THE

MESMERIC MANIA

OF

1851,

WITH

A PHYSIOLOGICAL EXPLANATION OF THE PHENOMENA PRODUCED.

A LECTURE,

BY

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PREFACE.

During the present year (1851), society in Edinburgh has been greatly agitated by a delusion, consisting in the supposition, that certain persons may be influenced by an external mysterious force, which is governed and directed by particular individuals. Fashionable parties have been converted into scenes of experiments on the mental functions. Noblemen, members of the learned professions, and respectable citizens, have been amusing themselves in private, whilst public discourses and exhibitions to an unusual extent have been got up for the entertainment of the public. On one occasion the Royal Medical Society was operated on; and if a proof of the correctness of the facts to be described is required, it will be found in the circumstance, that the nervous aberrations noticed, were readily exhibited in some of its most sceptical members. The result of this excitement has been an increased degree of nervousness in many individuals. I have been told that in some educational establishments, girls and boys throw themselves into states of trance and ecstasy, or show their fixed eyeballs and rigid limbs, for the amusement of their companions. Sensitive ladies do not object to indulge in the emotions so occasioned, and to exhibit themselves in a like way for the entertainment of evening parties. Several instances are known to me where intelligent young men —students in this University—have, for a longer or shorter time, been incapacitated from following their ordinary occupations, and obliged, from want of attention and mental power, to absent themselves from their classes. Some of these, from a feeling of the injury they have sustained, have very properly refused to allow any experiments to be tried on them; and the parents of very sensitive young persons, from the obvious detriment their health has undergone, have also forbidden a repetition of these occurrences.

The disorder has not been confined to Edinburgh. Following the course of certain itinerant lecturers, and especially of Mr Lewis and Dr Darling, it has appeared in many towns of Scotland. The latter gentleman has produced the greatest excitement in his course towards London, where, according to the papers, there are at present repeated the same public scenes, and the same phenomena, as were produced among us. Surely there is a great similitude between this state of things and what occurred in the middle ages (see note, p. 16), so that, I think, we are warranted in calling it—"The Mesmeric Mania of 1851."

When this kind of mania is seen at a public exhibition, in the persons of strangers, the first impression always is, that it depends on collusion and imposture. But when it is observed in private, affecting our friends and relations, even those whom we know to have been sceptical, the reality of the facts can no longer be doubted. Indeed, that a peculiar condition of the nervous system may be occasioned, in which individuals otherwise of sound mind are liable to be temporarily influenced by predominant ideas, must be admitted by all who have seen anything of the disorder. Nor will the existence of such a condition appear after all very extraordinary to those who reflect on the singular phenomena occasionally presented in the states of reverie or waking dream, of ordinary somnambulism, ecstasy, trance, monomania, and other allied affections. In every case the symptoms consist of perversions of intelligence, sensation, or motion, identical in their character with what medical men have been long familiar. It is the manner in which they may be produced, together with the frequency with which they are made to occur, that is new; and this certainly demands the attention of the medical and legal practitioner, connected, as it is, with human health and human testimony.

To separate what is true from what is false, to strip the subject of the charlatanism which has been thrown around it, and offer a physiological explanation of the phenomena really produced, is the object of the following lecture.

J. HUGHES BENNETT.

30, Queen Street,
April 16th, 1851.

INTRODUCTION.

GENERAL STRUCTURE AND FUNCTIONS OF THE NERVOUS SYSTEM.

To the eye, the nervous system appears to be composed of two structures,—the gray or ganglionic, and the white or fibrous. The ganglionic, when examined under high powers, may be seen to be composed of nucleated corpuscles, varying greatly in size and shape, mingled with a greater or less number of nerve tubes, also varying in calibre. The important fact, with regard to these, is, that many of the corpuscles may be demonstrated to throw out prolongations, which are in direct communication with, or constitute, the central band or axis of Remak and Purkinje within the tubes. The fibrous structure may be shown to consist of minute tubes, which are smallest towards the periphery of the cerebrum, larger towards its base, and largest in the nerves. They are of three kinds,—1st, Cylindrical, as observed in the optic and auditory nerves; 2d, Varicose, as seen in the white substance of the cerebral lobes and of the spinal cord; and 3d, Of regular size throughout, as seen in the nerves. There are also bundles of gelatinous or flat fibres, the nature of which is much disputed, very common in the olfactory nerve and sympathetic system of nerves. There can be no doubt that some nerve tubes run into the ganglionic corpuscles, whilst others originate from them (Wagner, Kölliker). It is even possible that the same ganglionic corpuscle may receive and give off nerve tubes, each having distinct properties, the one of conveying the influence of impressions to, and the other of conveying influences from, the nervous centres. The peripheral termination of the nerves is in loops or arcs.

The general arrangement of the two kinds of structures should be known. By cerebrum, or brain-proper, ought to be understood that part of the encephalon constituting the cerebral lobes, situated above and outside the corpus collosum; by the spinal cord, all the parts situated below this great commissure, consisting of corpora striata, optic thalami, corpora quadrigemina, cerebellum, pons varolii, medulla oblongata, and medulla spinalis. In this way, we have a cranial and a vertebral portion of the spinal cord.

In the cerebrum, or brain-proper, the ganglionic or corpuscular structure is

external to the fibrous or tubular. It presents on the surface numerous anfraetuosities, whereby a large quantity of matter is capable of being containcd in a small spaee. This crumpled up sheet of gray substance has been appropriately called the hemispherical ganglion (Solly). In the cranial portion of the spinal cord, the gray matter exists in masses, constituting a chain of ganglia at the base of the encephalon, more or less connected with each other and with the white matter of the brain-proper above, and the vertebral portion of the cord below. In this last part of the nervous system the gray matter is internal to the white, and assumes the form of the letter *x*, having two posterior and two anterior eornua,—an arrangement which allows the latter to be distributed in the form of nerve tubes to all parts of the frame.

The white tubular strueture of the vertebral portion of the cord is divided by the anterior and posterior horns of gray matter, together with the anterior and posterior sulei, into three divisions or columns on each side. On traeing these upwards into the medulla oblongata, the anterior and middle ones may be seen to deeussate with eaeh other, whilst the posterior columns do not deeussate. On traeing these up into the eerebral lobes, we observe that the anterior eolumns, or pyramidal tracts, send off a bundle of fibres, whieh passes below the olivary body, and is lost in the cerebellum (*Arciform band* of Solly). The prineipal portion of the traet passes through the corpus striatum, and anterior portion of the optie thalamus, and is ultimately lost in the white substance of the eerebral hemispheres. The middle eolumn, or olivary traet, may be traeed through the substance of the optic thalamus and corpora quadrigemina, to be in like manner lost in the eerebral hemispheres. The posterior column, or restiform tract, passes almost entirely to the cerebellum. In addition to the diverging fibres in the cerebral hemispheres whieh may be thus traeed from below upwards, connecting the hemispherieal ganglion with the struetures below, the brain-proper also possesses bands of transverse fibres, constituting the eommissures conneeting the two hemispheres of the brain together, as well as longitudinal fibres connecting the anterior with the posterior fibres.

The great difference in structure existing betwcen the gray and white matter of the nervous system, would *à priori* lead to the supposition that they performed separate functions. The theory at prcsent entertained on this point is, that, while the gray matter eliminates or evolves nervous power, the white matter simply eonducts to and from this ganglionie strueture thc influenees which are sent or originate there.

The brain-proper furnishes the eonditions necessary for the manifestation of thc intellectual faeulties properly so called, of the emotions and passions, of volition, and is essential to sensation. The evolution of the power espceially connected with mind is generally considered to bc dependent on thc hemispherical ganglion. Thc whitc tubular matter serves, by means of the diverging fibres, to conduct the influencc originating in this ganglion to the nerves of thc head and trunk, whilst they also conduct the influencc of impressions made on the trunk, in an inversc manner, up to thc cerebral convolutions. The other transverse and

longitudinal fibres which connect together the two hemispheres, and various parts of the hemispherical ganglion, are probably subservient to that combination of the mental faculties which characterises thought.

The spinal cord, both in its cranial and vertebral portions, furnishes the conditions necessary for combined movements; and the nervous power necessary for this purpose is supposed to depend upon the gray matter, whilst the white matter of the cord acts as a conductor, in the same manner that it does in the brain proper, and there can be no doubt that the influence arising from impressions is carried along the tracts, formerly noticed, which connect the brain and two portions of the spinal cord together. It is now also determined, that many of the fibres in the nerves may be traced directly into the gray substance of the cord,—a fact originally stated by Grainger, but confirmed by Budge and Kölliker.

The various nerves of the body consist for the most part of nerve tubes, running in parallel lines. Yet some contain ganglionic corpuscles, as the olfactory, and the expansion of the optic nerve constituting the retina, whilst the sympathetic nerve contains in various places, not only ganglia, but gelatinous flat fibres. The posterior roots of the spinal nerves possess a ganglion, the function of which is quite unknown. These roots are connected with the posterior horn of gray matter in the cord, while the anterior roots are connected with the anterior horns. As regards function, the nerves may be considered as—1st, Nerves of special sensation. 2d, Nerves of common sensation. 3d, Nerves of motion. 4th, Senso-motory, or mixed nerves. 5th, Sympathetic nerves. If there be any one proposition in physiology better established than another, it is, that a nerve having one function, can never assume that of another.

All nerves are endowed with a peculiar vital property, called sensibility, inherent in their structure, by virtue of which they may be excited on the application of appropriate stimuli, so as to transmit the influence of the impressions they receive to or from the brain, spinal cord, or certain ganglia, which may be considered as nervous centres. Stimuli are of two kinds, PSYCHICAL and PHYSICAL (Todd). The nerves of special sensation convey *to* their nervous centres the influence of impressions caused by odoriferous bodies, by light, by sound, and by sapid substances. The nerves of common sensation convey the influence of impressions *to* their nervous centres, caused by mechanical or chemical substances. The nerves of motion carry *from* the nervous centres the influence of impressions whether psychical or physical. The mixed nerves carry the influence of stimuli both to and from, combining in themselves the functions of common sensation and of motion. Although the sympathetic nerves also undoubtedly carry the influences of impressions, the direction of these cannot be ascertained, from their numerous anastomoses, as well as from the ganglia scattered over them, all of which act as minute nervous centres. But there *are* cases where certain psychical stimuli (as the emotions) act on organs through these nerves, and where certain diseases (as colic, gallstones, &c.) excite through them sensations of pain.

Sensation may be defined to be *the consciousness of an impression*, and that it may take place, it is necessary,—1st, That a stimulus should be applied to a sensitive nerve, which produces an impression ; 2d, That, as the result of this impression, a something should be generated, which we call an influence, which influence is conducted along the nerve to the hemispherical ganglion ; 3d, On arriving there, it calls into action that faculty of the mind called consciousness or perception, and sensation is the result. It follows that sensation may be lost by any circumstance which destroys the sensibility of the nerve to impressions, which impedes the process of conducting the influence generated by these impressions, or, lastly, which renders the mind unconscious of them. Illustrations of how sensation may be affected in all these ways must be familiar to you, from circumstances influencing the ultimate extremity of a nerve, as on exposing the foot to cold,—from injury to the spinal cord, by which the communication with the brain is cut off, or from the mind being inattentive, excited, or suspended.

Of the *nature* of nervous influence we know nothing. Its traversing the nervous cords with inconceivable rapidity, presents a certain analogy to electricity passing along a wire. But that nervous influence is not electricity, is proved by the fact, that the former can never be transmitted by anything but nerve, whereas the latter may be sent along a variety of conductors, of which nerve is one of the worst. Again, whenever an animal really evolves electricity, like the electric eel, it is furnished with a distinct organ for the purpose.

The independent endowment of nerves is remarkably well illustrated by the fact, that whatever be the stimulus which calls their sensibility into action, the same result is occasioned. Mechanical, chemical, galvanic, or other *physical* stimuli, when applied to the course or the extremities of a nerve, cause the very same results as may originate from suggestive ideas, perverted imagination, or other *psychical* stimuli. Thus a chemical irritant, galvanism, or pricking and pinching a nerve of motion, will cause convulsion and spasms of the muscles to which it is distributed. The same stimuli applied to a nerve of common sensation will cause pain, to the optic nerve flashes of light, to the auditory nerve ringing sounds, and to the tip of the tongue peculiar tastes. Again, it will be seen that suggestive ideas, or stimuli arising in the mind, may induce peculiar effects on the muscles ; give rise to pain or insensibility, and cause perversion of all the special senses.

Motion is accomplished through the agency of muscles, which are endowed with a peculiar vital property, called contractility, in the same way that nerve is endowed with the property of sensibility. Contractility may be called into action altogether independent of the nerves (Haller), as by stimulating an isolated muscular fasciculus directly (Weber). It may also be excited by physical or psychical stimuli, operating *through* the nerves. Physical stimuli applied to the extremities or the course of a nerve, may cause convulsions of the parts to which the motor filaments are distributed directly, or they may induce combined movements in other parts of the body *diastaltically* (Marshall Hall),—that is, through the spinal cord. In this latter case the following series of

actions takes place :—1st, The influence of the compression is conducted to the spinal cord by the afferent or *esodic* filaments which enter the gray matter. 2d, A motor influence is transmitted outwards by one or more efferent or *exodic* nerves. 3d, This stimulates the contractility of the muscles to which the latter are distributed, and motion is the result. Lastly, contractility may be called into action by psychical stimuli or mental acts—such as by the will and by certain emotions. Integrity of the muscular structure is necessary for contractile movements; of the spinal cord, for diastaltic or reflex movements; and of the brain-proper, for voluntary or emotional movements.

Thus, then, we may consider that the brain acting alone furnishes the conditions necessary for intelligence; the spinal cord acting alone furnishes the conditions essential for the co-ordinate movements necessary to the vital functions; and the brain and spinal cord acting together furnish the conditions necessary for voluntary motion and sensation.

THE MESMERIC MANIA OF 1851.

Dr Henry Monro,[1] speaking of Monomania, says that "in these cases neither the controlling agency of the will nor the reason is suspended on most subjects, though it is so on certain points; these people can guide their thoughts well enough on most questions, can see the full relations that cause bears to effect, and that mental impressions bear to external things, but they cannot properly control those impressions which are most strongly fixed on the mind. This state has very frequently a stage of contest and conscious difficulty at first, when the struggle between the morbid impressions and the faculties by which to control them is great; indeed, we may say that all morbid and excessive impressions which exclude all other considerations bear the rudimentary form of this affection, though insanity cannot be said strictly to be fully developed until the contest is decided by such a victory on the part of the morbid impressions that the moral liberty to exercise their reasoning faculties on these subjects is gone."

During the present year several itinerant lecturers have shown that the first stage of the process here so accurately described,—viz., that in which certain persons cannot control those impressions which are most strongly fixed on the mind,—may be produced artificially in about one out of twenty individuals of the entire population. Thus, if that number of persons be chosen indiscriminately, and directed to gaze steadily at any object for about ten minutes, a peculiar condition of the cerebral functions is produced in one or more (especially if they be young), in which those affected may be made, not only to act upon any train of ideas which may be suggested to them, but motion and sensation may be controlled in a variety of ways.[2]

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[1] Remarks on Insanity, &c. 1851.

[2] The mode of producing this condition may be varied, but it is in all cases essentially the same. Thus Mesmer caused individuals to sit in a kind of trough, and they were directed to look at a wire placed in their hand. The Fakirs of India throw themselves into a trance by looking at the extremity of their own noses. Mr Braid of Manchester holds an object a little above the eyes, so as to fatigue them sooner. Dr Darling causes them to look at a small coin placed in the palms of their hands, whilst Mr Lewis and others fix the attention of persons on themselves, or on the tips of their fingers extended towards their eyes.

This peculiar condition manifests itself while the individual is gazing upon the object—in the first instance, by a mistiness of vision, succeeded in some by a feeling of lassitude and desire to sleep, in others only by stiffness of the eyelids, and in a third class by deep-drawn sighs, hurried respiration, heaving of the chest, or other signs of general excitement. If now such persons are repeatedly told that they cannot open their eyes, it will be found that they are unable to do so, especially if their attention be more strongly directed to the eyelids by touching or pointing to them. But on receiving permission, or on being told to open them, this is done at once.

In the same manner, an individual may be made to make every conceivable kind of motion against his will, or, on the other hand, such movements as he may wish to make can be prevented, arrested, or perverted. Thus I have seen a person prevented from speaking, on account of the jaws being closed; not able to bend an arm or a leg; fixed to a chair, or prevented from sitting down; unable to approach a particular object, or irresistibly impelled towards it; unable to cross a real or imaginary line on the floor; the arm suspended and fixed in the act of drinking, or the body arrested in the act of dancing; the individual made to walk, dance, or run, as directed; to imitate riding on horseback, when seated on a chair; or stagger about the room in a supposed state of intoxication, &c. &c.

A very singular experiment consists in directing a person to lift some light object, such as a walking-stick, and then suggesting to him that it is very weighty,—indeed getting heavier and heavier, so that he cannot hold it. It may then be observed, as the idea of weight gathers strength in his mind, that the muscles of his arms supporting the walking-stick become more and more rigid, exactly as if it were a ponderous bar of iron; all his strength at length is evidently exerted to hold it, but in vain, for it falls from his grasp, he appearing exhausted and out of breath from his previous exertions.

In like manner, in this condition all the sensations may be increased, perverted, or destroyed, through the medium of suggestive ideas communicated to the mind. By fixing attention on any part of the skin it may be made to feel hot or cold, tingling and painful, or benumbed and destitute of sensibility, according to the ideas communicated. Sight may be lost or rendered painful, spectral images may be presented to the vision, or various objects made to resemble others to which they bear no analogy. Smell also may be perverted, and any kind of odour given to inodorous substances. A rose, in the mind of such an individual, may have the smell of an onion, and plain water the fragrance of *eau de Cologne*. Various noises, in like manner, may be heard; frequently hearing is very acute, at other times it is apparently abolished. Lastly, the taste may be affected, and plain water made to present to such a person the sweetness of honey, the bitterness of wormwood, or the acidity of vinegar.

Then, as regards the mental faculties, memory may be lost, whilst judgment and comparison for the time being cannot be exercised. The imaginative faculties, on the other hand, are very vivid, so that the individual may readily assume the manners of other persons in various walks of life; go

through the operations of different mechanical trades, conceiving himself to be an artisan ; endeavour to escape from imaginary dangers or try to repel them, and act as he himself or others might be supposed to do under any given circumstances or conditions. Thus he may be made to fight, to swim, to run, to stagger as if intoxicated, and so on. Even the sex may in this manner be changed, and a lady may assume the manners, tone of voice, and language of her husband. Such persons also may readily be conducted in imagination to various distant countries or cities, when they will act and talk as if they were really there ; or they may be conducted through a very complicated series of actions, such as a quarrel terminating in a duel; a fishing or shooting excursion in which they catch numerous fish, or bag a quantity of game, &c. &c.

In the same way sleep is most readily induced, and may be made so sound that all ordinary stimuli will not awake them, and occasionally sensation is for the time annihilated. Yet it often happens that at the command of him who has been communicating the suggestive ideas, they immediately awake from a condition of sopor from which local painful applications would not arouse them.[1] Susceptible persons may be even commanded to sleep at a particular hour on a certain day, and awake at a particular time, and this they will do under the idea that at the hour named some peculiar influence is exerted on them.[2] This condition is analogous to that of somnambulism, trance, or ecstasy, and presents all the intermediate gradations between these states and ordinary dreaming and reverie.

What is very curious in connection with many of these nervous aberrations, is, that a person may be perfectly conscious during the whole time of what he is doing, and even of the absurdity of the thing. He may know that the water is not milk or syrup, and yet he declares it to have the taste of those liquids. Frequently, when his motions are influenced, he evidently resists, but seems to be controlled by, a will stronger than his own. He even laughs at his own ridiculous actions, but acknowledges his helplessness. He sees and knows that it is a mere walking-stick, but is still obliged to exert all his strength to support it. The efforts at resistance only induce fatigue, and tend to render him more

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[1] All such persons go to sleep under the idea that the operator exercises over them a peculiar and exclusive influence. It is his voice, therefore, that is associated with his dreaming thoughts. Thus, a person impressed with the fear of having his house burnt down, has been known not to have awakened when various noises have been made, or pungent odours applied to his nostrils, but has started up immediately the word fire was whispered in his ear, or burning tinder placed under his nose. A signal lieutenant under Lord Hood, after harassing and prolonged duty, could not be aroused by the ordinary means without great trouble, until his comrades found out that on shouting the word "signal" he sprang up immediately as if for duty.—(Macnish.)

[2] This fact has excited great astonishment, and it has been supposed that at the hour named the operator magnetises them ; thinks of them, and may even direct an influence from his body some 50 or 100 miles through the atmosphere to the individual affected. But all such persons have been *told* to go to sleep, and consequently received the necessary idea, in the same manner that most of us having an important duty to perform, or a journey to make early in the morning, retire to rest with an impression of the necessity of waking sooner than usual, and do so accordingly.

certainly the victim of the idea by which he is governed. This condition is certainly closely allied to the incipient stage of monomania. It should also be noticed that, although young and nervous persons are undoubtedly those who are most commonly affected, such is by no means always the case, as many individuals, apparently in good health and robust, have been made to exhibit all the phenomena described.

Such are only some of the phenomena which may be produced in those affected with the nervous disorder under consideration. They admit of infinite modifications, but the symptoms are all referable to increase, diminution, or perversion of intelligence, sensation, or voluntary motion, variously combined, according to the endless train of suggestive ideas that may be communicated to the individual. It has always been found, that the more frequently those effects are occasioned in one person, the more readily may they be again induced, and the more sensitive and nervous does the person become.

Similar phenomena to those now described have occurred in all ages, produced in certain persons by predominant ideas, and variously modified according to the education, politics, or religion of the period. Thus the effects produced on many votaries during their initiation into the ancient mysteries ; the ecstasies of the Pythian and other priestesses ; the influence of religious enthusiasm ; the dancing epidemics of St Vitus, or of Tarantism, in the middle ages ; the hallucinations of the Convulsionaires at the tomb of St Medard, in Paris, &c. &c., are of a like character.[1] Numerous perversions of the nervous functions, identical in their nature with those described, consisting of sensory illusions, muscular convulsions or rigidity, and peculiar trains of thought influencing acts and conversation, may be found in the histories of witchcraft or demonology, in the legends of the saints, the journal of Mr Wesley, and in the accounts given by travellers of the religious camp-meetings in the woods of America. They are perhaps more common now than previously, and excite even more astonishment among the ignorant, the only difference being that the same phenomena which in a dark age were attributed to divination or incantation, now assume the garb of science, and are ascribed to Magnetism or Electricity.

I consider it unnecessary to enter into any lengthened argument to refute the numerous hypotheses which ascribe these effects to external influences. I know of no series of well-ascertained facts capable of supporting such a doctrine. Lately, I have tried numerous experiments with the aid of those who believe in Animal Magnetism, all of which have only convinced me that no such principle exists, and that all the phenomena really occasioned depend on suggestive ideas communicated to the person affected.[2] But while these theories

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[1] Hecker's Epidemics of the Middle Ages.

[2] The various movements and manipulations of the so-called animal magnetists are wholly at variance with what should be practised if their own theory was true. For whilst their actions are highly suggestive to the mind, they are never directed in such a manner as to stimulate those muscles which are necessarily called into action, as they ought to be, did any stimulating influence flow from their fingers. For instance, when they wish to close the jaws, the hands are never directed towards the temporal muscles, but to the mouth or larynx. When a person is bent forward or made to sit down, the hands are passed from above downwards or forwards, so as

scarcely merit attention, the facts themselves are highly important, and demand the careful consideration of the physiologist and medical practitioner. Let us, then, examine into what can reasonably be advanced in explanation of these nervous phenomena.

We have seen that sensation may be defined to be *the consciousness of an impression*, and we know that the mind strongly intent upon an object is unconscious of those impressions which are going on around,—so that no sensation results from them. Every physiologist is aware that the body of a decapitated animal may be thrown into violent convulsions, and cases have occurred even in man of the limbs having been thrown about, as if in the greatest agony, although in reality no pain whatever has been experienced. All-absorbing mental ideas prevent sensation of local impressions unconnected with them ; hence wounds are not felt in battle, blows and falls are unheeded during the excitement of intoxication or of nitrous oxide gas, and many Indian warriors and religious enthusiasts, intent on particular trains of thought, have not suffered from any of the supposed torments which were inflicted on their bodies. These facts, then, offer a sufficient explanation to the physiologist of the occasional insensibility of somnambulists, or others labouring under some predominant idea.

Whilst, however, an individual may be unconscious of impressions unconnected with his particular train of ideas, everything in relation to these is often perceived with extraordinary readiness. The abolition of sensation with regard to general impressions seems to be counterbalanced by an exquisite sensitive-

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to suggest the action, but never directed to the large flexor muscles by the contraction of which the action is performed. In the same manner, when a limb or the trunk is extended, it is not the extensor muscles which are principally operated on, but motions are made to represent the act of extension itself. If the hand or elbow is to be bent, they point to the joints, and not to the muscles of the forearm or arm the contraction of which produces the effect. Indeed, to operate scientifically, according to their own principles, requires a considerable knowledge of anatomy, which is by no means necessary for success as a "magnetiser."

All the experiments made before me (and they have been numerous), having for their object to prove the influence of the silent will, have failed. Hence I conclude, that the motions, passes, and other acts of the so-called "animal magnetists," are only useful in fixing the attention, and communicating suggestive ideas. I have been confirmed in these views by carefully watching the proceedings of Mr Lewis. His gestures are most expressive, and he conveys ideas by means of pantomimic action of the most perfect kind. Circumstances have convinced me that in the excitement of the moment he himself is often unconscious of his own proceedings. Indeed, on stating to him my belief that the effects were owing to suggestive ideas, he opposed the notion on the ground that he always told the person to do the very opposite of what he wanted them to do. In fact, when he wished a person to rise from a chair, he always told them to sit down, but in a tone of voice, and accompanied by such gestures, as pretty clearly indicated what were his real intentions. On several occasions, he endeavoured to act on others by what he named the silent will, looking at them steadily, and standing motionless. It generally happened, however, that his own efforts were of a kind which unconsciously caused him to rise on tiptoe, elevate his head, or throw out by gesture some hint, which was immediately seized by the person operated on. Here it may be well to mention, that any one can see through the eyelids, although they be so close together as to appear shut to those looking at them. The truth of this may be readily proved by experiment.

ness relative to the one impression either actually made or suggested. Dr Holland has very ably pointed out the effects of mental attention on the bodily organs,[1] showing that there are few persons who do not experience irritation or some imaginary feeling in parts to which their attention is much directed. If at night, owing to some unusual position, we feel a beating at the heart or at the temples, we easily imagine there is something alarming; the respirations are altered, if we think about them; if we suppose the mouth is dry, we immediately swallow the saliva, and render it so; if we fancy we have a cough, we cough immediately, and clear the air passages; and if we suppose any source of irritation exists on the skin, we involuntarily apply our hand to and rub the part. Nothing is more common for medical students, when first studying individual diseases, than to imagine themselves to be the victims of each in succession. Then, in certain conditions of the system, it is well known that actual pain may be produced in a part by fixing our attention upon it. Hypochondriacs are martyrs to these erroneous impressions. Supposed pain in the limbs or stomach prevent their walking or eating, and their health suffers from want of exercise or want of food. Sir Benjamin Brodie has given some singular cases where so-called nervous pains of this description have actually led to tenderness and swelling of the integuments covering the part.[2] It may easily be understood how facts of this kind may be made to assume the appearance of prophecy, and how informing a valetudinarian that he will certainly have a rheumatic or neuralgic pain on any given day, is likely to produce it.[3]

Then, as regards irregular movements in connection with predominant ideas, the phenomena of hysteria and chorea will at once suggest themselves to you. In the latter disease, peculiar movements are always occasioned by the exercise of volition, or by certain impulses which cannot be controlled. In hydrophobia there is a remarkable susceptibility to the most minute circumstances, giv-

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[1] Medical Notes and Reflections, Chap. 5.

[2] On Local Nervous Affections. 1837.

[3] As illustrative of the strong influence of predominant ideas even in healthy persons, I may mention the following circumstances:—Mr Macfarlan, the druggist on the North Bridge, informed me, that on one occasion a butcher was brought into his shop, from the market place opposite, labouring under a terrible accident. The man, on trying to hook up a heavy piece of meat above his head, slipped, and the sharp hook penetrated his arm, so that he himself was suspended. On being examined, he was pale, almost pulseless, and expressed himself as suffering acute agony. The arm could not be moved without causing excessive pain, and in cutting off the sleeve he frequently cried out, yet when the arm was exposed it was found to be quite uninjured, the hook having only traversed the sleeve of his coat.

A clergyman told me, that some time ago suspicions were entertained in his parish of a woman, who was supposed to have poisoned her newly-born infant. The coffin was exhumed, and the procurator-fiscal who attended with the medical men to examine the body, declared that he already perceived the odour of decomposition, which made him feel faint, and in consequence he withdrew. But, on opening the coffin, it was found to be empty, and it was afterwards ascertained that no child had been born, and consequently no murder committed.

Numerous instances might be given where at duels, or on other occasions, individuals have supposed themselves to be wounded, and fallen down as if dead, without having received the slightest injury.

ing rise in any way to the idea of drink, which invariably excites the most fearful spasms. Numerous singular instances of occasional and partial perversion of the voluntary movements might be quoted, either arising spontaneously, acquired by habit, produced in animals by injuring certain parts of the nervous system, or by giving particular drugs; but I shall content myself with two, lately under the care of Dr Christison, which he was so good as to communicate to me. The first was that of a gentleman, who frequently could not carry out what he willed to perform. Often, on endeavouring to undress, he was two hours before he could get off his coat, all his mental faculties, volition excepted, being perfect. On one occasion, having ordered a glass of water, it was presented to him on a tray, but he could not take it, though anxious to do so, and he kept the servant standing before him for half an hour, when the obstruction was overcome. In the other case the peculiarity was limited. If, when walking in the street, he came to a gap in the line of houses, his will suddenly became inoperative, and he could not proceed. An unbuilt-on space in the street was sure to stop him. Crossing a street also was very difficult, and on going in or out of a door he was always arrested for some minutes. Both these gentlemen graphically described their feelings to be "as if another person had taken possession of their will." These and similar perversions of motion, whether of excess or diminution, however produced, cannot always be governed by predominant ideas, but that they frequently are so is proved by a multitude of facts. The old story of Boerhaave is as apposite as any other, who is said to have immediately cured several girls at school of chorea, by threatening that the next who was attacked should have the actual cautery applied.

The power of imitation, which must operate through the mind of the individual, is known by medical men to be very strong, however inexplicable. Immoderate laughter is very catching; few can resist even a well-imitated yawn, and on board ship nothing more certainly brings on sea-sickness than seeing others ill. Habits, modes of expression, dialect, carriage of the body, and peculiar movements, are also readily acquired from those around us. On visiting the Bosjesmen, who were exhibited here some few years ago, the effect of their dance on the audience was striking. Beginning slow, to the rhythmical beatings of their clubs, the noise became gradually louder, more and more exciting, every step and gesture keeping exact time. I myself, and some friends with me, at length felt a peculiar jar all through our systems, our own feet involuntarily kept time with the dancers, and from the feelings then experienced, we could at all events comprehend the nature of those impulses, which have caused multitudes to join in the dance of St Vitus or of Tarantism.[1]

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[1] In Hecker's Epidemics of the Middle Ages will be found an admirable account of the dancing mania which occurred in Germany and the Netherlands—called the dance of St John or St Vitus—as well as of similar epidemics occurring in Italy called Tarantism, and in Abyssinia named Tigretier. With regard to St Vitus's dance, he says, that "so early as the year 1374 assemblages of men and women were seen at Aix-la-Chapelle who had come out of Germany, and who, united by one common

In all these, and various other cases which might be cited, it must be evident that the effect is produced by operating on the mind of the individual, and through that on his bodily powers. In short, predominant ideas, whether originating spontaneously or suggested by the words and actions of others, seem to be the exciting cause in individuals, affected with a peculiar condition of the cerebral functions. As regards the nature of this condition, it seems analogous to that of sleep or dreaming, in which certain faculties of the mind are active, and may be even stimulated into excessive action, whilst others are suspended. Hence it has been very appropriately called Hypnotism by Mr Braid.[1] All the phenomena produced, indeed, are strictly analogous to what medical men are acquainted with in various morbid states; and it must now be considered as well established, that in certain conditions of the nervous system they may be induced at will. This conclusion, however, is something new, for it has not yet been received in physiology or pathology, that a condition of the cerebral functions may be occasioned in apparently healthy persons in which suggestive ideas are capable of producing those phenomena we have described, and which render them, for the time, as irresponsible as monomaniacs. Yet such is really the fact, and once admitted into physiology, must have an important influence on the theory and practice of medicine. Such condition may probably be accounted for physiologically in the following manner.

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delusion, exhibited to the public both in the streets and in the churches the following strange spectacle:—They formed circles hand in hand, and appearing to have lost all control over their senses, continued dancing, regardless of the bystanders, for hours together, in wild delirium, until they fell to the ground in a state of exhaustion. While dancing they neither saw nor heard, being insensible to external impressions through the senses, but were haunted by visions, their fancies conjuring up spirits whose names they shricked out; others were governed by religious hallucinations according as the notions of the age variously affected their imaginations.—(Pp. 87, 88.) The dance attacked people of all stations, especially those who led a sedentary life, such as shoemakers and tailors; but even the most robust peasants abandoned their labours in the field, as if they were possessed by evil spirits, and continued to dance without intermission until their very last breath was expended."—P. 108.

Tarantism at first followed the bite of the Tarantula, commencing with melancholy and stupefaction. This condition was united with so great a sensibility to music, that at the very first tones of their favourite melodies, they sprang up, shouting for joy, and danced on without intermission, until they sank to the ground exhausted and almost lifeless. As the disease spread and made noise, an extraordinary sensitiveness seized upon the people's minds. Women were especially affected. At length the number of those seized with it increased beyond belief, for whoever had either actually been, or even fancied they had been bitten, made their appearance annually wherever the Tarantula resounded. Females joined the throng and caught the disease, it is said, not from the poison of the spider, but from the mental poison which they eagerly received through the eye, and thus the cure of the *Tarantati* gradually became established as a regular festival of the populace, which was anticipated with impatient delight.—Pp. 117, 118. Some women overcame the effects of the poisonous bite, by renewing their dance for 30 years in succession,—so long did they believe that it lingered in the system; in reality, so long did the delusion exist after it had ceased to depend on corporeal excitement.—(Pp. 125, 126.)

In the same work will be found interesting accounts of certain modern religious sects called respectively the Jumpers, the Shakers, and the Ranters, who have presented very similar phenomena to those just described.—*The Sydenham Society's Translation of Hecker's Epidemics, by Dr Babington.*

[1] Neurypnology, or the Rationale of Nervous Sleep. 1843.

We have previously seen that the cerebral lobes contain white fibres, which run in three directions. 1st, Those which pass from below upwards, and connect the hemispherical ganglion with the spinal cord. 2d, Those which pass transversely, forming the commissures, and which unite the two hemispheres. And 3d, Those which run from before backwards, uniting the anterior with the posterior lobes on each side. It has also been stated, p. 7, that these fibres are probably subservient to that combination of the mental faculties which characterises thought. Now all metaphysicians and physiologists are agreed that the mind is composed of various faculties, and that different portions of the nervous mass are necessary for their manifestation. True, it is by no means determined what, or how many faculties mind should be divided into, still less is it known which parts of the brain are necessary for the manifestation of each. But let the first proposition be granted, then there is no difficulty in supposing that one or more of these may be paralysed or suspended, whilst others are entire, any more than there is in knowing that sensation may be lost, whilst motion remains intact, although the nerve fibres of both run side by side. I presume, then, that certain mental faculties are temporarily paralysed or suspended, whilst others are active ; that in consequence the psychical stimuli of the former, make no impressions on the cerebral conducting fibres, whilst those of the latter are increased in intensity ; that as a result the proper balance of the mind is disturbed, and the individual for the time being acts and talks as if the predominant idea was a reality. The condition is analogous so far with ordinary somnambulism, certain forms of hypochondriasis and monomania, but admits of infinite changes according to the nature of the idea suggested.

According to this theory, therefore, we suppose that a psychical stimulus is generated, which, uncontrolled by the other mental operations acting under ordinary circumstances, induces impressions on the peripheral extremities of the cerebral fibres, the influence of which only is conveyed outwards to the muscles moved. In the same manner the remembrance of sensations can always be called up by the mind ; but under ordinary circumstances we know they are *only* remembrances, from the exercise of judgment, comparison, and other mental faculties ; but these being exhausted, in the condition under consideration, while the suggested idea is predominant, leave the individual a believer in its reality.

In this manner we attribute to the faculties of the mind a certain power of correcting the fallacies which each is liable to fall into, in the same way that the illusions of one sense are capable of being detected by the others. We further believe, that the apparatus necessary for the former operations, consists of the nerve fibres which unite different parts of the hemispherical ganglion, whilst that necessary for the latter, are the nerve fibres connecting together the organs of sense and the ganglia at the base of the encephalon. A healthy and sound mind is characterised by the proper balance of all the mental faculties, in the same manner that a healthy body is dependent on the proper action of all the nerves. There are mental illusions and sensorial illusions, the one caused by predominant ideas, and corrected by proper reasoning ; the other caused by per-

version of one sense, and corrected by the right application of the others. Both these conditions are intimately united, and operate on each other, inasmuch as voluntary and emotional movements and sensation are mental operations.

This theory, if further elaborated, appears to me consistent with the facts described at the commencement of this lecture, and capable of explaining them on physiological principles.

We may now ask ourselves, whether the facts which have been ascertained, and the generalisations which flow from them, are susceptible of being rendered useful in the practice of medicine? The beneficial influence of hope and confidence over disease is as well known to medical men as the injurious tendency of fear and despondency. This effect of mind on the body has from the earliest periods been seized upon by individuals as a ground for veneration or astonishment. In ancient times the heathen priests were the physicians, and the temples were converted into so many dispensaries, at which the sick applied for relief. In catholic countries, during the middle ages, the offices of priest and physician were frequently united in one person, so that the powerful effects of certain shrines, and the benefits of pilgrimages in cases not admitting of simple cure, met with every encouragement. From what has preceded, it must be allowed, that so far from its being improbable that real cures were so occasioned, all that we know of the effects of confident promises on the one hand, and belief on the other, render it very likely that many such occurred. The legends of the saints, the history of witchcraft, the journal of Mr Wesley, the accounts of celebrated pilgrimages, the virtues of particular shrines, and the writings of religious enthusiasts generally, abound in wonderful cures. Charms, amulets, and relics are stated to have at once banished all kinds of agony, and removed numerous nervous diseases. Many of these are certainly incredible, whilst others are perfectly conceivable. The benefits of the royal touch are confirmed by the observations of Richard Wiseman, and the cures performed by Greatrakes are warranted by Robert Boyle. In all these cases, there can be little doubt that any benefit which did occur may be attributed to a strong belief, on the part of the patient, in the efficacy of the means employed.[1]

In recent times more systematic attempts have been made to relieve pain, control nervous excitement, and muscular debility; and when it is considered

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[1] The wonderful cures performed by Mesmer, and all those who have convinced themselves and others of the advantages of the ephemeral systems which are continually springing up around us, are much indebted to belief in their efficacy on the part of the patient. Dr Haygarth, of Bath, performed all the cures of Mesmer and Perkins with two bits of wood made to resemble the metallic tractors of the latter,—that is, so long as he kept the secret,—for the moment he published his book, and the imposition was known, no more cures were accomplished. In the same manner, there is every reason to believe that the efficacy of many public nostrums resides in the reputation which surrounds them. Miss Harriet Martineau, in publishing her own case, naïvely remarks:—"If at any time during my illness I had been asked, with serious purpose, whether I believed there was no resource for me? I should have replied that Mesmerism might perhaps give me partial relief."—(*Letters on Mesmerism*, 1845, p. 4.) No wonder, therefore, that when at length it *was* tried, it produced the desired effect; and the medical attendant, seeing the delusion that existed, was quite correct in bringing the lady *en rapport* with the first magnetiser he could procure.

that the power of producing profound sleep, and acting on the nervous functions, may be manifested in so many individuals as one in twenty of the whole population, it must be evident that in a class of persons particularly predisposed, the number capable of being affected would be much greater. This subject, however, is yet in its infancy, and has to be separated from the charlatanism in which it has hitherto been involved. The labours of Dr Eisdale in India, and of Mr Braid of Manchester, exhibit a worthy commencement in the rational treatment of disorders by the means now alluded to ; and there can be little doubt that in no long time its influence, when further studied, will be acknowledged. But how far this influence is dependent on the confidence of the patient, or the belief in some mysterious agency, which is presumed to produce the effect, further observation alone can determine.

On the other hand, the indiscriminate performance of experiments on nervous individuals may be injurious. The great object of all who seek proper self-education is to control the emotions and passions, and regulate the imagination by the severer faculties of judgment, comparison, and attention. Hitherto medical men, so far from exciting, have done all in their power to prevent, such phenomena as have been described; but now it has been clearly shown that they may be produced in numbers of people by the ignorant and mercenary, there is too much reason to fear that nervous disorders will increase among us. It is well known that cases are on record of individuals who, commencing by the imitation of hysterical or epileptic convulsions, have at length found themselves really labouring under those diseases; nor is it unreasonable to suppose, that the mental faculties will be greatly injured in persons, who frequently surrender up their own wills, and act in accordance with the extravagant ideas suggested to them. After all, the pleasure of excitement principally consists in feeling that it can be regulated, and is under command. The moment it ceases to be so, a sense of the imperfection becomes most agonising to the mind, and gives rise to that despondency so common among the insane. Unwilling, however, to exaggerate, I forbear entering upon a topic, the practical bearings of which must be obvious to you.

Fortunately, if treated early, the disease admits of easy cure. Once banish from the mind of the affected persons the idea that they are under the control of some external influence,—let them refuse to gaze at any fixed object for an unusual time,—let them, in short, resist the preliminary mental exhaustion, and the cure is accomplished. Several gentlemen, highly educated medical students, who were exceedingly sensitive, and very injuriously affected by the numerous experiments performed on them, have now recovered from the mesmeric mania. Conscious that the phenomena are mental, and only connected with their own minds, they can always, by summoning up a counteracting idea, set all operators and so-called "magnetists" at defiance. They retain, indeed, the power of *putting themselves* into a nervous condition, in which their minds are temporarily influenced by suggestive ideas, in the same manner as they may indulge in reverie; but the delusion of being governed by a magnetic, or other external influence, has disappeared.

It may be well to observe, that the phenomena which have been spoken of have no connection whatever with the peculiar sympathy and so-called "clairvoyance" of animal magnetists. I have seen numerous efforts made to exhibit these, but they have all failed. Further, I do not hesitate to express my conviction, that no experiment has ever yet been made in a scientific spirit, which in the slightest degree supports the unphysiological doctrine of the transference of the senses.

In conclusion, I would observe that no physiological principle can be established by interesting the merely uninformed, by exciting sleep or day dreams in young or sensitive persons, by astonishing the generally educated, or even scientific classes, or enlisting in its favour the agreeable pens of the writers of fiction. It is not reasonable to suppose that a mathematical question can be decided by a botanist, or that mechanics can be advanced by a naturalist. Nor is it easy to imagine that the laws of vitality, and the difficult problems connected with the influence of the mind over the body, are to be determined by natural philosophers, by chemists, or the cultivators of light literature. Every science has its own laws; and those persons who are unacquainted with physiology, and the functions of the nervous system, are surely not those who can be expected to come to a correct conclusion on the subject which has engaged our attention. If, then, important facts can be demonstrated, let them be judged of by those whose habits of thought and previous studies qualify them for the task. It is easy indeed to say that medical men are prejudiced, and oppose themselves to novelties; but I must leave you to determine how far such a charge is reasonable, and especially how, from the manner in which I have treated this important question, it is applicable to myself.

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