dozen times, and the nervous centres are at all susceptible, he will say "Yes," and the pain suggested by you will be felt. Now this is true with regard to producing cures as well as in producing diseases.

Let me give one more illustration of the power of the subconscious mind in ordinary disease. I refer to the therapeutic value of the common mantel-piece striking clock (I say clock in preference to watch, because it has a greater value; and I say mantel-piece instead of hall clock for the same reason; and I add striking as being of still greater efficacy). Sir Dyce Duckworth, without dwelling on the value of mental therapeutics, has pointed out their use by means of the clock, in showing the great effect in cases of persistent vomiting in giving the liquid food in teaspoonfuls every five

minutes by the clock. If the patient is told that the food thus given will be retained, and if he can see the clock clearly from the bed, it will probably be successful, for at the exact time the sub-conscious mind enables the stomach—probably by some inhibitory power over the vomiting centre in the medulla—to retain the food.

I pass over the extraordinary value of the clock in many ordinary diseases to consider what a fountain of health it may become to both mother and child! The nursery without it is a scene of confusion and bad management, which ceases when mother and nurse have learned that the child must be nursed in the day every two hours *by the clock*, and every four hours at night, and never at other times. The real value of the clock in this, as in other cases, is truly scientific, and relies for its potent effects on rapidly formed accurate psycho-physical habits, or artificial reflexes, in the brain.

It has been well said, "We think as we feel, or think we feel, and we feel as we think. If we feel a pain, we think we are ill; and if we think we are ill we feel ill." If my ideal centre vibrates with the thought of crossing the Channel in rough weather, and pictures the nausea that would then be felt, these vibrations are transmitted to the terminal centres of the sensory nerves running from the stomach, and I actually feel sick from communication with a sensory centre, and possibly, if of a highly nervous organisation, may actually be so from transference to a motor centre.

Real feelings and real acts can be started in entirely ideal centres. If we *think* intensely of any part of the body long enough, we *feel* sensations in that part. If we think of a good dinner our mouths may water. We shiver whether we only think of cold or actually feel cold. The sensation of pain can be produced as really and vividly by thoughts or ideas alone, as light in the eye by striking it in the dark. In short, every sensation of the body ordinarily produced from without can also be produced from within.

These ideal vibrations, acting on motor and other centres, are quite different from the action of a motor centre by the direct impulse of the will; the action being in the latter case voluntary and in the former involuntary. So far we have only spoken of ideas of which we are conscious, so that although the modes of exciting these motor and sensory centres are abnormal, *we know them to be so*, and hence are

not deceived, and do not deceive others, into believing them to be natural.

Thus, when our teeth are on edge from sounds, we do not go to a dentist; if we are sick from ideas, we do not think we are dyspeptic; if we hear noises in the ear, we do not look for them externally; if we shiver from thinking of cold, we do not put on more clothing. But now let us go one step further, into the region of the sub-conscious mind, and of memories and habits; and the theory I wish to present as to the mental causation of these nerve troubles we group under the word "hysteria" will be made plain.

Our brain not only acts by the will and the ideas of the conscious mind, as we have seen, but is continuously vibrating with ideas, memories, and trains of thought of the sub-conscious. It is so even with regard to common sensation. If you concentrate your attention on any part of your body, you become aware of sensations in it that escaped your attention before, but were equally there then. If with a feather I lightly tickle the back of your neck, and at the time you are engaged in very earnest conversation, the vibration aroused in the brain sensory centre is unnoticed by you; and yet if I call your attention to the part it is noticed at once. By increasing the stimulus I can make the waves of vibration set in action other centres; involuntary ones, such as cause a shaking or shuddering of the neck; or voluntary, such as turning the head round or moving away. If you are asleep I may tickle your foot so that you draw the leg away and you wake up. In this case you are probably conscious of moving your leg; but the stimulus that made you do it was too slight to reach your consciousness. We may thus be conscious of a transferred vibration leading to action or sensation, and yet be ignorant of the cause that set it going. Memories again will involuntarily, and it may be unconsciously, arouse both feelings and actions. I may have smelt the strong scent of some flower when some critical event took place, a proposal of marriage or some sudden news; henceforth, whenever the topic is touched on the very scent or vibrations of the nerve of smell that represent it are exactly reproduced by my sub-conscious mind. A certain field always recalls a certain song we used to sing as we crossed it on our way to school. The smell of sandal-wood or the taste of chutnee may set the thoughts of old Anglo-Indians in vibration with Eastern sights and sounds stirred up again in the old centres. Observe in all

these cases we are not considering vibrations deliberately set up by the will in an unusual way. You can, of course. think of a green field when in a drawing-room, until you set in vibration the centre of sight and see the green grass; or the centre of hearing, and hear the lowing of the cattle or the hum of the insects. This is much easier if there are no incongruous sounds, and if you close your eyes; and still more so if there are some insects actually humming in the room. But the memories we speak of are wholly unconscious ones.

Let us now sum up our results, taking a definite case, say, of a pain in the little finger. This pain is felt in the little finger, we say, though we really know that the only seat of any sensation is in the brain. It is there at the central termination of the ulnar nerve which leads from the little finger that all the vibrations take place, of which the mind becomes conscious and calls pain. Whenever these vibrations take place, in the nerve centre belonging to the little finger, in the brain, the mind always refers the sensation to the commencement of the nerve in the little finger, whatever may be its real origin.

In the same way, if in your house the hall-door bell rings, you say there is someone at the hall-door; if the drawing-room bell, there is someone there: and yet such may not be the case. I may have pulled the door bell wire inside the hall, or as I passed down the kitchen stairs; or a rat may have moved it, or I may have struck the bell itself and made it ring, or a shock of earthquake may have shaken it, or a strong gust of wind; and yet, although these causes are so various, you, in the kitchen, always say, "There is someone at the front door."

It is so in the body. (1) The little finger is pricked—there is pain in the little finger. (2) The ulnar nerve itself is pressed on at the "funny-bone," there is pain in the little finger. The hand may be cut off, and still if the nerve be irritated in the stump by pressure, the man feels the pain in his imaginary little finger as truly and vividly as if it were still actually there. (3) Or, again, there may be a tumour in the brain pressing on the nerve centre in the brain of the ulnar nerve, and the most acute pain is felt in the little finger. All these instances are from direct irritation of the nerve in some part of its course. But as we have seen, we may go much further. The hall-door wire may have got caught with the drawing-room one, so that when the latter is pulled it is the hall-door bell that rings; the vibration is thus transferred.

So in the brain. (4) I may set to work to think of my little finger, and so start sensations in it which, if not actual pain, are still sensations. But if I have the idea it is injured, though it may not be, I may feel the pain acutely from an idea alone. A butcher, pale, pulseless, and suffering acute agony, as he said, in his arm, was brought the other day into a chemist's shop. His cries were dreadful, for he had slipped in hooking a heavy piece of beef, and was suspended by his arm on the sharp hook; and yet when the arm was exposed it was uninjured, the hook having only caught in the sleeve. (5) But, again, the pain may have been originally caused by a gathering in the little finger, and afterwards kept up long after the gathering was gone by the ideal centre. (6) Association, as seeing others with crushed little fingers; or (7) memories, conscious or unconscious, of crushed little fingers, may also start and keep up this pain. Observe, then, the varied causes with the same effect. Only, in conclusion, we may add that while in health it is generally easy to discriminate between pain in the little finger caused by injury to the little finger from that set up in other ways, in nerve disease, where the subconscious mind has greater sway, it is not. Nay, it is sometimes impossible not only to the sufferer, but to the doctor who attends him.

We have dwelt upon mimetic, or imitative, hysteria, because it shows the wonderful powers of the sub-conscious mind over the body for evil, as nothing else does, simulating every known disease, including tumours, deafness, blindness, dumbness, paralysis, St. Vitus's dance, &c., and is capable of producing the highest temperatures of fevers. Now if the range of psycho-physical ailments is large, the power of mental therapeutics to cure them is equally great, though much less known. The same sub-conscious mind that produces the disease can be used to cure it. If the person is in other ways in good health, and has not entered the vicious circle of dyspepsia and debility, he can probably be cured in a short time, without isolation, going to bed, or any form of long treatment. Anyhow the cure must be effected in one of the three ways already indicated. Perhaps he may be cured instantaneously by applying to the irritated ideal centres, that keep up the disease, good suggestions consciously or sub-consciously sufficiently powerful to overcome the bad ones. We have no belief in their application by means of hypnotism, which

often in the end aggravates the condition which it is meant to relieve; for suggestions are thoroughly effectual without it, if you have confidence and have gained the respect and trust of your patient.

The cure of warts by faith is well known, and in spite of the imposture that has lately been exposed at Lourdes, there is great difficulty in believing that the cures effected there and elsewhere are limited to what we call functional diseases. It is perhaps the connection of mental therapeutics directly with faith healing, hypnotism, &c.; and indirectly with certain liquid electricities, billionth dilutions, and quack remedies of all sorts, that has so far deterred the profession from examining very closely its wonderful powers.

This disgust is natural if we consider, for instance, one or two sentences from a recent work on mind healing :—

> "If the disease is consumption, begin your argument by taking up the leading point; showing that it is not inherited; and that inflammation, tubercles, hemorrhage are but thoughts, beliefs, and mental images before mortal minds, not the immortal mind."

And again :—

> "Ossification, or any abnormal condition of the bones, is the action of the mind as directly as insanity. Bones have no more substance than thoughts; *what we call matter was primitively error in solution.*"

Small wonder, in the face of such remarkable statements, if one is tempted to turn away from the whole subject of mental therapeutics.

The relations of the mind consciously or unconsciously with the body are, however, far too interesting, and the issues of such study in its application to disease far too important to be neglected on account of any misuse of these powers by quacks and others. The subject is ripe for further investigation, which can be carried on quite apart from hypnotism, mesmerism, and kindred methods; and we have little doubt that, on the one hand, ere long the vast range of mental action in connection with the body will be recognized and scientifically classified; while, on the other, mental therapeutics will be rescued from the cold neglect with which it has so long been treated by the profession, and take its proper and important place in clinical teaching and in our medical works, from both of which it is, as yet, conspicuously absent. My few words may at any rate serve to call some attention to these important subjects.

The CHAIRMAN (A. MCARTHUR, Esq., D.L., V.P.) accorded the thanks of the meeting to the Author, after which a discussion of a general character took place. The meeting was then adjourned. The Institute later on received the following

COMMUNICATIONS IN REGARD TO DR. SCHOFIELD'S PAPER:—

Professor H. CALDERWOOD, LL.D., writes:—

SUB-CONSCIOUS MIND.—The paper of Dr. A. T. Schofield "On some relations of Mind and Body" is one of marked interest. The importance for therapeutics of the phenomena specially contemplated will be generally recognised; but their precise significance in this relation must be judged by specialists.

I view the paper from the standpoint of mental philosophy—specially from that of the psychologist. From this point of view, Dr. Schofield's discussion presents many questions of importance. Many of his positions must command ready assent. To me their chief interest concentrates on the view given of the sub-conscious mind; and my remarks will be confined to this part of the paper.

The wide range of meaning assigned to "mind" is not only a divergence from the commonly received definition, but it seems non-essential to the position as to the "sub-conscious" exercise of intelligent beings. "*Life* is practically synonymous with *mind*, if by life we mean the power that purposively directs the movements of matter" (p. 152). The commonly received conclusion is that physical energy is distinct from mental power. So the author speaks of the mind's "relations to the body," and of "the wide powers the mind has over the body in relation to disease." This contrast seems even essential to the author's argument. Nerve energy accomplishes purposive action, independently of mind, that is, not purposed. The winking of the eyes is purposive, without being purposed. Mind accomplishes purposive action, independently of nerve energy, as in our reasonings. Keep up nerve energy to the utmost by food, rest, and exercise, you do not produce *The Merchant of Venice*, *Paradise Lost*, *Waverley*, or *Sartor Resartus*. Physical development does not yield us choice

literary productions. Reflex actions, and reflective actions are accomplished under different conditions. This contrast is essential to discussion of "what is known of the 'mind's' relations to the body."

Holding to this contrast, attention may be concentrated on sub-conscious exercise of mind. The facts illustrating such action are many, and are admirably presented by the author. "Ease and perfection in any pursuit entirely depend upon the degree in which it ceases to be connected with consciousness and is carried on sub-consciously" (p. 154). For illustration, the author refers to "Playing the piano, skating, bicycling, skilled trades." The illustrations are ample. All are *physical aptitudes*, depending on mind. The contrast between mind and body being admitted, the author with full warrant maintains that "the sub-conscious mind is on a lower plane, and runs largely in grooves of habit, and follows closely change of association and sensation." All this seems assured. As long as we concentrate on human activity, the facts are easily classified. When it is said that "the unconscious powers of life can make eggs and feathers out of Indian corn; and milk and beef out of grass," we pass over to a distinct order of facts, belonging to organic life—and not connected with, or dependent on, conscious exercise, such as may *descend* to the lower plane of sub-conscious activity. The difference between these two groups must guide us in our inference as to the "sub-conscious." Conscious exercise is the primary and leading phase of mental activity.

When considering the relations of body and mind, we need to distinguish between *ascending* and *descending* activity. The sub-conscious is on a "lower plane" than reflective exercise; on a higher plane than production of "eggs and feathers." Production of eggs and feathers does not ascend from organic activity to the "sub-conscious"; but exercise of the eyes, arms, and feet in cycling, voluntary at first, descend to the sub-conscious. Mental activities and physical are here blending; but the possibility of the sub-conscious in human life depends on the higher conscious effort, as a necessary preliminary. Every cyclist illustrates this fixed relation. The slow deliberate effort belongs to consciousness; the easy and exact movement belongs to the unconscious aptitude. Unconsciously, "we may read, hear, see, indeed do almost anything involving the highest centres of the cortex" (p. 157). But there is

no evidence that the reflective and constructive efforts of intelligence can descend to the lower plane of the sub-conscious.

The comparative range and importance of the conscious and sub-conscious needs to be considered, in view of the facts noted. "Conscious acts" are transformed into "unconscious, or sub-conscious acts." But when estimating the comparative value of these two sets of actions, there is need for caution when we are tempted to speak of sub-conscious powers as "*far exceeding*" those of the conscious mind. The actions thus classified are mainly connected with physical or physiological activity, not at all with reflective and constructive intellectual effort. There can be no question as to the conscious intellectual exercises far exceeding *in importance* all that descends to sub-conscious effort.

Divergence of opinion is likely to arise chiefly as to the range of sub-conscious activity within the sphere of mind proper. Thus, it would seem needful to turn attention on the statement on p. 157:— "During sleep, thoughts range themselves anew. The powers of the unconscious mind can do more in this way than the most arduous effort, in arranging facts and ideas in due proportions." I am unable to concur in this, because of the conviction that the mind is not unconscious during these exercises; but is deliberately using power of discrimination throughout. Experience shows that a large amount of work can be consciously done in sleep; and that habits could be formed which would greatly aid such effort. A large amount of observation confirms me in this view, and favours the conclusion that we use "sub-conscious" in one sense when we speak of physical aptitude, and in quite a different sense when we point to mental activity during sleep. The reference to judges delaying their award for a day suggests that there is a large amount of thought as to the special difficulties of the case, at the utmost remove from "the customary." My experience, when persistently engaged in abstract thinking, supplies a considerable series of striking examples to sustain the conclusion that, when the mind is intensely interested in a perplexing theme, much systematic thinking is accomplished during sleep.

Professor JOHN CLELAND, LL.D., F.R.S., Professor in Anatomy in Glasgow University, writes:—

The subject of Dr. Schofield's communication is partly philosophical and partly medical. The philosophical aspects of the

connections of mind and body offer a very wide field for investigation. We feel at once on entering this territory the disadvantage of our position in having no experience of mind acting apart from matter, and one is familiar with the futile efforts of many physiologists to get rid of everything which brings them into contact with consciousness, by either confounding the mental operations with their physical concomitants, or by avoiding allusion to psychical considerations. To this school Dr. Schofield does not belong. But when he defines mind as "an external force that everywhere acts on matter" I confess that I must demur to any definition of mind as a force and nothing more. That mind which "acts on matter, organic and inorganic" is the One Eternal Spirit, as indeed I understand Dr. Schofield to mean. I cannot see the advantage of altering the meaning of the words Mind and Intelligence so as to make them applicable to any operations apart from consciousness somewhere. I am painfully aware that to introspection our mental processes present mere results which we cannot trace back, but I am not prepared to allow more than the defectiveness of self-consciousness. The smallest amount of attention given to a voluntary action becomes, after all, self-consciousness; and however feeble the light may be which this consideration throws on the seemingly unconscious steps by means of which we carry out the dictates of volition in habitual actions such as the details of speaking and walking, it probably throws more than is shed by the supposed revelation contained in the favourite word of the present day, "automatic."

As to the current doctrine accepted and stated clearly by Dr. Schofield that "we really know that the only seat of consciousness is in the brain," I still hold, as I did when I wrote in the *Journal of Anatomy and Physiology* in 1870, that the facts of physiology are against it, and that they favour my view, that the sensorium extends at any given moment to any part which is in uninterrupted continuity of nervous activity with the brain or major mass of the great nervous centre. Very likely this will not be admitted for many years to come; but the truth will be acknowledged in the long run.

The Rev. H. J. CLARKE writes:—

The importance of the matters treated of in Dr. Schofield's paper can hardly be over-rated, and the thoughtful contribution he has made to the elucidation of the subject must, I feel sure, be found of great practical value.

It appears to me, however, that the phrase "subconscious intelligence" is a contradiction in terms, and that in using this phrase he is attributing to the human intellect operations which its molecular organ performs without further guidance and direction, when consciousness is in abeyance, than it follows blindly in conforming to the laws imposed upon it by the Creator. The brain is so constituted that, when, in chains of successive impressions (whether established by volitional effort or otherwise it matters not), the links of association have become sufficiently strong, the casual impression of the moment has a tendency to recall associated impressions, and to reproduce them in the order and sequence in which, through frequency of repetition, they are most readily reproducible—in other words, in lines of least resistance. This tendency is sometimes found to be antagonistic to the will, and a resolute concentration of such forces as are properly mental may prove unequal to the task of crowding out unwelcome trains of thought. Efficient impressions (be the immediately exciting cause what it may) on sensory material find response in the obedience of adapted motor-nerves: thus it has been rendered possible for elaborate action and complicated movements which bear witness, not only to hereditary aptitude, but also, and perhaps still more, to antecedent intellectual effort, to be executed unconsciously. The molecular organ of the human spirit does, undoubtedly, in its multifarious operations, react upon the agent, besides supplying the latter with a needful stimulus, namely to such action, both emotional and intellectual, as admits of cognizance in this material world, and with imagery for the embodiment of thoughts that may be printed in a sensorium of flesh and blood. But what I venture to maintain is that the instrument, however fearfully and wonderfully made, discharges no function which warrants the assertion that its laws are the laws of mind. That portion of the brain which busies itself incessantly in a seemingly aimless process of unconscious cerebration may, by tossing up to the surface hidden impressions, render the labours of the watchful and prying intellect incalculably more fruitful than they otherwise would be, and in this humble way may co-operate with the portion to which higher functions have been assigned. But to utilise the services of both, and to conduct the process of ratiocination, is assuredly the exclusive property of the proprietor of the instrument—the indwelling spirit.

A. E. SANSOM, Esq., M.D., writes:—

I listened with great interest to Dr. Schofield's paper, but at the close I did not think that I could add anything of value to the discussion. After consideration, however, of the essay itself and the opinions of the various speakers, I venture to make a few remarks from the point of view of a student of the *ars medendi*. Dr. Schofield's is an argumentative paper. When he defines Mind as "an external force that everywhere acts on matter, organic and inorganic" he states a proposition that is not likely to be universally accepted even by members of his own (my own) profession. Many, myself included, who are prepared in questions of the origin of matter and force to dispense with ordinary scientific methods would go with Dr. Schofield, who, when he further states his position, regards Mind as the universal directing agent and mover of matter, simply expresses his belief in an Omniscient and Omnipotent Originator. Other scientific observers, however, might say that the expression of Dr. Schofield was but a "petitii principii"—it was begging the whole question that he professed to argue.

I believe that Dr. Schofield will agree with me in the view that we should, as men of science, push the investigation of the relations of Mind and Body to the most extreme limit possible. It is our duty to pursue the scientific method with all our powers just as it is our duty to do what our hand findeth to do with all our might. Let us see what explanation we can get of the phenomena of what Dr. Schofield calls the unconscious and the sub-conscious mind as distinguished from the conscious mind. We have instances of the unconscious mind in the phenomena of deep sleep, coma, and trance; and of the sub-conscious mind in dreams, certain conditions of epilepsy, and disorders of the brain, and so-called hypnotism, mesmerism, etc. To bring forward the arguments which lead up to the conclusion would be too lengthy a process; but it seems to me that for the disposing cause of all these phenomena we must look to the circulation of the blood. "From the heart are the issues of life" and "the Blood is the life." The heart may be regarded as one with the vessels which convey the nutrient stream to the various parts of the body and with those which return the current polluted by waste products.

In the case of sleep the Will is the first disponent. It is no unmeaning phrase that is often used to the child, "Try to go to

sleep." The Will says that all the structures of the body shall be placed under conditions of rest. The heart's pulsations are reduced in frequency, the output of blood from the heart is lessened, and the arteries, especially in certain regions, contract by the active agency of the nerves (vaso-motor) which are distributed to their muscular walls. It is proved that in sleep the brain becomes paler than the normal. The nutrient supply to the cerebral hemispheres is almost cut off, but a sufficient circulation is maintained in the medulla oblongata and its neighbouring parts, where are the roots of origin of the vagus nerve which regulates the automatic rhythmical processes of respiration and circulation. In dreamless sleep the cerebral cortex and the higher centres are at rest, whilst in the apparatus of mere animal life the activities are maintained by a sufficient circulation therein. In dreams there are intermittent relaxations of the arterioles in certain areas, so that the nerve-cells in these are incited to activity. In mesmerism and hypnotism these activities are invoked by the impressions made through the sense of vision by the hypnotiser: there is a condition of artificial insanity which should be condemned as an outrage on mental health.

Dr. Schofield in his paper has given many instances of the influence of predominant ideas on the condition of sub-consciousness; whilst the greater part of the cerebral hemisphere is functionless from imperfect blood supply; the nutrition in certain areas is sufficient for the production of thought and action. In trance the circulation in the cerebral hemispheres is practically at a standstill, life being maintained by a sufficient blood supply to the medulla oblongata. The human being is in the condition of a hybernating animal. The state of trance may be induced by the hypnotist, but it is one of danger, and an emphatic protest ought to be entered against the senseless exhibitions of trance which have lately been perpetrated. How dangerous they may be is shown by the well known example of Colonel Townsend, who, by his own will, could put himself into such a condition that the pulse and heart-beats were rendered imperceptible. He performed the experiments too successfully—he died in one of them. It will be inferred from what I have said that I regard the physical causes of the phenomena of unconsciousness (within the limits I have mentioned, for I have said nothing about the effects of diseased states and the results of

physical violence) as identical, but operating in different degrees: the nutrition, and therefore the activity of the cerebral hemispheres, being arrested by the cutting-off of the blood supply, completely and for a protracted period in the one case, and intermittently and regionally in the other.

I am well aware that in referring the chief agency to the vaso-motor mechanism I offer an explanation of the mode of working only, not of the working itself. No physiologist can explain the molecular changes in the grey matter of the brain which cause thought and action. The man of science is as powerless to do this as he is to demonstrate the living mechanism of the structure-less protoplasm which in one case may remain a homogeneous amœba and in another may develop into the complex organism of the highest form of animal. At certain limits all help from science and from scientific methods leaves us, and we can form our ideas only from the working of the "supra-conscious" mind, the "sphere of the spirit life" as Dr. Schofield terms it. Then we must either except the teachings of Authority or confess ourselves hopelessly unable to understand. It seems to me that it is impossible from the very nature of things that our human powers can understand Mind as Dr. Schofield defines it. Force apart from matter is to us unintelligible. Mind "as the universal directing agent and mover of matter" our ordinary powers do not permit us to comprehend. In the very nature of things we cannot understand it, for in this stage of our existence thought is the result of the reactions of force and matter.

I cannot subscribe to Dr. Schofield's view that sub-conscious intelligence and acts are "spiritual or mental functions and not material." I think they are decidedly material; so distinctly material that the vivid picture of one's own execution, in a dream, may be the result conveyed from the alimentary tract to the sensorium of the irritation of a portion of an undigested supper.

For the acceptance of Dr. Schofield's definition of Mind, therefore, I conclude that we must dispense with scientific reasonings and be submissive to the doctrine of authority. There is no antagonism to science in the opening sentences of the description of Mosaic Cosmogony.

Our powers cannot realise the waste and void immensity of chaos nor the force or spirit which influenced it, but the idea is intelligible that the Will of the Creator imparted a vibration to the particles of matter, and—"there was Light."

The processes of the supra-conscious mind, "the sphere of the spirit life," as Dr. Schofield terms it, are not to be apprehended by the conscious mind. Faith which is a virtue in the case of the one is a crime in the case of the other. The supra-conscious mind has no relation with mental powers or logical faculties.

In regard to mental therapeutics, I confess that I see much difficulty in coming to anything like definite conclusions.

I have said that in ordinary health any attempt to dominate the faculties, and so produce unconsciousness or perverted mental functions, is in my opinion nothing less than a sin. I do not, of course, affirm that in certain states of disease hypnotism is unjustifiable. I have personally obtained evidence that a salutary change may be thus induced; only the process must be undertaken with a due sense of responsibility on the part of the hypnotiser.

In more ordinary ways it is clearly proved that the influence of one mind upon another may be of great service for good. Witness in childhood and youth the effect on body and spirit of one who "doth teach high thought and amiable words and courtliness and the desire of fame, and love of truth and all that makes a man" (*Tennyson*)—and, alas! the converse.

Undoubtedly mental therapeutics can be potent for good by rousing faith, by awakening the dormant will, and also, where recovery to life on this side of the grave is impossible, by inducing a state of happy resignation and trustful hope of a future and more blissful life.

THE AUTHOR'S REPLY.

April, 1898.

I have to thank my critics for the lenient way in which they have dealt with the novel positions advanced in my paper; and would not say more were it not that, to me, some of their arguments seem equally novel. Professor Calderwood says in his most able and instructive letter (para. 3), "nerve energy accomplishes purposive action, *independently of mind*, that is not purposed," and "mind accomplishes purposive action, independently of nerve energy." Also "experience shows that a large amount of work can be consciously done in sleep" (last para.). Here are three novel and to me dubious propositions :— 1. that a "purposive" action is not purposed; 2. that mind acts independently of "nerve energy"; and 3. that the "mind" is "conscious" while "we" are unconscious. Dr. Sansom, with regard to this last, adduces sleep as an instance of "the unconscious mind" and dreams as instances of the sub-conscious! At the close of his lucid sketch of the relation of the circulation to degrees of consciousness, he says that the supra-conscious mind "or the sphere of the spirit life" has "no relation with mental powers or logical faculties." Surely this also is a novel position. That it is not dependent on these, is true; but, undoubtedly, it has many and obvious "relations" with them. Of course further researches may modify some of the positions taken up.