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# ELECTRICITY IN NEURASTHENIA

BY

JAMES METCALFE M.D.,

HONORARY SURGEON, ST. CATHERINE'S HOME FOR CANCER AND  
INCURABLES, BRADFORD

[Reprinted from "The British Medical Journal," February 18, 1911]

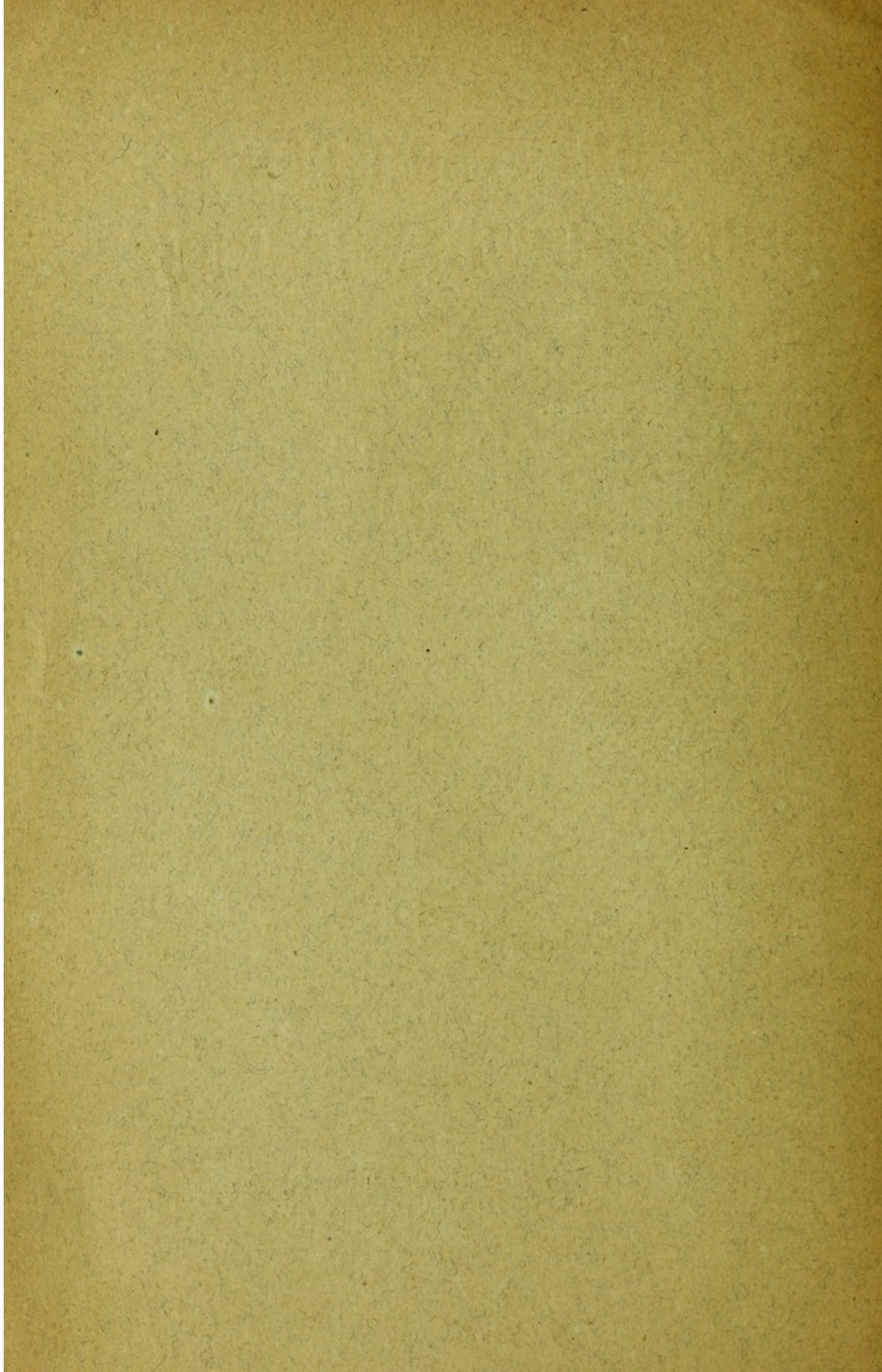


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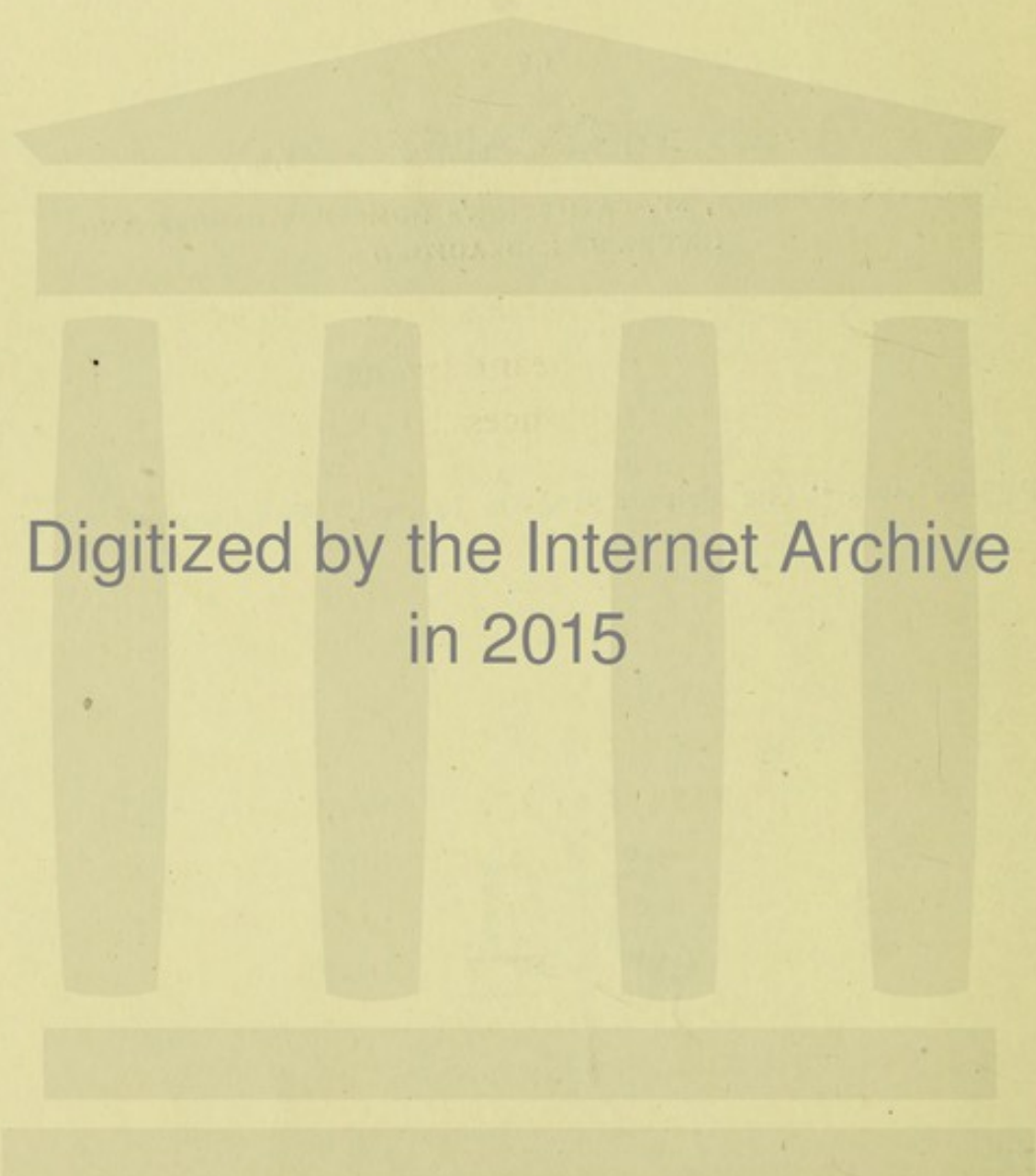
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# Electricity in Neurasthenia.<sup>1</sup>

By JAMES METCALFE, M.D.

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I WISH to bring before you the uses of some forms of electrical applications in the treatment of neurasthenia. But before doing so it is necessary to consider for a few minutes what is generally meant by neurasthenia. It is difficult in a few terse sentences to define this disease. The term has been applied so widely and to such various and varied symptoms that it would be impossible to discuss it exhaustively in the time at my disposal. But I will take the main symptoms as they have exhibited themselves in the cases I have had to treat. These may be general or local, or a combination of both. The patients are usually irritable or depressed. They are very anxious and consider their condition as extremely dangerous to life. They frequently are in dread of becoming insane. Sometimes the brain appears to be too active, and they are constantly pestered by all kinds of possible and impossible problems presenting themselves to their imagination day and night. They dread meeting people; they fear they are victims to some imaginary disease. They are frequently worried and are annoyed by the veriest trifles. Everything is a cause of complaint. They are

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<sup>1</sup> A paper read before the Bradford Medico-Chirurgical Society, January 17, 1911.



great egoists and feel compelled to discuss their troubles with every patient listener. Many of them sleep badly—in fact, insomnia is one of the most trying symptoms of the disease. They suffer from flushes and fullness in the head and sometimes severe headaches. Frequently there is a sense of oppression in the chest and difficulty of breathing. Tachycardia is common, and the patient believes he or she is suffering from severe heart disease. Many suffer from gastro-intestinal neurasthenia. Feelings of distension, noisy eructations, borborygmi, and gurgling are complained of. Anorexia is usual. There is often aching in the eyes and neuralgic pains in the head. Spinal symptoms are common—localized pains in the back, disturbances of sensation, and intercostal pains. In some cases there are pains in the extremities. The word that probably sums up the condition of the patient more than any other is—emotional.

The conditions which might be confused with neurasthenia are melancholia in which there are actual delusions, and hysteria in which there are marked hysterical paroxysms. Of course, tabes and general paralysis might also exhibit some of the symptoms mentioned—in their early stages at any rate.

There is apparently no discoverable morbid anatomy in these cases, but there is undoubtedly a pathology. Hypertension appears to be a frequent concomitant, or perhaps a cause of the disease. According to Gay, the presence in the blood of alimentary toxins, generally acid and with a vaso-constrictor effect, and the retention of extractive substances of the xantho-uric series will cause hypertension. I believe, too, that a rigidity of the walls of the vessels set up by some central irritation of the nervous system is often present, and is a cause of a large number of the subjective symptoms. I have noticed, too,



that this hypertension is not so readily observed by examination of the pulse as one would have thought. On examining the pulse of several neurasthenic patients the impression gained was that the pulses were not high tension, but the sphygmomanometer usually revealed a considerable amount of hypertension. The point I am anxious to show is this: That the symptoms declined *pari passu* with a decrease in the sphygmomanometric readings until, if the latter could be reduced to nearly normal, the patient became well.

I am not now concerned with the usual methods of treating neurasthenia. The cases I have had in hand have all received skilful medical treatment before they were sent to me. One or two had had Weir Mitchell treatment in which, of course, a certain amount of electrical energy is used. The currents I have treated these cases with have been those known as high frequency, or D'Arsonvalization; or, as an alternative, static electricity produced by a Wimshurst machine. I may say, as a rule, that where the neurasthenia has been associated with marked metabolic deficiency, or of the gastro-intestinal type, I have found high frequency currents the most effective; but if the symptoms pointed more to a condition of a pure neurosis, I have observed that static electricity produces the best results. (Here followed a description, with illustrations, of the high frequency and static machines used.)

I wish to draw attention to a few cases treated by these methods during the last few years. I will not record a large number, because they give, to a great extent, a mere recapitulation of the same class of disease. I think I may say that in most cases the results of treatment have been permanent:—

(1) Unmarried woman, aged 46. Gastro-intestinal neurasthenia, flatulency, tachycardia, panophobia; ill six



months. Received auto-condensation high frequency on the couch thrice weekly from April 7, 1904, to May 13. Cured.

(2) Lady, aged 36. Insomnia, restlessness, depressed ; great fear of railway travelling (sidero-dro-mophobia) ; pains in limbs and in breasts ; ill many months. Twelve applications of general static electricity. Cured.

(3) Gentleman, aged 38. Depression, insomnia, distension of stomach, flatulency ; ill for more than twelve months. Had been treated, in addition to ordinary methods, previously by light baths and Weir Mitchell treatment. Received 300 to 500 milliampères of auto-condensation for half an hour at a time and a few minutes' application of a glass vacuum electrode over stomach. Attended eighteen times between June 14, 1907, and July 21. Cured, and has remained so.

(4) Mr. P., aged 35. Remarkable case. Began with nervous symptoms in 1903 ; always frightened, dreading what he could not describe ; constantly thinking in bed ; pain in head, with fullness mostly at back of head ; always burning pains in stomach and sense of distension ; bowels somewhat loose ; terrible insomnia, had never slept more than an hour or so consecutively for years. Had nineteen applications of auto-condensation, 400 to 800 milliampères of current, for half an hour at a time, and local glass electrodes to stomach, head, and spine. Blood tension, according to the Riva-Rocci, on first treatment 190 ; at end of treatment only 120 to 130. Cured, and has remained perfectly well for over two years.

(5) Miss S., aged 25. Nervous, depressed, insomnia, &c., many months. Twelve applications static electricity. Cured.

(6) Mr. W., aged 39. Twelve months before treatment began to lose appetite, could not sleep, and always tired ;



gets horribly depressed, sometimes feeling almost suicidal; bowels sometimes constipated, sometimes loose; very irritable. Treated by high frequency auto-condensation and glass vacuum electrode to stomach and head. Remained cured over two years.

(7) Gentleman, aged 59. More or less insomnia four or five years. Aching pains and fullness in the head; some distension and flatulency; insomnia now constant; arterial tension, 180. Had twelve half-hours' applications of auto-condensation and local electrodes to head and stomach. Now sleeps soundly, and arterial tension 120 to 130, and feels quite well.

(1) Lady, aged 33. Very neurotic; complains of her head, difficulty of breathing, and sobbing respiration; ovarian neuralgia; constant insomnia; blood tension, 160. After twelve applications of static bath slept perfectly, and difficulty of breathing, &c., disappeared. Blood tension reduced to 120.

I do not wish it to appear that every case of neurasthenia treated electrically is cured, nor do I suggest that every case of neurasthenia should receive this form of treatment. A large number of cases treated by rest, fresh air, drugs, and other methods, recover. But the cases I have quoted had been treated by the usual methods by the practitioners who referred them to me. They have been obstinate, obdurate—conditions not amenable to the usual remedies. Neurasthenia is a condition frequently seen by every general practitioner, and the anxiety this class of case gives him appears out of all proportion to the seriousness of the disease. I think it well to remember that when all other methods fail there is still a possibility of effecting a cure.

It will naturally be asked, How do the electrical currents act physiologically so as to cause the improvement as



seen in this class of case? Psychological effects may be produced at times by these methods, as may happen in every other form of treatment. But improvement and cure must in a series of cases be due, as in other methods, to powerful therapeutical effects.

In cases in which the blood pressure is high, as I have already mentioned, the effect of reduction of arterial tension may in itself produce the result. In the use of electrical machines there is always a large amount of ozone generated, and it is not impossible that the inhalation of this gas for half an hour at a time may have some power of improving the patient's condition.

D'Arsonval and others have demonstrated increased tissue changes, more rapid reduction of the oxyhæmoglobin in the blood and increased elimination of waste products in the urine. Not only the sympathetic nerves controlling the vasomotor system, but also those controlling the secretory, the thermogenic, and the peristaltic functions, are stimulated. There is a profound action on the protoplasm of cells everywhere, increasing their chemical changes. Usually an increased amount of urea is excreted, attended by a disappearance of uric acid showing the oxidation of nitrogenous material. It is said that the output of  $\text{CO}_2$  is sometimes increased from 17 to 37 litres an hour, and that there may be an increase in heat production from 79 to 127 calories an hour.



