

THE

BOSTON MEDICAL AND SURGICAL JOURNAL.

NEW SERIES.]

THURSDAY, APRIL 29, 1869.

[VOL. III.—No. 13.

Original Communications.

NEURASTHENIA, OR NERVOUS EXHAUSTION.

By GEORGE BEARD, M.D., Lecturer on Nervous Diseases in the University of New York.

I AM to speak to-night of a condition of the system that is, perhaps, more frequently than any other, in our time at least, the cause and effect of disease.

I refer to *neurasthenia*, or exhaustion of the nervous system.

The morbid condition or state expressed by this term has long been recognized, and, to a certain degree, understood, but the special name *neurasthenia* is now, I believe, for the first time presented to the profession.

It is quite recently, indeed, that the phrase nervous exhaustion has been popularized, at least as a term expressive of any special condition of the system. Prof. Austin Flint, in his Treatise on the "*Principles and Practice of Medicine*," devotes a brief space to this subject, and acknowledges his indebtedness to Dr. Fordyce Barker for first suggesting the phrase "*nervous asthenia*" as expressive of a special morbid condition. Besides this brief notice of Prof. Flint, this important condition of the nervous system has not, so far as I know, been dignified by a separate heading, or distinct chapter in any of our most approved treatises on the Practice of Medicine, although the general phrase "*nervous exhaustion*" quite frequently occurs in conversation and medical literature, and is now the common property of the profession.

My own attention was called to this morbid condition quite early in my professional life, and in the cultivation of the department of Neurology and Electro-therapeutics, I have enjoyed excellent opportunities both for the study and the treatment of all the various grades and phases of this frequent malady. As a matter of necessity in describing, recording and studying cases of nervous disease, I have for some time been

* Read before the New York Medical Journal Association.

VOL. III.—No. 13

in the habit of employing the term *neurasthenia* to express the morbid state that is commonly indicated by the indefinite phrase nervous exhaustion.

This nomenclature would seem to be justified by philological analogy, by scientific convenience, and by actual necessity.

The derivation of the term *neurasthenia* is sufficiently obvious. It comes from the Greek *νευρον*, "a nerve," *a*, privative, and *σθενος*, "strength;" and, therefore, being literally interpreted signifies want of strength in the nerve.

The character of this malady, if I be allowed to call it such, may best be understood by comparing and contrasting it with *anæmia*, a condition which has been more thoroughly discussed, and is therefore more vividly appreciated by the profession at large.

Anæmia (derived from *a*, privative, *ν*, euphonic, and *αιμα*, "blood") is to the vascular system what *neurasthenia* is to the nervous. The one means want of blood; the other, want of nervous force.

Both *anæmia* and *neurasthenia* may be the effects of acute or chronic diseases, and both may be either acute or chronic in their course. Thus *neurasthenia* may be the effect of wasting fevers, exhausting wounds, parturition, protracted confinement, dyspepsia, phthisis, morbus Brightii and so forth. *Anæmia*, as is well known, may result from the same diseases.

Both *anæmia* and *neurasthenia* may also be the cause of chronic and acute diseases. Thus *neurasthenia*, or nervous exhaustion, may give rise to dyspepsia, headaches, paralysis, insomnia, anæsthesia, neuralgia, rheumatic gout, spermatorrhœa in the male and menstrual irregularities in the female. *Anæmia* also is the source of many of these diseases, though perhaps it is more frequently the effect.

Anæmia and *neurasthenia* may cause each other; *anæmia* is often the result of *neurasthenia*, and *vice versa*.

Both *anæmia* and *neurasthenia* are most frequently met with in civilized, intellectual communities. They are a part of the compensation for our progress and refinement.

Anæmia and *neurasthenia* may run into
[WHOLE No. 2148.]

each other, and become so closely interblended that it is oftentimes impossible to determine which was the cause and which was the effect, or which is the ruling condition.

Both of these conditions, whether existing separately or in combination, are best treated by some form of constitutional tonics. In anæmia we give those tonics that directly and specially affect the *blood*; in neurasthenia we give those remedies that directly and specially affect the *nervous system*.

In regard to the pathology of neurasthenia we are compelled, in the absence of definite knowledge, to reason from logical probability.

My own view is that the central nervous system becomes dephosphorized, or, perhaps, loses somewhat of its solid constituents; probably also undergoes slight, undetectable, morbid changes in its chemical structure, and, as a consequence, becomes more or less impoverished in the quantity and quality of its nervous force.

That molecular disturbance, sufficient to give rise to the symptoms of nervous exhaustion, may take place in the central nervous system, is rendered logically probable by the fact that such changes can be produced artificially, as proved by the researches of du Bois-Reymond.*

We are, I think, driven to accept this view from what we already know of the brain and spinal cord—of their relation to the intelligence and activity, of their intimate chemical structure, of their diverse appearances in health and disease. We know that the intelligence of men and animals is proportioned to the quantity and quality of the cerebral contents, that the proportions of water, of phosphorus, of fat, and of the other solid constituents of the central nervous system vary more or less, with the age, and with the intellectual and moral capacity,† and that all forms of insanity‡ are dependent on *some* central morbid condition.

From these established facts we logically conclude that even the slightest and most transient disturbances of the nervous system are the results of correspondingly slight morbid changes of the brain or spinal cord, or of the peripheral nerves.

I admit that this view is speculative, but I feel assured that it will in time be substantially confirmed by microscopical and

* See Reynolds's System of Medicine, vol. II., p. 48.

† See analyses of L'Héritier, quoted in Prof. Draper's Physiology, p. 273.

‡ Maudsley's Physiology and Pathology of the Mind, p. 59.

chemical examinations of those patients who die in a neurasthenic condition.

Neurasthenia may result from any causes that exhaust the nervous system. Hereditary descent terribly predisposes to neurasthenia, just as it predisposes to all forms of nervous derangement. The law of *reversion* is frequently illustrated here, and sick headache, epilepsy or insanity or dyspepsia in the grandfather may skip over a generation and show itself as neurasthenia in the grandchildren. Among the special exciting causes of neurasthenia may be mentioned the pressure of bereavement, business and family cares, parturition and abortion, sexual excesses, the abuse of stimulants and narcotics, and civilized starvation, such as is sometimes observed even among the wealthy order of society, and sudden retirement from business.

The *diagnosis* of the neurasthenic condition is sometimes entirely clear, and again is quite difficult. The diagnosis is obtained partly by the positive symptoms, and partly by exclusion. If a patient complains of general malaise, debility of all the functions, poor appetite, abiding weakness in the back and spine, fugitive neuralgic pains, hysteria, insomnia, hypochondriases, disinclination for consecutive mental labor, severe and weakening attacks of sick headache, and other analogous symptoms, and at the same time gives *no evidence of anæmia or of any organic disease*, we have reason to suspect that the central nervous system is mainly at fault, and that we are dealing with a typical case of neurasthenia. But neurasthenia may be associated with anæmia and with almost every conceivable form of organic disease. In such cases it is sometimes very difficult to ascertain whether it is the cause or the effect. The history of the symptoms will help us to decide this question; which is, however, of little import, for in either case the general treatment will be substantially the same.

The *prognosis* in neurasthenia is as various as are the symptoms of the disease. Acute neurasthenia resulting from acute disease usually recovers rapidly; but sometimes becomes chronic, especially when the previous disease has been long and exhausting.

Chronic neurasthenia—of which form I am chiefly speaking—may result in paraplegia, in general paralysis, in neuralgia, in uterine disturbances, in dyspepsia, in chorea, in hypochondriasis, in hysteria, and in actual insanity; or under proper treatment it may go on to perfect recovery.

Chronic neurasthenia sometimes proves

directly fatal, without causing any organic disease; but such a termination is not usual. It is, *par excellence*, a chronic condition, and patients afflicted with it may last for half a century. We are all of us more or less familiar with such cases. I have a friend who has been afflicted with neurasthenia for more than fifty years, and yet during all this time he has been severely engaged in the complicated duties of a lawyer, a judge, and a man of business. There is not an organ of his body that has not suffered from this prolonged neurasthenia; from the time he was fifteen years old until now there has been no day in which he has been free from pain. Even anæmia has supervened, but though the lamp of life has often flickered, yet at the advanced age of seventy it still "holds out to burn."

It is an established fact that opium eaters who are poisoned and weakened by the drug, are comparatively exempt from many other diseases. Opium eaters, I believe, all agree that it is very hard for them to take cold while under the influence of the evil habit. Just so, neurasthenia seems to protect the system from many acute diseases that so often prove fatal to the hardy and muscular.

Ralph W. Emerson, in one of his essays, quotes an authority who very happily compares a republic to a raft, which never sinks, but always keeps our feet under water, while a monarchy is a stately ship that may at any time strike a rock and go down in an instant.

This comparison just as aptly illustrates the difference between the nervous civilized man and the hardy barbarian. From statistics that I compiled and arranged a few years since, it appears that the expectation of human life or average longevity has at no time been greater than in the present century; that in no other country is it so favorable as in our own, and that no class, on the whole, live longer than our leading brain-workers, who are, of course, peculiarly liable to be affected with chronic neurasthenia.

But though neurasthenic patients live, they "live at a poor, dying rate," and demand and need relief, and many of them are very fortunately quite amenable to treatment.

The one principle on which neurasthenia is to be treated is by the concentration of all possible tonic influence on the nervous system—air, sunlight, water, food, rest, diversion, muscular exercise, and the internal administration of those remedies, such as

strychnine, phosphorus, arsenic, &c., which directly affect the central nervous system.

The nervous tonic which I largely employ in neurasthenia is *general electrization*. In this method of treatment the feet of the patient are placed on a sheet of copper to which the negation pole is attached, while the positive, either a large sponge or the hand of the operator, is applied over the head (the hair being previously moistened), on the back of the neck, down the entire length of the spine, down the arms, over the stomach, liver, bowels, down the lower extremities—in short, over the entire surface of the body, from the head to the feet, but with special reference to the head and spine.

The evidences that the electric currents when thus applied over the head and spine directly affect the brain and spinal cord, and, to some extent, the nerves that issue from them, are the following:

1. The investigations of Dr. Erb, of Germany.*

By experiments on the cadaver he proved that the galvanic and Faradaic currents directly affected the brain and spinal cord—the galvanic more than the Faradaic.

2. My own repeated observations in cases of myelitis. In some cases of inflammation and even of congestion of the cord, an exceedingly weak current (either galvanic or Faradaic) will sometimes cause the most acutely painful sensations, both in the cord itself, and in the peripheral nerves that go to the viscera and the extremities. On the other hand there are cases of nervous disorder, where the nerve-centre is in a condition of partial anæsthesia, and consequently bears much stronger applications of electricity than when in a normal condition.

3. The remarkable tonic effects that are produced by applications of electricity over the head, and down the spine, even when the rest of the body is not touched.

These tonic effects of general electrization may be explained in two ways.

First, the electric current may directly improve the quantity and quality of the vital force, in accordance with the theory of the correlation and conservation of forces.

Secondly, the violent and repeated muscular contractions that are produced during the operations of general electrization greatly increase the processes of waste and repair. I once supposed that this passive exercise of the various tissues of the body, internal as well as external, might be the only ex-

* Deutsches Archiv. 3 Band. IX.

planation of the results obtained by general electrization.

That this view was a mistaken one is proved by the fact that these tonic effects are very markedly observed from applications of a mild galvanic current over the surface of the body, even when no muscular contractions are produced.

The power of general electrization to relieve neurasthenia and to cause increase of weight, was illustrated in a very pleasing and satisfactory manner in the case of a young physician whom we have treated during the present autumn. He was 28 years of age, and for a long time he had been subject to severe and repeated attacks of nervous and sick headache. To use his own expression, he had been "living on a lower plane than was normal." Over work and long confinement had reduced him to a condition of serious exhaustion, and when he called upon us in September he could not walk two miles without fatigue. Although 5 feet 9½ inches in height, he weighed but 112 pounds, and for many months there had been no sign of any increase. He had closely studied his own case, had been thoroughly examined, and had tried nearly every form of internal medication.

I began treatment by a mild application of electrization with the Faradaic current. He felt temporarily enlivened and exhilarated, but when he returned two days subsequently, he stated that he felt no special benefit, although he had gained *one half a pound in weight*. This change, slight as it was, encouraged him, for it had been months and years even, since he had been able to detect any increase in weight. I may say here that he watched and studied his symptoms, and carefully ascertained his weight, from day to day, not as a hypochondriac at all, but as a scientific man, inspired not by any special faith in the remedy, but by an earnest desire to test for himself the tonic effects of general electrization. He continued to increase in weight with remarkable regularity and uniformity, and at the end of three weeks he found that he had increased nine pounds. When I last saw him his weight was 124 pounds. The improvement in his general condition has gone on hand in hand with the increase in weight. His appetite is keener, and his digestion much easier. His attacks of headache still annoy him, but his capacity for endurance has been greatly enlarged. Whatever relapses may occur in coming months or years, he feels now that he has at least found a means of relief and permanent benefit.

In this case the applications were made very thoroughly, all over the person from the top of the head to the feet, and with a powerful current. Both the Faradaic and galvanic currents were used, chiefly the Faradaic. It is worthy of remark, also, that this patient always experienced a feeling of temporary enlivenment and exhilaration after each application, and sometimes the headache from which he suffered was driven away in the midst of the treatment.

I may say, also, that when he first came I prescribed oxide of zinc, by *exclusion*, because he had used nearly every other internal tonic. He took, however, two or three doses of one grain each, for the first day, dropping it entirely as soon as he found that he had increased half a pound in weight.

This case I regarded as preëminently a typical one—a typical illustration of neurasthenia and of the benefit that may be received from general electrization.

But sometimes the treatment is protracted for weeks before any decided and permanent benefit is received.

This was well illustrated in the case of a stout, plethoric gentleman, whom we treated for neurasthenia in the summer of 1868. He was treated for several weeks before we could detect or could appreciate any very decided benefit. Finally we alternated the galvanic with the Faradaic current, and succeeded in affording him positive relief from many of the symptoms of nervous exhaustion from which he had suffered for years.

There are cases of neurasthenia that do not yield to general electrization, even after it has been perseveringly employed. These exceptional results may be variously accounted for. It may be that our diagnosis is wrong, and that organic disease of some kind is stealthily eating out the patient's life. It may be that their nervous systems are exhausted beyond restoration. It may that severer applications and larger perseverance might have resulted in positive benefit.

Dr. Rockwell and myself have records of 30 cases in which nervous exhaustion seemed to be the leading condition. Some of these cases were complicated with hemiplegia, paraplegia, hysteria, hypochondriasis, and so forth; but the majority complained chiefly of, and only sought treatment for, the *general* symptoms of nervous exhaustion, as I have described them. The results of treatment are as follows:—

Cured	4
Greatly benefited	16
Slightly benefited	5
Not perceptibly benefited	5
Total	30

A few of those who were slightly or greatly benefited have measurably relapsed; but up to the present time the majority, so far as we can learn, have retained or increased the improvement they received. Two or three of the cases that relapsed are now under treatment.

In the limited time allowed me on this occasion it has been manifestly impossible to do anything more than to present the outlines of so important a subject as neurasthenia. I have, therefore, not aimed to be exhaustive, but only to be *suggestive*.

The principles on which I mainly insist and to which I call special attention, are briefly these:—

1. The term *neurasthenia*, as expressive of a very important and increasingly frequent condition of the system, is eminently justified by philological analogy, by convenience and by necessity.

2. The one principle on which this morbid condition should be treated is by the employment, either separately or together, of constitutional tonics, that specially affect the nervous system.

3. Among the various internal and external tonic remedies for neurasthenia, general electrization is oftentimes preëminent. The superiority of general electrization in cases where internal medication has failed, is apparent in the ease and rapidity with which it increases the appetite, promotes sleep, and develops the size and weight of the muscles—thus preparing the way for the *digestion of food*, which is itself one of the very best of tonics; for *rest*, which is really food for the nerves; for muscular exercise, which, in its turn, prepares the way for air and sunlight.

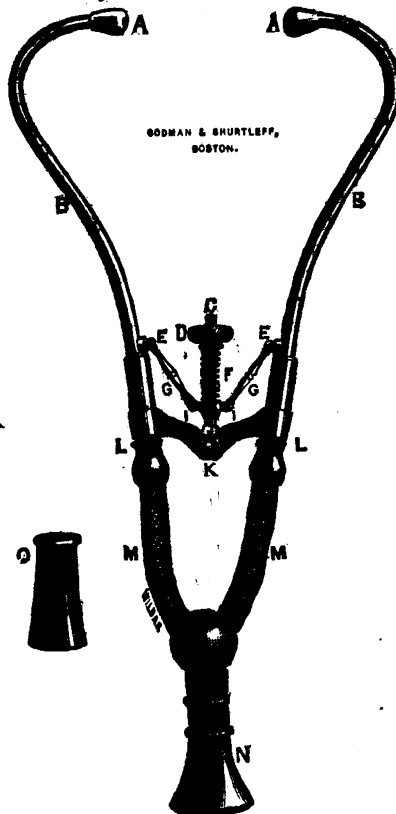
In this capacity of general electrization for marshalling to its aid other tonic influences, lies, I think, the secret of its power, perhaps the best interpretation of its success.

AN ADDITION TO CAMMAN'S DOUBLE OR BINAURAL STETHOSCOPE, INTENDED TO REGULATE THE AMOUNT OF PRESSURE ON THE EARS.

Messrs. Editors:—At the last meeting of the Suffolk District Society I presented an addition to the double stethoscope. Ac-

companying this communication is a cut representing this instrument with the addition.

As the double stethoscope is very little used, even in this country, where it was invented, except by graduates of Harvard and Bellevue, and almost never, I believe, abroad, convinced of its great superiority over the single instrument I will briefly mention the reasons for this superiority, and then speak of the addition which has been recently made to the instrument.



Its advantages are:—

1. It greatly intensifies sound. Most of the single instruments simply conduct, a few slightly intensify them.
2. It is much more easily applied to the chest, and maintained in place—a certain amount of knowledge of the art of balancing seeming almost necessary to manipulate the single instrument successfully.
3. We can keep our eyes upon the pectoral extremity, and thus be assured of its perfect adaptation, and prevent the friction of clothing, &c.
4. It excludes from the ear sounds not conducted by the instrument. The statement once made by Prof. Flint, that "in the conduction of thoracic sounds by Camman's