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SOME CAUSES AND CHARACTERISTICS OF  
NEURASTHENIA.\*

BY A. D. ROCKWELL, M. D.

WHILE very little has been added during the past few years to our knowledge of the ætiology, pathology, or treatment of neurasthenia, yet it will, I think, be admitted by all whose experience entitles their opinion to weight that the disease is in most instances entirely curable, and in some cases self-curable. The enunciation and widespread diffusion of this idea I consider most important, for in neurasthenia we are dealing with a condition of mind and body that occasions more misery and paralysis of utility than many an organic and incurable disease, and because added to those wearisome and subjective symptoms of distress which only the neurasthenic himself appreciates and the physician who listens to his tale of woe, is a condition of utter hopelessness, and a resistive tendency that sometimes very materially interferes with the success of therapeutic measures. The true neurasthenic has a double burden to bear, in that, being sick and in despair, friends, relatives, and associates, in their ignorance, take little care to conceal

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their opinion that all these symptoms are mere figments of the imagination.

Fully aware of this incredulity and of the inability of friends to appreciate his condition, many a neurasthenic aggravates his condition by concealment and brooding, and the end is sometimes suicide. It is admittedly true that, in general, pathology and the ætiology of disease are far in advance of therapeutics, but in neurasthenia we have a notable example of the reverse of this.

Our knowledge of its pathology is still conjectural and unsatisfactory, and in the study of its genesis and gradual development the most painstaking observation and analysis are still required. It is a source of satisfaction, at all events, that whatever tentative knowledge we possess in this direction does but confirm the correctness of the generally accepted methods of treatment.

In a note on Nervous Diseases in Low Races and Stages of Culture (*Science*, Dec. 16, 1892) Dr. D. G. Brinton holds that those are in error who claim that "diseases of the nervous system have greatly increased with the development of civilization." My own very positive conviction, based upon a somewhat extended experience in the treatment of neurasthenic cases, is quite the reverse of this. In hospitals, in dispensaries, and among the very poor everywhere a typical case of neurasthenia is difficult to find, but among the well-to-do and the intellectual, and especially among those in the professions and in the higher walks of business life, who are in deadly earnest in the race for place and power, this peculiar impoverishment of nerve force that we call neurasthenia appears with alarming frequency. Dr. Brinton says also that civilization, so far from increasing this class of maladies, is one of the most efficient agents in reducing them in number and severity, especially when freed from religious excitement and "com-

petitive anxieties." It is, however, these very "competitive anxieties," so intensified in this country, this worry of business and professional life, that civilization fosters and deepens. American nervousness is indeed a distinctive phrase, and the frequency with which allusion is made to it gives it, in the minds of many, a meaning apart from that ordinarily ascribed to the term. We hear very little of English, French, or German nervousness, and yet, in a large record of cases, the writer has thus far failed to detect any widely divergent lines of differentiation between the functional nervous manifestations of the different nationalities. But while the general characteristics of the nervous temperament are very much the same, whether observed in the English or German, French or American, and while the same general causes underlie each class of cases, it can not be denied that in America there are climatic conditions and business and social environments to the influence of which the nervous system is peculiarly susceptible, especially if complicated with evil habits, excesses, tobacco, alcohol, worry, or special excitements.

An American in England is frequently surprised to find that he is able to indulge in malt and spirituous liquors to an extent that he would never attempt in his own country, while the Englishman, if for any time a resident here, finds to his cost that excesses in eating and drinking impose a heavier tax upon the conservative processes of the body than in the humid atmosphere of his insular home.

A gentleman of a convivial turn who makes frequent trips to England tells me that on his pedestrian excursions through the country he is accustomed to drink malt liquors with impunity, while in this country, under the same conditions of exercise, he can take but a comparatively small amount without unpleasant results. The Englishman is less nervous than his American cousin, not because he is

less abstemious in his eating and drinking, but because excesses in certain directions are less hurtful in his climate than in ours.

No more exact delineator of certain English types and habits has ever written than Anthony Trollope. His *Man about Town*, with his enormous capacity for brandy and soda, is a unique creature in his way, and quite puts to shame the comparatively mild potations of his American counterpart. With the will, perhaps, to indulge as freely as the Englishman, the American succumbs to alcoholic excesses that are relatively far less, and with symptoms that are oftener nervous than bilious or gouty. Another potent factor in the production of the so-called American nervousness, which is really nervelessness, is the hurry and worry of business and professional life on this side of the water. My observing friend Marshall P. Wilder says that "the English have acquired the virtue of deliberation and are never in a hurry or fret; all business is conducted in a quiet, leisurely way that seems to an American like child's play, but is in dead earnest all the same. Your English banker will be found in some little building not at all like an American bank, and with very few clerks in sight. Nobody rushes breathlessly in or out, yet the amount of business transacted daily in that dingy little building is enormous."

In the older countries men plod along in the footsteps of their fathers, generation after generation, with little possibility and therefore little thought of entering a higher social grade. Here, on the contrary, no one is content to rest with the possibility ever before him of stepping higher, and the race of life is all haste and unrest. It is thus readily seen that the primary cause of the increase of neurasthenia in this country is civilization itself, with all that the term implies, with its railway, telegraph, telephone, and periodical press intensifying in ten thousand ways cerebral

activity and worry. As before intimated, another important causative factor is found in the relative dryness of our atmosphere as well as in our extremes of heat and cold. Evidences of the dryness of this climate are observed in the drier and stiffer hair grown by Americans and in their leanness compared to the English and German. In the Northwest this peculiarity of climate is more positive even than in the East, as evidenced by the readiness with which meats when hung in the air are dried and preserved. It may be only a coincidence, but the writer has remarked the greater proportional number of neurasthenics coming from that portion of the country.

Then, again, no one can estimate the importance of the natural electricity of the body nor altogether analyze the part it plays in the human economy. What is an excess and what a deficiency has never been demonstrated, but we do know that dry air prevents the natural electricity of the body from being conducted away, and it is rational to believe that a constant excess of electricity in the body may in some cases so overstimulate as to excite a degree of nervousness that amounts to disease.

Fortunately, however, man has it in his power to rise superior to climate; can adapt his methods of living to the vicissitudes of climate.

The cause and cure of disease in general are very much in what we eat and drink and the way we live. If the American would cease squandering his vital forces by excesses, exercise a little common sense in what he eats and drinks, and practice the gospel of rest advocated by Herbert Spencer, he might bid defiance in great measure to climate and regain the old-fashioned constitution of his fathers.

Benedict understood this when he said that "if the Americans would learn from the Germans how to amuse

themselves instead of yawning on holidays, the danger of neurasthenia would be diminished. Whoever has not learned how to play and jest easily succumbs to mental work."

All physiology and all pathology begin and end in the cell, and it is quite as important to recognize the facts of cellular nutrition in dealing with the functional diseases of the nervous system as where its nutrition is perverted and poisoned by microbic agencies. The vitality of the cell is the important and underlying factor in health and disease, and experimental physiology, in relation to changes in nerve cells under stimulation, is already throwing some light upon the ætiology and pathology of neurasthenia.

Electrical excitation of a nerve in association with a spinal ganglion is followed in a few hours not only by some diminution in the size of the nerve cells, but by a very considerable shrinkage of the nuclei of the cell capsule, and this change in the cell is found to be generally in proportion to the severity and duration of their stimulation.

It is a specially significant fact also that the cell recovers its normal activity and appearance only after long hours of rest, five hours of stimulation producing an exhaustion and change that requires twenty-four hours of rest to restore.

Associated with these actual changes in the nerve cells are chemical reactions that add a toxic element to the actual muscular and nervous expenditure of energy. What takes place in nerve cells under artificial stimulation takes place also, in all probability, in greater or less degree in the ordinary activities of daily life, and the fatigue of mind and body which follows concentrated or prolonged effort is in the same way dissipated by rest and sleep. This is what is to be normally fatigued.

Muscular activity through attendant chemical changes

always yields certain noxious products that are both obstructive and destructive, and it is not alone rest and sleep that restore the normal organic tone of mind and body, but also the flow of blood which, while it deposits new material, carries away the waste products which clog and poison the system. A person may be said to be normally fatigued just so long as complete recuperation follows rest and sleep. Even where, through electrical stimulation or by effort of will, the repeated muscular contractions result in such absolute exhaustion that the muscle refuses to respond, or responds only imperfectly, to artificial stimuli or voluntary effort, it is still only normal fatigue if through disuse the muscular fibers regain in a few hours or days their usual tone. In involuntary muscular contractions there is no mental effort, and therefore no fatigue of the central nervous system, but in voluntary muscular effort there is a certain expenditure of energy that fatigues brain as well as muscle. On the other hand, severe mental labor results in a weakening of the inactive muscles—a condition supposed to be due to toxic influences following chemical changes in the brain. It is believed, and this belief is in accordance with accepted physiological principles, that both brain and muscle when exercised undergo a regressive metabolism of tissue of an oxidative character. The poisonous material thus set free acts upon the muscles through the circulation and weakens them.

If this voluntary or involuntary stimulation of muscular activity is frequently repeated to the verge of exhaustion, and until the recuperative power fails to bring back the muscular tone to its normal level, we have passed the bounds of normal fatigue. The muscles, or the brain, if the strain has been along the line of mental effort, are now suffering from pathological fatigue, a condition in which the nutrition of the nerve cells is primarily at fault—an unbalanced condi-

tion of waste and repair; in other words, neurasthenia. The inanition and auto-intoxication of neurasthenia or pathological fatigue are direct results of those visible changes in nerve cells and the toxic products of exercise which accompany normal fatigue. Overstrain, from whatever cause, and the derangement of nutrition, initiated and determined by repeated toxic influences, must be accepted as the essential causes and pathological state of the neurasthenic condition.

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