BEARD (Geo. M.)

THE

NATURE AND DIAGNOSIS

OF

NEURASTHENIA

(*NERVOUS EXHAUSTION*).

BY

GEORGE M. BEARD, M. D.,

NEW YORK.

[*REPRINTED FROM THE NEW YORK MEDICAL JOURNAL, MARCH*, 1879.]

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THE NATURE AND DIAGNOSIS OF NEURASTHENIA (NERVOUS EXHAUSTION).*

Nervous exhaustion (neurasthenia) is in this country more common than any other form of nervous disease. With the various neuroses to which it is allied, and to which it leads, it constitutes a family of functional disorders that are of comparatively recent development, and that abound especially in the northern and eastern part of the United States, although, during the last five years, they have been studied more or less in England and on the Continent.

But, in spite of its frequency and importance, neurasthenia, although long recognized, in a vague way, among the people and the profession under such terms as "general debility," "nervous prostration," "nervous debility," "nervous asthenia," "spinal weakness," and, more accurately, by some of its special symptoms and accompaniments, as "spinal irritation," "nervous dyspepsia," cerebral and spinal anæmia and hyperæmia, irritable ovary, irritable uterus, uterine asthenopia, and sexual exhaustion, yet until quite recently no attempt has

* Read before the New York Neurological Society, January 5, 1879.

been made to formally introduce it into science, by describing in detail all its symptoms, and showing their relation to each other and to the morbid nervous condition of which they are all the results and expressions. My first paper on this subject, based on the study of thirty cases, was prepared in 1868, was read before the New York Medical Journal Association, and was published in the "Boston Medical and Surgical Journal" April 29, 1869, and subsequently appeared in the first edition of Beard and Rockwell's "Electricity."

At first the subject excited absolutely no interest in the profession, although at that very time the practical treatment of the disease and of allied diseases by electricity was becoming quite popular. Indeed the use of the general and central methods of applying electricity, and the study of neurasthenia, for which these general and central methods are specially indicated, were worked up side by side. During the last five years, however, this topic has been discussed, incidentally if not elaborately, by a number of writers in different countries, among whom may be mentioned Hugh Campbell, of London, who issued a monograph on nervous exhaustion based almost entirely on the essay above referred to, amounting in fact to a diluted republication and adding very little to our knowledge of the disease; Dr. Jewell, of Chicago, who has referred to the subject very intelligently in lectures and review articles; Dr. Mitchell, of Philadelphia, in his work on "Fat and Blood"; by other writers of this city in various articles in the medical journals; by Dr. Goodell, of Philadelphia, in his recent address on Neurasthenia before the American Gynæcological Society; and, most systematically and successfully of all, by Professor Erb, of Heidelberg, who, though supplied with comparatively a limited amount of clinical material, has entered upon the study of the whole subject with the scientific spirit and with the all-sidedness and thoroughness characteristic of the Germans.*

* Under the heading "Nervous Asthenia"—a term suggested by Dr. Fordyce Barker—Dr. Flint, in the first edition of his work on Practice, makes a few remarks on this subject.

"The term *neurasthenia* was devised by me independently, at the time

April 4, 1828, I read before the New York Academy of Medicine a paper "On Certain Symptoms of Nervous Exhaustion," designed to be supplementary to the original paper on neurasthenia, prepared ten years ago, describing a number of new symptoms or those but partially noticed heretofore, and yet further differentiating the disease. This paper, which was based on a study of several hundred cases of neurasthenia in its different forms and phases, was subsequently published in the "Virginia Medical Monthly" for June, 1878.

So far as I know none of the recent standard works on nervous diseases in any language have any chapter on neurasthenia, with the single exception of Erb, who, both in the nomenclature and general description, follows my first paper.

The terms *cerebrasthenia* and *myelasthenia* were also devised independently, and were first used in a paper on this subject in the "Journal of Nervous Diseases." Dr. Jewell states that the term cerebrasthenia has been employed by Robert Whytt, of England. The literature of special symptoms and phases, as spinal irritation and oxaluria, is quite extensive, but does not embrace the theory of neurasthenia as accounting for those symptoms.

In the volume of Ziemssen's "Cyclopædia" that treats of diseases of the spinal cord, which was prepared by Professor Erb, of Heidelberg, one of the very ablest of the German neurologists and electro-therapeutists, and one of the most careful, analytic, and philosophical of recent medical writers, is found the chapter on spinal exhaustion or *neurasthenia spinalis*, as he terms it, wherein he not only confirms the description and analysis and nomenclature of neurasthenia which I gave several years ago, but adds some judicious and valuable observations of his own. Erb, after giving a correct analysis

when my first article on the subject was prepared, without any knowledge that the word had ever before been used.

"Dr. Jewell, of Chicago, in a series of lectures on Neurasthenia now being published in the "Journal of Nervous Disease," refers to the following terms that have been employed by writers—*nervosime* (Bouchut); *état nerveux* (Sandras and Bourgignon); *nervopathie proteiforme* (Cevise); *nervo-spasmie* (Brachet); *nervo-erethesmus* (Henle); *neuræmie* (Laycock).

of many of the more prominent symptoms of this disease, details a typical case, and observes that he has seen over two dozen similar cases. This observation is of value as showing that this malady is not confined to the United States, where it was first systematically described, and where it is certainly far more common than in all the world besides, and that the symptoms, behavior and clinical history are the same in both countries. At the time when my first article on this subject was prepared (1868), I used the general term *neurasthenia* to cover all forms and types of nervous exhaustion, the symptoms coming from the brain and from the spinal cord being described together and indiscriminately. This imperfection Professor Erb has repeated, and, to that extent, the value of his essay is impaired, since, in strictness, the disease neurasthenia should appear both in the volume on the brain and on the spinal cord, in the former as *cerebrasthenia*, or exhaustion of the brain, in the latter as *myelasthenia*, or exhaustion of the spinal cord. It is this latter form, or *myelasthenia*, that Erb attempts to describe in his volume under the term *neurasthenia spinalis;* but of necessity many of the symptoms connected with the brain are included in his description.

Erb makes the further mistake, but one in which he is sustained by a large body of writers on the nervous system, of treating of spinal irritation as a separate and special disease instead of one of the many symptoms of myelasthenia, or spinal exhaustion, which it really is; and he further overlooks the existence of cerebral irritation, which is just as real though not quite so frequent as spinal irritation; and he evidently fails to recognize the fact that the general irritation or tenderness of the various bones of the whole body, to which he gives the name hyperæsthesia, is in scientific analysis a condition to be accounted for just as much as spinal irritation. It is due, however, to Professor Erb to say that he evidently suspects the justness of his analysis, and in one place clearly intimates that he has doubts whether spinal irritation should be considered as a distinct disease; and he confesses that it is impossible to draw the lines between spinal exhaustion and spinal irritation. The truth is that in his mind, as in the minds of the profession at large, neurologists and general

practitioners alike, there has been a fearful and wondrous confusion of ideas on this whole subject; these functional nervous symptoms have, in short, always slipped from our grasp whenever we have attempted to seize them and bring them into science; and in discouragement and disgust, and in a spirit of skepticism which is the highest form of credulity, physicians, imitating the unscientific example of the laity, have denied the existence of such symptoms, just as they formerly denied the existence of diphtheria and hay fever.

The purpose of the present essay is to study in detail the differential diagnosis of neurasthenia, and of the functional nervous diseases allied to it and to which it leads.

The importance of making a differential diagnosis between maladies of the type here referred to and organic or structural disease of the brain and spinal cord is incalculable; mistakes of the most solemn character are constantly being made, both in the literature of the subject and in the practice of physicians, from an imperfect understanding of the difference between functional and organic disease of the nervous system. Very many of the symptoms of functional and organic disease are the same, or apparently the same, and there is an easy liability to confound them, especially when, as is often the case, the patient or the doctor is disturbed in his judgment by severe apprehensions. A number of times I have been consulted by medical men in regard to themselves, for symptoms which for a long time had kept them in a state of alarm, if not despair, lest they might be the precursors of incurable disease of the brain or spinal cord; and after an interview I have had the pleasure of assuring them, in most positive language, that it was not only improbable but wellnigh impossible for them to get up, if they should try, any organic or structural disease of the nervous system; that they might continue in their chosen profession as long as they should live—which might be and probably would be many years—provided only they could carry out certain practicable hygienic and medical suggestions. How students of medicine are apt to imagine themselves into heart disease when attending lectures on that subject, everybody knows; it is not so well known

that in recent times, since so much attention has been given to diseases of the nervous system, medical students and physicians have likewise the habit of manufacturing the grave disorders of the brain and spinal cord. For all this our neurological literature is partly to be blamed, inasmuch as none of the European works on nervous diseases anywhere make clear the differential diagnosis between functional and organic disease; on the contrary, the German writers, even the best of them, in their writings on such organic diseases as locomotor ataxy, progressive muscular atrophy, etc., include many of the signs of neurasthenia, evidently not suspecting that functional and organic affections may have at the outset the same symptoms, and for a time may run along together side by side perfectly parallel, and to an ordinary observer absolutely identical. In connection with this subject the German writers have also made the mistake of assuming and of teaching that the *causes* of functional disease—such, for example, as sexual excess—are also likewise the causes of organic lesions such as are found in ataxy and muscular atrophy. These errors have been copied by authors in other countries and languages, and physicians and medical students, on reading these works and listening to such teaching from their professors, begin most naturally to ask themselves whether they are going the road that leads to nervous destruction; and, on a little reflection, there is but slight difficulty in recalling and conjuring up almost any number of symptoms which, according to the books, ought to make them permanent and hopeless invalids, if not send them to a speedy grave. The more intelligent a physician is, the more thoroughly he keeps up with the literature of his profession, and the more liable is he to fall into this annoying and alarming mistake.* One of the

* On this subject Erb does not speak so positively. He says: "I am unable to state whether there are incurable cases, and whether the disease may last a great many years. I also am in doubt whether the disease can pass into any tangible chronic form of spinal disease (myelitis, sclerosis, gray degeneration. . . . Most patients are hypochondriacal in their feelings; and, if the physician is the sufferer, he is apt to let his mind dwell on this anticipation, and to be made wretched by the thought." That the disease may last many years there is no doubt; that it does not often lead to organic spinal disease is equally clear.

best physicians I know—a man of large experience and of general culture and accomplishments—consulted me a number of years ago in a state of intense depression and alarm, on account of a myelasthenia which, in his anxiety, he mistook for hopeless spinal disease. I had the great pleasure of comforting him with the assurance that he had not one proof of structural disorder, and that by a course of treatment which I indicated to him he could substantially recover. The prediction was verified. Since that time I have several times seen this gentleman, or have heard from him, and know that he is comparatively well and engaged in the practice of his profession. Quite recently an experienced medical gentleman from a distant city came to me with a personal history of neurasthenia, by which he had been kept in chronic fear lest it might be necessary for him to abandon his calling. He declared that he would rather die than become a hopelessly paralyzed invalid; and yet he had not one evidence of organic nerve trouble, although his condition demanded attention and treatment. Not long ago a patient consulted me for cerebrasthenia and myelasthenia combined, with many of the typical symptoms of both conditions. About the same time she also consulted another physician, who made the diagnosis of rush of blood to the head, and predicted apoplexy. There was no doubt that the patient did have an unbalanced circulation, and at times was afflicted, as such cases often are, with temporary congestions of the brain and spine; but these congestions were not the disease, any more than the black vomit is yellow fever; and there was no likelihood that they would lead to apoplexy, although there was just ground for fear that her condition unrelieved might in time lead to nervous invalidism.*

Distinguished from Organic or Structural Nervous Disease, the points in the differential diagnosis of neurasthe-

* Erb remarks on this point: "Abundant experience has shown me that these cases are not rare, and are of great practical consequence. For they cause much anxiety, not only to the patient, but also to the physician, owing to the striking resemblance they possess to the first stage of severe disease of the cord."

nia from the organic disease which it simulates, and with which it is so often confounded, are as follows:

1. *The symptoms of organic disease are usually fixed and stable, while very many of those of neurasthenia and allied states are fleeting, transient, metastatic, and recurrent.* Very many of the signs of neurasthenia and allied states appear in organic affections, and in both conditions they are precisely the same, so that of themselves alone they would be no guide in the differential diagnosis; spinal tenderness, impaired nutrition of the skin and hair, shooting and stabbing and boring neuralgias, cardiac palpitation, insomnia, or drowsiness, failure of memory, sexual exhaustion and emissions, mental depression, pain and heaviness in the head and back, disturbances of the nerves of special sense, hyperæsthesia and anæsthesia, local or general, coldness of the extremities, twitchings of muscles—all these and other results of the functional nervous disorders we are considering manifest themselves in spinal congestion, in ataxy, in muscular atrophy; but in functional troubles they come and go, and change about and alternate, appear and disappear, and reappear without any clear cause, and sometimes utterly vanish even without treatment; in the nervously exhausted these symptoms fly about from one part or organ to another, as from the head to the stomach or back, from the upper to the lower part of the spine, from the front to the back of the head; one day it is the eyes that are troubled; another day the eyes are well and the stomach is complaining, as though it would never cease; but, in a few hours perhaps, the digestion seems to be all right, and the head is in suffering, and so through the whole system. The wonderful precision that ophthalmology has attained enables us to study the neurasthenic symptoms of the eye, negatively at least, in a most interesting way. To those cases of weakness of the eyes with pain on reading or sewing, where all the tests fail to discover any objective cause, and which are not benefited by glasses, I have applied the term neurasthenic asthenopia. My friend Dr. Roosa lately called my attention to the fact that in testing the visual power of patients it is sometimes observed that there is a momentary capacity for perfect sight that appears and disappears. These vanishings of func-

tional power are also observed, according to Dr. Roosa, while testing the hearing. After an organic malady once gets established, it reveals itself by a group of symptoms that, however much they may vary in intensity, are mostly *fixed and constant.*

2. *There are certain, though not well known or always recognized, symptoms of neurasthenia and allied states which do not often, if at all, appear in structural disorders.*—Among this class of symptoms that are more or less peculiar to functional nervous disease are these: general or local itching (without apparent cutaneous disease), tenderness of the teeth and gums, flushing and fidgetiness, markedly tremulous pulse without cardiac disease, new and special idiosyncrasies in regard to food and medicine, and which did not exist prior to the illness, ticklishness, morbid desire for stimulants and narcotics, morbid fear, as agoraphobia, astrophobia, and anthropophobia, or fear of society. If some of these symptoms do appear in real, organic disease, it is yet rare that all, or indeed, any considerable number of them would appear together in any one case: some symptoms, as sick headache, for example, are generally inconsistent with grave structural disease of the nerve centres; when the brain or spinal cord becomes seriously injured, our sick headaches are apt to leave us. Likewise, the lack of desire for fluids which is seen in neurasthenia is not, as a rule, so noticeable a symptom in structural maladies.

3. *In organic disease, reflex activity is generally diminished; in functional disease reflex activity is generally increased.*—This distinction is of great practical service, since not a few of the phenomena referred to in neurasthenia and allied states are either excited by reflex action, or tend to excite by reflex action symptoms in various parts of the body. The human body in health is a bundle of reflex actions; every organ, when disturbed or irritated in any way, may set up a disturbance or irritation in some distant part or organ; but, when the system is in a condition of neurasthenia, this reflex irritability is often exaggerated—indeed, is usually so; and in case of hysteria the sensitiveness is sometimes so great that the slightest touch on any part of the body, or even the gentlest possible psychical irritation or excitement, may give rise

to violent convulsions. To a less degree than in pronounced hysteria, this exaltation of reflex activity is observed in all types and phases of functional nervous disorder.

When any part or point of the body, external or internal, on the periphery, or at the center, is irritated, some other part is liable to be in some way changed for the better or worse; but there are *par excellence* three great centers of reflex action—the *brain*, the *stomach* and *digestive apparatus*, and the *genital* or *reproductive* system. When any one of these three reflex centers is irritated by over-use or direct abuse, the injury is likely to radiate or reverberate in any or in all directions; we can not tell just where, any more than we can tell where lightning will strike. In this way, disease may be excited in parts quite distant from the seat of irritation. This accounts, in part, for the immense number and variety of symptoms and abnormal sensations from which the nervously exhausted suffer. Hence it is that it is so difficult to tell from the symptoms, or the locality of the symptoms, just *where* the disease or the source of the disease really is. If a man thinks and worries too much, it is not necessarily the head that will complain; there may be pain in the calf of the leg, or in the eyes, or in the stomach or bowels, or in any part of the back; possibly the arms will ache, or the fingers; or the genital organs will become cold. Very often cold feet and hands are the first signs of mental overwork. Indigestion, however complicated, or by whatsoever causes produced, may affect every part of the body except the stomach, and in ways beyond computation. General aching of the bones, pains in the calf of the leg, creeping chills on the spine, actual pain in the back and back of the head, facial neuralgia, sick headache, roaring in the head, flushing of the face and eyes, pain in the vertex, cardiac palpitation, diarrhœa: these are some of the results of indigestion in nervous constitutions; and very frequently patients chase up one symptom after another until they get wearied, without either finding relief or suspecting the true seat of the disorder.

Disorders of the genital apparatus in either sex are continually exciting disease in remote organs; and it is observed that as in women mild irritation—slight and limited disturbance

—produces severer reflex trouble than coarse and grave lesions. In females, superficial disorder of the cervix, for example, often induces more annoying pains and distresses in the head than incurable cancers; and in men, also, but a little prostatitis or urethral preputial irritation is constantly the sole and demonstrable origin of hypochondriasis, dyspepsia, even of paralysis and epilepsy.* In the neurasthenic one never can tell from the locality of the pain or other symptom where the disease really is.

Now, while in certain organic affections—as, for example, spasmodic spinal paralysis—reflex activity of a certain kind may be increased, yet, as a law, the reverse appears.

4. *Neurasthenia and allied troubles are most likely to*

* In regard to the relation of neurasthenia to the genital function, and to disease of the male and female reproductive organs, two errors have prevailed: that the genital organs have nothing to do with the causation of neurasthenia and allied affections, and that they are the exclusive causes of such affections.

An eminent neurologist once remarked to me that, in all the cases of spinal irritation and analogous disorders that he saw, the uterus was primarily at fault; on the other hand, an eminent gynæcologist, speaking of the same subject, observed that he saw cases of neurasthenia where there was no proof of any dependence on uterine disease. The gynæcologist was right, for, while many cases of neurasthenia do take their origin in uterine and ovarian maladies, there are also many that have nothing to do with the reproductive system; they are as likely to be the causes as the effects of uterine disturbances. This was substantially the view taken by Dr. Goodell, in his paper on neurasthenia, at the late meeting of the American Gynæcological Society, and it was not, so far as I can learn, disputed by any of the authorities in gynæcology who listened to it. There is in fact a manifest disposition among gynæcologists to revive, in a certain measure, the constitutional treatment of some of the cases that come under their care, and so far this is right. Without dispute, also, there are some cases of neurasthenia, as of hysteria and insanity, that depend entirely on genital irritation, and would never have existed but for such irritation, and entirely recover with the removal of the irritation; there are others that depend in part on irritation from this source; there are others that arise entirely independently of all irritation of that kind. There is no doubt that irritation, congestion, and imprisonment of the ovaries, and uterine displacements, often excite neurasthenic symptoms. To attempt, however, to explain *all* forms and phases of neurasthenia by reference to the reproductive system in man or woman, is to study neuro-pathology in a partial, fractional, one-sided, fragmentary, imperfect manner.

occur in those in whom the nervous diathesis predominates.—Among the chief signs of the nervous diathesis are fine soft skin, fine hair, delicately-cut features, and tapering extremities. Those who exhibit these characteristics are the victims of *functional* as distinguished from organic diseases of the nervous system. With exceptions both ways, this general law will be a good guide in establishing a diagnosis.

As a rule, the structural diseases are found in the comparatively strong—in those who are not especially sensitive, or nervous, or delicate; and when paralysis or other grave symptom appears in one in whom the nervous diathesis strongly predominates, it is far safer to make a diagnosis of a functional and temporary disease, and to predict in time entire or approximate relief.

Distinguished from Hypochondriasis or Pathophobia.—From hypochondriasis or pathophobia neurasthenia is distinguished, first of all, by the fact that hypochondriasis may occur in those who are in all other respects except apprehension of disease perfectly well. A man affected with simple hypochondriasis, if he be but diverted by change of scene and environment, may almost instantly exhibit complete vigor of brain and muscle; as soon as his thoughts are taken from himself and turned upon outward duties, he is at once equal to all his tasks. With the neurasthenic patient this is never the case; mental diversion may assist the cure, but can not accomplish it suddenly, or usually without assistance.

Neurasthenia may be complicated with hypochondriasis, as it may be complicated with hysteria; but, in the majority of cases, neurasthenic patients are not specially hypochondriacal, although often so regarded by their friends; their symptoms are as real as those of yellow fever or the poisoning of malaria.

It may be added to the above that both hysteria and hypochondriasis are diseases hundreds and thousands of years old, and are evidently decreasing, while neurasthenia is a modern disease, and is as evidently increasing.

Distinguished from Cerebral and Spinal Anæmias and Hyperæmias.—In regard to the relation of neurasthenia to spinal and cerebral anæmia and hyperæmia, it may be said

that circulatory disturbances of various kinds and in varied degrees must of necessity arise as results of exhaustion of the nerve centers; and it must also be allowed that when the brain or spine is engorged with blood, or greatly deficient in blood, then certain symptoms are likely to follow from such local plethora or anæmia, just as dyspepsia when once excited becomes the center, directly or reflexly, of numerous morbid phenomena; but the anæmia, the hyperæmia, the spinal or cerebral irritation, like the dyspepsia and insomnia, when broadly and philosophically studied, are branches of a tree, the trunk of which is impoverishment of nerve force; and, in all these neurasthenic states, over-exertion or mental excitement is liable at any time to bring on engorgements of blood in the spine or brain; there may be rushes of blood to the head or spinal cord, which when they occur become the centers of symptoms of their own; but to call these rushes of blood, these flushings of the face, the disease is to mistake effects for causes.

The results of treatment demonstrate this in a most interesting way, both positively and negatively; thus you shall cure a spinal irritation * without curing or even permanently relieving the patient, for the neurasthenia remains, and is

* On this point Erb remarks as follows: "It can not be denied that this complaint has a close resemblance in many respects to spinal irritation . . . . and the opinion might perhaps be defended that this disease is essentially, for the male sex, that which corresponds with spinal irritation in females."

He does not, however, regard the diseases as identical, and says: "It would be very desirable to lay out a better division and classification of these spinal neuroses, by means of accurate classical and symptomatic study, in order to promote the pathology of such an obscure subject."

"The distinction from spinal irritation will often be less easy to make. . . . It must be admitted that there are cases of ambiguous signification which stand, as it were, half way between the two forms of disease, and possess somewhat of each."

In science the next best thing to knowing is to know that we do not know. This is Erb's position in respect to the relation of the symptom spinal irritation to neurasthenia. He does not solve the problem; but he clearly appreciates, as very few writers have done, the need of a solution; and he sees precisely where the confusion lies, and just what position science should attack.

liable to break out any time in the same form, or in any one of a number of forms, such as cerebral irritation, or insomnia, or nervous dyspepsia. The symptom of spinal irritation is indeed one of the easiest symptoms to cure; a few days or weeks at most may be sufficient to drive away all the tenderness, while the condition on which it depends, and of which it is really a part, may require months of treatment, or in some cases may be absolutely incurable. On the other hand, all influences that tend to build up the constitution—a change to country air or travel—will often cure all these symptoms without any special treatment of the symptoms of anæmia and hyperæmia. That there may be such states as cerebral anæmia, cerebral hyperæmia, cerebral congestion, spinal anæmia, spinal hyperæmia, and spinal congestion is undeniable; and these terms are in some cases properly used. Such circulatory disturbances of the nerve centers, when they exist as the chief, if not only, factor in the morbid process, and the cure of these disturbances is a cure of the patient, may properly be called diseases; but in neurasthenia these circulatory irregularities in the brain and spinal cord are but incidents and results; their removal leaves the sufferer still a sufferer.

The whole set of modern science is indeed now in favor of the view that I presented ten years ago, that innervation precedes circulation: that the waves of blood into the nerve centers or out of the nerve centers move in obedience to the nerve force, as the sea rises and falls under the law of gravity.

Most strikingly this view is brought out in Vulpian's researches in the physiology of sleep, according to which it seems to be made quite clear that our anæmia theory and our hyperæmia theory, that, by alternation or in unison, have held the world so long, must give way to the nutrition theory; it is possible that we may be all wrong, as it is certain that we do not yet understand the full mystery of cell nutrition, but just now it is the growing if not the dominant philosophy in all neurological circles.*

* Erb's idea of the nature of the disease is similar: thus, after mentioning the anæmic and hyperæmic theories, and admitting them to be unsatisfactory, he says: "It seems most natural to recur to fine *disturbances of nutrition* in the cord, such as we are still obliged to assume in so many diseases of the nervous system."

Malarial poisoning frequently simulates neurasthenia, and also induces a special type of the disease which may be called *malarial neurasthenia.* Like malaria also, neurasthenia affects and modifies nearly every other disease that the patient contracts, giving a nervous and asthenic character to the symptoms, just as malaria makes other maladies periodic.

Distinguished from Anæmia.—It used to be claimed—and by some it is claimed even now—that neurasthenia is but another term for anæmia, in other words that impoverishment of blood and impoverishment of nerve force are identical. The basis of this confusion of ideas is probably the fact that the blood can be seen, felt, measured, and analyzed, while nerve force can only be studied through its manifestations.

The two conditions have oftentimes certain symptoms in common, just as functional and organic nerve diseases have certain symptoms in common; but, in the one case as in the other, there is a radical and inherent distinction—a distinction that modifies not only our abstract conception of the disease, but our prognosis, our hygiene, and our therapeutics. Just as a case of organic nerve disease treated as functional is sure to disappoint us, and perhaps injure more than help the sufferer, so a case of neurasthenia treated and managed as a case of anæmia is likely to become—as so many of such cases do become—the opprobrium of our art.

The chief points in the differential diagnosis of neurasthenia and anæmia are presented in the following table:

Neurasthenia.	*Anæmia.*
Chiefly found in nervous diathesis.	Appears also in the tuberculous, or rheumatic, or other diathesis.
Impoverishment of nervous system; *no necessary anæmia. Patient may be plethoric.*	Impoverishment of the blood; increase of water, and diminution of red corpuscles.
Found chiefly between the ages of fifteen and sixty.	Found in all periods of life, from extreme infancy to old age.
Not at all necessarily dependent on any important recognizable organic disease.	More frequently, though not necessarily, associated with some organic disease, as tuberculosis, carcinoma, morbus Brightii, etc.
Pulse may be full or normal, usually regular, but sometimes very rapid or very slow.	Pulse small, weak, and compressible.

Neurasthenia.	*Anæmia.*
No cardiac murmurs.	Murmurs at the base of the heart and over the large arteries, as the carotid, subclavian, etc. "Venous hum" in the neck.
No pallor—sometimes even a rubicund appearance.	Very perceptible pallor of the face, especially of the lips.
Easily fatigued by exertion; *mental* labor in *cerebrasthenia* more exhausting than *physical*. Memory often temporarily weakened, and consecutive thought and sustained mental activity frequently impossible, *even when prolonged muscular labor causes little or no fatigue.*	Easily fatigued by exertion. *Physical* labor always more exhausting than *mental*.
Insomnia a very frequent complication.	Insomnia not so frequent a complication, frequently an abnormal tendency to sleep by day as well as by night.
No necessary or constant disturbance of the circulation.	Disturbance of the circulation, with habitually cold extremities.
Habitual mental depression.	Mental depression not so frequent.
Though common to both sexes, not so relatively frequent in females.	Far more frequent in females.
Is benefited by remedies that directly affect the nervous system, such as electricity, phosphorus, strychnine, zinc, and oil, while iron alone is of little service.	Is benefited by remedies such as iron, that directly affect the blood.
Usually recovers but *gradually*, and under the influence of rest, nutritious food, and various sedatives and tonics.	May be *rapidly* removed by the removal of the organic cause.

Distinguished from Hysteria.—From hysteria, neurasthenia is distinguished in part by the absence of the convulsions or paroxysms that are always regarded as peculiar to the hysterical state.

Neurasthenia, like anæmia, may, it is true, lead to hysteria as it may lead to insanity; but hysteria, when it appears, is with all its group of symptoms, including the hysterical convulsions or paroxysms and the *globus hystericus*, or feeling as of a ball in the throat, quite a distinct condition. In hysteria there are to some of the symptoms, besides the paroxysms, an acuteness, violence, activity, and severity that do not belong to simple neurasthenia.

Hysteria is found usually in those whose emotional natures greatly predominate. Hence, relatively to neurasthenia, it is

far more common in females than in males. Indeed, hysteria was once supposed to be exclusively a disease of women; hence its name. Neurasthenia, on the other hand, although more frequent in women, is yet found in great abundance in both sexes, and in both men and women of intellect, education, and well-balanced mental organizations.

Hysteria of the mental or physical form may occur in those who are in perfect physical health, without any of the symptoms of neurasthenia or of anæmia; those of the strongest possible constitutions are the victims of this type of hysteria, the subjective psychological cause of which is an excess of emotion over intellect, acted upon by any influence that tends to produce emotional excitation. This form of hysteria is found in the stout Irish servant girls, among the Southern negroes, and among the undisciplined and weak-minded of all races and classes and ages, and, unlike neurasthenia, was more prevalent in the middle ages than in the nineteenth century.

Lastly, hysteria, whether of the mental or physical type, or of both types combined, may, and often does, completely recover suddenly, and may disappear under purely subjective or mental treatment. Neurasthenia never recovers suddenly, but usually requires much time, whatever treatment may be employed; and, though like all other morbid states it can be powerfully influenced by mental therapeutics, yet demands usually positive and varied objective treatment.

The differences between neurasthenia and hysteria appear more distinctive when tabulated side by side, as follows:

Neurasthenia.	*Hysteria.*
No convulsions or paroxysms.	Hysterical convulsions or paroxysms.
No *globus hystericus*, no anæsthesia of the epiglottis, ovarian tenderness less common, and attacks of anæsthesia far less frequent and *less permanent.*	*Globus hystericus*, anæsthesia of the epiglottis, ovarian tenderness, and attacks of general or local anæsthesia.
Symptoms more moderate, quiet, subdued, passive.	Symptoms acute, intense, violent, positive.
May occur in well-balanced, intellectual organizations.	Usually associated with great emotional activity and unbalanced mental organization.
Very common in males, though more common in females.	Very rare in males.

Neurasthenia.	*Hysteria.*
Is always associated with physical debility.	In the *mental* or physical form occurs in those who are in perfect physical health.
Never recovers suddenly, but always gradually, and under the combined influences of hygiene and objective treatment.	May recover suddenly, and under purely emotional treatment.

Syphilis sometimes simulates neurasthenia; the irregularity of many of its phenomena, such as sudden loss of power of one limb or of several limbs—coming and going—tingling and numbness in the extremities, cramp and twitchings of the muscles, especially at night, disturbances of the special senses, transient and curable impotence—all suggest neurasthenia, and of themselves alone are not sufficient to enable us to make out a diagnosis of syphilis. The syphilitic origin of such symptoms is established by these four considerations:

1. The history of the case.
2. Other symptoms of syphilis.
3. The temperament of the patient. Other factors being equal, the nervous diathesis would give a probability of neurasthenia, although nervous syphilis does appear in the nervous and sensitive.
4. The results of anti-syphilitic treatment. This is the conventional mode of making a diagnosis in suspected syphilis; but in the question under consideration it is not necessary to resort to it.

Syphilis may simulate not only neurasthenia but even absolute hysteria. I have known a syphilitic patient to go rapidly through a series of hysterical phenomena—transient paralyses, flying all about the body; one hour aphasia, another paralysis of the arm or leg, or aphonia, and so forth. Dr. Althaus, of London, reports similar experiences.

Neurasthenia sometimes simulates in a perfect and most interesting way the symptoms of a common cold—the chilliness, the positive coldness, the tremor, the heaviness and soreness of the back, bones, and limbs, and in some cases excessive secretion from the eyes and nostrils, all may exist to-

gether in a neurasthenic sufferer, and in some cases only time can determine whether a cold has been taken or not.

Neurasthenia also may simulate rheumatism, and is frequently mistaken for it. Thus the stiffness of the neck when the upper portion of the spine is in an irritable condition, or of the loins and lumbar region when the lower part of the cord is irritated, at once suggests rheumatism.

Differential Diagnosis of Cerebrasthenia and Myelasthenia.—Both for the hygiene and the therapeutics of neurasthenia, it is necessary to be able to make a proper differential diagnosis between *cerebrasthenia* (exhaustion of the brain) and *myelasthenia* (exhaustion of the cord). In my original paper no such distinction was attempted. The symptoms that suggest *cerebrasthenia* are obviously those that are directly or indirectly connected with the head, and they may be either physical or psychical. Tenderness of the scalp, a feeling of fullness in the ears and head, all disorders of the special senses, tenderness of gums, deficient thirst, morbid desire for stimulants and narcotics, gaping, yawning, rushes of blood to head, congestion of conjunctiva, the different forms of morbid fear, mental depression and impairment of memory and intellectual control, all indicate that the brain is chiefly affected. Certain symptoms, however, as external tenderness of the scalp, general or local itching, clamminess of the extremities, muscæ volitantes, pain and heaviness in the back of the head, may arise from exhaustion of the upper part of the spine. The symptoms that suggest *myelasthenia* or spinal exhaustion are local spasms of muscles, local chills and flashes of heat, shooting pains in the limbs, startings on falling to sleep, morbid sensations at the bottoms of the feet, as of burning or tenderness, vague pains in the feet, podalgia, sexual debility in its various phases, pain in the back—any part of it from the nape of the neck to the tip of the coccyx with or without the accompaniment of spinal irritation—creeping and crawling sensations up and down the spine, incontinence of urine or paresis of the bladder, feeling of pressure in the chest with or without ticklishness in that region, heaviness and stiffness of the muscles simulating rheumatism, sensitiveness to cold and changes in the weather, hypæresthesia of mucous membrane, dryness

of skin or morbid perspiration, dryness of the joints, and dilated pupils.

Some other symptoms, as nervous dyspepsia, constipation, flatulence, sick headache in all its forms, numbness and hyperæsthesia, and insomnia, appear to be common to both states, since they manifest themselves when either cerebrasthenia or myelasthenia is uppermost.

No other single fact so much aids us in making out the differential diagnosis as this, that in myelasthenia physical exercise, especially walking and standing, but oftentimes any form of muscular exertion requiring either the upper or the lower limbs, is fatiguing and disagreeable, and when kept up is liable to make the patient worse and interfere with the treatment. In cerebrasthenia, on the other hand, severe, and violent, and long kept up muscular exertion can be well borne, and is frequently desired and sought for; indeed, with such patients this desire for physical effort and activity sometimes becomes a morbid symptom, and demands restraint. Those whose brains are diseased even to the border land of insanity can, in some instances, do far more physically, with far less fatigue than when in their usual health.

Whence I derive this practical rule for the differential treatment of cerebral and spinal exhaustion—namely, that in *cerebral exhaustion* (*cerebrasthenia*) *active muscular exercise in reasonable amount and variety may be allowed and enjoined;* in spinal exhaustion (*myelasthenia*) *relative and in some cases absolute rest is demanded or only passive exercise for a shorter or longer time, as may be, according to the special peculiarities of the individual.*

A neglect of this cardinal distinction, a want of knowledge of the differential symptoms of nervous exhaustion chiefly centered in the brain, and nervous exhaustion chiefly centered in the spine, is the constant source of errors in the advice given to patients by physicians, and in the regimen that patients prescribe for themselves.

Cerebrasthenia and myelasthenia are sometimes combined, and not unfrequently alternate with each other. These facts yet further complicate both the diagnosis and treatment; at one stage of neurasthenia a patient may be able to take larger

amounts of muscular exercise; at another stage—separated, it may be, by not more than a few days or weeks—all muscular activity is irksome and injurious, and, if persisted in, may do harm. Hence it follows that patients must be watched and studied by the physician so that the hygiene may, to a certain extent, be varied with the different phases of the disease.

To indiscriminatingly advise such patients to work furiously in the open air as is so often done, or to advise them to go to bed and keep in bed, as is also done—to the extent of confining them in a dark room—is likewise unscientific, and may do mischief; indeed, as practiced years ago the dark-room treatment certainly did not a little evil; it was an empirical employment of a really good therapeutic measure. There are cases of neurasthenia where confinement to bed is the very best possible treatment; there are cases when it is the very worst possible treatment.

In regard to the probable pathology of neurasthenia, my view, as expressed in my first paper on the subject, is that there is an impoverishment of the nerve force resulting from bad nutrition of the nerve tissue on the metamorphosis of which the evolution of nerve force depends; as in anæmia there may be a deficiency in quantity or impairment of quality of the blood, so in neurasthenia there is, without question, deficiency in quantity or impairment in quality of the nerve tissues; hence the exhaustion, the positive pain, the unsteadiness, the fluctuating character of the morbid sensations and phenomena to which the term neurasthenia is applied.

Dr. Salisbury, of Cleveland, claims to be able to diagnosticate a seriously exhausted condition of the nervous system by the changed appearance of the blood corpuscles, his theory being that the red corpuscles are carriers of substances that feed the nerves, and he asserts that when these corpuscles are not properly laden with this food for the nerves, as in the case of nerve exhaustion and insanity, the corpuscles exhibit changes that the microscope can recognize; hence an addition to our means of diagnosticating nerve impoverishment. Dr. Heintzmann, of New York, claims to be able to determine, by examination of the blood under the microscope, whether the constitution is good or bad, and even to tell whether the

subject is specially exhausted at the time of the examination —as, for example, after a sleepless night.

Both of these claims are yet on their trial before the profession, and can not be regarded as parts of science, until they have been endorsed by a considerable number of experts of admitted authority, and also made verifiable by others who shall make themselves experts; for this is the gantlet that all claims must pass before they are permanently received into the fold of science.

If either or both of these claims, or some similar claim, shall stand the cruel test of time and expert skill, we shall have a positive, so far as it may go, satisfactory addition to our means of studying functional disorders of the nervous system, and a very interesting ocular and physical proof of the general position that I have here taken.

If it be objected, as indeed it often has been—and by those for whose judgment I have the highest respect—that while the general philosophy and analysis of these nerve symptoms are sound and verifiable, yet that the term neurasthenia is faulty in that it indicates only a state or manifestation, instead of a precise pathological lesion, I can only reply, as I have done from the first, that nearly all our medical terminology expresses our ignorance more than our knowledge; that our best known diseases, as epilepsy, insanity, chorea, hysteria, hay fever, writer's cramp, musician's cramp, telegrapher's cramp, and nearly all our paralyses and neuralgias, receive their names from single and striking symptoms or suspected factors in their causation, which terms we must yet retain despite all our actual or prospective progress in neuropathology; and there is no objection to the use of these terms, provided we understand their meaning; indeed their retention is a matter of necessity till such time as the minute pathology of these phenomena shall be unveiled. Then they can be and will be gradually abandoned.

Some of these cases under proper and persevering treatment seem to acquire a new constitution. Very many of these cases of neurasthenia I have watched not only while under treatment but for months and years; I see every week, indeed almost every day, cases that I treated all the way

from five to ten years and more ago, and can testify that the results are often permanent; they may be sensitive, delicate perhaps, but they are well, in working order, and in no need of special medical aid. Erb says, in the work above quoted, that he has not seen his cases long enough to be able to pronounce an opinion in regard to the general prognosis; after he has studied the subject and watched the patients a number of years he will, I have no doubt, be able to confirm substantially these observations, for although neurasthenia is far more common in this country than in Germany, yet the disease, when it exists, is in all respects precisely the same. Some cases never get absolutely well; they always have reminders of their disorder: certain symptoms now and then recur, although not in sufficient force to demand special attention or to interfere with fair working capacity and great longevity.

I have lately dismissed very much benefited a case of neurasthenia in a gentleman from New Orleans—a section, where, by the way, diseases of this kind, and, indeed, all the neuroses of this family, are far more rare than in the North. In this case the condition was clearly the effect of over-exertion and anxiety, in attendance on and nursing several of his young children who were sick with yellow fever during the late epidemic.

The patient was of a slight frame, of a nervo-bilious temperament, but usually well, and able to fulfill without interruption his duties as a merchant.

His first prominent symptom was a temporary paralysis of one arm; this came on shortly after the subsidence of the excitement, but lasted only a short time. About this time also considerable loss of flesh was noticed, and physical debility.

By advice of his family physician, Dr. Axson, he consulted me when he arrived at New York, about the third week in November, and reported that he had been visiting in Maryland, in the country, and had rallied so rapidly that he supposed he was nearly well, and, presuming too much on his apparent improvement, he had walked up a steep hill at Harper's Ferry, and thereby brought on a quick relapse with the addition of new symptoms.

Dr. Axson, who had made a correct diagnosis of the case, had expressed the hope that rest and travel would be sufficient to work a cure; but this set-back not a little disheartened the patient, and he came to me in a state of considerable depression, and presenting the following symptoms:

1. Pain in the lower part of the back, extending over the hips. This was always worse on walking or standing.
2. Wakefulness; insufficient sleep and excess of dreams.
3. Want of appetite, furred tongue.
4. Attacks of paresis or powerlessness in the arms, never amounting to actual paralysis.
5. Muscular debility; a walk of a quarter of a mile bringing on pain in the back and a feeling of exhaustion, going up stairs being the most exhausting of all forms of exercise.
6. Nervo-febrile attacks, particularly in the morning, on awaking, but in the day also; the symptoms being a feeling of heat with burning.
7. Slow and feeble pulse, between fifty and sixty.
8. Uric acid and oxalates in great abundance; also spermatozoa and spermatic globules, with very acid reaction. (Examination made by Dr. Mittendorf.)
9. Vertigo, with feeling of heat in the head at times.
10. Cervico-occipital neuralgia, and a dull heavy pain at the back of the head and neck.

None of these indicate any structural or organic disorder; they were results of neurasthenia concentrated part of the time in the spine and part of the time in the brain, as the symptoms, history, and results of treatment proved.

This case might have been variously diagnosticated; it would have been called oxaluria, or spinal congestion, or cerebral hyperæmia, or cerebral anæmia, or simple anæmia—for he was somewhat anæmic—or dyspepsia, and there would have been a degree of truth in any one or all of these diagnoses; but not one nor all combined would have correctly described the real condition at the foundation of all these myriad symptoms.

From a careful study of the case and from the effects of treatment, I convinced myself that a part of the time there was excess of blood in the brain; but even on that point I am

open to further and more definite facts; nor would I regard the physical demonstration of transient cerebral engorgement as giving us much aid in determining the nature of the disease.

Erb reports in detail one case, which, he says, is a type of more than two dozen that he has seen. It is interesting to see that in many respects the description will apply to the cases that are observed in this country, where the disease is far more common than in Germany; indeed, the description reads as though it were taken from my own note-book, and represents a combination of cerebrasthenia and myelasthenia, the latter being far more prominent. I have seen at least two hundred similar cases; they are found in both sexes; but this special type appears to be most common among males, and is not always though frequently associated with symptoms and history that point to the genital function.

The patient, a wholesale merchant aged thirty-five, belongs to a *neuropathic family;* his sisters were in the insane asylum; a brother has a tendency to melancholy and nervous complaints; he himself has been a long time nervous. Married at twenty-three; he has three children, says that he *indulged a good deal in the sexual* act, perhaps too much, but never observed any ill results from it. He has often been to baths in the ocean, with temporary benefit. He has a *great deal of work;* at least eight hours a day in his office, occasionally going into a close, damp warehouse. All the nervous symptoms have *slowly* increased; they have been about as follows for four weeks past: *Great general sense of fatigue*—this is very marked in the *morning* in *bed; inability to walk for a long* time, or, if he does it, it is *followed by great fatigue* and actual *tremor* in the legs.

When moderate exertion of an *unwonted* sort is made there are *severe muscular pains* on the *following* day, as lately, after skating for fifteen minutes; no tottering or uncertainty in gait; *vertigo;* some *sense of fatigue* in the *arms, uncertainty* in writing; no pain, no numbness, or formication in legs or arms. No headache; only frequent sense *of pressure on the vertex. Intelligence* and *memory good; depressed, hypochondriacal* state of feeling. Occasionally *disagreeable feeling* in the *back*, but *no real pain;* suffers much from *cold feet*, which formerly was never the case; *great sensitiveness* to cold; *after exposure* feels *slight shooting pains* in the limbs; *sleeps badly;* usually wakes about three o'clock, and remains awake for two or three hours, with *great prostration and restlessness of limbs.*

Vesical functions quite normal, *sexual function distinctly altered* in

the last few weeks; sexual *excitability increased*, *ejaculation too early*, *erection insufficient;* after coitus a *sense of exhaustion*, with *excitement* and *restlessness.*

Tendency to shed tears; unusual *timidity* and *want* of *self-possession;* noticeable *confusion* when he is conscious of being observed. Frequent *palpitation*, and some *shortness* of breath when he ascends stairs.

Appetite and stools good.

Objective symptoms. An *apparently strong* and *well-nourished* man; internal organs sound, motility quite normal to objective tests. Stands with closed eyes very well, no disturbance of sensibility. Cerebral nerves all normal. *Slight anæmia.*

After various medical and hygienic treatment he was so far improved that Erb could report as follows:

He was considerably improved. The strength and endurance of the legs are decidedly greater, and his temper is much more cheerful. He walks four or five hours every day, and seldom suffers from tremor, still less from pain in the muscles. He has no cold feet, and his sensitiveness to cold is less. He sleeps much better, though not perfectly well; sexual functions the least improved of all. Head never troubles him. Temper much improved; he has no disposition to weep. After another half year the greater part of the morbid symptoms had disappeared.

In the original, or rather in Dr. Lincoln's translation, from which this is taken, certain words and phrases are italicized; these italics are not retained in this copy, but I have preferred to emphasize those facts that, from the present point of view, seem to be of most importance, especially as relating to the philosophy taught in this essay. In regard to the case it may be observed:

1. This patient inherited the nervous diathesis, which is often true of these cases.

2. Overwork, with confinement, was pretty clearly the *first* great exciting cause. The same sexual excess in a person not inheriting the nervous diathesis would probably have not produced these symptoms. There are very few persons in this world who do not at times indulge excessively in the sexual act.

3. All the symptoms, or nearly all, point to the spine as the chief center of the exhaustion. It was a case of *myelasthenia.* Many symptoms that belong to these cases either did not exist in this patient or were not observed.

4. Exertion of an "*unwonted* sort" was especially fatiguing. This is an interesting fact in the history of these cases. Sometimes severe relapses are caused by undertaking unfamiliar tasks.

5. Many of the symptoms of ataxy without ataxy. A few years ago all the German writers on neurology were accustomed to report these cases as ataxic cases cured; and the whole world has been thereby misled, and false hopes have been raised with subsequent disappointment.

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