

**Two cases of rheumatic insanity : read at a meeting of members of the Medico-Psychological Association, held at the hall of the Faculty of Physicians and Surgeons, Glasgow, April 27th, 1870 / by T. S. Clouston, M.D.**

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TWO CASES OF

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# RHEUMATIC INSANITY.

READ AT A MEETING OF MEMBERS OF THE

MEDICO - PSYCHOLOGICAL ASSOCIATION,

HELD AT THE

HALL OF THE FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW,

*APRIL 27th, 1870.*

BY

T. S. CLOUSTON, M.D. EDIN.

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GEO. P. BACON, LEWES.



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## TWO CASES OF RHEUMATIC INSANITY.

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C. M., admitted January 17th, 1870, æt. 24. Married; wife of sailor; can read and write; Church of England; from Whitehaven.

*History.*—First attack of insanity. Mother died of consumption. Father alive and well, and no relative insane or rheumatic. In health she was of reserved and quiet, but of nervous disposition, steady respectable habits, and fond of her children. The predisposing cause of her illness seemed to have been an accumulation of debilitating and depressing influences; viz., ill-usage by her husband, poverty, cold, hard work, with insufficient food during the three years since she was married, and having nursed her second child for fifteen months up to the period of her attack. These things caused a certain amount of depression of spirits. The exciting cause of her malady was an attack of rheumatism, not of a very acute character, which had lasted for two months before she became insane. She had pains in the back of her neck, pains and much swelling of fingers, hands, feet, and legs, and some feverishness; but she was never so bad as to be quite confined to bed. A week before admission she quite suddenly ceased to complain of her rheumatic pains, and simultaneously with this relief she showed signs of mental derangement, and violent chorea of head, arms, and legs commenced. Her first mental symptoms were a sort of absence of mind and inattention to what was passing around her, taking no notice of questions put to her or of her children. Before being sent to the asylum, in addition to this mental inattention, there was great excitement. She tore her clothes, and tried to jump out of a second-story window into the street. She was quite sleepless, and the choreic movements had increased greatly in intensity. Her limbs were never still a moment, and she threw her whole body about. She had to be sent forty-five miles by rail to the asylum.

*State on admission—Mental.*—She is much excited, her memory almost gone, and with difficulty can be got to speak at all in answer to questions, but talks incoherently in monosyllables about the doctor who had attended her. The only question she can be got to answer is to tell her name. The existence of delusions cannot be ascertained.

*Bodily.*—She is a dark-complexioned woman with black hair; rather thin, muscles flabby. Eyes dark brown and sparkling feverishly, pupils contracted, equal in size. There are most violent choreic movements of the muscles of her face, head, arms, and legs. Anything she attempts to say or do voluntarily is accompanied by the most violent grimaces, twitchings, and contortions; reflex action diminished. Cannot articulate more than single words at a time, and those imperfectly. Can not walk, and was carried with extreme difficulty; no tenderness of spine, lungs normal, respiration twenty per minute, heart beating quickly but regularly, no cardiac murmur. Pulse 108, strong. Tongue clean and moist; won't take food. Urine clear, acid, sp. gr. 1015, no albumen or deposits. Had not menstruated since beginning of last pregnancy. Temperature 100.4°. Several bruises on body, especially over right buttock.

*Progress of Case.*—She was carried to bed and ordered beef-tea and some brandy. She did not sleep, and on the following day the choreic movements ceased in legs, which became now quite paralysed, and nearly devoid of common sensibility; the reflex action in them was gone. Bladder paralysed, and urine had to be drawn off once, after which she could always pass it. Muscles of eyelids and eyes quite under control. Not so the tongue, which she can scarcely put out at all, and then with a jerk to one side. Mental excitement abated, and speaks better. M. T. 99.4°, E. T. 99.6°, M. P. 80, E. P. 84. Takes liquid food; 8oz. wine, strong beef tea, and extra diet.

She improved slowly until on the 23rd January (six days after admission) her state was as follows: "Chorea much less severe, complains of pain in knees, evidently of a nervous kind, for pressure slowly and carefully made does not increase it. Common sensibility somewhat exaggerated in legs, and some power of voluntary movement has returned to them, but almost no power of reflex movement. Takes food well, bowels regular, no sweating, mentally confused, depressed, no memory, suspicious, won't believe a word said to her, wonders where she is and how she came here. M. T. 98.4°, E. T. 99°, M. P. 108, E. P. 100."

24th Jan.—To-day twitching of fingers only, except when she does any voluntary movements. More power of voluntary movement in left leg than right, which is almost paralysed. Right knee slightly swollen. Reflex movement slight, and more in left than right leg. Tongue twitches when put out, and goes towards right side. Temp. the same. She has hallucinations of sight and touch, saying that an old woman comes behind her and eats her food, so that she cannot get any of it, and that one foot has been cut off. Is depressed, weeps and groans.

29th Jan.—Has had a relapse; chorea worse in left arm; complains of pains in arms and legs. Complains of a burning feeling all over her. A large slough forming in right buttock, where it had been bruised. She complains much of the pain of this. She still can't tell quite the place touched on her legs, but when pinched she screams. Requires to be fed with a spoon, shows an aversion to food, though she is evidently hungry. M. T.  $100^{\circ}$ , E. T.  $99^{\circ}$ , M. P. 116, E. P. 116. She has no affection of sight, no sparks or motes before eyes.

5th Feb.—She now has so far recovered the power of her legs that she can stand. Chorea almost gone when she is making no voluntary movements. Mentally a mixture of stupor and depression, as before, and the hallucinations of sight and touch remain. M. T.  $99.8^{\circ}$ , E. T.  $101^{\circ}$ , M. P. 120, E. P.  $120^{\circ}$ .

She gradually improved, and her temperature fell until, on the 19th February, she was reported as having only very slight chorea in hands, but as still complaining of the pains in legs. Mentally she was still confused, but her memory was returning. M. T.  $98.2^{\circ}$ , E. T.  $98^{\circ}$ , M. P. 94, E. P. 100.

She did not progress quite steadily, for on the 23rd Feb. her M. T. was  $99.2^{\circ}$ , E. T.  $99^{\circ}$ , M. P. 100, E. P. 108, and was some days worse with the chorea than others; but yet she was so far improved as to be, on the 15th March, out of bed nearly all day, able to walk, but the reflex action was much impaired in legs, and the left hand partially paralysed, and she had the sensation as if she did not feel the ground under her feet. Tongue now is simply unsteady when put out. Mentally less depressed, but confused; very sceptical and very much inclined to hide herself from observation; fancies she is watched. Temp. down to  $97.8^{\circ}$  in the morning. Is 120lbs. in weight.

2nd April.—“Believes now what she is told, and is almost rational; but her right hand is swollen, though quite painless.



Chorea rather worse, and she can't sleep so well as usual." The sleeplessness increased, and the choreic movements began to trouble her exceedingly at night, and on the 4th her M. T. was  $99.2^{\circ}$  and her pulse 104 and weak. As an experiment I gave her twenty grains of chloral in the morning, which made her slightly drowsy, and quite stopped the choreic movements till the evening, when they came on again, and she could not sleep. I then gave her forty grains of chloral. She slept soundly; the chorea ceased; her temperature next morning was  $97.3^{\circ}$ , and her pulse 84 and stronger. Her mind had not been affected during this little aggravation of the chorea. The swelling of the hand remained for a day or two longer, and then gradually disappeared. Still the reflex action in foot was diminished, and she complained of intense heat of hands. Wound on buttock healed up slowly.

22nd April.—No chorea now except when she smiles; she then grins and looks nervous in her movements. Sleeps and eats well. Industrious and rational. Has only gained 2lbs. in weight in a month. M. T.  $98.4^{\circ}$ , E. T.  $98^{\circ}$ , M. P. 96, E. P. 84.

Her recollection of the coming on of the disease is imperfect, and she has no remembrance of the choreic movements beginning. Her mind must have been affected quite simultaneously with their appearance or before them. She does not even recollect the rheumatic pains going away. She says that she had no conscious feeling of weakness or exhaustion from the nursing before the rheumatism began. Her recollection of events which occurred during the first month of her illness is most imperfect.

26th April.—During the past week has gained five pounds in weight, and is now cheerful, rational, and says she feels perfectly well. Muscles under her control.

T. F., admitted 1st Feb., 1870, *æt.* 19, single. Apprentice to a boiler-maker; can read and write; Church of England; from Carlisle.

*History.*—First attack of insanity. Father died of traumatic tetanus. Mother, brothers, and sister alive and well. No near relative insane or rheumatic; but mother nervous and maternal aunt eccentric. He was a quiet lad of steady habits. The predisposing cause of his illness seems to have been two attacks of chorea which he had; one at the age of seven, caused by a cold, and which lasted six days; and another at

the age of thirteen, of a more slight character. His mind did not seem to have been affected at all during those attacks.

The exciting cause of his illness was an attack of acute rheumatism, which had lasted for three weeks before admission; had been preceded for a week by a severe catarrh, and had been caused by exposure to cold one night after being heated with work inside a boiler.

He was feverish, and had much swelling and pain of wrists and feet, but no heart symptoms. He had a remission, and during this, when he attempted to read, had bright dots before his eyes. Six days before admission choreic movements began in left arm and leg, and although no particular mental symptoms were noticed at first, except a strangeness of manner, restlessness, and inattention to things going on round him, yet the insanity must be put down as dating from that time, as now when he is well he has no recollection of anything that occurred from that time. He cannot remember the jerking movement of his limbs at all, though up to that time he remembers all that occurred. He still complained of pain in the joints affected with the rheumatism from the choreic movements, but in two days he became much excited in mind, ceased altogether to complain of the pain in his wrists, and the swelling got rapidly less. He insisted on getting out of bed, and attempted to throw himself out of the window. He imagined his mother was going to poison him. The choreic movements got much worse. He was violent, and attempted to bite those who restrained him. The swelling of his wrists gradually got less after the chorea commenced, after which he scarcely ever slept. He began to take his food much better after the mental symptoms appeared than before.

*State on admission—Mental.*—He was much excited, quite confused, and incoherent, can't remember anything, or answer questions, and evidently has suspicions of persons round him.

*Bodily.*—He is a thin, rather over-grown looking lad, of fair hair and complexion, looks pale, and his muscles are flabby. About 5ft. 11in. He throws his arms about continuously in a most extraordinary way, his head jerks from side to side, and his facial muscles are in constant action, giving him a most extraordinary appearance; he walks unsteadily and with difficulty, the muscles of his legs being imperfectly under his control. Reflex action in right leg gone, and much

diminished in left. Sensibility somewhat impaired in both legs. Pupils equal, lungs normal, heart's action tumultuous, but no abnormal sounds. Tongue white, furred, and projected out with a jerk, and unsteady. Takes food. Left wrist swollen, but only slightly tender. Urine acid, no deposits. Sp. gr. 1030: M. T. 101.1°, E. T. 100.6°. P. 120. Weight 149½lbs. Put to bed in padded room.

*Progress of Case.*—He did not sleep the first night, but kept his bed the next day, the chorea not being quite so bad. Took food, but seemed suspicious of it. To have beef tea and 4oz. wine extra to diet. M. T. 99.6°, E. T. 100°, M. P. 96, E. P. 112. Swelling of wrist subsiding, confused and stupid in mind, not so excited.

4th Feb.—Sleeps better, more rational, can answer questions, but is still confused. Cheeks flushed. Tongue clean. Bowels costive. To have castor oil. Right pupil slightly larger than left. M. T. 99.2°, E. T. 100°, M. P. 108, E. P. 100.

Feb. 8th.—Still confused in mind. Imagines it to be a different day of the week from what it is, and will not believe when told what day it is, and affirms it is the 29th January (the day after he became affected in mind). He wants to be sent to gaol. Imagines the people about him watch and annoy him. Choreic jerking gone from all but left hand and arm, and tongue. Pupils equal. Temp. down. M. T. 98.4°, E. T. 99°; pulse 96.

Feb. 20th.—Has hallucinations of vision. Says he had a vision of hell, and wants to commit suicide; looks still confused, suspicious, and frightened. Won't believe what he is told. Sometimes refuses food, saying it is poison; that it tastes like poison. Fancies that he is a prisoner here, and is closely watched, and that he is quite different from the other people. M. T. 98.4°, E. T. 98.6°, M. P. 96, E. P. 96.

March 10th.—Mind clouded, memory impaired. Sleeps well. Twitchings of tongue still, and some crankiness of legs. Can't stand and look to ceiling without at once becoming giddy, and would fall.

March 31st.—Delusions now gone, memory returned. Talks rationally about his illness. Still slight twitchings of tongue, which he generally puts out to right side. There is a certain unsteadiness in the way he puts down his feet. Can carry things steadily with arms and hands. He still cannot read a book for more than a few minutes at a time, on account of "sparkling dots" passing before his eyes. Has begun to gain in weight. M. T. 97.2°, P. 66, much stronger.

April 16th.—When he speaks there are still slight twitchings of edges of mouth. Tongue unsteady. Gait still not firm. Is regaining the elasticity of mind and good spirits one would expect in a young man.

April 23rd.—Seems now quite well in mind, and has lost all traces of the chorea. Can, for the first time, stand steadily on one leg, and look up to the ceiling. Can read without seeing the dots. Laughs about his former delusions. Memory of events which occurred during his illness very dim. Is gaining three pounds a week in weight. M. T. 98.2°, E. T. 98.4°, M. P. 76, E. P. 66.

April 25th.—M. T. 97.8°, E. T. 97.6°, M. P. 84, E. P. 66; weight 156lbs.

*Remarks.*—I have called the above cases Rheumatic Insanity instead of Choreic Insanity, because I regard them both as clearly caused by the rheumatic poison. Rheumatism as a cause of insanity had been mentioned by several writers previously, but Griesinger directs special attention to acute rheumatism as one of the rare causes of insanity, and gives two cases, one in his own practice and the other quoted from Flemming.\*

He thinks that mental disorders should not be considered as the mere sequel or accidents of convalescence in rheumatism, as in fevers; but “They are only a protracted form of that cerebral affection appearing in various forms, and in its acute development often so very dangerous, which frequently appears in acute rheumatism, either simple or complicated with cardiac inflammations, which leaves behind it no definite anatomical changes, and therefore is most conveniently designated rheumatic cerebral disorder.” He mentions, as among the symptoms in different cases, acute delirium, coma, melancholia with stupor, mental weakness, and says that these are “sometimes associated with chorea attacks.” He also mentions the articular affections as frequently disappearing when the mental symptoms begin, the former again reappearing when there is a remission of the latter. The first of his cases was that of a woman who had been insane previously, some years before, who had acute rheumatism, was at first maniacal, then depressed with stupor, and when the mental state improved the joints again became swollen and painful. She had a slow convalescence of three months. He specially mentions the absence of feverishness during the men-

\* Griesinger, “On Mental Diseases.” New Syden. Soc. Trans., p. 188.

tal attack, and says nothing at all about chorea. In his second case the rheumatism was more chronic, and as the pain and swelling of the limbs disappeared the patient "began to complain of drawing pains along the spine, restlessness, and stretching, and having occasionally jerking movements in the extremities. In a few days mental depression appeared, which increased, assumed the form of apathy, and finally of complete insensibility." Nothing is said about feverishness, and the length of time occupied by convalescence is not mentioned. The patient recovered.

Trousseau goes very fully into "Cerebral rheumatism,"\* and treats also of the almost constant connection between chorea and impairment of the intellectual faculties,† and of the connection between chorea and rheumatism. As regards the first, he says that "articular rheumatism has no great tendency to develop cerebral manifestations;" and that there are six forms of cerebral rheumatism, viz. :—1, the apoplectic; 2, the delirious; 3, the meningitic; 4, the hydrocephalic; 5, the convulsive; and 6, the choreic: all of which he regards as "an expression of the same cause, and of the same anatomical lesion, if there be one; and they no more deserve to be regarded as distinct species than the delirious or convulsive form of typhoid fever or scarlatina." He quotes, with approval, Dr. Sée's opinion that chorea is merely a special manifestation of rheumatism.

Sanders relates five cases of a somewhat similar kind to those I have mentioned;‡ but he expressly says there was no fever (it is not stated that the thermometer was used), and the choreic movements are not much dwelt on. They only occurred in some of the cases.

M. Thore relates a case in which chorea appeared during an attack of acute rheumatism with endocarditis and pleurisy, and in two days alarming mental symptoms, hallucinations of sight, hearing, and touch followed.§

Of English writers, Dr. Bright, Sir Thomas Watson, Dr. Latham, Dr. Burrows, Dr. Todd, Dr. Fuller, and Dr. Chambers have related cases where cerebral symptoms have appeared in acute rheumatism.

Then the occasional occurrence of simple chorea as a sequela of acute rheumatism is well-known. A very generally received explanation of this is that of Dr. Hughlings

\* Trousseau's Clinical Medicine. Syden. Socy's Trans., vol. i., p. 513.

† *Ibid.*, p. 386. ‡ Zeitschrift f. Psychiatrie, 1863, p. 214.

§ Ann. Med. Psychologiques, 4th serie. T. v., p. 157.

Jackson, viz., that small particles of fibrinous matter get detached from the roughened valves of the heart, and cause embolisms in the spinal cord.

In the last number of the "Journal of Mental Science," in the admirable abstract of German psychological literature by Dr. Sibbald, mention is made of the views of Dr. Arndt on the relation between chorea and mental affections. He says there are cases in which the most extensive mental disorder is evinced by movement. "He regards both the physical and mental symptoms as proceeding from the same cause, and presenting many analogies. He does not believe in the existence of chorea without more or less simultaneous affections of the intellectual faculties. The abnormal movements are mere symptoms of a much more extensive disorder, involving the entire nervous system, and never confined in their effect to the spinal cord. The so-called pure chorea, in which mental symptoms are said to be absent, but in which they are in fact only feebly manifested, is really the mere forerunner of a fully pronounced psychosis. But just as every morbidly depressed emotion and every morbid exaltation of consciousness does not necessarily lead to melancholia, mania, or dementia, so neither does chorea."

Dr. Maudsley describes the mania of chorea as of a peculiar character, accompanied by utter incoherence of ideas and entire inattention to anything going on around the patient. He thinks that this perverted psychical state is analogous to the disjointed and irregular movements, and seems to result from each group of cells acting by itself without reference to the usual co-ordination of all the nervous ganglia.

Taking those facts and those theories into consideration, is any light thrown on the relations between rheumatism, chorea, and insanity, or on the connection between motor and psychical abnormality, by the two cases I have related? Was the rheumatism the true cause of the mental symptoms, of the chorea, or of both? Were these abnormal affections of motion and the perverted psychical manifestations the result of an identical and simultaneous lesion affecting both the motor and mental ganglia? Or was the one dependent on the other, secondary to it, or sympathetic with it? Is it probable that in those two cases we have a distinct form of insanity, a form about which much may be ascertained by a careful study of its relation to and its co-relation with the motor symptoms? May not even the great general question of the connection between

mind and brain—that question of questions for us as students of brain disease with mental symptoms—receive some elucidation from the careful study of two such cases, in which the varied functions of the nervous system, the nutrition and heat of the body, the power of motion, of sensation, and of reflex action, the special senses, the memory, and the intellectual processes were all affected at the same time, and recovered their normal action about the same time? Is it not probable that the study of some such rare and peculiar and universal lesions of the cerebro-spinal nervous centres may yet prove the key to many an unsolved question in psychology, and may do more to place the study of mental aberration on a true basis than anything else? Should we not eagerly look out for cases, therefore, where there are causes or symptoms, or pathology which are definite and tangible, and which we can study in relation to other better known diseases? Such questions are my excuse for having entered into those two cases at so great a length, and for the length of the observations which follow.

I think it cannot be doubted by any one that the rheumatism was the true cause both of the chorea and the insanity in these cases. The likeness of the one to the other in nearly all their symptoms, in the coming on of the disease, in the choreic movements, in the paralysis of motor power, in the deadening of reflex action of the legs, in the hallucinations of sight, touch, and taste, in the want of memory, in the acute delirium with unconsciousness of anything going on around, succeeded by confusion of ideas, suspiciousness, and sluggishness of mind, the high temperature increased at night, the tendency to improvement in all the symptoms coincidentally with the lowering of the temperature, and the slowness of the convalescence in both—all these things show that the same kind of lesion of the nervous system existed in both. And when this is taken along with the fact that in both patients this train of symptoms suddenly appeared in the course of an attack of rheumatism, that in both the symptoms of the articular rheumatism at once disappeared, while the fever *did not do so*, and that in the woman, when she was nearly well, rheumatic swelling of the knuckles of one hand appeared along with aggravated choreic movements, sleeplessness, and an increase of temperature, we have very strong data, not only to conclude that rheumatism was the cause of those symptoms, but that here we have true and typical examples

of a rheumatic insanity, which must be classed by itself as a special form of mental disease—a true pathological entity.

As to how the nervous system was affected, may we not form a probable hypothesis? We know how the rheumatic poison, whatever it is, affects the other tissues. We know also something of the kind of lesions of the spinal cord which are needed to produce paraplegia and the total absence of the power of the reflex action, even if we do not know so much of the pathology of chorea and insanity. In regard to the motor affection of the legs, we saw that at first there was violent choreic movement, which was succeeded by complete paralysis of motion, no power of reflex movement, and greatly diminished common sensibility. As the power of motion returned, which was in the course of a few days, there was hyperæsthesia and a sensation of heat. Does not this sequence of phenomena indicate a serious but transitory interference with the functions of the nerve-cells and fibres in the spinal cord, such as might be produced by slight rheumatic inflammation and infiltration of the connective tissue of the cord, causing pressure on the nerve elements? If the nerve-cells or fibres had been themselves attacked with any inflammatory affection, they would not have so soon regained their function. We know the rheumatic poison has a special tendency to affect the connective tissue. The rheumatic pains in the limbs are caused, we cannot doubt, by simple pressure on the small nerves. And if the cord was affected in this way, can we doubt that the same thing took place in the ganglia that minister to special sensation, and also the great hemispherical ganglia? The raised temperature, the strongly acid urine, remained the same, whether the rheumatic inflammation was in the joints or in the central nervous system. But when the inflammation had passed away, the effects were far longer visible in the delicate tissue of the nervous centres. That all the cerebro-spinal tract was affected simultaneously in those cases is shown by both patients not now remembering anything that occurred from the time the choreic movements appeared, though for the first day or two intelligence did not seem to be abolished.

In both cases the insanity might be described as a metastatic one, if such a term were strictly applicable to the effects of a poison in the blood whose effects are first seen in one set of tissues, and when it attacks another set the effects in the former cease. The slight relapse in the woman, where the hand and the spinal cord were both affected at the same time, showed, however, that the effects of the toxic agent need not



be absolutely limited to one sort of tissue. If we believe this theory, that of embolisms falls to the ground, as an explanation of the chorea of rheumatism with or without mental symptoms. There was no trace of a tendency to heart disease in either case. The effects of embolism could not have so soon passed away, even if it is conceivable that it could have been universal in all parts of the brain and cord.

It would seem that in such a lesion of the spinal cord as occurred in those two cases the common sensibility was the last to be abolished and the first to come again; then the voluntary motor power, then the reflex action, and last of all the power of the nerves which preside over nutrition. That the sensory and motor powers should have been less interfered with than the reflex action is what might have been expected, when we consider that the greater number of the nerve-fibres ministering to the two former functions merely pass *through* the cord, while the more delicate nerve-cells forming the ganglia which subserve the latter function, lie *in* the cord itself, and the cord was evidently more affected than the brain.

It was not until all the other functions were restored that the patients gained in weight rapidly. The slough that formed over the buttock from the bruise, and the slow healing of the wound, showed how much the nerves of nutrition were affected at first. In regard to the special senses, sight was first affected, and then taste, and they were restored in inverse order. Of the purely psychical functions memory and the power of voluntary attention were first affected, then the coherence and balance of the mental powers was upset, and lastly the whole of the mental operations were merged in the acute delirium and utter incoherence present. Curiously in both patients there were suspicions of those about them, and entire scepticism as to what they were told about the most simple matters during convalescence. Yet there was never in either of them any tendency to mistake the identity of any one about them, and one of the very first mental acts they both performed correctly, was to take notice of persons about them, and know them again when they saw them. The healthy elasticity of mind and enjoyment of life, which is the most certain proof that the brain is performing all its functions normally, was the last to return, and corresponded to the restoration of function of the nerves of nutrition, and the commencement of a rapid increase in weight of the whole body.

I am aware that the high authority of Trousseau is rather

against my theory of rheumatic inflammation of the connective tissue of the cerebro-spinal centres. He says that no anatomical lesions have been found in the most severe cases after death; but both Sir T. Watson and Dr. Fyfe report cases in which severe lesions were found; and, considering the short time which has elapsed since the very existence of the *bindegewebe* in the nervous centres was discovered, taking into account its small amount and delicate structure, and demonstrated oneness with the connective tissue in the rest of the body, it seems not too great a presumption to oppose his strongly expressed opinion in this matter. His opinion was against rheumatic inflammation of the *membranes*, and he was probably right. The connective tissue of the cord might well be slightly affected with a rheumatic inflammation, and yet the membranes be quite intact. He refers to the examples of ordinary chorea, of tetanus, and of hydrophobia, where the utmost interference with all the normal functions of the brain and cord has taken place, and yet no inflammation or other obvious lesion is generally found after death, and asks why, therefore, is it necessary to suppose that such lesions exist in cerebral rheumatism? The difference is obvious. In those affections there is no increased heat; in the rheumatic insanity we have seen this to exist as an essential part of the symptoms, and to be aggravated with any aggravation of the nervous symptoms. It does not appear that Trousseau knew this, or took it into consideration. If there was one point of striking importance and interest in those two cases it was the increased temperature; and I am not aware that attention had been directed to this by anyone before. It affords another example of the immense importance of the use of the thermometer.

It will have been observed that I used almost no treatment in those two cases, except abundant diet and alcoholic stimulants, because in the first place I had never seen such a disease before, and did not know how to treat it, and in the second place I was anxious to let them run their natural course, so that the effects of treatment in future cases may be more certainly known.

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