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ON

C H O R E A.

BY B. G. BABINGTON, M.D. F.R.S.

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THE HISTORY OF

THE CITY OF BOSTON

FROM THE FIRST SETTLEMENT TO THE PRESENT TIME

BY SAMUEL JOHNSON

IN TWO VOLUMES

LONDON: Printed by J. JOHNSON, in Pall-mall, 1785.

THE researches which have of late thrown so much light upon the functions of the nervous system, and gone so far to prove that different portions of it are endowed with distinct powers, have imparted a new interest to the study of nervous diseases; and rendered necessary the accumulation of additional facts, and the examination of those which are already known, from a new point of view. Impressed with this conviction, I have, for some time past, been collecting cases, and studying the phænomena of chorea—a disease, the theory of which may be said to have been exceedingly vague, until Dr. Marshall Hall offered an explanation of its pathology, at once striking and definite, and, if borne out by facts, deserving of high commendation, for its simplicity and beauty. Previous to his researches, the proximate cause of chorea was supposed to consist in debility, and some degree of irritation of the organic class of nerves; extending more or less to those of volition; and occasioning morbid susceptibility of the nervous system generally, with diminution of power, increased mobility, and irregular actions of the muscular system, particularly of those muscles supplied with the nerves principally affected.

Let us contrast this loose and general account of the pathology of chorea with that offered by Dr. Marshall Hall. He first maintains, as principles of physiology, that, besides the contractile power in muscular fibre itself, there are three causes of muscular motion:—1st, Volition; the seat of which is the cerebrum, and the action of which is conveyed along the fibres which decussate in the medulla oblongata. 2dly, The direct and reflex action of the excito-motory system.

And 3dly, Emotion.—He affirms, that the seat of emotion is below that of volition; is in the medulla oblongata; and acts along fibres which probably do not decussate;—and, that the seat of the excito-motory system is in the spinal cord. He further remarks, that volition has an aim or object; while emotion, and the excito-motory function (or *vis nervosa* of Haller), are aimless on the part of the individual, and frequently opposed to volition.

According to Dr. Hall's earlier papers, chorea was considered an affection of the true spinal system; affording an example of the want of harmony between the cerebral and the true spinal acts. The volition was affirmed to be normal; but the true spinal act to be abnormal, for want of a precise harmony between the two. This view, however, did not account for the absence of chorea during sleep: for it is one characteristic of the excito-motory function, that it goes on during sleep; so that a disease asserted to be dependent on a morbid condition of that function, ought to be at least as manifest during sleep—when volition, as a disturbing cause, is abstracted—as in the waking state: but the contrary is notoriously the fact; all the symptoms of chorea ceasing as soon as the consciousness of the waking state is suspended. It was necessary, therefore, to seek further for an explanation of this circumstance. “It is well known,” says Dr. M. Hall, “that the irregular movements in chorea, and in incipient paralysis agitans, subside during sleep. I was long perplexed to account for this fact. It was only by observing that these movements subside during quiet sleep only, and return during the agitation of dreaming, that I perceived that it is not sleep, but the absence of emotion, to which this effect is to be ascribed;—dreams during sleep having the same effect as emotion in our waking hours.” This, then, I take to be his view of the pathology of chorea—that it is a morbid condition of the organ of emotion, which has its seat in the medulla oblongata, and is wholly independent either of the brain or the ganglionic system.

It must be long before facts are accumulated, sufficiently numerous and decisive to establish or controvert the truth of this ingenious supposition. Cases must be examined, and

post-mortem inspections instituted, with a view to this particular object; and it is the duty of all who have an opportunity of doing so, to add their contribution to the general stock of materials which ought to be collected for this purpose. On this ground, I am not deterred, by a strong feeling of the poverty and insignificance of mine, from presenting it to the pathological inquirer.

I should define chorea to be a disease characterized by irregular uncontrollable contractions of the voluntary muscles, alternating with their atony, and occurring without pain. I have used the word 'contractions,' and have included the atony of the muscles in this definition, because the movements in this disease appear to me to differ essentially from those of convulsions and epilepsy in this,—that the stimulus, whatever be its nature, which excites either the whole or a portion of the voluntary muscles to involuntary action, is not more violent in degree than the normal stimulus of the will, or of the excito-motory system; so that movements, almost incessant indeed, but not exaggerated like spasms, are the result. It will illustrate my meaning, to state, that a person in sound health could, at any one moment, perfectly imitate, by an exercise of the will, every movement which he would involuntarily perform if he were the subject of the most aggravated form of pure chorea. Again, there is another circumstance which seems to me to attend the movements in chorea, and which may furnish ground of distinction between this and truly spasmodic seizures. The nerves, in their normal state, are always exercising a certain amount of influence over the muscles; so that where there is antagonism of forces, it is only necessary to remove the one opponent in order to demonstrate that the other is in a state of activity. This being the healthy condition, we have a right to consider the diminution of this activity as a morbid state; for although, from the striking effect which a morbid exaltation of muscular force produces, spasm is more directly brought to the cognisance of our senses than atony, still the latter is no less a really morbid condition than the former. I venture, then, to express my belief, that while, in true convulsions, the muscles, after having been thrown into a spasmodic state, do only return to the normal

condition; in chorea, on the contrary, a further diminution of nervous influence occurs; so that the muscles become, in all marked cases, entirely passive and inert in the intervals between their irregular and involuntary actions. This is manifest, from the manner in which the limbs drop from the position into which they have been thus thrown; in which the head, after being tossed to and fro, will fall passively on the shoulders, and from the incapability on the part of the patient to hold any thing in his grasp.

The disease may be either general or partial; and, in the latter case, it affects one side more than the other, and not unfrequently only one limb. The abnormal movements of the arms usually commence earlier than those of the legs, and are more violent. In this particular, Sydenham, whose graphic account of the disease has been followed by subsequent writers, seems to me to be in error, when he says: "*Primo se prodit claudicatione quadam, vel potius instabilitate alterutrius cruris, quod æger post se trahit fatuorum more: postea in manu.*"

The natural movements of the leg being less varied than those of the arm, any departure from them may first strike the casual observer; but I have generally found, on minute inquiry, that unsteadiness and spasmodic twitchings of the hand and arm have taken the lead in point of priority. Moreover, the leg alone is, as far as my observation extends, never affected; while an affection of the arm alone is not uncommon. Every muscle of the face, the head, the neck, and the trunk, and even of the tongue and fauces, may partake of the diseased action. The organs of speech, in severe cases, as well as the muscles of deglutition, are as much affected as those of locomotion; and the patient is seldom able to answer questions without hesitation and delay, any more than he is to extend his hand or his foot. Yet, with all this morbidly nervous excitement, the pulse is either wholly unaffected, or even slower than usual; or if, as is sometimes the case, it be accelerated, it is neither hard nor incompressible, but there is a softness combined with its rapidity, which seems to characterize nervous debility. This impression is often, but not always, confirmed by the co-existence of a soft bruit, analogous to that which occurs in chlorosis and hysteria,

accompanying the first sound of the heart*. The tongue is clean and moist, the skin is perspirable; and there is neither headache nor thirst, nor any indication whatever of febrile commotion. Where treatment does not succeed in curing the disease, there is a progressive emaciation; and this circumstance, coupled with a generally torpid state of the bowels, would seem to indicate that the chylo-poietic functions are much impaired. We might expect that total exhaustion would soon follow such constant muscular exertions; but, on the contrary, the subject of chorea, as of hysteria and mania, will go on for many weeks, performing irregular but incessant gestures, such as would tire out the most robust and healthy within a few hours. Sound sleep is often prevented by this condition; but it is well known, that when it does occur—and the same is true in hysteria—all spasmodic action ceases;—the limbs are then as composed, and the whole frame as free from movement, as if the patient were without complaint. The mind appears, at the height of the disease, to be in an imbecile and morbid condition, so as to justify a doubt whether the sensorium be not under the same morbid influence as the nerves of motion. There is, of course, no doubt, that, in the nervous system, there are three distinct and independent centres; namely, the brain and cerebellum, the medulla oblongata and spinal cord, and the great sympathetic; and that these may, in their respective morbid conditions, furnish pure types of perfectly different diseases: yet I conceive, that, from the probable similarity in physical character and properties, of all nervous tissue, we must expect these centres to be more or less simultaneously influenced by general morbid causes; and, consequently, that nervous diseases will usually, or often at least, be of mixed kind. This would be in accordance with what occurs in other tissues; as, for instance, in the fibrous or serous

* Out of a very large number of cases of chorea, seen lately by my friend and colleague, Dr. Addison, to whom I am indebted for having first directed my attention to this point, only two have been without a decided mitral or left ventricular bruit. In these two there was diseased heart; and in one case, examined after death, there was found old thickening of the mitral valve, with very recent pericarditis. Should further investigation prove chorea to be more immediately dependent on disease of the heart or pericardium, than has been hitherto supposed, the merit of the discovery will certainly be due to Dr. Addison.

tissues, where we find the same cause producing disease in different unconnected parts at the same time.

The movements in chorea are seldom wholly removed from the control of the will; for it is rare to find a total incapability of executing any required act. The tongue is protruded at the request of the physician, although it may be several seconds ere this is accomplished; and even then the position cannot be long maintained. So also the hand is put forth to reach any desired object: it arrives at it, indeed, by a tortuous route, but it does not altogether refuse to obey the mandate of the will.

Where there is an assignable exciting cause for the disease, it seldom takes place immediately after the application of that cause; that is to say, an appreciable deviation from steady normal movement does not on a sudden take place: it is gradual, and is often overlooked for days, or even weeks. The slight transient irregular catchings of the extremities are at first attributed to voluntary trick, or carelessness of habit; and are often severely corrected, under this view. Correction, however, by increasing nervous susceptibility, aggravates the affection: the movements are then perceived to be automatic and involuntary; and their occurrence is, for the first time, attributed to their true origin: so, when the disease is fully established, any excitement increases its symptoms. It is common, on making previous inquiry after a patient with chorea in a public hospital, to learn that he is free from movement, and tranquil in manner; when, on approaching him with a crowd of students, the physician shall find the reverse to be the case, and that the alarm thus occasioned has called forth the most obvious gesticulations. Any alarming occurrence, as a death, an operation, or a fit, taking place in the ward, produces the same effect; and the admission of a new and marked case of chorea will sometimes cause a relapse in those who are in a convalescent state.

The disease is very apt to recur: and this seems more common among the lower classes—where the patient remains exposed to the circumstances which contributed to produce the attack, or, if admitted into an hospital, returns, when cured, to his habitation and employment—than among those with whom there is an opportunity of breaking the chain of

morbid associations by change of scene. It is unquestionably sometimes produced in children by imitation and sympathy; and, like hysteria, may therefore be propagated through a whole establishment. It is also probable, that, as in whooping-cough and other spasmodic diseases, mere habit will perpetuate what at first originated in disease; and, consequently, that it is, to a certain extent, within the power of the patient, if the mind be calmly and steadily directed to the point, to effect his own cure. It is not by a sudden and violent effort, however, that this can be done. On the contrary, such an effort invariably increases the symptoms. If we tell a patient with chorea to hold any object firmly in his grasp, or to perform any movement, with the exertion of his strongest efforts to do so steadily, he will immediately become much more unsteady than before. In like manner, if we attempt to speak words of condolence or comfort to a nervous female, we very generally produce a fit of weeping, or some other manifestation of excitement. In both cases, the morbid emotion is increased by directing attention to it.

It is foreign to my purpose here to enter upon the subject of those remarkable affections from which the term "chorea," or "chorea Sancti Viti," first took its name, and which have at various times visited different European countries epidemically: but it is worthy of observation, that even the disease of which I have been speaking is liable to increase or diminution of frequency in different places and at different periods; which may, in part, be owing to the state of civilization, and its various moral and physical effects;—in part, perhaps, to certain hidden causes, which have been called 'atmospheric constitutions.' Sydenham does not allude to more than five cases in his whole practice: "*Quo morbo haud pauciores quinque laborantes et vidi et sanavi ipsemet, et venæ sectionibus et purgationibus per intervalla celebratis.*" Dr. Gregory, in the year 1775, states, as recorded in some MS. Lectures of his in my possession, that he had seen twelve cases at least; but that since he had entertained certain new views regarding treatment, he had found no opportunity of testing their applicability. At the present time in London, cases are so frequent, that not a week passes in which some are not presented for admission

at most of our hospitals. We had nine cases in the Clinical Wards alone of Guy's Hospital during the past season; and every practitioner of experience has seen more chorea patients than he is able to estimate by any precise numbers.

If we affirm that the primary seat of chorea is in the medulla oblongata and spinal marrow, we must at the same time admit that this may be affected through the medium of its connection with the sensorium on the one hand, and with the ganglionic system on the other. Its exciting causes will thus naturally divide themselves into three kinds; namely, 1st, Those which primarily affect the spinal system: 2dly, Those which secondarily affect it through the sensorium: 3dly, Through the ganglionic system. Blows on the head or neck, causing a *contre-coup*, which shall either structurally injure or functionally disorder the medulla, occasionally give rise to chorea, not only at the time of their occurrence, but at uncertain periods afterwards: so also injury of the spinal marrow, by direct compression; alteration of its structure by rheumatism; and perhaps its irritation, by certain injurious practices;—the irritation of the incident nerves, by a wound, by the poison of mercury, of lead, of strichnine, and by skin diseases. Of those causes which act primarily on the sensorium, by far the most frequent is an affection of the mind, arising from any of the depressing passions; as from sudden fear, from horror, from grief. Perhaps, however, these causes should be rather considered as of the first kind, if the theory be adopted, that the seat of emotion is in the upper part of the spinal cord, and not in the brain. Other causes more evidently first affect the sensorium; as, organic diseases of the brain, fever, epilepsy, hysteria, and mental alienation. Of those causes which act primarily on the ganglionic system, may be enumerated, costiveness of bowels, with morbid accumulations in them, and worms of different kinds. Rheumatism also, when it affects the heart and pericardium, may give rise to the disease, through the irritation of the plexus and ganglia, which so entirely surround that organ, and the origin of its great vessels: and irregular menstruation may produce a like effect, through the lumbar plexus.

With regard to the proximate cause of chorea, wherever it may be seated, it is a question which admits of discussion,

whether it is to be regarded as merely functional, or as consisting of an actual, though it be only a temporary, organic change. That the latter may in some way give rise to chorea, is very evident, from those cases which supervene upon amputations, compression, blows, and so forth: but this does not settle the point; for an organic change of structure in one portion of nervous tissue may be only a remote cause, setting up a functional disturbance in others. When we recollect how often chorea is caused by a mental emotion—how frequently it is cured, or spontaneously subsides—how commonly it disappears, never to return after a certain age—and how seldom it proves fatal—it is difficult to imagine that any thing more than a disturbance of function is essential to the production of the disease. There seems, in short, no more reason for supposing change of structure necessary to account for the phenomena of the disease, than for those which occur on the transmission of a moderate galvanic shock through a limb; where the effects are so transient, and leave the part so precisely in the same condition as before the transmission, that we cannot conceive any abstraction or addition of matter to be essential to their production. It is, perhaps, adding little or nothing to a real knowledge of the proximate cause, to say that it consists in a general debility; and that, as a large abstraction of blood, by weakening the tone and energy of the nervous system, gives rise to convulsions, so other causes, which weaken the tone and energy of the same system, may give rise to chorea:—yet this is as near an approach, perhaps, to what will, in all probability, for ever remain hidden, as we are enabled to make. A consideration of the exciting causes, most of them of a directly depressing character, of the mental hebetude, the muscular listlessness, the torpor of the bowels, and the progressive emaciation which mark the disorder, together with the good effects of treatment of a tonic character, all lead me to this conclusion. I shall now proceed to offer a few cases.

CASE 1.

THOMAS BRAYSHER, aged 18, a strumous lad, with light hair and eyes; by employment a farmer's labourer, in Kent;

enjoyed good health, and was strong and muscular, until Michaelmas last, when he caught cold ; and a fortnight afterwards became the subject of severe rheumatism, which detained him from his employment for a month. On his return to work, his fellow-servants noticed an unsteadiness in his actions, and a contortion of his features ; but to no great degree, until within the last fortnight. On admission into the hospital, January 14, 1841, he was much emaciated ; listless involuntary actions of all the voluntary muscles were constant ; and speech and deglutition were both imperfectly performed. He had a fatuous aspect and manner ; but complained of no pain. Bowels regular : pulse weak and frequent : an audible bellows' sound of the heart accompanied the first stroke, and was heard below the left nipple. The treatment in this lad was confined to sulphate of zinc, in increasing doses, until ten grains were taken thrice a-day. He left the hospital, much improved, in three weeks, when his friends were desirous of taking him home.

CASE 2.

ANN CLAY, aged 15, having previously always enjoyed good health, was exposed on the 16th of last November to wet, and did not change her damp clothes for several hours. On the following morning she was attacked with headache, vertigo, and rigors, and, in the course of a day or two, her limbs became affected with acute rheumatism. At first, the left knee and ankle, then the right ankle, and subsequently, in succession, all the larger joints, became inflamed and painful. In that condition she remained nine days ; and on the 25th of November entered Guy's Hospital, having all the usual symptoms of rheumatic fever. A rough bruit on the first stroke of the heart was heard, and considered to indicate a morbid and probably inflammatory condition of the valves of the aorta. In the progress of the case, which was treated by calomel to salivation, antimony, opium, colchicum, and the vapour-bath, the pains and swelling subsided, but the symptoms of rheumatic inflammation about the heart and pericardium proved obstinate. The report of the case on the 8th of December will serve to shew its progress. On that day the patient was not so well ; the limbs were more pain-

ful; and an acute pain, on inspiration, was felt below the left mamma. The tongue was, however, clean; skin cool and perspirable; pulse 124: a crackling sound at the part affected was audible on inspiration, which, from the acuteness of suffering, and the absence of cough or expectoration, was pronounced pleuritic: active treatment was adopted to meet this renewed inflammatory attack; and on the 10th, the chest was quite free from pain, while the limbs remained more painful than before. On this day, for the first time, involuntary motions of the left hand and of the tongue, with a spasmodic pursing of the mouth, were perceivable. On the 12th, the patient was much troubled with sickness; the bowels open; pulse 136. *Frottement* of the pericardium, which had before been loud, was diminished; but the action of the heart was more tumultuous. At two P.M. of this day, the action of the left hand and arm became much more violent, so that the patient herself desired to have the limb confined. The face also was occasionally distorted by contractions. By the 16th, these movements had entirely subsided; and a fortnight afterwards Ann Clay left the hospital in a convalescent state. In this case, I consider it doubtful whether the chorea was owing to some rheumatic inflammation of the membrane of the cord, or to that of the pericardium; which being subdued, its effect of course was but temporary.

CASE 3.

CATHERINE TAUSKITT, aged 16, a fair girl, and before her illness of stout form, was admitted into Guy's Hospital on the 14th of July last, with the following history:—

She had often suffered slightly from rheumatism; but about three months ago was attacked with severe rheumatic fever, in the course of which the heart was affected with palpitation, and there was slight hæmoptysis and cough. As the heart's affection became more prominent, she began to perceive involuntary movements of her right arm and leg. The catamenia appeared at twelve years of age; and were regular until seven weeks ago, since which they have not appeared.

Present symptoms.—She has rather a childish appearance; at times, her questions and answers are irrelevant; at others, quite rational. She has little muscular power in the right

arm, which, with the right leg, is affected with chorea. She has also globus and other hysterical symptoms, varying in degree and duration. On laying the hand over the heart, tumultuous action, with *frémissement*, is perceptible; and on stethoscopic examination of the organ, a soft *frottement* is found to accompany the first sound, partially heard during the interval, most audible a little below and to the left of the nipple, and not traceable along the course of the aorta. Pulse quick, weak, and irritable.

Haust. Gentian. c Ferro, ter die.

July 15. Much the same. Bowels confined.

Pil. Col. c Cal. gr. xv. stat. et pergat.

17. The catamenia have re-appeared: complains of chilliness, and pain of the head.

Pediluvium hâc nocte; et pergat.

20. Better: more use in the right arm, and less chorea: less pain in the head: bowels not open since 18th.

Pil. Aloes c Myrrh. ʒss. o. n.; et pergat.

23 Improving: less pain: bowels open: heart's action diminished: more rational.

31. Complains of pain in the side.

Empl. Canth. lateri sinist.; et pergat.

Aug. 17. She has gone on improving since last report: she is now quite rational, and free from chorea. There is still a soft bruit to be heard; but the tumultuous action of the heart has much subsided. She has no symptom of disease, except a slight headache, in consequence of the approach of the catamenial period.—Presented.

In this case, the chorea came on with the affection of the heart: and we are therefore left in doubt, whether to consider it as the result of direct rheumatic inflammation of the membranes of the spine, or as depending on irritation of the ganglionic system. The latter, I am persuaded, is the more frequent occurrence.

CASE 4.

LUCY HOOKE, admitted December 16, 1840, aged 17; a girl of nervous temperament and pallid complexion; states, that about ten years ago she broke her left arm; but never suffered any thing in consequence, until within the last five months; since which time, owing to hard work, as she

supposes, she has felt much pain in the course of the large nerves. Five weeks ago, she first perceived chorea in this arm, which still remains; and, on examination, a bony thickening is felt on the fore part of the radius, near the bend of the elbow.—Catamenia regular: heart's action normal.

It is not worth while to detail the treatment in this tedious case. Aperients, tonics, chalybeates, the local application of nitrate of silver in the course of the nerves, with various stimulating liniments, were tried with little benefit. The pain, which had disappeared when the chorea supervened, recurred after the application of the nitrate of silver. In consequence of the scantiness of the catamenia, warm baths were used; cupping, to obviate pain in the head and loins; electricity to the arm; finally, liq. potass. arsenit.; and all to little purpose, until the latter end of March, when, after an interval of nine weeks, the catamenia came on profusely; and by the end of the month she was much improved in her general health, and had lost her chorea entirely.

The obvious bony enlargement in the fore-arm, the pain referred to that part, with its alleged cause, and the subsequent occurrence of chorea, led me to believe that the disordered action was here the consequence of local irritation of the nerves of the arm.

CASE 5.

ANN VILES, aged 20, admitted March 4, 1841; a florid and stout, yet somewhat delicate young woman; had her left arm amputated on the 24th of March, for strumous disease of the elbow-joint. The stump healed very well; and she left the hospital, in improved health, in the middle of May. About the latter end of June, the stump having previously disturbed her rest at night by violent startings, she observed that it began to move to and fro; and after a cessation of only one day, the motion became constant, and has continued so ever since, during her waking hours. In sleep, only a slight trembling is perceptible: the action of the part is a rapid adduction, and abduction, alternately. No other part of the body appears to be at all affected with chorea: pulse about 70, soft and regular: heart's action normal, no *bruit*: tongue clean: bowels regular. The catamenia were present a few days before the operation, and re-appeared a few days after; and they have

continued at intervals of six days, with one exception when the interval was fourteen days, ever since. When this discharge is absent, she feels more uneasy. She was re-admitted into the hospital on the 18th of August, and no alteration whatever has yet occurred in the local complaint, notwithstanding the insertion of an issue in the stump, and the employment of large doses of sesqui-oxide of iron.

Here there can be little, if any doubt, that the cause of the incessant spasmodic action is in the stump itself, whence some wounded or compressed nerve is conveying its irritation to the common centre in the spinal cord.

This interesting case, though allied to chorea, I hardly consider as an example of the pure disease. The contractions are more violent, incessant, and spasmodic, so that my utmost force will not suppress, and scarcely restrain them. Moreover, the stump is not quite quiet, even during sleep. If this be admitted as true chorea, the spasmodic startings, so frequent after the fracture of limbs, can scarcely be refused admission likewise.

CASE 6.

PHILIP HODGES, aged 63, a tall man with a meagre countenance, admitted into the hospital on the 8th of September, 1841, states, that about two years ago, having been previously well, he gradually, and without any inflammation, lost the sight of his right eye; and a year afterwards began to experience symptoms of chorea in his right leg, which dragged after him in walking. This continued for six months; at the end of which time he perceived convulsive movements in the right leg, arm, and side, which he was wholly unable to govern. He has always been subject to headache and vertigo, has a very bad appetite, and a slightly-furred tongue. His bowels act once in two days, but the motions are relaxed. The urine, though of the natural colour, is scanty, and passed by very frequent calls: it is coagulable on the application of heat. Sounds of the heart pure, and without *bruit*. Pulse full, and rather tense: skin cool and dry. He has a red spot, like a *nævus*, not much bigger than a large pin's head, situated on the back, nearly over the angle of the right scapula, and two or three inches from the spine. When this spot is touched, even lightly by the finger, acute pain is

felt, and the convulsive movements of the right side and extremities are violently increased. While his attention is directed to any subject, as in reading a newspaper, these spasms are much lessened; and they entirely disappear during sleep. They are most apparent when he is aware of being under observation, and especially when he is on his feet and walking about. He attributes his malady to the removal of a small encysted tumor over the right trochanter, about three years ago; but the amaurosis of the right eye, together with the vertigo and pain of the head, would seem to indicate that the foundation of his disease is in the encephalon. The increase of chorea, when the spot on the back is touched, may simply be owing to the pain and consequent emotion thus occasioned; for it seems that the spot has existed from childhood, and that the same pain, though without any excitation of irregular movements, has always been felt, when it has been touched.

CASE 7.

FRANCES R——, a strumous-looking girl, aged 17, was employed as servant-of-all-work, and enjoyed good health until five years ago, when she had typhus fever: she has been since that time an invalid, and very nervous. Six weeks previously to her admission into Guy's Hospital, on returning home a short time after she had left it, she was much alarmed and agitated by finding thieves in the house; and her agitation gradually increased for three weeks, when the spasms became so violent, as to render it necessary for her continually to be watched, lest she should throw herself out of bed.

She was in this state when admitted under Dr. Addison, six weeks after the occurrence of the fright, on May 5, 1841. She took sulphate of zinc, with camphor; had a blister applied to the back of the neck; purgatives, quinine, and latterly musk: but no medicine had any effect upon her, and she continued just in the same state, until the 24th, when about four A.M. her movements began to cease, she lost all reason, and sunk about six o'clock the same morning.

On the Book.—There had during life been no bruit audible, with either sound of the heart. She was examined by Mr. Lever, who found no hymen, vagina relaxed, and uterus small.

INSPECTION, *May 25*.—Scull rather contracted and conical; neck full: the rest of the body wasted; many parts deeply excoriated, especially behind.

Chest.—Lungs congested interiorly. Five ounces of fluid in the pericardium, and albuminous flakes floating in it; and the membrane also ecchymosed. Heart rather large. Mitral valve opaque.

Abdomen.—Liver coarse and hypertrophied: kidneys very much congested: mucous membrane of the stomach and intestines much injected, and thick.

Brain, healthy.

The *Spine* was examined. The vessels over the spinal marrow seemed rather large and numerous: the serous surfaces everywhere appeared somewhat opaque; and it was evident that old fibrous adhesions connected the two surfaces, especially over the posterior aspect of the medulla.

CASE 8.

Miss S. M——, aged 20, visited me Nov. 30, 1840. She was tall and healthy in appearance: pulse regular. Three months ago she was attending on a sister, who, in the course of a month afterwards, died of epileptic fits, when her mother observed a catching or spasm in her left arm. This became very frequent, and at length occurred every three or four minutes. When I saw her, her seizures were of the same kind, precisely as if she had received a galvanic shock, from the shoulder to the hand. She had some pain in the head, and very costive bowels. The heart's action was normal, and she was otherwise well. Aperient medicine, followed by a course of sesqui-oxide of iron, in doses increased to two drachms three times a-day, succeeded in entirely curing this affection within one month.

CASE 9.

WILLIAM COLLINS, aged 13, admitted under Dr. Bright, Nov. 4, 1840;—a native of Woolwich, of light complexion and spare habit; enjoyed good health till he was five years old, when he received a wound on the vertex with a shovel, described as being deep, and about two inches long, and bleeding profusely. Since that time he has almost constantly complained

of pain of the head. About one month after the accident, his mother first observed involuntary movements of his head and arms, which continued about four or five days; and have returned at irregular intervals, gradually diminishing in distance; the attacks becoming more severe, as well as longer. Three months ago his sister died; the news of which was suddenly communicated, and affected him very much. Since that time he has been decidedly worse, the attacks lasting longer, and the pain in the head being constant. He has complained of weakness of the left side, which has been observed to be more convulsed than the right; but he has never been known to pass worms. His present attack commenced on Friday last, without any apparent exciting cause, with pain in the head, and vomiting: the latter continued during three days, and on the fourth he complained that the pain was increased by noise: his eyes were suffused.—He was bled to a pint. In the night, he screamed violently for upwards of an hour, complaining of pain in the lower part of the abdomen: he foamed at the mouth, and endeavoured to bite those near him, so that it required four persons to hold him. His bowels have been regularly opened by medicine since that time; but he has been gradually growing worse, has had no sleep, and taken very little nourishment.

Present symptoms.—Countenance pale, and expressive of distress: the muscles of the face, neck, and extremities, in violent spasmodic action: articulation wholly impeded: the lower lip sore, from being bitten: the skin over the scapulæ and sacrum excoriated, and in the latter place appearing likely to slough. The contortions of the body prevent accurate examination, but the lungs appear healthy: the heart's action is irritable, and no abnormal sound is heard: the edge of the liver is felt below the ribs: urine healthy: bowels not open to-day.

J. Am. \bar{c} Tinct. Hyos. m x. 4tis horis.

Extr. Hyosc. et Camphor. $\bar{a}\bar{a}$ gr. ij. h. s.

Nov. 5. Continued much the same till eleven P. M., when he was ordered—

Enema Amyli \bar{z} iv. Syrup. Papav. \bar{z} ij. st.

After this, he became much more composed: the contortions were diminished, and he slept at intervals during the night, for three hours

at a time. The enema brought away three offensive dark stools. In the morning the jactitation was much diminished: he could articulate a few words, though indistinctly: took his medicine and nourishment readily; and was, upon the whole, improved, though much exhausted. The presence of persons around appeared to aggravate his symptoms: pulse 125, sharp, but easily compressed.

Hydr. \bar{c} Cretâ, gr. iij. st.

Ol. Ricini \bar{z} ij. postea; et pergat.

6th. Having passed a healthy stool, the above medicine was not given: he slept comfortably during the whole night, and dozed in the morning, but appeared altogether lower: face pale and haggard, expressive of distress: during sleep, there was an occasional twitching of the left arm, face, and back: the contortions were less violent, and chiefly on the left side: the articulation was rather more distinct: the right elbow was red and tumid, and one or two dark-coloured spots appeared on the skin of that part: the bowels did not act on this day.

Hydr. \bar{c} Creta gr. iij. st.

Catap. panis cubito.

7th. Had no convulsions after the visit of the day before: dozed at intervals; and gradually sunk, until eight o'clock P.M., when he expired.

There is, unfortunately, no record of the post-mortem examination in this case.

CASE 10.

GEORGE BAKER, aged 13, admitted November 4th, under Dr. Bright: resident at Clapham, and of healthy aspect. Four years ago was in this hospital, under Dr. Back, on account of an attack of his present disease (chorea). Six weeks ago, when in good health, he was frightened by his mother; two or three days after which, she perceived that he began to "jump about," without the power of controlling himself; and she soon found that he was the subject of his former complaint. The chorea is now confined to his head, neck, and right side only; and is not very severe. He complains of pain across his forehead, and loss of appetite. His mother states that he has passed worms, which have been small and white.

This patient, after the administration of a scammony powder, which produced vomiting and purging, but without demonstrating the existence of worms, was put upon the use

of sulphate of zinc in increasing doses, until he took nine grains three times a day. This remedy was discontinued on the 1st of December, as it did not seem to be productive of benefit. He was then electrified daily, by the discharge of sparks along the course of the spine; and under this treatment he left the hospital, nearly well, on the 22d of December.

CASE 11.

JAMES FIELD, aged 9; admitted January 13, 1841, under me; a stout, healthy boy. Two years since he fell into the river, but did not receive any appreciable injury. About fifteen months ago, his mother perceived that he was unable to hold any thing steadily in his left hand, and that the motions of his left leg were considerably impaired. He was under medical treatment for some time; but did not receive much advantage from it, until he was admitted into Job's Ward five months ago, under Dr. Addison. He remained two months in the ward, and was discharged perfectly cured. He continued quite well till five weeks ago, when the complaint again made its appearance. With the exception of the chorea, he seems to enjoy good health. He has very little control over the motions of the left arm and leg. Sometimes, however, he is able to walk pretty steadily; while more usually he drags his left leg behind him. Bowels open: tongue clean: pulse 60, and natural.

He was treated by sulphate of zinc in increasing doses, until he took thirteen grains three times a day.

He was presented on the 17th of February; at which time the motions of his limbs were nearly steady and under control, and his health was good.

On the 26th of January, the report was as follows:—"He seems to have some little increase of power in holding any thing in his left hand, but his movements are very unsteady." Thus his improvement took place subsequently to this date, and only on taking large doses of the sulphate of zinc.

CASE 12.

JAMES CARR, aged 18, admitted March 3, 1841, under Dr. Addison; a tavern-waiter, living at Bethnal Green; thin and

pale, of lax fibre, and pigeon-breast; has never passed worms, or had rheumatism. His mother had chorea when of his age. At four years old, he had a fit; but never since. He does not remember having ever been frightened. There is a scar over the left parietal eminence, from a blow inflicted with the heel of a shoe five years since; but he has never suffered much from headache. He has had occasional fainting-fits during the last few years; and has grown rapidly of late, complaining at times of pains in his limbs, and weakness in his ankles. Eight weeks since he first perceived an unsteadiness and snatching of the right hand, which gradually increased, affecting his left arm in a less degree, and causing a twisting of the knees in walking. His speech became indistinct; and his tongue was projected between his teeth, and bitten at times on the right side. He has not had any headache till two or three days ago, when he felt a tight pain across the forehead, which has subsided.

Present symptoms. — Jactitation of the right arm, and twitching with tremor of the left. A little twitching of the face, and occasionally of the tongue. Respiratory sounds healthy. Heart irritable: a bruit heard with the first stroke. Pulse 90; small and sharp. Skin warm and moist. Tongue clean; and bowels open.

After purging with four grains of calomel, followed by a senna draught, and blister to the nape of the neck, the report of the 4th was, that the bowels had acted twice; the evacuations being dark and fluid, containing a little lumpy matter. The blister drew well.

Sumat. Pil. Col. \bar{c} Cal. gr. xv. h. s.

5. Bowels acted six times; dark fæculent matter being copiously discharged.

6. Twitchings of the tongue and head more apparent: pulse small and sharp.

Sumat Zinci Sulph. gr. i. ter die.

7. He was called up to stool two or three times in the night, and could not steady himself; but was thrown about in the middle of the ward, and much distorted.

8. The involuntary motion is increased generally.

Aug. Zinci Sulph. ad gr. ij. et adde gr. i. quotidie.

The treatment with the sulphate of zinc was carried on, until sixteen grains were taken three times a-day.

On the 29th, the report states, that the agitation is diminished; and he appears to have more control over his movements. On the following day, electricity by shocks was ordered. The bowels were occasionally cleared out by coloc. \bar{c} cal. On the 17th of April, his 16-grain doses of zinc. sulph. began to make him feel sick. The report of that day is, that he walks nearly steadily: the bruit over the heart is audible: tongue moist and clean: urine clear, and in normal quantity: bowels open.

The sickness continuing, the sulphate of zinc was omitted on the 22d; and the electricity alone was employed.

On the 26th of April, which is the last day to which the report extends, the account is as follows: "He is much improved: holds a stethoscope steadily, and walks pretty well; but is very weak in the tarsal ligaments. The pulse is feeble: bruit very distinct. He has no pain anywhere."

CASE 13.

EMMA STENT, aged 11, was admitted into Dorcas Ward, under my care, November 25, 1840. About three years since, was first attacked with chorea in the right arm, from which she recovered. About a month before admission, perceived the return of the chorea in the right arm, attributable to no particular cause. This has gradually increased, until all her limbs are affected. Her speech, also, is so at times. She has perfect command over both micturition and defæcation. At present, the left side is most affected; and occasionally the chorea shews itself in the muscles of the face. Bowels open.

Pulv. Scammonii \bar{c} Calomel. gr. xv. ft. pulv. bis in hebdomadâ sumend.

Liq. Potassæ Arsenitis m iij. ex Julepo Menthæ ter die.

28. Better. Bowels regular.

Augeatur Liq. Pot. Arsen. ad m v. ter die.

30. Improving decidedly.

Augeatur Liq. Pot. Arsen. ad m viij. ter die.

Dec. 3. Improving. Bowels regular.

Augeatur Liq. Pot. Arsen. ad m x. ter die.

18. She has continued improving since last report, and is now almost cured.

Dimin. Liq. Pot. Arsen. ad m v. ter die.

22. Chorea quite gone.—Presented.

CASE 14.

ELIZABETH SCHILLER, aged 11, a girl of sanguine temperament, was admitted into Dorcas Ward, under my care, March 10, 1841. About a year ago, through fright at being dipped in the sea, she was attacked with chorea in the right side; from which she speedily recovered. About three weeks ago, was very much frightened at a fire, which occurred near her house: after which, she experienced involuntary movements in the left arm and leg, though chiefly in the arm. Bowels open: appetite indifferent: no bruit in the heart's sounds.

Liq. Pot. Arsen. m iij. ex J. Menth. ter die.

13. Improving.

Augeatur Liq. Pot. Arsen. ad m v. ter die.

17. She has continued improving since her admission; and the chorea being now very slight, she has been presented.

CASE 15.

MARIANNE RICKETTS, aged 10, was admitted into Charity Ward, under my care, June 2, 1841. About six years ago, she had rather a severe attack of small-pox, which has left evidence of its ravages upon her face: since this, she has suffered from chorea, at intervals of about two months. She is also subject to fits of giddiness; the chorea always increasing after such attack. Bowels open. The chorea is chiefly on the right side.

Pulv. Rhei gr. vj. ex Vin. Lusitan, ʒij. ter die.

Ung. Ant. Pot. Tart. supra spinam infric.

3. Bowels not open: otherwise much the same.

Pulv. Scamm. c̄ Cal. gr. xv. stat.; et pergat.

8. The ointment has produced a copious eruption, without any effect on the chorea.

Ferri Sesqui-oxid. ʒi. ter die.

Eliciat Electric. ictu vel scintillâ.

Omitte alia.

12. Very little improved.

Zinci Sulph. gr. ij. ex Aq. Cassiæ, 3fs. ter die.

Rep. Electric.—Rep. pulv. aper. stat.

15. On the whole, improved.

Zinci Sulph. gr. iv. ter die.

Rep. pulv. aper. bis in hebdom.—Rep. Electric.

17. Improving.

Augeatur Zinc. Sulph. ad gr. vj. ter die.

24. Improving.

Augeatur Zinci Sulph. ad gr. viij. ter die.

26. Improving: much less motion.

Augeatur Zinc. Sulph. ad gr. x. ter die.

29. Improving.

Augeatur Zinc. Sulph. ad gr. xij. ter die.

July 1. The medicine has caused much nausea and sickness. Chorea very much diminished. There is a little bowel irritation.

Hyd. Chlor. gr. iij. c Magn. Calc. gr. x. m. ft. pulv. stat. sumend.

Omitte Zinc. Sulph.—J. Menth. c Sod. ter die.

13. Being quite well, she was presented.

CASE 16.

ELIZABETH BURN, aged 14, (ill 14 days,) a delicate-looking girl, of fair complexion, states, that about three months ago her mistress was reading the newspaper in the parlour, which she was not aware of at the time; and when she heard the rustling noise of the paper, she imagined that some one had secreted himself in the house. This occasioned her a sudden fright; and about a month, from this time, her mother observed that she drew her leg after her in walking—that of the left side: soon after this, she observed her left arm started involuntarily, but only occasionally. This went on for a month, without any particular change; when she found that the whole of the left side was convulsed at times. This has continued up to the present time. It is now constant, except during sleep: there are slight twitchings of the countenance; and she occasionally closes the left eye, or nearly so: experiences no pain. There is no tendency to exacerbation. She articulates almost perfectly; but occasionally experiences difficulty in uttering the last syllable of

a word. Deglutition is performed perfectly. Her pulse is small and frequent. She has slight dimness of vision. Her bowels have been more or less confined ever since the fright: her appetite has rather increased. The muscles mostly affected at present are those of pronation and flexion. Of the fore arm, she possesses considerable power. There seems to be some rigidity about the abdominal muscles. The heart's action appears to be increased, though there is no abnormal sound present.

Aug. 25. Pulv. Scamm. c̄ Calomel. gr. xv. stat.
Liq. Fowleri m v. ter die, ex Jul. Menthæ.
Middle diet.

28. Better: urine not coagulable.

Liq. Fowleri m x. ter die, ex Jul. Menthæ.

30. Liq. Fowleri m xij. ter die, ex Jul. Menthæ.

She was very sick after taking her medicine; and it was discontinued.

Sept. 4. Ferri Sesqui-oxid. ʒfs. ter die.

Remains much the same.

7. Augeatur Ferri Sesqui-oxid. ad ʒi.

Slightly improved.

14. Augeatur Ferri Sesqui-oxid. ad ʒij.

Much better, and still under treatment.

CASE 17.

SARAH SANDFORD, aged 17, (ill 9 months,) a young girl of light complexion, had fever about nine months ago, and was in the Fever Hospital; and one day was very violent, when she was put into a strong room by herself; and she had a fit, and was very much frightened: but she got quite well after this; and about three months after, she had thirty-five fits in succession, in one day. Three days after she fell down in the street, and lost the use of her right side; and her hand and arm were quite numbed. From that time to this, her right arm and the right side of her neck have been convulsed. She has some difficulty in swallowing. Skin moist: perspires much: has a good appetite: her bowels never act without medicine; and she sometimes passes no water for three weeks together, without the use of the catheter. The convulsive motion of the neck and arm is constant, except during sleep.

Aug. 18. Radatur caput.

Pil. Hydrarg. gr. i. Pil. Galb. gr. i. Ext. Conii gr. ij.
ter die.

C. C. nuchæ ad $\frac{3}{4}$ x.

Mist. Camph. c̄ Sodæ Sesquicarb. gr. xij. ter die. Acidi
Hydrocyan. Scheelii m ij. ter die.

21. Empl. Canth. ampl. ras. caput. et postea Ung. Hydr.
applicandum.

Hydrarg. Chlorid. gr. i. ter die.—Enema Terebenthinæ.

Sept. 2. C. C. inter scapulas.—Rep. Enema.

Zinci Sulph. gr. i. ter die.—Ol. Crotoni spin. applicetur.

6. Ext. Col. C. et Pil. Galb. C. āā gr. v. o. n.

9. C. C. ad $\frac{3}{4}$ i. parti spinæ dolenti (videlicet origini plexus
brachialis nervorum).

Zinci Sulph. gr. ij. ter die.

13. Acet. Lyttæ spinæ.

Not the least alteration has occurred in this case since her admission: she still remains under treatment.

CASE 18.

HENRY GRIVELL, aged 11, admitted Jan. 1, 1840. A strumous-looking boy, with light hair and blue eyes, who has enjoyed uninterrupted good health: states, that about ten days ago his mother awoke him suddenly, and told him of the death of her infant. This, he says, frightened him very much at the time; and two days afterwards he began to be affected with involuntary movements of his limbs and voluntary muscles generally, beginning first with the muscles of the neck and back. Bowels inclined to constipation. On admission, he had violent jactitation of the limbs: speech slightly affected: he is unable to stand still, or walk straight: heart's sounds clear and regular: pulse 72, easily compressible: pupils dilated.

Jan. 1. Zinc. Sulph. gr. i. t. d.

2. Zinc. Sulph. gr. ij. ter die. M. M. c̄ M. S. ter die. Pulv. Jap.
C. $\frac{3}{4}$ i.

6. He was much purged by the medicines, and was ordered,
Vin. Rub. $\frac{3}{4}$ fs. Pulv. Rhei gr. v. ter die; omitting other medicines.

8. Empl. Lyttæ nuchæ.—Ferri Sesqui-oxidi $\frac{3}{4}$ fs. ter die.

9. The blister rose well. There is some degree of febrile excite-

ment about him this morning : skin hot, and inclined to dryness : he has less control over the voluntary muscles, and is with difficulty kept in bed : has great difficulty in swallowing : pulse feeble, and, from incessant jactitation, is unable to be counted.

Mist. Salin. c̄ Tinct. Hyosc. m xx. 3tis horis.

10. Bowels open : skin warm and moist : tongue clean : articulation less distinct : complains of pain in the occiput, and down the right arm : pulse frequent, as before : has taken food tolerably : has no sleep.

Pulv. Opii. gr. fs. ter die. Rep. Mist. Svâ quâque horâ.

11. Slept for three hours last night ; but more violent this morning : dysphagia increased : articulation more indistinct : slight delirium during the night : bowels confined : he cannot swallow the mixture.

Ext. Col. C. gr. x. st.—Morph. Hydroch gr. $\frac{1}{4}$. 4tis horis.

Noon. Enema Assafoetidæ $\bar{3}$ vi. c̄ Ext. Col. C. 3fs. st.

Cinch. Cord. Pulv. 3fs. Valer. Rad. Pulv. 3fs. Camph. gr. iij. in melle, ter die.

12. Has slept last night ; and seems less violent this morning.

Pergat.—Rep. Enema. Empl. Belladonnæ nuchæ.

13. Has slept the greater part of the night ; and when asleep, is quite quiet : pulsation of the carotids, 140, and small : is able to take arrow-root, a teaspoonful at a time, but is soon exhausted : the features are sharpened, and there are dark areolæ around the eyes : there are some vesicles scattered over the body.

Rep. Morphia, 8stavis horis.

Arrow-root, Isinglass, &c. Injection of Beef-tea.

14. Died this morning, at half-past nine, from exhaustion. A few hours before death, the parotid gland began to swell.

SECTIO CADAVERIS, twenty-nine hours after death. — Body generally emaciated : the dura mater firmly adherent to the cranium, requiring great force to remove the calvarium : the membrane was more opaque than natural : brain firm, and healthy-looking : the vessels of the brain, and its membranes, turgid with blood : lungs quite healthy : pericardium healthy : there were some small vegetations on the curtain of the tricuspid, on the auricular aspect ; the heart was otherwise quite healthy : viscera of the abdomen healthy. Spinal column, unfortunately, not examined ; the case having occurred before the promulgation of Dr. Hall's new views.

CASE 19.

PHOEBE HUNT, aged 12, (ill 11 days,) admitted into Miriam Ward, June 17, 1841, under Mr. Stocker; a fair girl, with general previous good health. Last Sunday week was first attacked with chorea of the whole body, and pain in the legs (attributable to no particular cause): for this she was blistered and purged, without effect: she has fallen away: sleep and appetite bad: bowels open: her speech also is impeded: there is a *bruit* on the second stroke of the heart.

Pulv. Scamm. et Cal. gr. xij. alternis auroris sumend.

June 29. This patient does not seem benefited by the purgative treatment.

Quin. gr. ijs. ex Inf. Rosæ C. ter die.—Beef-tea and Arrow-root.

July 29. She has continued improving since last report, and is now nearly well: speech unaffected.

Aug. 10. Presented.

CASE 20.

SARAH MACKAY, aged 14, (ill 5 weeks,) was admitted into Dorcas Ward, under my care, June 23, 1841; a spare girl, with light sandy hair, and rather pale complexion. About five weeks since, after a fright, was first affected with chorea in her limbs, which has gone on increasing: her speech is also much affected: her catamenia appeared in December last, but not properly, and have been irregular since: bowels open: she complains of pain in the right side, and palpitation: there is a *bruit* on the first stroke. (Her mother was affected with chorea when young.)

June 23. Zinci Sulph. gr. ij. ter die.

24. Zinci Sulph. gr. iv.

26. Her catamenia have re-appeared.

Augeatur Zinc. ad gr. vi. ter die.

Semicupium h. s.

29. Zinc. Sulph. gr. viij. ter die.

July 1. No improvement.

Omitte Pil.

Tinct. Digit. m x. ex Jul. Menth. ter die.

3. Augeatur Tinct. Digit. ad m xv.

6. The digitalis not seeming to produce any good effect, it was discontinued

Liq. Pot. Arsen. m v. ex Jul. Menth. ter die.

8. Rep. Mist.—Balneum Pluviale o. m.

20. She is decidedly better, the shower-bath having evidently very much controlled the chorea.

Augeatur Liq. Pot. Arsen. ad m viij.

Aug. 3. The shower-bath continuing to act very beneficially, she was ordered to discontinue the mixture, but go on with the bath.

10. Catamenia have not re-appeared.

Tinct. Ferri Sesq. m x. Ex. Aq. Cassiæ, ter die.

24. Presented, cured.

CASE 21.

JANE LEVETT, aged 14, was admitted into Lydia Ward, under my care, July 14, 1841, (ill 2 weeks,) — a stout girl, with general good health previous to her first attack of chorea, which occurred about four years ago, and was owing to fright. It then appeared in the right arm and leg, accompanied by slight numbness, and drawing of the mouth to the right side. From this she recovered in about three months. About three years ago it re-appeared, but in the left side only. In about a month she was cured (she was then in this ward). About a fortnight since, it re-appeared in the left side. Since the first attack, she has been subject to giddiness and pain in the head. Catamenia have not appeared. Bowels regular: appetite good. At present, the chorea is in the left arm and leg, principally in the former, she being able to walk without assistance. She has much pain in the loins, with occasionally throbbing pain across the forehead. Pulse 95: tongue white. She has palpitation; and there is a *bruit* on the first stroke.

Mist. Magn. c̄ Magn. Sulph. bis die.

July 17. Pain in left side; less in the head: bowels open.

Tinct. Digit. m x. ex M. Salin. ter die.

Pil. Rhei C. gr. x. o. n.

20. Improving. Rather sick last night, after taking the medicine: she has, however, taken it this morning without nausea supervening. Catamenia have not yet appeared.

Pil. Aloes c̄ Myrrh. ʒss. o. n.; et pergat.

Omitte Pil. Rhei Comp.

29. Complains of pain in the head; otherwise improved. Catamenia not yet appeared.

Omitte Tinct. Digit.—Rep. Mist. Salin. ter die.

Semicupium omni nocte.

31. Much the same.

Jul. Menth. c̄ Sod. ter die.

Balneum Pluviale om. mane.

Aug. 3. Chorea much diminished.

Omitte Balneum Pluviale.

Haust. Gent. c̄ Ferro, ter die.

Electr. trans pelvem.

24. Presented, cured.

CASE 22.

THOMAS MILLS, aged 13, was admitted into Job Ward, under my care, August 4, 1841, (ill 14 days,) — a boy of delicate, sickly, and somewhat emaciated appearance; pigeon-breasted; never in the enjoyment of good health. States, that he has been in the hospital three times before, for similar attacks; the first and severest five years ago, and the last two years ago. In all these attacks, the right side has been chiefly implicated, and all were more severe than the present: the first attack was the only one that could be referred to fear as a cause. The present attack commenced a fortnight ago, he being at the time in his ordinary health: it first became evident in the right arm, and subsequently the whole of the right side became affected. The power of speech has been impaired since last week. At present, the right side and speech are affected; but, upon close watching, the left is observed to partake, though slightly, of the disease. Tongue slightly coated: bowels regular: pulse weak and rapid: heart's action irritable. First sound accompanied with a *bruit de soufflet*, most audible a little below, and to the right of the left nipple. On admission, he was ordered,

Pulv. Scamm. c̄ Cal. ʒi. stat. et Zinci Sulph. gr. ii. ter die.

10. Four grains of the Zinc, to be increased gr. i. daily.

Shower bath.

17. He was ordered,

Tinct. Digit. m x. ex Jul. Menth. ter die.; and a blister, one foot long and one inch wide, on each side of the spine.

21. Pulv. Valer. \bar{c} Pulv. Cinch. $\bar{a}\bar{a}$ $\bar{\text{D}}$ i.
 Pulv. Arom. gr. v. ex Inf. Cascar. ter die.

24. Not the least improved : left side implicated.

Liq. Pot. Arsenit. m v. ex Jul. Menth. 6tis horis.

His complaint increased towards the end of August, so as to lead to serious apprehensions that he would not recover. The blisters, applied on each side of the spine, throughout its length, much aggravated his symptoms ; but they have since subsided, under the use of two-drachm doses of carbonate of iron three times a-day ; and he is at present in a convalescent state.

CASE 23.

ANN WOODVILLE, aged 11, was admitted into Dorcas Ward, on the 24th of September 1834, under Dr. Back, and died October 18, 1834. Ill three weeks on her admission, with chorea. Her mother was nearly 40, stated to be subject to some kind of fits, and had no other child.

The child had some evidence of deranged action in the heart, with accelerated pulse. There were considerable cachectic excoriations and ulcers, discharging mucus over the sacrum, back, &c., which contributed much to hasten the patient's death.

INSPECTION.—The body was extremely thin, and tall. The pia mater watery : the cortex red, soft, and adherent here and there. The brain generally, but in particular the grey centres, vascular and soft : much fluid was found in the ventricles : soft arachnoid adhesions of spinal serous membrane ; grey parts soft and dark : slight gastric solution.

In the lower ilium, rather a dark injection, something more than turgescence, diffused, with slight general thickening. Three or four old cretaceous degenerations in the lymphatic glands.

The ovaries pretty full.

Kidneys rather firm and dark.

CASE 24.

MARY ANN LEWIS, aged 15, a well-grown young person, who had been ill six weeks with rather severe chorea, was admitted the 6th of June, 1833, into Charity Ward, under the

care of Dr. Back. It appears that she never gave a very intelligent account of herself. The function of the heart was observed to be somewhat disordered. Small doses of zinc, with occasional purgatives, seemed to prove successful; and the patient was considered to be rapidly improving; when, on the 2d of July, she was rather suddenly seized with symptoms of obstructed respiration, followed by a slight convulsive fit; and in a few hours she sank, and expired.

The body was examined thirty-eight hours after death. It appeared tall, and well made; but there was slight development of the mammæ and other signs of puberty.

Head.—The arachnoid appeared slightly opaque: it was firm and thin, not easily separable from the convolutions. The pia-mater was far from turgid, and contained some serum. The surface of the convolutions was soft and reddish: the grey cortex was decidedly dark and pink. The medullary matter generally, when sliced, shewed much pink marbling and numerous bloody points. The membrane of the ventricles was scarcely firmer than natural, and contained no undue fluid. The pineal gland contained an ovoid watery cyst, about the size of a small wheat-grain, with little or no dilatation of its bulk. The posterior body of the pituitary gland was very soft and granular; and there was found on the surface of the greater body, immediately anterior to the infundibulum, a small watery vesicle; which was immersed in rectified spirit, and then being laid open, appeared almost full of a white albuminous solid.

Chest.—Each pleura contained about three-quarters of a pint of bloody serum, without any other evidence of inflammation. The lungs themselves were rather congested and œdematous: towards the summit they were a little thickened and contracted. The bronchial tubes were considerably injected, and the trachea greatly so: their secretion was abundant, mucous, frothy, flaky, and bloody. The pericardium was in a state of acute inflammation; both the close and reflected portions being entirely lined with an adherent layer of fibrine. The cavity was nearly obliterated by soft recent adhesions; and at two or three limited parts only there was a small intervening collection of natural

serum. The new adventitious membrane, which everywhere lined the serous surface, presented, when the heart was removed, different characters in different parts. It was equally thick on the heart and investing pericardium: in various parts it was between one-eighth and one-sixteenth of an inch in thickness. The greater extent of it, particularly on the investing surface, was firm, opaque, and darkish, with a slightly villous surface. In other parts the deposit was arranged in close acute rugæ; and again in others, especially near the base of the heart, it was a firm, nearly transparent matter, with distinctly arborescent vessels. The whole of the adventitious tunic presented some trace of organization. The original pericardium was not very easily distinguished on the heart: perhaps it had been the seat of a former inflammation. The heart itself was large, the increase being pretty equal in substance in all the cavities:—these contained well separated blood, with fibrine, fluid, and red particles in due proportions. The mitral valve alone was somewhat thickened. The liver seemed slightly congested. The uterus was small, firm, and uninjected. The ovaries were long, flaccid, and fissured; in one or two places there were some full vesicles within them. The stomach and intestines were rather thin and pale; the great veins rather turgid. There were the slightest traces only of irritation in the aggregate glands.

CASE 25.

ANN HOPKINS, aged 16, was admitted on the 19th of July, 1815. She had been ill about five days previous to her admission; and her friends attributed her complaint to the influence of a fright produced by a fire in the neighbourhood. She had, however, for some time been subject to headache, and been less early in her rising, and was drowsy during the day, but had not complained of any sickness at stomach. The bowels were not torpid, nor was there any imperfection of vision. The irregular actions were first noticed in the lower extremities. She had not been the subject of worms, fits, or any previous attack of chorea. The catamenia had not appeared. Subsequently to her admission, the convulsive motions became so violent and so universal, that it was

necessary to have recourse to the strait-waistcoat. The functions of the sensorium became affected on the 29th; and, with but little intermission of delirium for three days, she died on the 6th of August. The principal measures employed were, purging, cupping, blisters, and the use of digitalis; and, for the two days preceding her death, combined with small doses of the hydrarg. cum cretâ. It was after a trial of the mistur. ferri comp., which was attempted from the 24th to the 28th, that the symptoms assumed a more aggravated character.

SECTIO CADAVERIS.

Head.—The vessels of the pia-mater were particularly distended with blood, and every part of the brain shewed increased vascularity. There was not more water in the ventricles than is frequently observed without any symptom indicating affection of the brain.

Thorax.—All the viscera were in a very healthy state, and there was no water in the cavities.

Abdomen.—The stomach contained about a pint of dark-green fluid, and was quite healthy in structure. The intestines had their vessels more turgid than usual, but not amounting to inflammation. The other viscera presented no morbid appearance.

This case is taken from the Hospital Books, as recorded by my late friend, Dr. Laird; and, as death from chorea and post-mortem examinations are not very common, I have thought it worth while, although it occurred so many years ago, to insert it.

In the management of such of the foregoing cases as were under my care—and of numerous others of which I have notes, but which, possessing no peculiar interest, I have not thought it worth while to insert—I have not found any one remedy so superior in efficacy to the rest, as to induce me to abandon all others in its favour. On the contrary, the most powerful will sometimes disappoint our expectations; and we are then obliged to try one after another; and in the

end, perhaps, remain uncertain, should the patient do well, whether the recovery is to be attributed to the means employed, or to the power of Nature herself. This, however, is the exception, not the rule; and a few general observations on this subject will therefore not be thought out of place.

In the treatment of chorea, regard must be had to the causes which have produced it; and to its complication with other diseases, as well as to the degree of strength of the patient. Sydenham's practice was a combination of bleeding, with the exhibition of purgatives, narcotics, and vegetable tonics. It was a rational treatment, according to his view, that the disease arose from a humor, which was thrown upon the nerves, and caused their irritation; so that his curative indications were directed to lessening those humors by bleeding and purging, and subsequently to strengthening the nervous system. There are still advocates for each class of those remedies, which he thus employed in unison. Dr. Clutterbuck trusts chiefly, if not altogether, to depletion. Dr. Hamilton strongly recommended the use of powerful cathartics; and the tonic plan may be said to be that which is most generally in use at the present day.

Where there is evidence of congestion in the head, marked by giddiness and headache, occurring in subjects of a full habit and florid countenance, the treatment should be commenced with moderate depletion; which, however, it would be more advisable to effect by leeches or cupping-glasses, than by the use of the lancet; and these should be applied to the nape of the neck, or behind the ears. Attention to the state of the bowels is of course, in all cases, indispensable, even though the general treatment should be of a tonic character: but wherever there is reason to suspect that the symptoms are dependent on a constipated or loaded state of the bowels, or their irritation from the existence of unwholesome aliment, purgatives should be administered freely and frequently; and those of the more active kind should be employed. As this state of the *primæ viæ* exists in a great many cases, it is not difficult to understand why the purgative plan of treatment has proved frequently successful. Where worms, and especially *tænia*, cause the irritation, turpentine, and other anthelmintics, will prove most

successful; and these cases also will swell the list of those who will be benefited by brisk and repeated purgatives.

Where there is reason to think that the disease is connected with the state of the uterus, occurring about the period when the catamenia should appear, and combined with symptoms of hysteria, those remedies will naturally suggest themselves which have a special power in causing this discharge, in obviating its irregularity, and in correcting its unhealthy character. The state of the teeth should also be looked to about the period of the second dentition; and even on the cutting of the *dentes sapientiæ*, as a probable source of irritation;—and the gums should be lanced, or the decayed roots of the first set removed, according to circumstances.

Where the disease has arisen from a metastasis of rheumatism to the fibrous structure of the theca of the cord, it ought to be treated in the same way as pericarditis,—by depletion, general or local, antiphlogistics, and the employment of mercury, carried to slight salivation.

In a very numerous class of cases which owe their origin to sudden emotion, producing a strong impression upon a weak and excitable nervous system, the patient will be most benefited by all those remedies which improve the general health, and give vigour and tone to the nervous and muscular systems. The most severe case I ever saw recover, was cured in a few days by divided doses of port-wine, in which enough of sliced rhubarb was steeped to render it gently aperient. Various vegetable tonics have had their advocates; but bark and sulphate of quinine may be taken to represent them all. The metallic salts and oxides have, however, of late years, been generally preferred. Sesqui-oxide and sulphate of iron, sulphate of copper, oxide and sulphate of zinc, nitrate of silver, and arsenite of potassa, have all been tried, and found, in different hands, to succeed. The testimonies in favour of sesqui-oxide of iron in large doses, and of sulphate of zinc, are perhaps the strongest. On the latter remedy I have generally, in the cases which I have just alluded to, most relied; and my expectations regarding its efficacy have seldom been disappointed. I have found it necessary to administer much larger doses, however, than are usually given; good effects seldom being perceptible until twelve or fourteen grains

are taken three times a-day. By gradually increasing the quantity a single grain at a time, even much larger doses than this may generally be employed, without exciting sickness, and with the best effect. I have known half-drachm doses, thrice a day, taken for several weeks in succession.

Sulphate of zinc, however, will not be borne by all stomachs, even in small doses; and we are then obliged to give up its employment, long before we have attained even the minimum dose requisite to give it a fair chance of controlling the disease. In such cases, I generally have recourse to the liquor potassæ arsenitis, cautiously increased in its dose from three to twelve or fifteen minims, according to the age and strength of the patient, and other concomitant circumstances. I believe this is the most powerful remedy of all—at least I have found it so, in several obstinate cases; but I am deterred from employing it, where other remedies will succeed, from the sickness and griping pains which it is apt to cause, and from some fear that the constitution may be permanently injured by its continued employment.

As an external remedy, the shower-bath may be very often advantageously used, in conjunction with internal means; and I have even tested its efficacy with success, when used alone. In St. Petersburg, I am informed by a Russian physician, a new practice has, within the last year, been adopted with eminent success in obstinate cases of chorea. The patient is placed in a bath as hot as he can bear it; kept there for half-an-hour; and, when thus thrown into the most profuse perspiration, is suddenly plunged into cold water.—I have not ventured to try this method of producing a sudden shock; or rather, I should say that opportunity has been wanting, since I have been made acquainted with it; but in an extreme case, and when other remedies had failed, I should, on the testimony I have received in its favour, not hesitate to employ it.

The treatment by electricity is very advantageously revived at Guy's Hospital. De Haen, in 1761, gives many examples of cures effected by it; and among them, several girls, who were the subject of chorea, were electrified for periods of from one to two minutes; and in all of them perfect cures were effected. The experiments, however, were by

no means on so extensive a scale as those detailed by Dr. Golding Bird; to whose Paper, in the last Number of these Reports, I beg to refer for particulars; as well with regard to the method of applying the remedy, as to the success which, in numerous instances, followed its employment.

There has probably never been so complete an opportunity for trying the medical effects of electricity and galvanism, in all their varieties, and in all diseases, as in the Electrical Apartment at Guy's Hospital. The apparatus is most varied and complete; male and female assistants are constantly in attendance; and, besides the intelligent and scientific operator, there is a clinical clerk, who reports the cases, and the effects of treatment;—so that a body of medical evidence, with respect to the powers of this agent, is gradually accumulating, and will, as I trust, from time to time continue to be presented to the Profession.

In conclusion, I beg to express my thanks to Messrs Forster, Iliff, and Withecombe, my clinical clerks, for the kind aid they have afforded me, in recording the cases in this paper, as well as those in my paper on Epilepsy.

