and the treatment which he recommends is such as has been found more useful in countries where malarial influences prevail. The chapter on Asiatic cholera is a very instructive one, but want of space prevents us from noticing it in detail. M. Jaccoud is evidently not a convert to the views of Johnson as to the proper treatment of this disease, for he holds that the safety of the patient depends upon the checking of the discharges, and, therefore, counsels the employment of opium and aromatics. In some cases, it is true, he prescribes calomel, but only in grain doses, and at such intervals that it is hardly likely to act as a purgative. It may, perhaps, strike some of our readers as rather strange that the author does not think it worth while to give directions as to the best means of preventing pitting in smallpox.

No allusion is made to typhus fever, except under the head of diagnosis in the chapter on typhoid fever. This is an important omission, and the fact that the disease is rare in France scarcely justifies it. The lesions of typhoid fever are especially well described. These are said to be much more generally diffused throughout the organism than is generally admitted by writers on fevers. "In fact," to quote the author's own words, "the *typhoid neoplasia* has been seen in the stomach, in the large and small intestines (not only in the solitary and agminated glands, but in the connective tissue of the mucous membrane lying between these in the submucous layer, and in the muscular and serous coats), in the spleen, in the kidneys (especially in the cortical part), in the lymphatic glands of the mesentery and of the mesocolon. It has been found once in the mucous membrane of the urinary tract, and once by Wagner, in the serous membrane, forming the pouch of Douglass." In the liver the cellular hyperplasia gives rise to collections of cells and nuclei, precisely similar to those found in the glands of the intestines.

Our notice has already reached a greater length than we originally intended, and we must, therefore, close it with a few general remarks. We said in the review of the first volume that the work was one of the best on the practice of medicine with which we were acquainted, and we see in the second volume no reason to modify our opinion. There are some subjects, it is true, not so fully discussed as would seem desirable to the American student, but the book has points of excellence which render it exceedingly valuable to him. One of these is the very full bibliography which is appended to every chapter, and to which we have already drawn attention. The methods of treatment recommended differ in many instances from those generally employed in this country, and the practitioner, who is too busy to read monographs, will find the part of the work devoted to therapeutics replete with useful hints.

J. H. H.

ART. XVI.—*Illustrations of the Influence of the Mind upon the Body in Health and Disease, designed to elucidate the action of the Imagination.* By DANIEL HACK TUKE, M.D., M.R.C.P. 8vo. pp. 415. Philadelphia: Henry C. Lea, 1873.

THE author of this volume bears a name that has long been dear to all who had the welfare of the insane at heart. Three generations have made it illustrious by signal efforts to increase their comfort, or advance our knowledge of their disease. Simultaneously with Pinel in France, though

without any thought of each other's movements, the great-grandfather of the present author entered upon that noble enterprise whose earliest successes consisted in knocking off the chains of the maniac, and establishing an asylum free from all means and appliances but those of gentleness and good-will. Thus was the name forever associated with that great reform in the management of the insane which will ever be regarded as marking an epoch in the history of humanity. Among the reminiscences of a foreign excursion, in one of those intervals of rest that occasionally fall to the lot of the professional man, none is invested with pleasanter associations than that of an autumnal evening when, amid a little circle gathered around the cheerful fire, the father of our author related in his delightful way the various incidents that fixed the attention of a few Friends on the condition of the insane, and the successful steps that ended in an institution where, for the first time in England, the insane were treated as if they still possessed most of the attributes of humanity, and their restoration promoted by methods of kindness and courtesy, by mental and bodily exercises. No one did more in his time to perpetuate this blessed revolution than the speaker himself. Prepared by close and careful observation of the insane, and endowed with a clear insight that enabled him to see things precisely as they are, stripped of all delusive accompaniments, he published an admirable treatise in connection with Jacobi's work on the Construction of Hospitals, where he pointed out the path in which all healthful progress must lie. Not one of the least of the benefits conferred by him on the cause for which he thought and laboured so well was that of a son, the author of the book before us, who has already achieved distinction in the literature of our profession. In conjunction with Dr. Bucknill he produced a treatise on insanity, which, in many respects, is not likely soon to be excelled.

In the book now given us are brought together those facts illustrative of the influence of the mind upon the body, which are scattered about in every variety of book, pamphlet, and periodical, and classified by a bond of association indicative of their common physiological and pathological relations. It is something more than a mere encyclopædic gathering of insulated facts, for the author has endeavoured by means of that sagacity which sees a meaning in things beyond that which lies on the surface, to show in certain anatomical and physiological arrangements a stretch of action not before very thoroughly appreciated. He has thus done the reader the service not only of bringing before him a multitude of facts, otherwise beyond his reach, but of putting him on the track of a fruitful investigation. The magnitude of the latter service will be fully perceived only when we consider that facts of this character have been generally regarded in the light of curious occurrences having little relation to anything else, and leading to no philosophical methods of treatment. If the doctor prescribed bread pills, it was almost at hap-hazard, as a last resort, and with as much surprise at any good result as if he had drawn a prize in a lottery. If the value of our acquisitions consists less in the number of truths we bring to light than in that of the relations we discover between them, then certainly our author is entitled to no small praise. If his readers are made to see a new significance in many an old truth, and many a dark path of inquiry illuminated with a brighter light, they gain more than they would by a flood of fresh discoveries.

Dr. Tuke considers his subject under three general heads, viz., the influence of the intellect on sensation, on the voluntary and involuntary muscles, and on the organic functions; secondly, the influence of the emotions; and,

thirdly, the influence of the will, in the same direction. A supplementary chapter is given to the influence of the mind upon the body in the cure of disease. Our purpose is only to indicate the general course of inquiry and glance at a few of the facts, not with the design of giving the reader an abstract of the book, but of inducing him to read it himself.

The key to many of the phenomena included under the first head—and it may, perhaps, have a wider application—may be found in an utterance of John Hunter, who said, "I am confident that I can fix my attention to any part until I have a sensation in that part." This intimate relation between the ideational and sensational movements explains a multitude of facts, so far as their reference to a common cause explains them. Four gentlemen, having laid their arms on a table with the palms of their hands upwards, were requested each to look with fixed attention and entire silence into the palm of his hand, and mark the result. "In about five minutes, the first, one of the present members of the Royal Academy, stated that he felt a sensation of great cold in the hand; another, who is a very talented author, said that for some time he thought nothing was going to happen, but at last a darting, pricking sensation took place from the palm of the hand, as if electric sparks were being drawn from it; the third gentleman, lately mayor of a large borough, said he felt a very uncomfortable sensation of heat come over his hand; the fourth, secretary to an important association, had become rigidly cataleptic, his arm being firmly fixed to the table." (p. 44, quoted from Braid.) Thus is signified in its normal conditions the relation between the hemispheres and the sensory ganglia—a relation that is manifested in various ways, its peculiarity in those experiments consisting in the fact that the ordinary course of the nervous current was reversed. Where the thought precedes the impression instead of succeeding it, as it ordinarily does, the latter will more readily be produced the more definite and intensely conceived the former. Thus, in a *séance* with Reichenbach the mind is possessed with the idea of seeing the odic lights, and presently the space is filled with luminous balls. In the stillness of night, who has not heard the sounds he expected or dreaded to hear, and discerned dimly, but surely for the moment, the shadowy images of persons and things strongly conceived—projected outwardly, as it were, from within? This phenomenon of seeing with the bodily eye and hearing with the bodily ear what may have no outward existence was illustrated in Sir Joshua Reynolds, to whom after painting for some hours, and then going into the streets, the lamp-posts would seem to be trees; and in Dr. Johnson, who would hear his mother calling him, "Sam, Sam," when miles away; and in Dickens, who heard his characters talk as distinctly as if they had been endowed with tongues. Let the vital action of the organs be quickened by morbid influences, and we have the same phenomenon in a more remarkable shape. Sir Isaac Newton, after looking at the sun in a mirror, found to his surprise and embarrassment, that the spectrum would return, even when in the dark. A patient of the writer, when suffering from a cold or other febrile disturbance affecting the head, was always visited in the morning, while preparing to rise, by a spectral woman who approached the foot of the bed and looked earnestly at her. Recently, she has seen the images of her friends and acquaintances near her. Such cases show that the special activity always implied in perception, may sometimes, even without the aid of any outward impression, be propagated through every portion of the structure concerned in the process, the result being the same wherever the initiatory movement begins.

The influence of the intellect on the voluntary muscles is illustrated by the common fact of the working of the facial and other muscles when the mind is profoundly occupied. It is this relation established by nature which constitutes the ground-work of the actor's art. Another phase of it is exhibited in those unfortunate mortals who are prone to give unconscious utterance to their most secret thoughts. Dr. Tuke finds another instance of this relation in the old experiment of discovering the time of day, by holding a coin or ring by a hair or silk suspended between the finger and thumb in a glass, against the sides of which it is expected to beat the time of day. And this experiment, he says, often proves successful, the unconscious action of the digital muscles responding to the Idea or Expectation present in the mind. An analogous case is furnished by the divining rod. Carried along as it is, a fork tightly grasped in each hand, while the mind is wrought up to the highest pitch of attention, it will deflect from its upright position, not on account of water beneath the ground, but in consequence of the unconscious action of the muscles of the hand, in obedience to the dominant thought.

Under the name of sympathy, the same phenomenon may be observed in many curious forms. We well recollect that when gymnastics were first introduced into this country, many ladies who witnessed the public exhibitions of the pupils for the first time, found themselves, the next day, scarcely less stiff and painful than the young men were. This kind of sympathy is most strongly manifested where it is favoured by the presence of some morbid element. The epileptic may be seized with a fit, even long after the fits had ceased, on seeing or hearing something closely associated with the occurrence of the first fit; and everybody knows how liable hysteria is to be propagated by those who witness its attacks. The student of medical history will call to mind those famous occasions in the 14th and 15th centuries where the operation of this principle was exhibited on the largest scale in convents, or under strong religious influences. History furnishes us with no better accredited fact than are the accounts given to us of the scenes in the cemetery of St. Medard, where scores of people had only to lie down on the tomb of a well-known Abbé, to be thrown instantly into violent convulsions. Lying down on the marble with the image of one of these cases strongly pictured on the mind, and believing that the same scene would certainly be repeated in themselves, by force of some miraculous power, it was but the next and a very short step to the actual development of the wondrous affection. These things show the capacity of the nervous system for good or for ill, though we are slow to learn, to its full extent, the lessons which they teach. Though obliged by force of authority to believe their historical accuracy, we are too much disposed to treat them as anomalous, extraordinary instances, curious, no doubt, but useless for any practical purpose. Our not very remote descendants, we venture to say, will regard the nervous system as holding a position in the economy both of health and disease far more important than that which we have been accustomed to assign to it.

In connection with this branch of the inquiry, though seemingly not strictly belonging to it, a case is related on Prof. Christison's authority, which is worth a moment's attention, because it shows a kind and degree of independence between certain mental faculties, which some contemporary psychologists are loath to admit. A gentleman frequently could not execute what he willed to perform. Often on endeavouring to undress it was two hours before he could get off his coat, all his mental faculties, volition excepted, being unimpaired. 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. Another analogous case is related of a person who, when walking in the street, would be stopped by a gap in the line of houses, his will suddenly becoming inoperative. Crossing the street was also very difficult. Both these gentlemen graphically described their feelings to be "as if another person had taken possession of their will." Was it not a derangement of the will, or, to put it in another shape, a derangement of that part of the cerebral structure with which the will is connected, temporary, perhaps, but none the less abnormal—in short, a moral insanity?

Medical men have always been impressed with the influence of the Intellect on the involuntary muscles and organic functions. The action of the heart, the bloodvessels, stomach, bowels, bladder, are all within its reach. Who has not suspected, in a cholera visitation, that some cases of this disease were actually provoked by having the attention constantly directed to the bowels, and apprehensions excited by every unusual sensation. A friend of the writer could never witness the act of vomiting without being strongly moved to the same performance himself. Our author relates that the house surgeon of a hospital, by way of experiment, gave to a hundred patients a draught of sugared water, and then in great alarm pretended to have inadvertently given them an emetic. The result was that four-fifths of them became unmistakably sick. A more beneficent operation of the same law appeared in the case of the doctor, who, when constipated, had only to put his dose of salts by his bedside to experience its full benefit before morning. Let the physician avail himself of such facts as these, to increase the potency of his drugs by assuring his patient that he may expect from them certain effects, due regard being had, of course, to the nature of the disease and the nervous constitution of the patient.

The effect of nervous excitement and mental exercise on the organic functions, especially the secretions, has recently attracted some attention, which, if the following statement of Liebig be true, may lead to valuable results. "Every conception," he says, "every mental affection, is followed by changes in the chemical nature of the secreted fluids; and every thought, every sensation, is accompanied by a change in the composition of substance of the brain."

The chapter on the influence of the emotions on the sensations presents us with a large amount of material well calculated to excite an intelligent curiosity. Without insisting on a very well-marked line of division between the intellect and the emotions, Dr. T. thinks the distinction is clear enough for all practical purposes, and that the latter are more intimately connected with the sensory ganglia, especially the medulla oblongata, than with the hemispheres. His starting point is that "emotional impulses may act upon the sensory ganglia and nuclei of the nerves of sensation, so as to produce any of those sensations which are ordinarily induced by impressions upon their periphery; such sensations, although central, being referred by the mind to the peripheral termination of the nerve." (p. 128.) The result appears in the shape of ordinary sensations, of excessive and morbid ones, or of suspended sensation. Anæsthesia in connection with hysteria is a common phenomenon. The Convulsionnaires of St. Medard stood the infliction of every kind of violence short of mutilation without manifesting any token of pain. During the excitement of battle, the soldier may suffer the severest wounds unconscious

of the fact. And the opposite effect may be produced under the influence of strong emotion. A person may imagine not only that he has sustained most grievous wounds and injuries, but may feel all the pain they would naturally cause.

The influence of emotions on the voluntary muscles is manifested by regular contraction and relaxation; by irregular contraction and relaxation, or spasms and convulsions; and by loss of power, or paralysis. The first of these results have been described by anatomists and artists. The others abound in the experience of the pathologist and practitioner, though we suspect our author assigns a wider scope to the operation of this principle than can be strictly justified, when he includes among its effects, "all convulsive attacks, whether epileptic or not, whether infantile, puerperal, or hysterical, trembling palsy, spasms of the larynx and pharynx, nervous hydrophobia, and tetanus." (p. 169.) That epilepsy may be produced in this way, we know by frequent observation, and it is one of the mysteries of this mysterious disease that is caused by incidents so diverse in their nature. The fact that it may spring from a fright or a fall, from a mouthful of indigestible food or the receipt of bad news, from unusual efforts of body or of mind, remains unaccounted for in the prevailing theories respecting its pathology.

Dr. T. distinctly recognizes both the physical and the psychical origin of hysteria, holding that "all physical phenomena (including irregular movements) which can be induced by reflex action from the irritation of a bodily organ, can also be induced by central cerebral irritation, then, even if we agree with those who define hysteria as 'a reflex neurosis dependent on sexual irritation,' we must believe that emotional excitement can primarily produce the same disorders, without springing from or involving the reproductive organs." (p. 182.) The natural susceptibility of women is greatly aggravated by uterine irritation, and thus they are exposed to disturbance from every source, peripheral or centric. The form assumed by nervous disturbance may be simple tremor or pallor, or syncope, or convulsive seizures hysterical in one, and scarcely to be distinguished from epileptic, in another. In this law of the nervous system, our author finds a clew to a rational explanation of those remarkable phenomena that have characterized the so-called revivals of religion. As a matter of fact they have been marked by a certain degree of similarity at different periods and different places; that is, by features that might be referred to the agency of a common law. Precisely how it operates under varying circumstances, we do not yet understand. The pathology of revivals presents to the intelligent inquirer a field of study in which the harvest truly is plenteous, but the labourers are few.

That fright, or some other mental condition, is often a very potential element in the production of hydrophobia, is an opinion that has been entertained by many medical men. Indeed, the idea that it is always the product of emotional influences independent of any peculiar virus, has found defenders. This disease is invested with so many horrors, its attack is a matter of so much uncertainty and mystery, that it necessarily takes a powerful hold of the imagination, whereby every adverse agency in the system is stimulated into morbid activity. Whether in case of an actual bite of a rabid animal, an attack is developed by force of the mental condition, as it would not otherwise have been developed, is a question which necessarily admits of no positive answer. It would seem, however, that we might say, with some approach to certainty, that an attack may be developed without there having been any bite at all, because such cases are

on record, and as well authenticated as most strange cases are. That they present the prominent symptoms of hydrophobia with such intensity as to cause death, may be admitted, without implying that they are examples of the genuine disease. Under the influence of fright and the consequent emotions, the patient actually becomes what he fears, moved by a more or less conscious effort at imitation. Men of tolerably strong nerves who have been bitten by an animal well understood to be not mad, may experience strange sensations in the place of the bite long after it has healed, and also, it may be, a sense of constriction in the throat. The theory of the exclusively mental origin of hydrophobia seems to be conclusively disproved by the fact that a large proportion of the cases are of children too young to be influenced very strongly by the imagination.

Few are the forms of disease that have not sometimes sprung from strong emotions. The bloodvessels, the erectile tissues, the iris, the digestive organs, the bladder, the uterus—all acknowledge their powerful sway. The case of a lady is related “whose lips and mouth became suddenly swelled from having seen a child of a few years old pass the sharp blade of a knife between its lips without ever cutting itself.” (p. 252.)

No organ outside of the brain is so much under the control of this agency as the heart, and the fact has been recognized among all people from the earliest times. Considering the wide difference of opinion respecting the functions of the nerves of the heart, our author contents himself with the general conclusion that the emotions “exert this influence, certainly through the acknowledged sympathetic, and probably through the pneumogastric by the reflex action which it may be supposed to exert when excited centrally by certain emotional states.” (p. 236.) The effect of this intimate relation is witnessed not more in those extraordinary cases that have been recorded than in the increased frequency of cardiac diseases at the present day, from which, it is stated on the authority of Dr. Quain, the mortality has been more than double during the last twenty years. Some of this result may be justly attributed, perhaps, to original organic imperfection, but the most of it is chargeable to the strain and hurry, the struggle and conflict, which characterize our modern life, and imply, of course, intense activity of the passions. Not every case of sudden death following strong emotion necessarily implies heart disease, for many cases are on record, some of which are noticed by Dr. T., where neither cardiac disease nor any other morbid condition was discovered by the autopsy. How, exactly, death is produced in this class of cases is a problem that remains to be solved. We are yet to learn whether the absence of all pathological appearances is to be attributed to the imperfection of our means of observing structural changes, or to the fact that it is within the order of nature that death may sometimes result from vital agencies that leave no trace behind.

In the chapter on the influence of the emotions on the organic or vegetative functions the matter of structural changes of the fœtus in utero is illustrated by numerous cases. The idea that such changes ever arise from maternal impressions, in spite of pretty strong evidence in favour of it, is not generally regarded as proved. And yet the argument chiefly relied on by the disbelievers involves a fallacy too apparent, one would suppose, to escape the slightest scrutiny. One man makes inquiry of 1200, and another of 2000 parturient women, respecting their apprehensions of malformation in the coming offspring, and fail to find them confirmed in a single instance. If such malformations and blemishes were far more frequent than they really are, such statistics would prove the lack of any con-

nection between them and maternal emotions, but inasmuch as they seldom happen, being very rare departures from the normal type, such a relation cannot be disproved by negative evidence, which, for this purpose, would be outweighed by a single positive, well-authenticated case. We might as well doubt the truth of half the facts in this volume, because many a physician of wide experience has never witnessed a single similar fact. No one would deny, we suppose, that the hair has sometimes been completely blanched by excessive fright or grief, simply because among the multitudes of cases of fright and grief that have come under his observation, not one was followed by this result. The proper question is, whether there are not enough well-authenticated cases of this relation between the parent and the fœtus to preclude the idea of their being dependent on other causes. Physicians should bear in mind that the *impressions* which pregnant women speak of are generally notions engendered in their own roving imagination, very different from those intense emotions which occasionally give rise to the effects in question.

Dr. T. concludes his work with some chapters on the influence of the will, and on the influence of the mind upon the body, in the cure of disease, which we are obliged to pass by without further notice, though inferior to none of the others in interest and practical importance. The last, especially, should be most carefully pondered by every practising physician who would avail himself of all the resources of his art.

We have dwelt but little on the physiological explanations offered by the author in connection with his facts, not because we are disposed to depreciate the value of such inquiries, for when judiciously conducted they may lead to precious truths, but rather because any formal discussion of them would have turned us aside from the special purpose of this notice, which was to give the reader some idea of the character of the book. We would take the occasion, however, to express our apprehension that many of the more recent conclusions respecting the office of the various parts of the cerebral structure have been formed with a show of exactness not warranted by the state of the facts. As a matter of physiology they are harmless, perhaps, unless the torture of the poor brutes which some of them imply should force from us a harsher judgment, but when they are made the basis of a bold diagnosis of disease, they may become positively injurious. Have we not reason to think so when we hear one of the most eminent physiologists of our time, when consulted in a case of ordinary mania of a few months' standing, declare that it "arose from a blush of inflammation on the right side of the pons Varolii, which began some fifteen years before."

I. R.

ART. XVII.—*English Midwives; their History and Prospects.* By J. H. AVELING, M.D., Physician of the Chelsea Hospital for Women, Examiner of Midwives for the Obstetrical Society of London, etc. etc. 12mo. pp. 186. London: J. & A. Churchill, 1872.

To the position of our author, as examiner of midwives, we are no doubt indebted for this curiosity of historical research, a little volume which has evidently cost him a great deal of labour, as the material for its production could only be obtained from books and documents mostly of great rarity; his design can be most easily learned from the preface, which, being short, we present in full.