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WITH THE COMPLIMENTS
OF THE AUTHOR.

THE
NERVOUS SYSTEM
IN THE
TREATMENT OF CONSUMPTION.

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THE NERVOUS SYSTEM IN THE TREATMENT OF CONSUMPTION.

By THOMAS J. MAYS, M.D.

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If one fact is more evident than another, it is that pulmonary consumption is not a disease of the lungs exclusively. It is not seldom that we meet patients who complain of fatigue, of anorexia, of wasting, of cough, of dyspnoea, of rise in temperature, of shooting pains in the trunk or extremities, and who present all the symptomatic appearances of phthisis, and yet show no active outbreak of pulmonary disease. The cautious practitioner observes in these manifestations a foreboding of what is sure to follow, sooner or later. He knows that for practical purposes such persons are as much sufferers from consumption as if they showed the active physical signs of the disease in their lungs already, and treats them accordingly.

If pulmonary consumption is not essentially a disease of the lungs, what particular tissue or texture does it primarily invade? From a careful study of a large number of cases, I have become firmly convinced that consumption is fundamentally a disease of the nervous system, but it is not my intention or province this evening to dwell on the evidence which supports this theory, but to consider the relation which the nerve element in this disease bears to its treatment, and to refer only to this pathological association in so far as it assists in showing the latter in its proper light.

Now, in order to bring the salient points of my subject before you, I shall briefly, in the first place, consider the frequent association of consumption with diseases of the nervous system; and, in the second place, discuss the nerve-degenerations which, so far as I know, are probably constantly present in this disease.

Dr. Maudsley says (*Psychology of Mind*, p. 233) that when a family decays, the last member not unusually dies either from phthisis or



insanity; that phthisis alternates with insanity, and the reverse; and that one-fourth of the deaths in asylums for the insane are caused by phthisis. Dr. Clouston, an equally good authority, states that phthisis occurs about twice as frequently in the insane as in the sane. The post-mortem researches of Dr. J. Crichton-Browne also confirm these opinions.

Dr. Stevens, of New York, in his work on *Functional Nervous Diseases* (p. 139), records the family history of one hundred of his patients who suffered from various nervous diseases and in whom marked errors of refraction had been found. The collective members of these patients' families, including parents, sisters, and brothers only, were five hundred and ten in number. Of these, one hundred and four suffered and died from pulmonary consumption; one hundred and fourteen from cerebro-spinal meningitis, epilepsy, chorea, insanity, apoplexy, and other nervous disorders; seventeen from Bright's disease, and twenty-two from rheumatism and heart disease. In other words, consumption and nervous diseases prevailed to the extent of 40 per cent. (about 20 per cent. of each), while Bright's disease, rheumatism, and cardiac disorder to the extent of 8 per cent.

Professor Grasset has also shown ("On the Relations of Hysteria with the Scrofulous and Tubercular Diathesis": *Brain*, vols. vi. and vii.) that a similarly close relationship exists between hysteria and consumption. He cites a large number of cases of hysteria, in nearly all of which there existed a strong family history of phthisis, and in many of these hysteria was transmuted into consumption, and *vice versa*.

Moreover, pulmonary consumption is also closely affiliated with other diseases in the pathology of which nerve degeneration plays a most prominent rôle. This is true of leprosy, of beri-beri, of pellagra, of alcoholism, of syphilis, of herpes zoster, of mercurialism, of plumbism, etc.

Then, when we come to study the nerve degenerations which are so intimately associated with pulmonary consumption, the neurotic element in this disease becomes still more conspicuous. Thus, it is a well-recognized fact that section of the vagi or injury to the medulla is followed by œdema, hæmoptysis, and inflammation of the lungs. Equally well is it demonstrated that compression of these nerves by tumors in the neck, or by aneurisms within the thorax, etc., leads to pulmonary consumption. During a recent research on this question I found the records of nearly one hundred cases of phthisis in which the vagi were disintegrated through the pressure of aneurisms, of

enlarged bronchial glands, or tumors, or became diseased from other causes. Beside these, I found the reports of six cases of paralysis of respiration; seven of pulmonary œdema; four of pulmonary infarcts; seven of bronchitis; and twenty-seven cases of pneumonia in which the vagi were diseased. Dr. F. L. Hahn, in a post-mortem investigation of a number of phthisical subjects,¹ found alterations in the pneumogastric and phrenic nerves. During life, he states, these subjects suffered from facial, sciatic, and intercostal neuralgias, pains in the region of the sternum and at points along the spine, arthralgia, muscular pains, hyperæsthesia, analgesia, contractions, paresis, and dilatation of the pupil on the affected side. As to how far the peripheral nerves are involved in the phthisical process we have the work of Dr. Jappa² (*Zur Frage über die Veränderungen der peripherischen Nerven bei Schwindsucht*) to show that the degeneration in these structures is quite remarkable. He examined the sciatic, post-tibial, internal plantar, crural, internal saphenous, superficial peroneus, median, ulnar, and radial nerves of the bodies of fifteen persons whose death was caused by pulmonary consumption, and in every instance marked deterioration existed in most of these nerves. The changes were in the axis-cylinder and perineurium, as well as in the sheath of Schwann, and the author says they should be regarded as parenchymatous in character. The intensity of the morbid changes was greater in the peripheral endings than in the trunks of the nerves. In all these cases there existed during life only the ordinary nervous symptoms found in the phthisical, such as some undefined neuralgias and muscle-pains, general hyperæsthesia, high fever, and emaciation.

From these facts it is evident that nerve degeneration and pulmonary consumption are constant accompaniments, and the only reason why the nerve derangement is not more often found in this disease is because it is not sought after. What relation does the one bear to the other? Is the nerve disorder a cause or a consequence of the pulmonary trouble? From the very nature of the case this is difficult to establish on a positive basis; but when we view the subject in a broad light, and consider that hæmoptysis, pulmonary infarcts, and œdema, as well as catarrhal pneumonia, are produced by division of the pneumogastric nerves; that continued pressure of aneurisms and tumors on these nerves leads to phthisis; that phthisis follows alcoholic and

¹ L'Union Médical, February 9, 1874. Chicago Journal of Nervous and Mental Diseases, vol. ii. p. 448, 1875.

² Neurologisches Centralblatt, Bd. vii., 1888, p. 425.

syphilitic degeneration of the same nerves; that phthisis is very prone to develop in the insane or in the neurotic, I think it becomes very palpable that the pulmonary is consequential to the pneumogastric disorder. We certainly do not manifest a more illiberal spirit when we come to reason on the relation which exists between disease of other organs than the lungs and their nerve-supply. Sir James Paget relates the case of a patient in which the median nerve was compressed by callus thrown out to repair a fractured radius. Inflammation and ulceration of the thumb and middle fingers took place, which resisted all treatment until the wrist was so bandaged that the parts on the palmar aspect were relaxed and the pressure on the nerve removed. So long as this was done the ulcers became and remained well; if not, the ulceration returned. The same pathological connection obtains in other parts of the body. Injury to the trigeminus, within the cranium, is followed by cloudiness of the cornea, inflammation and ulceration of the lips and gums; and sloughing of the heels and of the back is produced by a lesion of the spine. If we believe that sloughing in the heel or over the sacrum can exist on account of a spinal lesion, or that ulceration of the thumb and middle fingers may be produced by the median nerve being compressed by callus, then we can, with equally good logic, conclude that pulmonary phthisis is the result of a degeneration of the pneumogastric nerves caused by pressure of tumors or aneurisms on the same. If we admit this, and I can see no reason why we should not, it naturally follows that phthisis may arise in consequence of any cause which has the power of disintegrating these nerve structures.

This view of the origin of phthisis is also confirmed by its clinical history. Diseases of the brain and of the nervous system and phthisis travel hand in hand. All of these affections are comparatively absent among savages and are universally present in civilized life. Look where we may, we find that the causes which produce the one are also operative in the case of the other. Wherever the struggle of life enforces a high state of nerve-tension, or where indulgences and excesses entail an inordinate waste of nerve-force, there consumption and diseases of the nervous system exist, either separately or simultaneously. But whatever view we take of the origin of phthisis, I trust that I have made it sufficiently plain that the nervous lesions in this disease are constantly present, and he who desires to treat it successfully cannot afford to ignore them.

When viewed from the neurotic standpoint, the treatment of pulmonary consumption divides itself into rest, dietetic, and medicinal.

Of these, rest is the most important, although no good results can be expected from it alone, unless it is reinforced by the faithful administration of an abundance of nutritious food. The consumptive must be regarded as verging on a state of constitutional bankruptcy. All the strength that he can muster is appropriated to the performance of the essential functions of life, which are carried on imperfectly in this disease. Digestion is weak; the bowels are either constipated or are threatened with relaxation; sleep is restless and disturbed; his muscular energy is impaired to such a degree that a short walk or a small amount of physical exercise saps his strength and renders him almost wholly helpless. Yet, conscious as he is of his feebleness, he persists that the taking of exercise is essential to his getting well. Strange and paradoxical as it may appear, this feeling is not confined to consumptives, but exists in behest of a strong public sentiment. It is based on the knowledge that in health exercise gives strength. But what a difference between the body in health and when suffering from a chronic disease like consumption! The two conditions may be illustrated by comparing a banker who is threatened with insolvency with one whose credit is good. If the former pays out as much as he takes in, his finances will always be in a crippled state, and he will be in constant danger of going into bankruptcy; but if he halts—that is, if he diminishes his outflow and maintains or increases his income—his capital will accumulate, and in time he will be able to compete with other capitalists. But the banker whose credit is uninjured goes on and invests all his surplus capital—that is, he exercises his financial strength to the utmost limit of prudence—and thereby enhances and improves the integrity of the institution which he represents. So it is with the taking of exercise. If this is to be beneficial a certain amount of strength must preëxist, and by putting this strength to proper use—or out at proper interest—it will grow and accumulate; but he who has no or very little strength at the outset must reduce his expenditures and enlarge his income or else go into physiological bankruptcy. The consumptive must be made to realize that, with him, it is wholly a question of constitutional resistance; that both health and disease are quantities which constantly vary; that when he is weak the disease is strong and advances, and when he is strong the disease is weak and recedes; and that the force which he expends in taking exercise abstracts so much from the total quantity of vitality and allows so much less for the body to cope against the disease and to perform the other necessary functions.

In accordance with these principles, it has been my custom, during

the last few years, to give all my consumptive patients the full benefit of rest, so far as this could be carried out. Almost invariably, on beginning to treat such a patient, he is ordered to bed and kept there until I am satisfied that sitting up or walking around the room will not tire him. Those patients who are always tired, and many there are of this kind, I insist on remaining in the horizontal posture for a month, or six weeks, or longer. This does not mean confinement to the room; but they may be carried out in the open air and remain there during the greater part of the day—care being taken, of course, that they are warmly clothed and well protected from unfriendly currents of air. Those who are stronger are allowed to walk out and sit quietly in the open air. Patients will often demur against this protracted rest, chiefly because they do not realize the seriousness of their condition. But if they once comprehend this fully, there are very few who do not appreciate the practicability of the proposal and aid you in carrying it out.

The results which are obtained by this plan of treatment are, I am sure, much superior to the one where the patients are allowed to walk about and generally do as they please. In former times, when, in conformity with the teaching which still prevails, I believed that plenty of exercise was the one thing needful to restore the consumptive, I was often disappointed and mortified in seeing patients who had been considered well enough to leave bed and walk out almost invariably experience a relapse. Much of the successful treatment of consumption in mountain resorts is due to the measure of enforcing rest and quiet on the patients. Dr. Brehmer, of Görbersdorf, and Dr. Dettweiler, of Falkenstein, both consider an unlimited amount of exercise detrimental to the consumptive's well-being; and Dr. Vollaud, of Davos, states, in his work on the *Treatment of Consumption in High Mountains*, that rest in the open air is the first duty of the patient, and that, if he is able, he is allowed to sit out-of-doors, and if not, he is confined to bed in a well-ventilated chamber.

All our efforts will prove entirely fruitless, however, if we do not succeed in making our patients eat. Nothing taxes the ingenuity of the practitioner more, and nothing demonstrates his ability better than his success in devising ways and means whereby his patient is led to partake of a sufficient amount of nourishment. The majority of such patients not only suffer from anorexia, but loathe food. I am convinced, however, that if they can be induced to swallow food, the stomach possesses in most instances the power to digest the same. Hence, the importance of promptness and perseverance in feeding.

A small quantity of food, like half a teaspoonful of beef-pulp, a table-spoonful of the juice of fresh beef, or a glass of milk with a little lime-water, every two or three hours, will furnish a large amount of nourishment in twelve or sixteen hours, and will convince the patient that he is able to digest a great deal more than he thought he could. When they refuse or are unable to eat sufficiently, I resort to washing out the stomach, and introduce the food with a tube specially adapted to this purpose. It is astonishing as to the quantity of food which can be given in this manner, and I have seen some very excellent results follow this practice. Feeding by the rectum is another method of great value in the treatment of this disease and should be employed whenever it is deemed necessary in stubborn cases. In feeding these patients one point should always be borne in mind, and that is, that only those foods which contain the greatest amount of energy in the smallest bulk, and which at the same time confer the greatest amount of good on the body with the least expenditure of vital force in digestion, should be administered.

Additionally, we must not lose sight of the inestimable value of well-directed medication. Among the most useful agents which render support to the nervous system in this disease are antipyrin, phenacetin, strychnine, quinine, atropine, the hypophosphites, cod-liver oil, etc.; but this is a subject too voluminous to be entered into at the present time.

