INSTINCT AND FUNCTIONING IN HEALTH AND DISEASE.*

DELIVERED TO THE ANNUAL MEETING OF THE YORKSHIRE
BRANCH
BY

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I HAVE within recent years been profoundly impressed by a new vista which seems to me to have been opened up by the work and writings of a layman—F. Matthias Alexander—with definite bearings upon the science and art of medicine. As Alexander's activities are almost unknown to the profession, although an appreciative review of his book, *Constructive Conscious Control of the Individual*, appeared in the *BRITISH MEDICAL JOURNAL* of May 24th, 1924, and as I have come to the conclusion that there is a *prima facie* case that his work is of first-class importance, and as, if this be so, investigation by the medical profession is imperative, I decided to make use of this occasion to attract the attention of some members of the profession to it, in the hope that some person or persons better qualified than I am to make such investigations may have their interest aroused.

Perhaps I can start best by telling you how Alexander began his own investigations. He is an Australian, and as a young man was a reciter, and had in Australia a great reputation as such, and as a Shakespearian actor. He lost his voice, having contracted what is sometimes called "clergyman's sore throat," presumably a chronic or sub-acute laryngitis. He did what any other man in like circumstances would have done—he consulted a laryngologist. The laryngologist did what any other laryngologist would have done—he sprayed his throat and gave him inhalations, and prescribed rest, etc.—and the throat recovered. Alexander, accordingly, gave another recital, but by the end of it his voice had again failed. He went back to the laryngologist, who was also a friend, who advised another course of the same treatment which had been successful before. Alexander said "No"; the laryngologist asked "Why?"—and I beg you to note the answer. That answer was: "Do you not see? I went into that room with my throat right, and I was able to recite. I came out of it with my throat wrong, and I was unable to recite. What caused the change from right to wrong? Do you not see? It must have been something I did. I will find out what it was that I had been doing wrong. When I have found out that I will cease to do it. When I have ceased to do it I will get my throat right, and I shall need neither your help nor that of anyone else."

Then followed months of patient research. Mainly in front of the looking-glass Alexander made observations of how he used his mechanism—not only how he conducted himself in using his voice, but how he conducted himself generally; how he used that mechanism to sit down on a chair, how he used that mechanism to get up out of a chair, how he used it to walk, how he used it to breathe, how he used it to stand up straight, to bend, to kneel; how, generally, he used himself in the ordinary activities of life.

You will note the use of the looking-glass. Why was this? It was because Alexander had then—although but vaguely—recognized that in man's evolution from the stable environment in which he had passed by far the longest period of his life to the recent rapidly changing environment of what we call civilization, his sensory appreciation (that is to say, the knowledge which he derives from his feelings of what he is doing) is unreliable; so that, for instance, when he thinks he is standing up straight—that is, lengthening his spine—he is often shortening it; when he thinks he is relaxing muscles he is often tensing them; when he thinks he is putting his head forward he is often putting it back—a vague recognition which his researches on himself, and subsequently on others, confirmed.

From these researches certain conclusions were arrived at, the following being the most important:

(1) The first conclusion is that which I have indicated above—namely, that man's sensory appreciation is generally unreliable, particularly as regards knowledge acquired through the muscular sense. If Bain is right in his theory that of all our senses the muscular sense is the most important—that from it, for instance, we derive our ideas of space and time; that, for example, I do not see that the wall at the other end of the room is about twice as far away as the chair near the middle of the room, but that I acquire that knowledge largely by the different amount of muscular energy I have to expend in turning my eyes so that they converge on a spot on the wall from that expended when they converge on a spot on the chair, and from the different amount of similar energy I have to expend to focus each eye so that I can have a clear image of the wall in one case and of the chair in the other; and if it be further true that our sensory appreciation is unreliable, and that knowledge obtained through this sense is likewise unreliable, then civilized man is in a danger zone which will inevitably expose him to serious risks.

(2) The second conclusion is that, generally speaking, in the ordinary activities of life man uses himself badly: that he does not know how to get up to the best advantage from a sitting to a standing position, nor how to stand up when he is standing, nor how to get down to a sitting from a standing position, nor how to continue to sit down when he is down, nor how to walk to the best advantage, still less to run to the best advantage, or to inspire and expire to the best advantage. Now, though the importance of the proper performance of these several functions varies in degree, you will agree that some of these activities, or others cognate to them, are associated with everything man does—whether he is presiding at a meeting such as this, or leading a parliament, or writing a book, or teaching the young, or writing a play, or building a ship, or making a motor car, or ploughing a field, or leading a strike. If Alexander is right, then, generally speaking, throughout his varied activities civilized man fails to function to the best advantage.

(3) Man is a psycho-physical whole, and does not consist of mind and body, or of head and trunk and legs and lungs and heart and liver; he is a unified whole, and if a part seems to be defective the defect is probably one of the whole mechanism, and not of the part. Take, for instance, flat-foot. This is not a defect of the foot alone, the remedy for which is something dealing with the foot alone; it is the result of a defect in the use of the mechanism which controls the carriage of the whole body, and may be got rid of by the means which will rectify this faulty use.

(4) Diseases are inseparable from wrong functioning, and in most of these wrong functioning is primary and disease secondary. Much disease can be prevented by the prevention of wrong functioning, and can be eliminated by the restoration of right functioning.

(5) Man differs from the lower animals in that in their conduct instinct is the important guide, and reason plays a small part; in man's conduct instinct plays a smaller and reason a greater part. Instinct is the result of accumulated racial experiences. Man, in the process of leaving the tree and arriving in this twentieth century in London or York, has taken, say, a million years. For by far the largest part of that time he has been in a state of savagery, or pre-civilization, say, more than 990,000 years; for by far the smallest part he has been in a state of civilization. Instinct, accordingly, is more than 990,000 parts due to the experiences of the savage, less than 10,000 parts due to the experiences of civilization, and only infinitesimally due to the experiences of the civilization of the present day. Instinct, therefore, can be a sound guide to present conduct only if our experiences are similar to those of our ancestors. The experiences of our savage ancestors were acquired in a highly stable environment. Ours is a changing environment, and ever more rapidly changing; hence instinct has become, and is ever more and more becoming, an unsound guide to conduct, and it is ever becoming more and more imperative that for it should be substituted a conscious control.

These are among the more important of Alexander's conclusions, and it is not my purpose to-day to attempt to prove them, or to claim that they are all of equal originality or importance. My object is solely to attract attention so that others may be interested to investigate; but I would like to refer specially to the second and fifth of these conclusions.

The second is that, generally speaking, man uses himself badly in the ordinary activities of life. I would ask you to make some observations on your friends who are over 50 years of age, or still more over 60, and I am prepared

* Revised for publication.

to wager that you will find that many of them have a waist measurement as large as, or larger than, their chest measurement, and you will find few in whom there is not present a stoop, with the chin thrown forward and head drawn back, with, if you try to move the head; an accompanying rigidity of the muscles of the head and neck, so that you will find difficulty in pushing the head on one side if you want to examine the ear. As I once before said in one of the Sections at an Annual Meeting of the Association, I do not believe that these manifestations are a result of old age; I believe that the misuse of the organism which brings them about constitutes one of the causes of it. Unfortunately, you find them in young people also, and, I think, increasingly so.

The second of the conclusions I wish to refer to is No. 5, and I will give two instances of how change of environment has converted a useful instinct into a harmful one, the second instance throwing some light, in my opinion, on why instinct, derived as it is from racial experience, tends to lessen health and promote disease.

(a) There is reason to believe that with primitive man, as is the case with many animals, the stranger was an enemy and was killed. This was generally an entirely reasonable process, and was arrived at from observations of experiences that if you did not kill him he killed you; or, where food supply was short, if he obtained the food you had to go without, and accordingly died. Though as regards persons this instinct has largely died out, and we now recognize that an advantage to one person does not necessarily or usually involve disadvantage to others, traces are left. *Hostis* is a Latin word with two meanings—the one is “stranger” and the other is “enemy”; and there used to be a tradition that there were villages where the normal thing to do to a stranger was to heave half a brick at him. But where the horde psychology comes into play, this instinct still continues, and there are persons who still believe that one nation's advantage means the disadvantage of other nations, and we still have hostile action in various spheres between nation and nation or class and class.

(b) My second instance, however, is one with an important relation to the science and art of medicine. I have come to learn from Alexander that health is associated with a satisfactory use of the mechanism which controls the carriage of the body, and that this control should be such that the spinal column is maintained as erect as possible. In other words, the vertebrae should be pulled away from one another rather than pressed together through a co-ordinated use of the mechanism which tends to elongate rather than depress. More particularly the control of the neuromuscular mechanism should be such that the neck portion of the spinal column should be continued up as straight as possible, with the head square on top of it, throughout most of the activities of life. These words “straight” and “square” are used for the moment loosely, and I am aware that they need further definition, or, probably better, demonstration, as I shall indicate later in this paper.

Those of you who know the work of Professor Magnus of Utrecht, and who have read the most important lecture he delivered at Edinburgh on May 19th and 20th on the physiology of posture, in which, for instance, he points out that in his experiments on “attitudinal reflexes” “the whole mechanism of the body acts in such a way that the head leads and the body follows,” will see how the conclusion of Alexander as to the importance of the relation between head and neck, neck and trunk, is borne out by laboratory experiments. In fact, Alexander has in his work and in the technique he has devised for re-educating his pupils anticipated some of the results which Magnus and others have arrived at through these laboratory experiments.

If the use of the mechanism concerned with the control of the carriage of the body is thus satisfactory, the tension of the great abdominal muscles will not permit of the pendulous abdomen so often associated with age, with all its liability to visceroptosis and intestinal stasis.

Why is it the case that this right use and satisfactory carriage of the human body is rare? In my opinion it is due to the carrying over of a primitive instinct, which was once sound and helpful enough, into an environment where it has become unsound and harmful. The dominant factor of life in primitive man and the ancestors of primitive man must have been fear, and it is my belief that when man became *Homo sapiens* he dared not stand erect. If he

raised himself erect he was liable to be seen over the shrubs or grass in which he stood by sabre-toothed tiger or wood wolf or cave bear, and accordingly eaten. Hence he learnt to crouch and peer with head thrown backwards and down. It was a habit for which there was then a sound reason. But this instinct was carried over to civilization, where, instead of being an advantage, it has become a disadvantage in the sedentary environment of modern life, with resulting flaccid muscles, pendulous belly, and accompanying conditions. This is surmise; but let me remind you of the reason given why a horse, when it gets up, rises on its fore feet and then on the hind, whereas the cow gets up first on the hind feet and then on the fore. The reason given is that in the environment of fear—which is the common ancestral environment of all animals, man included—the horse raised his head up before his body because he lived on grassy plains, and he raised his head above the grass to look over it for enemies before he showed himself fully; whereas the cow lived in the forest and kept its head low to the last so as to look for its enemies below the branches where it could see them best.

It is an accepted scientific opinion that at the present stage of the evolutionary process modern civilized man is in imperfect adjustment to his environment. The importance of Alexander's work lies in his emphasizing the reality of this maladjustment of man's neuromuscular system, and in his having devised a technique for teaching pupils a right, or rather a better, use of themselves.

I cannot tell you much of the technique, for in the first place there is to-day no time, in the second I am not competent to do so, and in the third I am sceptical if it can be described in words. Words give such messages only from one brain to another as can be conveyed through the sense of hearing. Even the written word carries messages through the sense of hearing translated from the sense of sight. Words cannot be used to convey any meaning as to a sensory appreciation. You cannot really describe a colour in words so as to convey any meaning to another person unless he already knows the colour. Part of the technique, however, consists in the inhibition of wrong use. This is seldom easy, at least with adults. You all know how difficult it is to “keep the head down” at golf.

Another part is concerned with the method by which ends are attained. “Ends,” says Alexander, “should not be arrived at direct.” If the end is held in view successful attainment of the end is unlikely. Success is attained only by attention to the “means whereby” that end can be reached. With correct attention to the “means whereby” success in attaining the end is assured.

Let us again take a golf instance. I presume that there are few of you who have not had advice from a professional to “follow through” in driving a golf ball; and I am certain that no one of you ever met a professional who was able to tell you how to do it. In this, obviously, end-gaining gains no end; it only interferes with the attainment of the end desired.

If Alexander is right, then, the sound use of the mechanism and the elimination of instinct as a guide to that use is of first-class importance to all man's activities, and—what is of interest to us as a body of medical men—in the prevention of disease; and if it is as important as he says it is, his work should be incorporated in the education of our young, if only as a matter of preventive medicine.

Alexander is a teacher pure and simple. He does not profess to treat disease at all. If the manifestations of disease disappear in the process of education, well and good; if not, the education of itself will have been worth while. Manifestations of disease, however, do disappear. Including myself, I know many of his pupils, some of them, like myself, medical men. I investigated some of these cases, and I am talking about what I know. For instance, there was a case of flat-foot. Please note that Alexander was not directly interested in this foot. What he did was to teach the pupil how to use his brain and muscular mechanism in sitting down and getting up, how to comport his head in relation to his neck, his neck in relation to his thorax, his thorax in relation to his breathing, how generally to control the carriage of his body; and, in the process, not only the disabilities associ-

lated with dropped arches of the foot disappeared, but the dropped arches rose.

In other cases, under the like process, there seemed to be a distinct betterment in cases of angina pectoris, of asthma, of epilepsy, of tremor, of spinal curvature, and of difficulty of walking from locomotor ataxy, and from infantile paralysis. In short, I have seen, during the application of an educative process not directed to cure of disease, the manifestations of disease disappear, so that I personally am convinced that Alexander is at least largely right when he says that disease is the result of wrong functioning. And further, I am beginning to wonder whether there are manifestations of any forms of chronic disease which may not disappear under a process of re-education on these lines, and whether McDonagh may not be right when he states in his great book that all disease is one; and whether the origin of that one disease does not lie in wrong functioning, and its different manifestations depend on different variations in functioning.

In conclusion, let me remind you again of my object in speaking to you. It is not, primarily, to communicate knowledge to you, but to endeavour to arrest the attention of some members of the medical profession to what I consider to be a most important development in connexion with medicine. I am in hope that I have made out a *prima-facie* case for investigation by competent observers.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

FOETAL TUMOUR OBSTRUCTING DELIVERY.

The following instance of what I assume to be a very rare complication of labour seems to be of sufficient interest to be placed on record.

A primipara, aged 27, commenced labour on November 20th at 4 p.m., being attended by a midwife. On the evening of November 21st the head of a full-time male child was delivered (left occipito-anterior), and as after many strong pains the body was not delivered, the midwife, at 8.30 p.m., sent for a doctor, and then the latter sent for an anaesthetist.

Examination showed an enormous tumour in the abdomen of the infant, making delivery impossible. Thinking this might be ascitic fluid the finger was introduced into the abdomen, but only a rubber-like mass was felt amongst the intestines. Finding it impossible to deliver the foetus, the doctor sent the case to the Kettering General Hospital. On examination in the lithotomy position his diagnosis was confirmed. After a consultation with my colleagues I decided to do the only possible thing—to deliver the dead foetus by Caesarean section. The head and arms, which were hanging outside the vulva, were amputated, the stumps disinfected, and the body of the child delivered in the usual way through the uterine wall.

The tumour proved to be a very large horseshoe polycystic kidney with two distended ureters attached; it was twice as big as the foetus, and occupied the whole of the abdomen. There was no other kidney, and both suprarenal bodies were found. There were a very large number of cysts varying in size.

On November 28th the patient was making good progress, with normal temperature. Two days later, however, she had a severe haematemesis followed by copious melaena; the haemorrhage continued in spite of treatment and she died on December 3rd.

At the *post-mortem* examination four duodenal ulcers were found, one adherent to the liver, and another, a large one, attached to the pancreas. The haemorrhage which caused her death came from a large vessel in the ulcer adherent to the pancreas.

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RESUSCITATION BY INTRACARDIAC INJECTION OF ADRENALINE.

INTRAVENOUS injection of solution of adrenaline chloride in cases of collapse at operation is known to have given satisfactory results. In the case here reported the intracardiac route was used, in a patient apparently moribund, with most dramatic and satisfactory results.

A man, aged 63, was admitted to Greenbank Hospital with strangulated right inguinal hernia. It had been strangulated three years previously and relieved by operation. The patient was in poor condition with bronchial signs and a bad pulse and albuminuria. It was decided to operate under intraspinal stovaine anaesthesia, preceded by a hypodermic injection of morphine and

atropine. He was placed in the recumbent position, and before the operation was begun seemed more listless and drowsy than customary, and the pulse was feeble. A hypodermic injection of 1 c.cm. of pituitary extract did not improve matters, nor brandy by the mouth. The pulse was absent at the wrist, he had Cheyne-Stokes breathing, and auscultation of the heart revealed no audible cardiac sounds. The patient seemed to have passed rapidly into a moribund condition.

Intracardiac injection of 10 minims of 1 in 1,000 solution of adrenaline chloride was ordered, the injection being given in the fourth interspace. The effect was magical. Before the needle could be withdrawn the heart was already beating vigorously, and the carotids were pulsating visibly. The patient then remarked that he was quite comfortable and felt no pain.

The operation was rapidly completed, attention being paid chiefly to relief of the strangulation, as the pulse began to fall away again after about twenty minutes. On returning to bed brandy and coffee were given by the rectum, and in a short time the pulse had again become normal. Apart from retention of urine the day following, nothing further of note occurred.

What the sudden collapse with Cheyne-Stokes breathing could have been caused by is not certain. Several possible explanations suggest themselves: (a) heart-block with Stokes-Adams syndrome; (b) drop in arterial pressure from spinal injection; (c) action of morphine on impaired kidney, causing uraemic manifestations; (d) gravitation of anaesthetic to medullary centres in spite of the rigid technique observed.

The rapid response to adrenaline suggests some profound vagal inhibition or heart-block with Stokes-Adams syndrome as being the probable explanation.

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TORSION OF THE MESO-APPENDIX ASSOCIATED WITH GANGRENE OF THE APPENDIX.

A COMPLETE twist of the meso-appendix is of some rarity; the following case is reported on this account.

A young adult male was admitted to the Royal Victoria Hospital, Belfast, suffering from abdominal pain. He had had no previous attacks of pain nor any previous illness. The attack came on in the night, two days before admission. It began with heavy crampy pains which awakened him from sleep. The pain was referred to the umbilicus. About noon on the following day he vomited and continued to vomit for some time. In the evening the pain eased somewhat and he slept at intervals through the night. On the following morning, however, the pain was worse; it had settled now in the right iliac fossa, and was so severe that he could not get up. It was constant during the day. At night it prevented him from sleeping, and at this stage affected him when he lifted the right leg. On the following day he was admitted to hospital. He was slightly flushed, the tongue was red and coated, and his breath malodorous. The right lower quadrant of the abdomen did not move freely on respiration. In this position a mass was to be felt, roughly the size of a hen's egg, lying beneath an area extending from McBurney's point to the lateral edge of the right rectus. It seemed to be lying directly beneath the anterior abdominal wall. There was no hyperaesthetic area. On rectal examination tenderness was found towards the right iliac fossa. His pulse was 94 and temperature 100.2° F. There was nothing to suggest that the case was of a type other than the usual one of acute appendicitis with a phlegmon.

At operation the appendix, surrounded by omentum, was found lying close up to the anterior abdominal wall. When the omentum was separated the appendix rotated itself in a clockwise direction through 180 degrees. It was then found that the mesentery of the appendix had still got a half-twist. The appendix itself, about 5 inches in length, was a necrotic mass from its tip to within a quarter of an inch of its base. It had not actually perforated, and considering its state there was less surrounding inflammation than is usually found. A drain of corrugated rubber, extending down to the ileo-caecal angle, was left for forty-eight hours. The wound was healed ten days later.

It is owing to the courtesy of Mr. S. T. Irwin, to whose ward the patient was admitted, that I have been able to publish this report.

The appendix in this case had rotated in an anticlockwise direction through a complete circle. This may have been secondary to inflammation with its resulting distension; but the fact that the omentum held the appendix rotated against its inclination shows that the appendix had become fixed to it when fully rotated. This suggests that the acute inflammation did not begin until the appendix was in the fully rotated position and that the torsion of the meso-appendix was the cause and not the result of the inflammation.

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