

ART. XIV.—*A Mysterious Therapeutic Agent.*

By E. A. MACKECHNIE.

[*Read before the Auckland Institute, 22nd July, 1889.*]

READERS of the "Nineteenth Century" magazine will have found in the number for December last a remarkable paper entitled "Faith Healing as a Medical Treatment," which must have created a good deal of astonishment in the minds of most of them. The title of the paper strikes one as being somewhat misleading; for, instead of healing by faith, it treats of healing by suggestions made to the patient whilst in the hypnotic sleep, with which "faith" apparently has little or nothing to do. The entire process, as practised by a Dr. Liebault for the last thirty years; and its results, are very fully set out, and doubtless the statements made by the writer are put forward after careful observation, and with a due regard to their truthfulness. From his statements we gather that the doctor sends his patients to sleep by telling them "to shut their eyes," "that the light is failing," "that his voice is becoming indistinct to them," and other signs of approaching sleep, till they actually do fall into the hypnotic state, and become obedient to his word. If the patients are very susceptible it is sufficient to tell them to go to sleep, and they drop off at once—sleep being induced more readily after every visit. Whilst in this state the doctor suggests to his patients that any pain they may be suffering from shall cease, that aching in any part of the body shall disappear, and so on in accordance with the nature of each complaint. This treatment is repeated every morning for several days, and (*mirabile dictu*) all that the doctor has foretold or suggested comes to pass. Appetite is restored, circulation improves, and the disease (whatever it may be) is removed or cured.

Now, it is generally, but not universally, allowed that suggestions made to persons in a normal state of health, either awake or asleep, have no remedial effect whatever. Accepting, then, the recorded statements as the result of careful observation by a competent witness (a medical man, I believe) of the phenomena attending these almost incredible cures, our first inquiry turns to the consideration of the means by which they are effected, and we ask, what is the nature of the hypnotic state, or sleep? The characteristics attending it, in its various stages, are described as follows: First stage, torpor of limbs, and general somnolence; second, resembles catalepsy, limbs remaining in any position, however strained, they may be placed in; third and fourth, patient becomes deaf to every voice except the operator's; fifth and sixth, more

advanced states of automatism ; seventh, absolute forgetfulness of all that has occurred during the sleep ; eighth, patient entertains any hallucination suggested to him by the operator. All this may be, and doubtless is, perfectly true ; but these external appearances throw no light upon—in no wise account for—the singular mental and bodily condition into which the patient is thrown. Let us glance briefly at the history of the phenomena.

There can be little doubt but that the very singular condition into which the animal body can be brought by what is now known as the hypnotic sleep, or trance, was familiar to many nations, and was practised for the purposes of deception or otherwise, long before Mesmer's time. But Mesmer was, I believe, the first to induce that condition in public, and to employ it as a curative agent. His theory in explanation of the phenomena was a remarkable one. He professed to believe that the heavenly bodies diffuse through the universe a subtle fluid which acts upon and influences the nervous system of all animals. By that influence he could, he averred, effect a painless cure of all diseases by the simple process of making a few passes. His *modus operandi* was to receive his patients in a richly-furnished room, pervaded by perfumes, and echoing soft music. He suffered them to remain there undisturbed for some little time : their senses became lulled, all nervous agitation subsided, and then Mesmer himself appeared, waving a magic wand. Probably he performed a kind of incantation scene on these occasions, which may fitly be described in the words of Shelley's "Magnetic Lady to her Patient"—

"Sleep, sleep on ! forget thy pain.  
My hand is on thy brow,  
My spirit on thy brain,  
My pity on thy heart, poor friend ;  
And from my fingers flow  
The powers of life, and, like a sign,  
Seal thee from thine hour of woe.

\* \* \* \* \*  
The spell is done. How feel you now ?  
Better ?" "Quite well," replied  
The sleeper.

That was the process and the result, for under this treatment many of his patients fell into the mesmeric state, and were cured, or professed to be so, of their maladies. Other operators induced the same phenomena by using magnets, and Mesmer, not being able to obtain the influence of the heavenly bodies at command, resorted to the use of magnets himself. He was very successful, but his success was not due to the heavenly influence, nor the magnets, nor the operator himself, but to the soothing surroundings which lulled his patients to sleep. His practice became so large, and his fame so great,

that members of several scientific societies, by order of the French Government, examined into the matter very carefully, and after a most lengthened investigation reported strongly against the system—in fact, Mesmer was branded as a quack. Science so pronounced itself in those days—justified, no doubt, by its then knowledge. But, as mesmerism was used not only as a curative but as an anæsthetic, under which surgical operations were performed without sense of pain to the person operated upon, it is equally clear that science erred in the conclusion arrived at. It certainly would have been more in accordance with the facts of the case and the spirit of scientific inquiry if those statements had been somewhat less emphatic than they were. They had a most injurious effect upon Mesmer's practice: he disappeared, and died without revealing his secret. Mesmerism then fell into the hands of persons who were far from reputable, and its professors were regarded as schemers and sharpers.

Many years after Mesmer's death a new theory of the morbid phenomena was enunciated, which was called animal magnetism. Much was written about this new discovery, and its extraordinary effects upon certain persons, and the cures effected by its use. Successful operators were reported to have a strong will, a superabundance of nervous energy, and great power of concentrating it so as to affect persons possessing a weaker organization or a highly nervous temperament. The spell was cast over consciousness by the operator making a variety of passes with his hands around the head and neck of the patient. Some writers averred that, on the passes being made, a stream of animal magnetism, odic or vital force, or whatever else they chose to call it, was seen to flow from the operator's fingers towards the patient; and this was implicitly believed. Not content with these marvels, writers on the subject introduced to the public a great variety of mediums and ethereally-constituted clairvoyants, who could see with spirit-eyes, and give a detailed account of events which happened in the past, or would happen in the future. They read the smallest type or closest writing with ease on having the paper placed on the pit of the stomach, or the forehead, or the back of the neck. They claimed to possess the remarkable power of not only leaving their own bodies, but of entering that of any other person and giving a minute account of the health or disease of the body so invaded. Their spirits could roam over the entire earth, make known the most secret things among mankind, confer with the spirits of the dead, and bring back messages to the living. All this, and more, was attempted to be established by the solemn declarations of many well-known persons, made in due legal form, and attested by a notary public. I have read in wonder

many of these testimonials, no little stir being made at the time by the so-called discoveries in animal magnetism.

But, whilst faith in animal magnetism was still unshaken, and the daily Press teemed with accounts of extraordinary cures, famous séances, and wonderful clairvoyant visions, Dr. James Braid, of Manchester, England, explained most of the phenomena as due not to odic, mesmeric, vital, or any other force, but as simply the result of psychological or physiological laws. The operator, he stated, need possess no special gifts of mind or body, and the phenomena were due solely to an unusual degree of "concentration of attention," mental and visual, in the person affected. His patients were asked to look steadily at an object on a level slightly above their heads, or were soothed by gentle sounds, by the hair being lightly brushed, by being walked slowly about the room, or suchlike means, when incontinently they fell into what he called the hypnotic slumber. Other operators, though adopting these views, varied slightly their modes of inducing such sleep, by directing their patients to look fixedly at a bright glass button held by themselves some 8 in. from, and just above the level of, their eyes. Persons carrying out their directions were found after a brief time to be more or less profoundly affected. "Concentrate one's attention," says Dr. Braid, "upon an object to the exclusion of all else, and the result will follow as a matter of course." That was his opinion; but many operators deny that concentrated attention is an essential factor in those abnormal states, or that such a conception of hypnotism is by any means established, or that it explains many facts attending it. Be it as it may, these experiments completely disposed of the magnetic influence; and when, after some time, it was found that some persons could acquire the peculiar faculty of hypnotizing themselves, the delusion of a force emanating from the operator vanished altogether. Of late years we have all heard much of electro-biology, table-turning, spirit-rapping, and such like eccentricities, which, though they imposed for a time upon the credulous, were rightly ascribed by the thinking portion of the world simply to a juggler's sleight of hand, or to concerted tricks in which electricity played no inconsiderable part.

Science, as you know, throws out explorers along every conceivable line of thought; and they record, publicly or privately, the course they have pursued, the difficulties they have encountered, the experiments they have made, and the conclusions they have arrived at. Many of these conclusions prove subsequently to be incorrect, but they tend in no small degree to inform the general mind and lead to more important discoveries. The gradual advance in astronomical science, though the conclusions were in many respects based in error,

led Newton to a very clear perception of the laws of gravitation; and the enlarged field of observation in natural history enabled Wallace and Darwin to arrive at the theory of natural selection and the doctrine of evolution. The same holds good in all other departments of science, especially that relating to mental action and the subtle relations existing between mind and matter. Now, the study of mind-phenomena may be approached from either the psychological (sometimes called the metaphysical) or the physiological side, according to the bent or constitution of the inquiring mind. My own psychological studies have not been sufficiently deep or extensive to enable me on that side even to hazard an explanation of the difficulties presented by hypnotism, though many persons, I must tell you, maintain that the cause of the phenomena is essentially psychic. I am thus driven by the limits of my information to adopt the statements of physiologists, and offer for your acceptance a solution of the problem from their point of view. But before doing so I think it well to mention the extent of my own actual experience, that you may not be misled, or induced to give me more credit than I can justly claim. Many years ago I had an opportunity of ascending a platform, in the presence of a large and highly respectable audience, and submitting myself to the power or will of the operator, who practised what he called "electro-biology." I did so with some fifteen others. Having seated us in a long row fronting the audience, he placed a metal disc in the hand of each, telling us at the same time to look steadily at it and keep our minds as unoccupied and free from thought as possible. To the best of my ability I carried out his instructions, staring in a vacant manner at the disc for about ten minutes. I was not in any way affected, though I am bound to say three or four of our number were so within even a less period. Those affected apparently believed everything suggested to them. They were made to play the most ridiculous antics, and to perform many extraordinary feats. But, as you have all probably seen persons under this singular influence, I need not further describe what was done. My knowledge is obtained from reading, therefore, and not from direct contact with facts. So much that is personal to myself I have considered it necessary to state, that I may not be misunderstood, or seem to claim greater originality than I am entitled to. Mine is the more humble office of examining the statements of others, and endeavouring, out of much conflicting testimony, to arrive at *some* conclusion, however imperfect or unsatisfactory it may prove to myself or others. I need only add that I shall endeavour to convey to you my meaning with as little aid from technical expressions and scientific terms as possible.

There is abundant evidence of the fact of an abnormal condition—however induced—called mesmeric, magnetic, or hypnotic. That cannot now be disputed; and we are led to ask, what is its nature, and how is it produced? Braid maintains that hypnotic and natural sleep are analogous; and we consequently inquire, what induces sleep? Observers of the brain during sleep aver that it is paler than it is during ordinary waking hours. There is considerably less blood in it, and its functions as an organ of animal life are suspended. “The possibility of artificially inducing sleep at any time in a person by simply withholding from the brain all stimulation by means of the senses has been frequently tried and realised. Thought-activity ceases, the brain lies dormant, and a bodily state is produced which naturally leads to and engenders sleep.” Now, writers on hypnotism state that by concentrating the attention on some particular idea, and excluding all other ideas, the circulation in the brain becomes less active, and the individual passes into sleep. And this appears to be borne out by the general practice of mankind. When wakeful of nights, we all think of, and mentally repeat, a few monotonous words, and continue doing so, to the exclusion of all other thought, till the brain becomes less active, and sleep follows. From all this we may, I think, fairly conclude that in the hypnotic slumber the quantity of blood flowing through the brain is less than the ordinary quantity, and, being less, there is less consciousness; for consciousness is said to be the result of the activity of the brain occasioned by a supply of blood circulating through it with healthy regularity. And this is so far proved, for if we lessen the supply of blood we at once reduce brain-action. If the supply is cut off the brain-functions are entirely suspended, and the animal falls into a deep coma. Restore the flow of blood, and consciousness and brain-functions are restored. Now, Dr. Beard, of New York, compares common consciousness to a large chandelier with all its jets lighted, but burning dimly; while inducing the hypnotic state is like turning off all the jets but one, which burns all the more brightly. Or it may be likened to a complicated machine thrown out of gear, and all its parts motionless save one small part, which revolves and acts as usual. Hence consciousness is said to be normal only when many different impressions are acting upon it; but when these impressions are restricted—“when certain large parts of thought are sunk in forgetfulness or torpid indifference”—it is held to be abnormal. This last is its condition in the hypnotic sleep.

We may next inquire, what persons are usually affected, or thrown into the hypnotic condition? It appears that the child-mind, or the uninformed and inexperienced mind—which is nearly related to it—is easily affected. This I ven-

ture to call the "receptive mind," for it receives without hesitation, doubt, or examination every idea presented to it, adopts and acts upon it as if it had originated within itself. Hence the best hypnotic subjects are taken from the working-class, stupid burly soldiers, and youthful persons. All these are accustomed to obey without resisting, or even having an opinion of their own. They are simply automatic machines, obeying without thinking. But the mind which rejects each thought presented from within or without, carefully examining before adopting it, is not found to yield itself readily to the operator's will. Hence the higher-educated class are not easily influenced; and if they refuse to concentrate their thoughts, or concentrate them to resist the suggestions of the operator, they are not hypnotizable. The estimate is, that only about one person in twelve can be hypnotized.

Now, I will ask you to imagine the patient far advanced in the hypnotic state; his sense of taste, touch, colour, and temperature entirely lost; the forms before him indistinct, the eye immovable, and himself unconscious. Yet whilst in this state the sense of hearing remains on the alert, the auditory sense does not slumber. The same phenomena, it may be observed, appear during somnambulism. At any noise the somnambulist pauses in whatever he may be doing, and listens intently: if all is quiet he continues to walk, or proceeds with what he was about. Why the portals of the ear should be open while all other senses and mind-powers are dormant, and why open to the operator's voice alone, I am unable to discover. The mind of the hypnotic sleeper is said to come into communication with that of the operator; but the statement affords me no explanation of the difficulty. The patient, being, then, in the state I have described, is found to believe what is said to him by the operator, and to obey all his commands. The thoughts and ideas suggested by the operator take, apparently, complete possession of the patient's brain, and control his will, his brain being reduced to the condition of an imitating- or repeating-machine. That is the explanation I shall endeavour to make clear to you. The statement that I am at present reading was prepared hurriedly to meet an emergency—a promised paper for this evening not being forthcoming—and the time at my disposal did not admit of my looking for an article on hypnotism which I am told appeared recently in one of the English magazines. I must therefore proceed with my explanations without the aid I might have derived from its perusal. Now, it is not essential to what I have to say that I should dwell on the different substances composing the brain, or its division into parts, or the localisation of its powers: it is sufficient to know from those who have examined its structure microscopically that much of it

consists of nerve-cells and nerve-fibres, there being, it is said, a thousand million of cerebral cells, and about three times as many nerve-fibres connecting them. The nerve-cells produce and accumulate nerve-force; the fibres, like telegraph-wires, conduct the current to any place required. Impressions from without are conducted by certain nerves to the brain, and we become conscious of them. Another set of nerves transmits the impulse from the brain to different parts of the body, and is connected with the muscles, and calls them into action.

The brain has been compared to a galvanic battery in which an electric current is generated, the nerve-force being said to resemble electricity, for a current of electricity passed along a nerve produces the same effects. "The conductive system of the nerves," says Sir William Armstrong, "is in keeping with our conception of an electrical arrangement. In fact, a description of the animal machine so closely coincides with an electro-dynamic machine actuated by thermo-electricity that we may conceive them to be substantially the same thing." All this is mere elementary knowledge, which I venture to recall to your minds in the hope of making subsequent explanations more intelligible. Now, the hypnotized brain, you will remember, is shut up and dormant except to the voice of the operator. His voice, like all sounds, produces air-waves; these enter the ear of the patient, and, after vibrating through the inner chambers of that organ, "are finally converted into impulses, which act as irritants of the ends of the auditory nerves." The nerve-element is said to be in a state of equilibrium when undisturbed by any impulse; but when so disturbed the impulse travels along the nerve to the brain, creates vibrations more or less powerful in certain nerve-cells, rouses into activity portions of the cerebral apparatus, and there follows an involuntary exercise of the faculties in obedience to the impulse given. In the hypnotic sleep certain cell-territories seem to be thrown into some peculiar receptive condition, and the suggestions of the operator set in immediate motion the automatic forces latent in the brain. You will bear in mind also that the intelligence and volitional power are not only asleep, but less capable, by the circulation of a diminished quantity of blood through the brain, of withstanding the vigorous brain-action of the operator. The patient is in the condition of a machine with its own motive-power withdrawn, and a stimulus from without substituted, by which it is made to move and perform its usual work. As Edison's recent invention, the phonograph, retains the sounds impressed upon it, and reproduces them in a mechanical way, so the human brain, set in motion by the operator's voice, performs many of its functions in the same mechanical manner. That is my view of the involuntary and unconscious acts of the patient in



obedience to the commands or suggestions of the operator—they are purely automatic.

Accepting this explanation for what it is worth, we have now to consider the operator's suggestions as operating as a remedial agent. It is known to us all that there is interaction of mind and body, and that certain states of the mind injuriously affect the body. Grief and fear act most forcibly, and the effect of those passions can easily be traced in our appearance. In like manner the mind is affected by the unhealthy state of some bodily organs, and those afflicted become sad, depressed, or irritable, as the case may be. "If a morbid direction of the imagination can cause disease, the reverse may aid in curing it." Now, suggestions are said to be effectual in diseases of slow development, such as affections of the brain, of the nerves, of the digestive system, and especially in rheumatism, paralysis, or hysteria, but to have no effect in reconstructing what disease has destroyed, or in staying the course of acute maladies. Have the suggestions any therapeutic value whatever? I can only say cures by this means, though singular, seem to be well authenticated, but no exact scientific explanation of the phenomenon can be obtained. How or why a patient is influenced to his cure is as yet a mystery.

The researches into the nervous system of our bodies, particularly the nerve-element which constitutes the brain, presents to some minds the greatest of all possible attractions. The chief aim of those who pursue them is to gain a more intimate knowledge than we have at present of that wonderful and complicated structure. The study engrosses their every faculty. With all the ardour and sustained hope of those who in former days sought to discover the philosopher's stone, they strive to fathom not only the secrets of life, but the nature of life itself. They toil

To win  
Something to satisfy the thirst within—  
To *know* something here!

For it is felt that within the unexplored regions of that complex and elaborate nerve-system the great mystery of the relations between mind and matter—their constant and inexplicable actings and reactings upon each other—lies hid. Nerve-tissue, we know, increases in complexity in ascending to more and more highly-organized types of animal life, and we can well conceive, if the volume and complexity were greatly increased, our mind-perception would be increased also. But it would not add to the general happiness. The nerve-sensibilities of men of genius are frequently so acute as to render themselves and those around them far from happy and content. The life of Irving Bishop would seem to confirm this. He was an irritable and unpleasant person to be with,

or have dealings with, but his powers of mental vision were certainly most remarkable. An examination of his body before—or after—death (whichever it was) disclosed a more than ordinary development of nerve-tissue, and this would seem to account for his most extraordinary powers. Anatomists and physiologists, like other students of nature and her wonders, are frequently misled, and come to unwarranted conclusions, for nature's most subtle workings, especially in the animal kingdom, are concealed with so rare a cunning that it baffles the research of the most skilful and diligent investigators. But the patient inquiries of these silent workers, like the action of earthworms, are entirely beneficent. They are frequently rewarded by being able to place at the disposal of the medical world the means of alleviating the physical sufferings of mankind. If we trace the history of their discoveries from the days of rude surgery—when after the amputation of a limb there was no known means of staying the hæmorrhage except by cauterising the stump with hot iron—to the marvels of the present day—to the use of anæsthetics, and of hydrochlorate of cocaine, by whose deadening influence the most delicate operations in ophthalmic surgery can be performed without pain to the patient—we must acknowledge their services with the profoundest feelings of gratitude. These researches into “the fountains of our deepest life” appear to many well-meaning persons as impious. The study of the wondrous mechanism of the human brain, and its functional activity in health and disease, is frequently regarded even at the present day with as much hostility as necromancy and dealings in the so-called “black art” were of old. Every effort made to unravel the mysteries of conscious being is condemned as sinful, to be punished by extreme mental and bodily suffering,—

Yet all too little to atone  
For knowing what should ne'er be known.

But surely such persons err. The reverent study of the glorious perfection of Creative Will is man's true homage. He therein recognises, however imperfect the revelation may be, some of the attributes of the universal man.

What is this subtle and mysterious agent that paralyses the strong will, and compels the nerve and muscular sense to obey, in an unreasoning and mechanical way, the dictates of another mind? If in the hands of a beneficent person it can be made to act as a remedial agent to relieve bodily suffering or mental distress, it is capable of being used also, it must be admitted, by the malignant and unscrupulous to gratify the worst feelings or the basest passions. The operator, by threatening torture, may compel obedience to unlawful commands; or sug-

gestions may be made to execute criminal acts, and the unfortunates, powerless to resist even when their better judgment is awake, may carry them out to their fullest extent. The possibilities of this new agent appear unlimited, and so fraught with danger to the welfare and happiness of mankind that the aid of the Legislature in France and elsewhere is sought to control and regulate its practice. And if this is true—if the suggestions of one mind can sway another to all that is immoral or criminal, if our natural gifts can thus be held in abeyance, and the machinery of our inner life be moved by the animal energy or the ideas emanating from another mind—what becomes of our personality—the Ego, as it is called—and all its responsibilities? Startled at the momentous question and all that it implies—bewildered—we mutter with the musing Macbeth,—

Can such things be,  
And overcome us like a summer's cloud,  
Without our special wonder?

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ART. XV.—*On Terrestrial Magnetism.*

By the Hon. ROBERT HART.

[*Read before the Wellington Philosophical Society, 19th February, 1890.*]

OBSERVATIONS on the subject have determined that the magnetism of the earth is that of a hollow sphere. The problem here proposed for solution is the constitution of that hollow sphere.

The earth, an oblate spheroidal mass, having a diameter at the equator of about eight thousand miles, travelling through space at the speed of about nineteen miles in a second of time, is held in its place toward the sun by the centripetal and centrifugal action of its gravity in motion.

While so travelling and so kept in its place the earth revolves upon its axis in rather less than twenty-four hours, carrying with it on its surface an elastic cushion, called its atmosphere. This atmosphere consists of air containing oxygen and hydrogen gases interfused with a trace of a third. Observations on the aberration of light have determined the depth of this atmosphere from its outer surface to be between forty-five and fifty miles. That to the depth of forty miles from its outer surface this atmosphere is absolutely dry must appear from the fact that water in a state of vapour would at that distance from the surface of the earth lose the heat needful to keeping it in that state. Even at his place of observa-