Clinical lectures on neurasthenia.

LECTURES ON NEURASTHENIA

THOMAS D. SAVILL

PRESS NOTICES OF THE FIRST EDITION

"These clinical lectures deal very exhaustively with the subject of Neurasthenia, and will be read with great interest. Dr. Savill is happy in his clinical descriptions, and goes very fully into the details of treatment for the relief of the numerous symptoms of which the patients complain."—**The Lancet.**

"This book is a timely and valuable contribution to an important, though imperfectly understood, subject. . . . The subject is one which no conscientious practitioner can afford to neglect, and it would be difficult to imagine a better or more lucid introduction to its study than the book which is now before us. . . . The explanation given on page 82 of the reason for these diverse and often apparently contradictory manifestations is ingenious, interesting, and probably correct. At any rate, the theory reconciles the hitherto irreconcilable, and must hold the field until our knowledge of the subject has been improved by methods of investigation not yet open to us. . . . To every student of balneology and allied methods of treatment, especially to such as practise at health resorts, Dr. Savill's book will be almost indispensable; to every thoughtful practitioner it will be immensely useful. We note with gratitude that the style and construction are infinitely superior to what, in these matters, is usually considered sufficient in a medical text-book."—**The Journal of Balneology and Climatology.**

"The author lays down certain rules for treatment, and throws out hints which are suggestive and of considerable practical value. He is evidently well versed in the literature of the subject, and illustrates his points by references to numerous cases which have from time to time been under his care. The book is well and pleasantly written, and is deserving of study."—**British Medical Journal.**

"The book is rendered more interesting by the inclusion of a number of cases which illustrate different points referred to by the author. It should be in the hands of every practitioner who wishes to keep himself well informed on this important subject."—**Treatment.**

"The term neurasthenia has long been used as a cloak under which a long train of vague symptoms due to neurosis has been hidden, and the very name itself seemed shrouded in mystery, as a result, no doubt, of a lack of a thorough understanding of the subject by the profession at large. The author of this work has so clearly defined the dividing lines between neurasthenia, hysterics and melancholia, etc., that after a thorough study of the text one need not make a mistake in the differential diagnoses of those very perplexing conditions which are frequently found in practice. As to the plan of treatment laid down, it is rational and simple, and evidently the result of long study and observation, such as could only be afforded at an institution like the Paddington Infirmary in England."—**California Medical Journal.**

"Very naturally a book of clinical lectures possesses interest for two classes of readers: First, for those who have heard the lectures and observed the patients on which they are based; secondly, for those engaged in clinical teaching themselves. To both classes the present volume will be welcome, since it portrays a phase of neurological medicine which is perhaps peculiar to the time and country in which it originates. The book displays evidence of much commendable research and thought on the part of the author, who very rightly insists on the impropriety of considering neurasthenia and hysteria as synonymous. In this respect he is in advance of some otherwise high Continental authors. . . . As a careful, painstaking record of personal experience by a teacher having at his command a wealth of clinical material, the book well deserves recognition."—**Cincinnati Lancet-Clinic.**

"We most heartily commend the work as one of real practical value, especially to the general practitioner."—**Texas Medical News.**

"We are prepared to state that any medical man or woman interested in this *fin de siècle* subject will find it scientifically and masterly treated of in the volume by Dr. Thomas D. Savill."—**Pacific Medical Journal.**

With the Author's Compliments.

WORKS BY THE SAME AUTHOR

Translation of Prof. J. M. Charcot's Lectures on Diseases of the Nervous System (*Third Series*).

NEW SYDENHAM SOCIETY, *London*, 1889.

On an Epidemic Skin Disease.

H. K. LEWIS, *London*, 1893.

A System of Clinical Medicine, dealing with the diagnosis, prognosis, and treatment of disease (*Two Volumes*).

J. & A. CHURCHILL, *London*, 1905.

CLINICAL LECTURES

ON

NEURASTHENIA

BY

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DEDICATION

TO

THE LATE

John Henry Bridges,

UNDER WHOSE ABLE GUIDANCE

THE METROPOLITAN WORKHOUSE INFIRMARIES

WERE FOUNDED AND ORGANISED,

WHOSE MANY ACTS OF KINDNESS HAVE

EARNED THE LASTING ESTEEM AND REGARD OF

The Author.

PREFACE TO THE THIRD EDITION

In the present edition the general plan of the last has been retained, but many fresh data and illustrative cases have been added and the conclusions previously arrived at have been elaborated and amplified.

Certain redundant portions of Lectures I (on the Pathology of Functional Diseases of the Nervous System) and VII (on the Mental Symptoms of Neurasthenia) have been omitted. The lectures dealing with Diagnosis, Pathology, and Treatment have been considerably amplified, and a new lecture (Lecture VIII) on Etiology and Prognosis, based upon a detailed analysis of 103 private cases, has been added. The bibliography has been revised and brought up to date by Dr. Agnes F. Savill. During the last seven years the mass of literature on neurasthenia has been enormous, and it has only been possible to mention some of the more important contributions. It is a source of satisfaction to find that neurasthenia is now receiving more attention and occupying a worthier place in current works on Systematic Medicine.

The views on the autotoxic origin (chronic poisoning or alteration of the blood by some product arising within the body) of many cases of neurasthenia which I first put forward in 1897 and 1898, and which were published in the first edition of these lectures in 1899, have now received the support of many contemporary authors; but there are still many observers who hold "that neurasthenia is essentially an affection of the mind," and that it can only be treated satisfactorily by psychological

methods. This hardly embodies my conception of neurasthenia, which presents in most instances both mental and physical symptoms. Undoubtedly mental symptoms may predominate, but the clinical picture of the disease points rather to a derangement of the entire nervous system—brain, spinal cord, peripheral nerves, and sympathetic system.

The problem which I set before me was to ascertain what was the pathological cause underlying this derangement of the nervous system, and my investigations into the Etiology of Neurasthenia have led me to the conclusions, first, that there exists in all cases some degree of weakness of the nervous system, inherent or acquired, which renders the nervous system vulnerable; and secondly, that this may be developed into neurasthenia by a great variety of determining causes. Among such determining causes, undoubtedly, in a certain number of instances, a mental element predominates in the causation as well as in the symptoms, such for example as overwork, mental strain, or some other cause intrinsically nervous in origin. In these cases the disease may be said to be essentially an affection of the mind, and they are capable of amelioration by "suggestion" and other psychological methods. I do not deny the influence of the mind upon the body—a fact which has been so ably demonstrated by the late Dr. Hack Tuke[1] and others.

However, I could not regard the foregoing as the sole explanation of all or even the majority of cases of neurasthenia, and a laborious analysis of hospital cases first led me to the conclusion that the gastro-intestinal symptoms, which several eminent observers had hitherto regarded as part of the disease, indicated in many instances an antecedent causal gastro-intestinal derangement. I was further led to conclude that this gastro-

[1] *The Influence of the Mind upon the Body*, Dr. Hack Tuke. Churchill. London, 1884.

intestinal disorder acted on the nervous system as a toxæmia. I also found that other better recognised auto-intoxications—chronic suppurative conditions, for instance—were capable of acting precisely in the same way in the production of neurasthenia. Here we see the influence of the body upon the mind.

In the fresh series of facts submitted in the following pages these questions are investigated anew, and an analysis of 103 private cases of neurasthenia shows that about 80 per cent. were due to some kind of auto-intoxication (toxæmia). Among such auto-intoxications may be mentioned intestinal derangement, gastric disorder, chronic appendicitis, pyorrhœa alveolaris, oral sepsis, blenorrhagia, antral disease, chronic alcoholism, excessive tobacco smoking, and incipient phthisis (Lecture VIII). In 38 per cent. of these cases the neurasthenia was due to various, often very obscure, kinds of intestinal derangement, and a critical examination of these leads me to hope that the bacteriology of the alimentary tract, which awaits further investigation, may some day throw further light on the pathology of neurasthenia.

Undoubtedly many morbid conditions may cause neurasthenia, and, unfortunately, they often act in conjunction. Their recognition, therefore, is frequently a matter of the greatest difficulty, but it is, nevertheless, a matter of the highest importance for successful treatment. I submit this work to the indulgent criticism of my medical brethren in the hope that it may be of some assistance in the elucidation of these and some of the other difficult problems connected with this troublesome and distressing malady.

UPPER BERKELEY STREET, W.
August, 1906.

PREFACE TO THE FIRST EDITION

(March, 1899)

THE first of these lectures was delivered as part of the post-graduate course which was organised at the Paddington Infirmary in the year 1891. All the other lectures were delivered at the Welbeck Street Hospital for Diseases of the Nervous System, during more recent years, and formed part of the post-graduate course of lectures delivered by different members of the staff. Some of them appeared in *The Clinical Journal*; and it was at the suggestion of several friends that they are now collected and published.

I more readily acceded to this suggestion for three reasons. In the first place, I wished to appeal to a wider audience on a topic always interesting to me, namely, the wealth of clinical material—especially of mental and nervous disorders—in the Metropolitan Workhouses and Infirmaries. Secondly, it has always seemed to me that the profession has taken an unjustifiably hopeless view concerning the curability of diseases of the nervous system in general, and of the so-called functional disorders, which form so large a part of them in practice, in particular. And, thirdly, it is surely a mistake that the study of neurasthenia, and the methods of coping with the various, and often trivial, symptoms which these patients present, should be omitted from current text-books. As a result of this, not only do many curable patients go unrelieved, but a good number have recourse to charlatans.

In preparing these lectures for the press the details of the cases have been considerably amplified, their number supplemented, and the whole has been carefully revised as it passed through the press. Exception may be taken to an absence of reference to the views and works of others. But these lectures do not aim at being anything more than a record of personal

experience. The omission—if the absence of such references can be counted an omission in clinical lectures—is remedied to some extent by an Addendum and Bibliography, which has been prepared under my supervision, by Miss Agnes F. Blackadder, M.D., to whom I am also indebted for valuable assistance in the work of revision. Without her aid these lectures would probably not have seen the light for many years to come.

PREFACE TO SECOND EDITION

(March, 1902)

As mentioned in the preface to the first edition, this work has no pretension to being a systematic treatise on Neurasthenia. Its main objects are to assist the student and practitioner in the diagnosis and treatment of the malady, and to attract more professional attention to the subject. The prominence given to the disease in recent systematic works on medicine is now more in accordance with its importance.

The favour accorded by the profession to the first edition of these clinical lectures, both in this country and in America, has for some considerable time necessitated their re-issue. I was, therefore, placed in a dilemma—either the lectures must be reprinted as they were, or I must wait until the time at my disposal and the necessary health should enable me to revise and bring them up to date.

In these circumstances I have been extremely fortunate in obtaining the assistance of Mr. J. H. Tomlinson, whose long experience as my Clinical Assistant at the Hospital for Diseases of the Nervous System renders him peculiarly fitted for the task. Upon his shoulders has fallen a very considerable amount of labour, for he has supervised the passage of this edition through the press. To him are due my most grateful acknowledgments.

Some alterations have been made in the text. Fresh illustrative cases have been added; the treatment previously given in Lecture II has been omitted, while that in Lecture IV has been thoroughly revised and amplified by wider experience.

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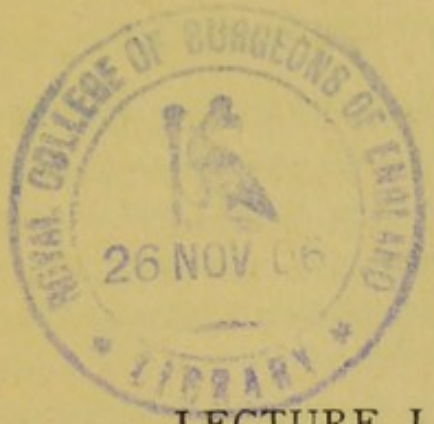


LECTURE I

INTRODUCTORY

THE PATHOLOGY OF FUNCTIONAL DISEASES OF THE NERVOUS SYSTEM

(An inaugural address delivered in 1891 at the installation of the Post-graduation Clinique at the Paddington Infirmary in 1891.)

SUMMARY :—*Clinical teaching and research in a Poor-Law Infirmary initiated.—Description of the Infirmary.—Extent of field and other advantages.—Special opportunities for studying nervous and mental disorders.—Methods of investigating the pathology of diseases of the nervous system.—Clinical investigation.—Pathology of "functional" diseases of the nervous system.—Undiscovered structural alterations.—Hetero-toxic and auto-toxic changes.—Malnutrition.—Vascular changes and vaso-motor neuroses.—Increased reflex irritability.—Compound causes.—Resemblances of functional to structural diseases; pathology of hysteria.*

GENTLEMEN,—In addressing you at the commencement of the Post-graduation Clinique now organised for the first time within the walls of a Poor-Law Infirmary, it is desirable I should say a few words explanatory of this new departure.[1]

First let me pay a tribute to the enlightenment of the Board of Guardians of this parish, who recognised the value

[1] A visiting surgeon, the late Sir Henry Thomson, was appointed to the Marylebone Workhouse about the middle of the century, but the date of this lecture (May, 1891) was the first occasion on which Workhouse Infirmaries had ever been rendered available for organised clinical and pathological instruction. It was always thought that the Amending Act (1869) of the

of this procedure, not only for the sake of the patients whose cases we shall study, and whose cure and alleviation are thereby rendered more speedy and certain, but also for that of the ratepayers, who provide the means for the maintenance of these institutions ; because it may be taken as certain that whatever, without undue expense, shortens the stay of a patient in the infirmary, is the truest economy to the parish.

But these are not the only advantages likely to be derived from the course of instruction which it is proposed to carry on within these walls. Where is there to be found such a vast clinical storehouse as exists in the Poor-Law Infirmaries of the Metropolis? Both in point of number and variety of the cases I venture to think they are, when taken collectively, unequalled in the history of the world. The Infirmaries contain an aggregate of 13,332 beds—not counting the sick-wards nor the infirm persons who still remain in some workhouses—as against only 10,883 in all the Special and General Hospitals of London. Where, I would ask, is there to be found such a wealth and variety of material as here exists? In this, the Paddington workhouse and infirmary, there are close upon 600 beds available for the reception of every kind of mental and bodily ailment to which flesh is heir. To render this available for medical teaching is undoubtedly a great gift to the Profession, and through it to the public, who

Metropolitan Asylums Act (1867) forbidding clinical instruction, applied to Workhouses, but I was enabled, after a lengthy correspondence with the Local Government Board, to establish the fact that the Metropolitan Poor-Law Infirmaries had been erected under the Workhouse Extension Act of 1845, and consequently the other Act forbidding clinical teaching did not apply. It was under the auspices of the London Post-graduate Association and with the sanction of the Board of Guardians of the parish of Paddington that this Post-graduation Clinique was initiated.

necessarily gain indirectly by improved medical education. I have never ceased to enunciate these views, and you can well imagine with what satisfaction I see the realisation of my desires through the liberality and foresight of the Board of Guardians under whom I have the honour to serve.

This large group of buildings comprises three departments, under the government of one Board of Guardians. (1) In the new infirmary, where we are now situated, there are 284 beds, 32 of which are for the reception of sick children, 16 for cases needing isolation, and the rest for acute and severe cases of disease of different kinds, both medical and surgical. (2) The old infirmary (*i.e.*, the sick-wards of the workhouse) next door, comprises 310 beds, 10 for lying-in cases, 20 for mental cases, which are constantly passing through the workhouse, and the rest for various kinds of chronic ailments. (3) Finally, there is what is erroneously called the "able-bodied" department of the workhouse, which really contains infirm persons of both sexes, too old or too infirm to do much beyond a little needlework or wood-chopping. These old people are very frequently affected by the minor ailments incidental to advanced life, and daily seek the doctor's aid in considerable numbers. (The labour-yard, where idle able-bodied persons are set to accomplish a daily task of stone-breaking or oakum-picking, is situated elsewhere under a separate administration.) Thus, in this institution there is a population of over a thousand persons, subject to every conceivable kind of disease, presenting to the student a veritable page from the book of nature, where he can study the commoner and more chronic ailments which will make up such a large portion of his

practice when he launches out into the world on his own account—ailments such as bronchitis, chronic rheumatism, the parturient state, paralysis agitans, vaccinia, slight mental disorders, and so forth. A few perhaps of the rarer acute disorders may sometimes be wanting, because these are specially selected for admission to the hospitals. But on the other hand, what a magnificent field for the observation of arterial disease and nervous and mental disorders about which the student is generally so ignorant at the end of his career!

Among the inmates of the *workhouse* proper, we are able to study the slow beginnings of disease, and such ailments as migraine, neuralgia, senile syncope, senile vertigo, senile epilepsy, arterial sclerosis, and idiopathic epilepsy. In the *sick-wards* of the workhouse (*i.e.*, the "old infirmary") may be seen numerous instances of chronic ailments, such as tabes dorsalis, paralysis agitans, cerebral softening, hydrocephalus, and various forms of paralysis which have settled down into a chronic condition, as well as chronic rheumatism and gout. Among the patients of the *new infirmary* we find those who are suffering from apoplexy, hemiplegia, anterior poliomyelitis, the later stages of cerebral tumour, disseminated sclerosis, chorea, peripheral neuritis, and various other acute nerve diseases, together with all the many and varied manifestations of hysteria, in addition to acute pneumonia, phthisis, and the like.

The field, therefore, offers special opportunities for the study of nervous, cardio-vascular, and senile conditions, but it is in relation to mental ailments of all kinds that the most unique opportunities for study occur, an opportunity such as, I venture to think, exists in no other

circumstances whatever. The accommodation of the lunacy wards proper is, as we have seen, limited to twenty beds, but through these wards pass all the lunatics and *alleged* lunatics[1] of the parish, of no matter what kind, on their way to other parts of the building, to an asylum (lunatic asylum) or to an imbecile asylum. It is true that in the County asylums one can study from day to day the various forms of chronic insanity, but there one misses the beginnings of mental alienation, and its slighter forms, such as that frequent condition, transient alcoholic mania, and that large and nondescript class of mental ailments which I have designated "neurasthenic insanity." These cases are eminently curable if recognised and taken in hand at an early stage; and they are far more numerous than is generally supposed, and than the graver cases which necessitate removal to the asylum, for out of five or six brought into the workhouse, not more than one, on the average, passes on to the County asylum. Moreover, in a lunatic asylum one cannot see the imbecile and idiot class and the slighter mental ailments incidental to old age. All of these various classes can be seen and studied at one time, either separately or *in groups*, in this institution, either in the lunacy wards or in one or other department of the building. Where, I would ask, is there such an opportunity for studying disease of every kind, in every stage, and in every degree?

But there is yet another advantage in the conditions around us. In a hospital, on account of the alleged paucity of beds, the patient's stay is always limited by

[1] This term is applied to a person during the fourteen days he can be legally detained for purposes of observation so that the doctor may then decide how he should be disposed of.

the Board of Management; usually to a maximum of three months. But in these infirmaries a patient remains indefinitely, unless he voluntarily leaves, or dies. Under these circumstances, therefore, a case can be followed out in its entirety during life, no matter how chronic or prolonged its course may be, and after death it may be followed into the mortuary—that most important adjunct to clinical work. In this way an unrivalled opportunity presents itself for the study of the anatomy of all the commoner as well as of the rarer chronic affections; and especially of some of those prolonged chronic nervous disorders about which we know so little. Many of such cases—cases of primitive myopathy, for instance, and various chronic meningeal affections—after going the round of the London Hospitals, drift inevitably into some Poor-law Infirmary, where, after a residence of many years, they die; and *the autopsy is made at the Infirmary*. I am well aware that it may be urged, on the other hand, that the out-patient department of a general hospital contains examples of most of the common and chronic ailments. This may be true, but every one knows how difficult it is adequately to study or treat such cases, on account of that unknown, yet confusing, factor, the patient's home surroundings. Moreover, on account of the uncertainty and irregularity of their attendances, it is extremely difficult to follow the natural course of the disease; and the possibilities of obtaining autopsies are few and far between.

Such then, gentlemen, is the ample material which is ready to our hands, such is the material for the studies in which I have the honour to invite your co-operation.

* * * * * *

Methods of Investigating Diseases of the Nervous System.

Let us turn for one moment to the various methods of research which may be adopted in the investigation of the pathology of the nervous system. It is usual to mention four methods by which neuro-pathology has at different times become advanced. *First*, a study of *embryology* and development teaches us a good deal concerning the course of the fibres and the anatomical relations of the different parts of the central nervous system.

Secondly, *experiments on animals* and observation of their symptoms during life, followed by their subsequent dissection after death, have been the means of affording valuable information, especially on the Continent, where such research is not hampered by the restrictions which are placed on vivisection in England.

Thirdly, the functions of the different portions of the brain, and the relation of the several columns in the spinal cord to one another, have often been revealed by means of the *secondary degeneration* which takes place whenever the peripheral part of a nerve fibre is cut off from its central cell of origin.

Fourthly, there is what may be called the *anatomo-clinical method*, which consists of the careful and minute observation of cases of injury or disease of the nervous system during life, and their detailed examination, both macro- and microscopical, after death. This method is the only one available in this institution, but I venture to think that, although it is necessarily a slow and laborious process, it is the one which gives the best and truest results. All the other methods must be

submitted ultimately to the control and test of this method. In our investigations here we shall always have before us a case of some kind, the diagnosis, prognosis, and treatment of which is our primary object. However, let it not be forgotten that practical medicine of a rational kind must always be based on anatomy and physiology; and as we go along I shall hope to draw some profitable lessons from facts derived from the other methods above mentioned.

To these four recognised methods, I venture to add a *fifth*, which I term the *method of analogy*. It is in reality a modification of the last named, and has not, so far as I am aware, been included amongst the recognised methods, though it has doubtless been utilised, perhaps unconsciously. It is one which is especially applicable to diseases of a functional nature, and under the very circumstances in which we find ourselves, namely, where so large a number of patients is available that illustrations of almost any kind of disorder can be readily found for purposes of comparison, from a clinical point of view. The method consists in grouping together a large number of cases which have marked clinical resemblances in their course and symptoms. In one or more of such a group of cases the anatomy and pathology will probably be known. Then by the study of these, and by drawing inferences from the known cases to the unknown, we may throw considerable light upon the latter. I have named this procedure "the method of analogy," because it depends upon the study of analogous cases. The subject of muscular tremors and clonic spasms will illustrate what I mean. In a few cases belonging to this large and important group, the anatomy and pathology

are fairly well established, but in the greater number these are purely a question of conjecture. We shall, I hope, be enabled, by the employment of this method, and by grouping the cases into suitable classes, to draw some important conclusions as to the pathology of the functional varieties of tremor and clonic spasm.

Clinical Investigation.—The foregoing are the five methods by which the pathology of the nervous system may be investigated, but it must not be forgotten that these methods and all practical questions relating to diagnosis, prognosis, and treatment centre around clinical observation — the sun around which they all revolve, and upon which they depend for warmth and light. Here we shall have abundant opportunities of practising clinical investigation, and you will pardon me if I say a word or two on this subject. The first thing to do is to get out *the facts of the case*, and it is advisable to adopt a uniform method; namely: First to note the patient's most important, his leading symptom; secondly, to elicit the history of the illness, his previous history, and his family history; and thirdly, to proceed to the physical examination. For this purpose I am in the habit of using this list (Table, p. 10), so that no detail may be omitted, inasmuch as the human memory, after all, is finite.

Now, having done this, the plan adopted by most people is to assume a diagnosis, and see if the case corresponds with it. This method may answer well enough if the case conforms to one of the types recognised in neurology, and if the case be a well-marked typical one—for instance, chorea, epilepsy. Unfortunately,

however, comparatively few cases of disease of the nervous system do conform to a type.

Moreover, we always have to make out two things concerning every case—the *locality* and the *nature* of the lesion, and I believe that the best way, both for purposes of diagnosis and for purposes of research, is to take the

SCHEME FOR CASE-TAKING (NERVOUS SYSTEM).

MOTOR SYSTEM.

Power of walking—Dynamometer—Evidences of weakness—Six Movements, flexion, extension, adduction, abduction, rotation, circumduction.

Stiffness or Flaccidity.

Volume (Nutrition)—Electrical changes.

Tremors—Clonic spasms.

Co-ordination—(and muscular sense).

Reflexes, Deep and Superficial—Ankle clonus.

Nerve-trunks—Pain (neuralgia)—Tenderness—Electrical reactions.

SENSATION. (Increase or Diminution.)

Touch—Pain—Temperature—Localisation—Any delay.

Muscle-sense—(*a*) Appreciation of position of joint, and difference of weights; (*b*) Localisation of position of other limb.

CRANIAL NERVES, and Special Senses. (Acuteness and subjective sensations.)

Smell—nasal cavities.

Vision—Pupils—Fundi—Ocular muscles.

Facial movements—Sensation of face.

Hearing (aerial and per-osseous)—Meatus.

Tongue—Movements—Sensation—Taste (tip and edges; posterior part and palate, each side).

Palate (movements and sensation).

Deglutition—Pharyngeal reflex.

BRAIN.

Speech—Agraphia, Aphemia, Word-blindness, Word-deafness.

Memory—Attention—Intellect—Emotions—Will—Delusions—Hallucinations.

Headache—Tenderness—Vertigo—Vomiting.

Consciousness—Delirium.

Fits (convulsive or syncopal)—Hysterogenic zones.

SYMPATHETIC (symptoms paroxysmal or periodic).

Involuntary muscular system—Incontinence of urine or fæces.

Flush storms—Pallor—Pulse—Colour and Temperature of limbs.

Obscure sensations (formication—pins and needles, etc.).

Dyspnœa (*e.g.*, Cheyne-Stokes)—Palpitation.

Trophic Lesions—Bed-sores—Joint-changes—Eruptions—Perforating-ulcers.

locality and the nature of the lesion separately. (*a*) For the diagnosis of the *locality* we should take the patient's leading symptom, and see what position best explains this and the other symptoms, discussing the several positions which might account for all the symptoms. A knowledge of anatomy and physiology is really all that is necessary for this, and the task is not such a formidable one as might be thought. (*b*) As regards the *nature* of the lesion, there are four features which will help us to come to a conclusion. First, the position of the lesion is some guide; in hemiplegia, for instance, we know that only a few lesions (and those mainly circulatory) affect the internal capsule. Secondly, the mode of onset of the case is important, circulatory lesions coming on suddenly, degenerative lesions slowly. Thirdly, the character of the symptoms affords important information, since destructive lesions of the motor tract, for instance, produce paralysis, whereas irritative ones produce convulsions and rigidity of the same parts. Fourthly, the age of the patient is perhaps as important a matter as any, for, to a very large extent, certain lesions are confined to certain age periods.

Pathology of Functional Disorders of the Nervous System.

In referring just now to the anatomo-clinical method of research, I pointed out the necessity of employing both observation at the bed-side and observation in the *post-mortem* room. Both are necessary for the complete observation of a case. Now, unfortunately, in diseases of the nervous system there still remain a large number of disorders in which *no anatomical changes can be found after death, either with the naked eye or with the microscope,*

which can account for the symptoms during life. These are known as functional disorders; indeed, this is the usually accepted definition, albeit of a negative kind, of the term functional, and at the present time—I say it with regret—these constitute the majority of the cases of disease of the nervous system which come before us. In this group we are still compelled to include such common affections as epilepsy, migraine, hysteria, neurasthenia, chorea, and many other conditions. However, there is still a good deal to be learned about these diseases by their investigation during life. By employing the "method of analogy" I hope, with the large field at our disposal, that our studies may be fruitful, even in this the most difficult domain of medical science. But it is desirable, at the very threshold of our investigations, to analyse the meaning of the term "functional disorders" a little more closely, and see if we cannot arrive at some less negative qualities.

The term "functional" is very often used as synonymous with "hysterical," but it denotes, as I have said, an absence of anatomical or structural changes to account for the symptoms; and it is implied that the symptoms in such cases are due simply to an alteration of function. This does not help us very much, for if there were not a disturbance of normal function, no abnormality, that is no symptoms, would arise. Now, it appears to me that there are at least six ways in which functional nervous disorders may arise. These I will now mention to you, together with the clinical features which, in my belief, differentiate them from one another.

I.—In the first place, to be somewhat paradoxical, there must be a considerable number of so-called functional

disorders in which some *structural* change really exists, though we have failed, by our present means, to discover it. Before the introduction of the microscope, many diseases were formerly grouped as functional which since then have been known to be associated with definite structural changes. The clinical features of these "functional" cases would resemble the clinical features of those actually included among the organic diseases, inasmuch as they would present a certain permanence, stability, and constancy, perhaps even incurability. Applying these clinical tests, by the method of analogy, we might possibly include in this group paralysis agitans, senile tremor, and certain other tremors and clonic spasms.

II.—Secondly, we must not forget that profound alterations of function may be produced by blood conditions due to *toxic substances introduced into the body from without.* The coma of typhus and typhoid fevers and the convulsions of tetanus are illustrations of the profound effect produced by the toxin evolved from a specific microbe. In this group, which we might call *hetero-toxic* disorders, we should expect the case to run somewhat the course of an acute specific fever, namely, a period of rise, a crisis, and a fall, after a more or less definite duration. The symptoms would be as symmetrical and as widespread as the blood itself. By applying the method of analogy, and grouping numbers of cases together, I have long believed chorea to be due to a specific microbe, for four reasons:—(1) it is practically confined to childhood; (2) it frequently arises by what is called "imitation" of one child by another, but what might equally well be called "infection" of one child from another; (3) it runs a natural course and has a more or less definite duration; and (4)

it is intimately associated with scarlatina.[1] Similarly, I believe that the early stage and acute advent of infantile paralysis might be explained in the same way. The limitation of the lesion to the cells in the anterior horns is not against the toxic theory, because we know that other toxins, lead, for instance, have a specific proclivity not only for the nervous system, but for particular nerves. We see other illustrations of this hetero-toxic group in the peripheral neuritis of beri-beri, diphtheria, and alcoholic excesses; probably also in several other kinds of peripheral neuritis, and in the paraplegia after fevers. All of these diseases were classed as functional before changes were discovered in the nerve structures, and at the present time they still belong in their early phases to the so-called functional group.

III.—In the same way alterations of function without, at any rate at first, structural changes, may be brought about by *toxic substances manufactured within the body.* In spite of the advances made in recent years in our knowledge of the chemico-vital changes which take place in the body, we are still very much in the dark on this subject. Nevertheless, we know that in the elaboration of the products of digestion, various substances, such as uric acid, normally absent, or present in the blood only in small amount, may, when in excess, have an evil effect upon nerve structures. Or again, it has quite recently been established that certain glands, such as the thyroid and supra-renals, pour out substances into the blood which are necessary to the well-being of the individual; and if

[1] The above was published in 1899, and these views I have taught consistently since 1886. Chorea has now (1905) been proved by Dr. F. J. Poynton to be microbic.

these be absent or altered in quality, morbid effects arise. In this group, which might be called the *auto-toxic* group, the clinical effects would necessarily vary with the conditions under which the toxic blood state is produced. Take, for instance, those related to the elaboration of food products. Here the clinical features we should expect to find would be:—(1) the symptoms would come on more or less in paroxysms, and would vary from hour to hour in severity according to the amount of toxic matter manufactured at any particular time; (2) in some diseases the symptoms might be related to meals; (3) the symptoms would be as generalised as the blood itself, or at least symmetrical in distribution; (4) these diseases would probably be less frequent in children in whom the elaborative and metabolic processes are less easily deranged. As illustrations of group III, such diseases might be mentioned as migraine, some forms of neurasthenia, and, as regards the disturbances of internal secretion, exophthalmic goître.

In both of the foregoing groups, II and III, it follows that if the symptoms be unrelieved, and the disease become permanent, definite structural changes may result from the continuous morbid effect of the toxic blood state.

IV.—Alteration of function unattended, at first, by definite structural changes, may arise in cases where the *nutrition of the nerve tissues* is at fault. Of course the nutrition is disturbed in the two preceding groups, but here I refer to a simple deficiency, such as arises from deficient nutritive power of the blood, as in anæmic states, or exhaustion from over-use. Here the clinical manifestations would probably come on slowly, would be of a more enduring kind than the preceding, though not so persistent

and unchangeable as in organic diseases; there would be a history of the cause which produced the impoverished blood or the exhaustion; and the case would be amenable to remedies directed to the removal of that cause, and the improvement of nutrition. Illustrations of what is here meant might be found in some cases of neurasthenia (those, for instance, due to "over brain-work"), the loss of memory which occurs in anæmia, and the occupation neuroses.

V.—Serious alterations of function without structural changes may also certainly be produced by a *deficiency, or excess, in the quantity of blood* flowing to a part, without necessarily any alteration in its quality. The quantity is, we know, regulated by those important and little-studied vaso-motor nerves which are themselves part of the nervous system. I believe, gentlemen, that in the study of this, which might be called the angio-neurotic or vaso-motor variety, lies the solution of many hitherto unsolved problems in connection with functional disorders. The clinical features here would probably be, a paroxysmal and constantly varying character from hour to hour and day to day, with a tendency to flushings of the surface. The symptoms usually come on suddenly, and may disappear with equal suddenness. The "attacks" which characterise this group of diseases (such, for example, as syncopal attacks which are explicable by anæmia of the brain) are generally followed by the passage of large quantities of pale, limpid urine. This latter is a most instructive phenomenon, because we are now practically certain, though for a long time it was only suspected, that the amount of blood going to the head is largely regulated by the dilatation and contraction of the vessels of the splanchnic area.

VI.—There is, I believe, yet another group of functional disorders of the nervous system which does not fall within any of the preceding, due to an *increased reflex irritability*, or an increased response to impressions from without, arising either from an inherent irritability of the various reflex centres, or a deficiency of the control normally exercised over the lower by the higher centres. The clinical features we should expect to find here would be :—(1) the occurrence of some of the symptoms in the forms of "attacks," determined by some external cause ; (2) the disease would tend most often to arise in that sex in which, and at the time of life when, the reflex centres are normally most irritable ; viz., in the female sex, and at the evolution and involution of the sexual life, *i.e.*, at puberty and the menopause ; (3) the symptoms would vary from time to time in degree corresponding with the variations in the irritability of the reflex centres and the normal variations in the control exercised by the higher powers. The best illustrations of this group are, I believe, to be found in some of the manifestations of hysteria.

These, gentlemen, are six different ways in which, I believe, functional disorders of the nervous system—those, namely, unattended with any structural changes discoverable by the present means at our disposal—may possibly be explained. At any rate these are the lines along which our researches should, in my belief, be conducted.

Compound causes.—It must not be thought that these several functional causes are capable always of acting alone. Far from it. There is almost always some *predisposing* factor which determines or directs the action of the poison upon the nervous system—or some particular part of it—in one patient, whereas in another patient the

poison may act on a totally different organ or tissue. And this leads me to enter my protest against that kind of reasoning adopted by some observers—generally those possessed of a mathematical turn of mind—who say that unless effect A is always found when cause *a* is present, *a* cannot be the cause of A. This may be true in physics, and in conditions where we meet with single causes and effects. But in medicine a pathological effect or a symptom is never the product of a single cause; we invariably have to do with a compound cause—a predisposing and an exciting one. No one, for instance, now doubts that diphtheria is the effect of a specific contagium, a microbe; but when the infection is introduced into a school full of children, many of whom are almost indistinguishable to the casual observer, only a certain number contract the disease. Again, only some of those who take the diphtheria afterwards develop peripheral neuritis. Now, this is undoubtedly due to some diminished resistance in the individual, inherited or acquired, to diphtheria; and, in the case of those who develop the neuritis, some similar diminution of resistance in the nervous system.

Resemblance between structural and functional diseases.—Before leaving this question of the pathology of functional disorders of the nervous system, I wish to say a few words on a matter of the highest importance, namely, the similarity, or, as some say, the simulation of certain organic by certain functional diseases. In the course of infirmary work we meet with malingerers, shammers of illness, who have perhaps observed a certain malady and purposely imitate it; but I do not refer to this kind of

simulation, which is a fraudulent practice with an adequate motive, namely, the avoidance of work. What I mean is the remarkable way in which, for instance, a case of hysterical hemiplegia may resemble a case of hemiplegia due to an embolism in the internal capsule. Indeed, in general terms, some hysterical disorders of the nervous system mimic certain organic disorders so closely that the term neuromimesis, or "nervous mimicry," has been suggested for the former by several very eminent authorities, who regard these disorders as of purely psychical origin,[1] and thus lead one to infer that these patients can cure themselves as readily as they have *presumably* produced the disease. They would have us believe that it is all a question of self-control, and that such patients are to blame for not curing themselves. Now, it is true that the sudden way in which such symptoms appear and disappear lends considerable support to these statements; but I believe this view to be entirely erroneous.

You will perhaps ask, how otherwise are we to account for this remarkable similarity? In the first place, I would ask you to observe that this mimicry, if it be real imitation of a definite pathological condition, would endow such patients with a very remarkable intelligence, far above anything they ever really possess. Now, I am able to affirm, from an extensive infirmary and workhouse experience, that hysteria is quite as frequent amongst the poor and ignorant as amongst the wealthy and intelligent, if not more so. How is it possible for such patients to manufacture hemianopsia and total hemianæsthesia, sensitive and sensorial?—and even more elaborate groups of symptoms? Secondly, I have seen over and over again

[1] *e.g.*, Sir James Paget: "Lectures and Essays."

cases where the strongest possible motive existed for recovery, and where the greatest inconveniences had to be endured on account of the illness from which they suffered. I am quite prepared to admit that the emotional attacks with which they are sometimes affected, and perhaps some of their other symptoms, are more or less under control; it is so in all functional disorders, whether due to a toxic state of the blood, or early undiscoverable organic changes. But I have always maintained that the disease is as real and as disagreeable to them as an attack of scarlatina, and all who study these cases closely from day to day will admit it. Finally, I believe that the true explanation of this imitation, simulation, or, as I would prefer to call it, similarity, may be explained in a manner more reasonable. It seems to me much more probable that the similarity of the symptoms is due to an involvement of the same structures as are affected in organic cases by some pathological process which our present means of investigation fail to discover. I have already referred to certain features which characterise nervous disorders, where the pathological condition is a deficiency or irregularity of the blood supply (p. 16, ante), and these are just the features which characterise hysterical disorders. Now, what would be more likely than that the symptoms due to a deficient or irregular blood supply should resemble or mimic those due to a complete cessation of the blood supply (*e.g.*, embolism) of the same structures? We know what a delicate structure the brain is, and if there be an anæmia, or a flushing (such as we can very often see for ourselves in the vessels of the skin) of the whole or part of the brain—for instance, one hemisphere or one or other of the idio-motor areas—what is more likely than that

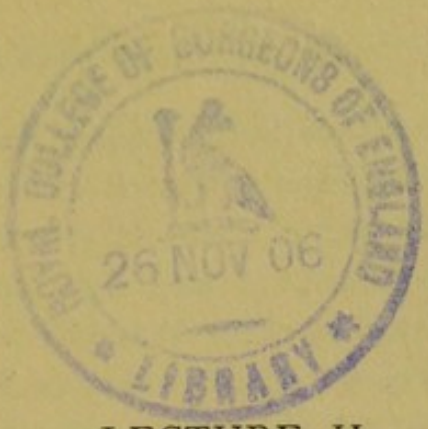
paresis of the corresponding limbs should result; that the paresis should come on suddenly, as in all circulatory cerebral lesions; that it should vary from day to day, and disappear as suddenly without leaving a trace behind it? This, in brief, is my view of the pathology of many hysterical disorders; the pathology of other hysterical disorders and the complexities of this difficult subject are dealt with elsewhere.[1]

* * * * * *

In conclusion, gentlemen, it will be necessary for us to bring to these enquiries a wide range of knowledge. It is, in the first place, no narrow speciality that I am inviting you to study. The diseases which we shall meet with are very numerous, and of almost endless variety. The symptoms are often so obscure that even the sufferers themselves find it hard to describe them, although they may constitute some of the gravest and most troublesome conditions that can tax our patience. On the other hand, the problems which will come before us constitute some of the most fascinating of those which have puzzled philosophers in all ages, concerning as they do the phenomena of the human mind. For the investigation of these various questions, all medical knowledge, no matter of what kind, all scientific information, no matter to what department it may belong, and all branches of human knowledge will be laid under contribution. But I maintain that the preponderating rôle belongs to clinical observation and research. It is only by these means that other methods, laboratory and experimental methods,

[1] See also pp. 16 and 17, *ante*; *The Lancet*, June 1 and July 23, 1901; *The Clinical Journal*, May 25 and June (pp. 88 and 103), 1904; and *The Lancet*, January 30, 1904, p. 273.

whose value I do not for one moment deny, are tested and controlled. And, finally, when the anatomy of a disorder is unknown, and the diseased symptoms cannot be experimentally produced, the only method by which we can study its pathology is by careful clinical observation and comparison with symptoms and diseases the pathology of which is known.



LECTURE II

ON NERVOUSNESS OR NEURASTHENIA

SUMMARY :—*Diseases of the nervous system are more curable than is generally believed.—Great frequency of neurasthenia.—Limitation and definition of the term.—Cases.—Symptoms : Nervousness, headache, disturbed sleep, restlessness, pains, irritability of temper, indescribable sensations, agoraphobia, claustrophobia, amnesia, inattention (hence the inaptitude for mental work), vaso-motor symptoms.—Pulse.—Vertigo.—Gastric symptoms.—Urine.—Temperature.—Physical signs almost wanting.—Course, Prognosis, and Complications.*

GENTLEMEN,—Although a good many nervous disorders are chronic and resist treatment, there remains, on the other hand, a very much larger group which are essentially remediable. It will be noticed that this statement is somewhat at variance with the generally held opinion, but I hope to be able to show you that it is correct. Taking nerve diseases as a whole, the largest group of cases which come before us in private and hospital practice is undoubtedly the functional one, comprising, besides the subject of our studies to-day, migraine and other paroxysmal neuroses, chorea, and the wide domain of hysterical affections ; and a large proportion of these tend either to spontaneous recovery or yield to appropriate treatment. In the various forms also of neuritis, neuralgia, and kindred complaints which have

not yet in every instance been actually demonstrated to be related to gross lesions in nerve tissues, there exists another considerable group which is very largely remediable by appropriate means. I hold that even the organic diseases are less incurable than is usually taught, for they include many a chronic case which goes from physician to physician, and in this way counts as a fresh case over and over again. Moreover, these organic cases are not as fatal, nor as rapidly fatal, as many diseases of the heart, kidneys, and other organs. Even for the incurable nervous diseases something can be done by proper management, as I often had occasion to demonstrate in the Paddington Infirmary. We shall, I believe, have abundant opportunities of observing here [1] also that diseases of the nervous system are not so incurable as the casual observer is apt to suppose.

Coming to the subject of to-day's lecture, it is often the fashion to select, for meetings such as these, rare conditions which present features of interest, perhaps by reason of their very rarity; but I have thought it best to select the very commonest. Among the great number of persons who daily apply for relief at the out-patient department of this hospital, a large proportion, while apparently free from any discoverable morbid lesion, bitterly complain of a variety of distressing and peculiar sensations, which, though vague and indefinite, are obviously most distressing and disabling. Very often they come and say simply that they feel "nervous." Now, when you have investigated these patients, in nine cases out of ten you come to the conclusion that the disorder they are suffering from is neurasthenia. Thus it happens

[1] West End Hospital for Diseases of the Nervous System.

that this condition is one of everyday occurrence, and therefore one of considerable importance. Nevertheless, strange to say, it is either not referred to at all or is very inadequately dealt with in many of the text-books in current use.[1] No apology, therefore, is needed for introducing this subject to your notice to-day. It is certainly a drawback that there is rarely anything tangible to show in these cases; physical signs are usually conspicuous by their absence. I can only bring the patients before you, so that they may describe to you the strange sensations which they feel.

I do not mean to say that every patient who comes complaining of nervousness suffers from neurasthenia. A few of these patients turn out to be suffering from hysteria, but hysterical patients are "nervous" all their lives, and therefore as a rule are too much accustomed to it to consult their doctor; but many a strong-minded man is in these days overtaken by neurasthenia. To him the symptom is new, strange, and disagreeable, and one for which he promptly seeks relief. A few apply the term "nervousness" to muscular tremor, and some apply it loosely to certain mental symptoms for which they cannot find a name. But some 90 per cent. of the patients who come complaining of "nervousness" are found to be suffering from neurasthenia.

Let me at once correct the idea that neurasthenia is a new name for hysteria; it is not so, though it seems more than likely that many of the cases we now know as neurasthenia were formerly grouped in the class hysteria. The cases to which I refer form, as you will

[1] This was so in 1899. Now, in 1906, considerable space is devoted to the subject in all the current text-books.

shortly see, a legitimate group of their own, distinct from hysteria on the one hand, and from melancholia on the other.

It is well we should, at the outset, clearly understand what is meant by the term neurasthenia, though the symptoms the sufferers from this disorder present are so varied that it is difficult to give a satisfactory definition. In order that we may have a common basis of understanding, I may say that I regard neurasthenia as *a generalised irritable weakness of the entire nervous system, characterised* (when the brain is chiefly affected) *by hypersensitiveness of the sensorium, loss of mental and bodily vigour, inaptitude for work, disturbed sleep, and irritability of temper; and* (when the spinal cord is chiefly affected) *by general muscular weakness, restlessness, nervousness, and vague pains; and usually accompanied* (in both forms) *by various phenomena referable to the vaso-motor and sympathetic systems.*

Some observers divide neurasthenia into a large number of varieties; but I fail to see the advantage of this. For instance, authors sometimes speak of gastric or cardiac, or pulmonary, and other varieties of neurasthenia, according to the organ to which the symptoms are mainly referable. But this does not seem to me scientific, for it is undoubtedly a general disorder, and all of its symptoms are manifested through the nervous apparatus which permeates the whole body. These two forms, the cerebral and the spinal, are always more or less combined; neither occurs alone, though generally one or the other predominates.

To-day we shall confine our attention to the clinical aspect of the disease. If we can get a true clinical picture

fixed in our minds, we shall be less likely to go astray when we come to study the pathology of this important malady.

The *first* case I want to bring to your notice is a typical one; it is that of a policeman, aged 37, who came here on December 17, having suffered from pains in the back and head for six weeks. He describes the headache as being like that produced by a hat which fits him too tightly, or a burning feeling round the forehead; he has also had "staggering" at times. What seems to have occasioned the attack principally was his being placed on "traffic duty." At once, he says, he became very "nervous," starting on the slightest provocation; his sleep was disturbed by "jumps" and terrible dreams, in which he thought he was being run over. His condition of nervousness and inaptitude for work, both mental and physical, by reason of the general weakness was pitiable. He was taken off "traffic duty," and I prescribed for him bromide of ammonium, 15 grs. three times a day, with an appropriate regimen, and in the course of three weeks he has become quite well again. Never, at any time, did he have any indication of disordered digestion, but for some considerable time before going on "traffic duty" he had been unable to procure sufficient sleep.

CASE I.

The *second* case is that of a man aged 28, a case of neurasthenia of gastric origin. He came here on November 17, complaining of a general nervousness and inaptitude for work, and of two sorts of attacks. In the one he has "heartburn" (acid eructations) and flatulence, followed by a burning sensation in the stomach, and pains round the

CASE II.

waist like "diarrhœa pains." The flatulence is followed by a feeling of trembling and faintness, and finally he is seized by a fit of shivering all over. He has these shaking fits about three times a week. Water, or something to drink, sometimes relieves them. He also has another kind of attack, and these he calls "helpless attacks"; and as an illustration of the kind of patient one has to deal with, I may mention that he sent his wife, not having the courage himself, to tell us that sexual intercourse produces these latter attacks, and also that he has involuntary nocturnal emissions during his sleep, which also produces them. On the day following either of these events he is subject to attacks of complete helplessness and prostration, lasting from one to three hours. He is affected thus about every two or three weeks. He was in a remarkably "nervous" condition, and was terribly apprehensive lest the battery should be applied to him when he came here. I first treated him in the usual way for his gastric trouble, giving him a mixture of rhubarb, soda, and cardamoms, and then bromide of ammonium, 10 grs. three times a day, and he is steadily improving. His malady has lasted for two or three years, and for two or three years before that he had had gastric troubles incidental to his occupation, which is that of a cook. Probably his indoor mode of life has something to do with his attacks, but the main cause undoubtedly is dyspepsia, which has resulted in deranged nutrition of the body generally, and the nervous system in particular. It is curious that he has had no headache, which is so common a symptom in these cases. As I question the patient, you will see that these points all come out; he is a sallow, unhealthy-looking

man, but he presents no physical signs, and his viscera, other than the stomach, are healthy.

CASE III.

The *third* case is that of an engine-fitter, named A. H—, who is 32 years of age; his illness commenced with a malady which very frequently precedes and determines functional disorders of the nervous system—influenza. He has lived a very healthy life, and was never nervous until two years ago, when he had influenza, complicated, it was believed, with "congestion of the brain"; and since then he has suffered from general weakness and giddiness, always on going into the open air, and singing in the ears almost constantly. He has also had attacks (two or three a week) which he will describe to you. He says an attack begins like "a wave of prickling," commencing in the head and running down the trunk and legs, chiefly on the right side. This is followed by a feeling of fulness at the top of the head, which "seems as if the blood will burst through the nose"; and finally there is a cold feeling down the right arm and the right leg. The hemiplegic limitation of these subjective symptoms is a circumstance of the greatest interest. They are obviously of vascular origin, for he assures us (and he is a very intelligent man) they are accompanied by a *flushing of the right side of the body and limbs*, followed by pallor when the cold stage is reached. Between the attacks he feels too weak to work, and is subject to dyspnœa on the least exertion. He has also several other symptoms referable to the vaso-motor system—such as localised flushings followed by shiverings, and cold hands and feet. During the attacks, of which I spoke just now, he feels as though he must "talk to some one, or else he would

jump out of the window." Moreover, this man has had delusions of various kinds; not permanent, but grave enough. He tells us he has had an inclination, on several occasions, to murder the baby, and that he really feels most miserable and depressed. It is possible that some might feel inclined to make light of these symptoms, but I assure you, only those who have suffered from neurasthenia can have any idea of the extreme misery these people suffer. The sensations of bodily illness, depression, helplessness, and weariness are really some of the most miserable feelings that can curse humanity. This man had a transient attack of left facial paresis (probably from peri-neuritis) during convalescence from influenza, another illustration of the marked proclivity this disease has for the nervous system. At first he was put on a stomachic mixture with ammoniated tincture of quinine (a valuable remedy in most complications of influenza); then on gentian, alkalies, and nux vomica; and now he is taking valerianate of zinc.

CASE IV.

The *fourth* case is that of a woman aged 30, who was quite healthy till eighteen months ago, when a child, to whom she was very devoted, died. Since then she has suffered from great depression and attacks of extreme "nervousness," which come on irregularly but frequently during each day, are attended with severe flushing, shivering, palpitation, and perspiration, and followed by great agitation and floods of tears. She also suffers from cold hands and feet, and occasional "faints." This case resembles hysteria in some of its features, but she has had none of the active manifestations of that disorder—no paralysis, spasm, anæsthesia or seizures—whereas all the chief indications of the other

disease are present. She complains, moreover, of a very common symptom in neurasthenia—she dreads to be alone. When so left she says the feelings of terror and dread of impending evil which come over her are indescribable. She cannot even come to the hospital without a companion. She has had ammoniated tincture of valerian and bromide of ammonium, but so far the medicine has only partially relieved her ; for her cure it will, I believe, be necessary to remove her completely from the conditions under which the neurasthenia arose.

There is one other case which I should like briefly to relate, which occurred in my private *clientèle.* It is that of a post-office clerk, aged 37, who had worked very hard and closely at figures since he was fifteen years of age. He came to me to decide whether he should give up his post, as he had been advised to do by two other medical gentlemen, because of his incapacity for work, and his complete failure to obtain relief from the distressing symptoms. Great depression, inability to grasp mental facts, incapacity to remember names, and a dread lest he should make a mistake in his work, were the symptoms of most note in this case. I have noticed that this fear of making a mistake in their work is a very common symptom among neurasthenics. He had had for a long while severe headache resembling the headache due to asthenopia, *i.e.*, a headache which is bad on first rising in the morning, getting better during the day, and then worse again in the evening. In this case, as in the first I showed you, there were never any gastric symptoms.

CASE V.

I found he had a very serious error in his refraction, and accordingly I sent him to my colleague, Mr. H. Work

Dodd, who fitted him with glasses. Six months after I first saw him he wrote me that "the glasses had worked wonders" and that he was "completely cured" by having his error of refraction corrected; that he had kept his position in the Civil Service, and was working as hard as ever, this time without any of the distressing symptoms for which he had been condemned to abandon a lucrative post, and to throw his wife and children upon the charity of others.

I have not troubled you with all the details of this case, but it seems to me a very interesting one, in that the neurasthenia, which was of a marked cerebral type, and attended by mental symptoms of considerable gravity, was in the course of a few months completely cured mainly by correcting the error of refraction, and so relieving his great "anxiety at not being able to see properly." [1]

These, then, are examples, fairly characteristic examples, taken from an enormous number which I could bring before you of this extremely common condition.

I will next mention to you, in the order of the frequency in which, according to my experience, they occur, the SYMPTOMS of neurasthenia, derived from an analysis of 127 cases. The chief complaints which these patients make, even in the slightest cases, are (1) that they are *easily startled* and *easily tired*. The nervousness, *i.e.*, "being easily startled," is mostly accompanied by definite general muscular weakness, or a lack of endurance, a feeling of always being tired, even when they rise in the morning; and in some cases of a severe type they are incapable

[1] Six years later this man relapsed and retired from the service. He was then suffering from intractable gastro-intestinal sepsis, which was only slightly in operation before. The case illustrates the potency of compound causes.

of any muscular exertion at all. In less severe cases their movements are weak and uncertain, and attended sometimes by tremor or inco-ordination. This general weakness is probably due to deficient initiation of the motor impulses in the brain cells.

(2) *Headache* is the next most common symptom that one meets with, though you will observe that it was absent in one of the four patients whom I have shown you to-night. It is, however, very rarely absent. Charcot used to describe this headache as the "casque neurasthenique," a feeling as though the patient were wearing a tight-fitting helmet; but this is not an invariable feature. They often complain of a fixed pain in one particular spot. "My headaches always finish up with a sharp pain on the left temple, which I could cover with the thumb, and there it stops," said a patient to me the other day. Frequently giddiness accompanies headache—not true vertigo, but a sensation of "dizziness," or "swimming."

(3) *Disturbed sleep.*—This symptom is not always true insomnia. Indeed, the patients often appear to be very sleepy people; but their sleep is disturbed by bad nightmares and restlessness. A marked characteristic of this disturbed sleep is that as they drop off they start violently. "Night-terrors" frequently break their rest, and delusions or dreads of imaginary evils trouble them in the semi-waking state, especially in the morning.

(4) *Restlessness.*—Although these patients are so weak, they feel compelled to keep perpetually moving, continually "on the fidget." This restlessness often manifests itself in constant jerkings and twitchings of the limbs. I have just now a patient in my private practice who is absolutely unable to sit in one position for a single second

and who is constantly jerking her limbs about. Moreover, these patients have a constant desire to be anywhere else than where they are. These symptoms are doubtless familiar to many an overworked doctor and to others who are unable to take sufficient repose or relaxation. This restlessness may take the form of definite attacks of agitation or tremor, as in the case of a commercial traveller I shall show you (Lecture IV, Case X); and it is sometimes combined with exaggeration of all the superficial and deep reflexes, especially the latter. The knee-jerks may be normal or increased, but they are never absent in neurasthenia.

(5) Small, rapid, rhythmical, vibratile *tremors* of the hands are commonly observed in neurasthenia. They resemble very closely those of general paralysis of the insane, but do not usually affect the lips and tongue. Sometimes there is an unsteadiness or uncertainty of movement which almost amounts to inco-ordination.

(6) *Pains in the back and limbs, and general hyperæsthesia.* —These pains in the back the older authors used to call "spinal irritation," or rachialgia. Sometimes a pain predominates and persists in one particular spot; occasionally it is accompanied by tenderness over the corresponding spinous processes.

The presence of a *fixed pain* in one particular place is fairly characteristic of neurasthenia; but I cannot say that tenderness on tapping over the spinous process has been at all constant, or even frequent, in my experience. But "pain" is a generic term used by these patients to describe all their disagreeable sensations, and if you enquire carefully into these "spinal pains," you will generally find they are seated chiefly in the ligaments

and muscles of the back, and that the tenderness also is generalised. It is a tired aching, and resembles the indescribable weariness felt after a person has been sitting bolt upright for a long time. This kind of feeling is, indeed, rarely altogether absent, and may prevent the patient from sitting up, or even standing upright. The "pains in the limbs" also very generally affect the muscles, ligaments, and joints; and these again resemble the weariness of unaccustomed exercise.[1] True neuralgias of various kinds may complicate neurasthenia, but what I refer to now differs considerably from the pain of a sciatica, a facial neuralgia, or even a pleurisy.

With these spinal pains there is often combined a generalised hyperæsthesia of the skin, and sometimes of one or more of the special senses. Patients may be so sensitive that a slight draught, or the slamming of a door, gives rise to acute pain. True anæsthesia is comparatively rare, but a "numbness," "coldness," "deadness," and an endless variety of other paræsthesiæ of the hands, feet, and various other localities, are extremely common.

(7) The *special senses* may be affected, and there may be photophobia and singing in the ears. One of the patients I have shown you suffers in this way, and he also complains of *muscæ volitantes*. Sometimes there are actual hallucinations, and anæsthesia or hyperæsthesia of the special senses frequently comes on after they have been used for a short while. The vision may be imperfect, and careful investigation may reveal, in such cases, a marked retraction of the fields of vision, or

[1] The localisation of these "pains" in the joints may perhaps have given rise to the idea that neurasthenia is an "arthritic neurosis" (Axenfeld et Huchard. "Traité des Névroses," Paris, 1883).

even hemianopsia, without discovering changes in the fundi oculorum.[1] Sometimes the hearing is imperfect in one ear, though the most thorough investigation does not reveal any structural defect. The *pupils* of these patients are frequently found to be widely dilated, and may not react well to light.

Let us now turn to the symptoms referable to the mind, which are of equal, if not of greater, importance. I shall have a good deal more to say about the mental symptoms on a future occasion (Lecture VII), but the following are commonly met with :—

(8) *Timidity* and lack of self-confidence are characteristic of this disorder. The second of my cases was an illustration; and I might quote another, if you will pardon me, who volunteered that he had not the "courage of a louse," though formerly he was afraid of nothing. *Imaginary fears* and dreads ("phobias," Greek φόβος = fright) of many kinds, usually coming on suddenly in the form of attacks, terrors, or "panics," as I call them, trouble these neurasthenic patients. Here is a list of them : the fear of a nameless imaginary evil, something that is going to happen; a fear or panic which comes on in an open space (agoraphobia), or even in crossing a road, or in a room or closed space (claustrophobia); fear of being alone (monophobia)—many of my hospital patients dare not for the life of them come to the hospital alone; terrors which come on in a railway train[2] (train-panic); inordinate fear of thunderstorms (I

[1] This important feature is referred to again in a case of traumatic neurasthenia.

[2] Two quite recent instances (February, 1906), where the mangled body of a girl was found in a railway tunnel, have created great sensation in the public press, and much blame has attached to the police for not finding

have met with two well-authenticated cases who could foretell a thunderstorm by several hours, a male and a female, who ran away and hid themselves, trembling, to the darkest and remotest corner of the house panic-stricken with fear); an inordinate dread of catching disease (nosophobia); a fear of ascending heights (acrophobia); a fear of high things falling (batophobia), and many others.

(9) *Irritability of temper* is a marked feature in most cases, and is only part of the want of control, and the irritable weakness of the nervous system. The small worries of life become magnified, and do what they will the patients cannot shake them off. There is always a tendency to depression, sadness, melancholy, a dread of some imaginary evil which cannot be named—outbursts of tears, not laughter, as in hysteria—and the physiognomy of the patients is in keeping with their gloom. As the patients themselves declare, their sensations are "horrible" and "indescribable," and it is often difficult for them to find words to express their feelings. One must bear in mind that in these cases the moral nature is also upset, and patients are apt to be more irritable and annoyed with the people they formerly liked best—*e.g.*, their wives or their doctors—and thus it happens that neurasthenia slips into insanity, for, as Esquirol remarks, "moral alienation is the first step to madness."

the murderers. To my mind they admit of the probable explanation that both of these young women were the subjects of neurasthenia, or hysteria (which also occasionally exhibits the same symptoms), and finding themselves alone, in a closed space, surrounded by noise, and perhaps by darkness or gloom, were taken with a panic, and rushed blindly to their fate. The inference, I believe, is that railway carriages should be better lighted, that solitary railway travelling should be avoided by subjects of this disorder, and that these two cases still require the investigation of the physician rather than the detective.

(10) *Defective memory* is a very constant symptom of neurasthenia; it was present in all the cases shown you to-day. A loss of memory for names is very characteristic.

(11) *Inaptitude for mental work* is also a prominent feature, and this happens because the patient cannot concentrate his Attention. It is a lack of Attention that is the real difficulty—in other words, it is the deficiency of Will. This same deficiency makes itself manifest in other ways; they are irresolute, they are very vacillating, and it is the lack of will power and attention that is at the bottom of their inability to work. I remember Dr. S. H. Savage telling me of an interesting case of this kind of a man who was unable to make up his mind to do anything. When Dr. Savage told me the story, he mentioned as an illustration of this defect that the patient could never make up his mind to get up in the morning, and I thought that there are a great many people who exhibit this difficulty who are not supposed to have any mental defect. But this person, he also told me, when travelling across a desert where there were many brigands, took off his boots and could not make up his mind to put them on again.

(12) True *delusions* and *hallucinations* are rare in neurasthenia, and if present should make one fear the case is drifting into insanity. Suicide is not uncommon, but homicide is very rare.

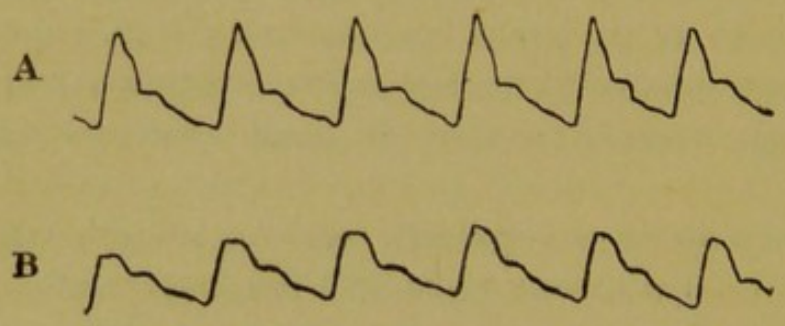
(13) There is yet another important class of symptoms which belong, in my belief, to the *vascular and vaso-motor systems*. Long-drawn sighs and yawning are characteristic symptoms in these cases. Attacks of causeless palpitation, or of general "flushing," followed by pallor, shivering, or sweating are also common. These patients

frequently suffer from cold hands and feet, or complain that they go "numb," or "dead," or "blue," without provocation. The *tâche cérébrale* of Trousseau can often be elicited. They may also complain of throbbing, heaviness, bursting of the limbs, or a prickling feeling, or a sensation of insects crawling over the extremities (formication), which, as I have so frequently before pointed out, may be associated with neuro-vascular disorder.

I have observed in several cases of neurasthenia that the three symptoms (1) irritability of the skin (really a pruritus, sometimes accompanied by dermographia, urticaria factitia, or prurigo), (2) irritability of temper, and (3) restlessness of the limbs, increase and diminish together; and I am gradually coming to the conclusion that these associated symptoms point to some hæmic or vascular defect.

The pulse in neurasthenia may be normal, but it is ar more often unduly rapid, and frequently weak; sometimes it is irregular in rhythm; but the feature which is more characteristic than anything is its "excitability." The least thing—any little noise, the presence of a stranger, or any slight excitement—will start the pulse off at a very rapid and often irregular rate. The arterial tension has been low in those cases which I have examined for this purpose. I show you here a well-marked illustration of this condition, taken from the first case you saw to-day. The two tracings (p. 40) represent, A, the condition of the pulse when the patient was suffering from neurasthenia, and B, a tracing of the same pulse after recovery. My observations on this point have not been sufficiently numerous to generalise, but my belief is that there is generally reduced tension.

Vertigo, or a feeling of dizziness, or faintness, sometimes going on to actual syncope, was noted as present in a certain proportion of my cases. In most patients it came on from time to time, especially after meals, but in some it was constantly present. This swimming, or "unsteadiness" in the head, was apt to appear on assuming the erect posture, and might cause an uncertainty or swaying in the walk. These characters of the vertigo were very like those met with in disordered circulation, to which category, in my opinion, neurasthenic vertigo belongs. A peculiar feeling as if the patient were sinking



through the earth, or the bed, which is complained of by many neurasthenic patients, also belongs to the same category. It is, I believe, an evidence of the disturbance of the cerebral circulation. I have elsewhere described the characters of "postural vertigo," which are in my belief peculiar to circulatory disturbance and irregular vaso-motor adaptability.[1]

(14) *Gastric symptoms* not infrequently accompany neurasthenia, and collectively may have a strong resemblance to true gastric disorder. These symptoms, which are apparently the result of gastric weakness,

[1] *Transactions of the Pathological Society of London*, 1904, and *British Medical Journal*, Jan. 23, 1897.

"gastric neurasthenia" as it is sometimes called, must not be confused with the dyspepsia which so often precedes neurasthenia, and I hope to show you later on how these neurasthenic gastric symptoms differ from those of true dyspepsia.[1]

(15) *The urine* is usually abundant after the exacerbations to which some of these patients are liable; it is pale and of low specific gravity, but otherwise normal. At other times there may be an excess of lithates. In all those cases of neurasthenia, some thirty or forty in number, in which I have had an opportunity of analysing the urine there has been a constant excess of the phosphates. Other patients have complained of a flocculent deposit, probably due to this excess, and two of them, both medical men, were much alarmed thereat. There is no doubt in my mind that the vague nervous symptoms which have been associated with "phosphaturia" are neurasthenic, and that the disorder described under that name is neurasthenia. The excess of phosphates is probably related to the excessive or faulty disintegration of nervous tissues.

(16) The *sexual desire* is occasionally increased, but it is far more frequently diminished or lost. Sometimes I have been consulted mainly on this account.

(17) *The temperature* is always normal, or subnormal, although occasionally the surface of the skin feels hot—to the patient perhaps "burning."

These are the symptoms which I have arrived at by an analysis of my cases, and I have ventured to dwell on them because they do not receive the attention which this distressing condition merits. Cases vary widely in

[1] These differences are given categorically, and the whole question is fully discussed in Lecture IV.

severity, and perhaps it is because the symptoms are so vague, and *to the observer* appear so trivial, that the current text-books frequently neglect the complaint.[1]

It will be observed that nearly all the symptoms are subjective. The exaggerated knee-jerks, which are by no means constant, and the retraction of the fields of vision, or possibly hemianopsia, are the only objective signs, and these are difficult to elicit—and only occasionally present.

Course and prognosis.—Neurasthenia is essentially a chronic affection. It usually starts gradually, although its onset, especially when referable to emotional or traumatic causes, may occasionally be sudden. Its course, when unmodified by treatment, may be prolonged over many months or years, broken by numerous periods of temporary improvement or exacerbation. It has a great tendency to relapse, which is aggravated considerably by the habit these patients have of leaving off treatment directly they feel a little better. In most cases there is no danger to life, but the inconvenience, the suffering, and the disability these patients undergo are often very great. They drift into chronic invalidism and become a burden to themselves and their relatives; many cases pass into insanity (see Lecture VII); many drift imperceptibly into hypochondriasis. If the cause of the neurasthenia be irremediable, and there be an hereditary taint of insanity, the mental prognosis at once assumes a very serious aspect. On the other hand, if the cause be recognised and removable there is, I believe, no nerve complaint which is more amenable to treatment. The most unfavourable symptoms are melancholy and alterations in

[1] This last statement is less true now (1906) than when the above was written.

vision, both of which indicate, in my experience, considerable disturbance of the nervous system, and are apt to be very persistent. I have known the latter to remain unaltered for five years. In general terms the prognosis depends chiefly upon three conditions—the age of the patient, the duration of the cause, and its removability. In patients under thirty, where the cause has been in operation but a short time, and is readily removable, relief or recovery in a few months may be expected. In the aged the disease usually runs a prolonged, intractable, and occasionally fatal course.[1]

The *complications* of neurasthenia usually take the form of some nervous disorder, to many of which these patients become an easy prey. Some form of insanity is perhaps the most frequent of the true complications, a fact which, unfortunately, the patients seem to know intuitively. This will form the subject of a separate lecture (Lecture VII). Hypochondriasis is, as just mentioned, a frequent sequel to prolonged neurasthenia. Neuralgias of one kind or another constantly occur. Writer's cramp and other occupation neuroses are very frequent; habit spasm, chorea and choreïform movements are occasional complications. More frequent than any of these are various disorders belonging to that large and unexplored domain, the angio- and toxo-neuroses, *e.g.*, acroparæsthesia, pruritus, and various forms of erythema or urticaria. These have a pathological bearing which we shall consider on a future occasion.

[1] In a series of 103 private cases of neurasthenia which I have lately analysed, 40 per cent. could be classed as relieved, and 54 per cent. as cured. (*The Clinical Journal*, June, 1906.)

LECTURE III

THE DIAGNOSIS OF NEURASTHENIA

SUMMARY:—*Absence of physical signs fallacious.—Neurasthenia not a new name for hysteria; essential differences of these two diseases enumerated.—A case of hystero-neurasthenia; meaning of that name.—Table of diagnosis between neurasthenia, hysteria, and hypochondriasis.—Diagnosis from incipient diseases of the nervous system, from Graves' disease, from certain debilitatory conditions such as chronic Bright's disease and latent tuberculosis, and from various hæmic and toxæmic conditions.—Diagnosis from insanity dealt with elsewhere.—Conclusions.*

GENTLEMEN,—The very vagueness of the symptoms of neurasthenia is an aid to diagnosis. There are certain cardinal symptoms which are rarely absent. Nervousness occurs, as already mentioned, in other diseases, but it is the cardinal and invariable symptom in neurasthenia; the patient complains of being easily startled and easily tired, of intellectual and bodily enfeeblement, of headache, restlessness, and of various vague disagreeable sensations. The presence of these and the absence of any serious organic visceral lesion consistent with the symptoms may enable one to arrive at the diagnosis. However, the absence of physical signs is not only unsatisfactory, but, as we shall see later, when the causation is considered, apt to be fallacious, and therefore the close resemblance of the symptoms of neurasthenia to hysteria, hypochondriasis, and some other maladies, merits very careful consideration.

Hysteria is the disease which undoubtedly gives rise to most difficulty in the diagnosis of neurasthenia, and it is evident that many cases of the latter were in former times included in the category of hysterical affections. So much do they resemble each other that it is quite a common error even among well-informed medical men to regard neurasthenia as a new name for hysteria, a term which they are glad to discard, as it conveys an opprobrium in the minds of the laity. But I hope to show you that there are essential clinical and pathological distinctions between these two maladies which can be revealed by attentive observation. The difficulty occurs in this way: the symptoms of both complaints may arise in the same kind of "nervous" individuals, and sometimes under the same causal circumstances, and therefore they may be concurrent in the same person as in the case of hystero-neurasthenia, which I will shortly bring before you.

There are six principal features in which hysteria and neurasthenia differ from each other. *First*, neurasthenia is about equally common in both sexes, whereas hysteria is very rare in the male. *Secondly*, hysteria is essentially a paroxysmal, neurasthenia a continuous, disorder. *Thirdly*, in many cases hysteria takes the form of a localised paralysis or tremor closely resembling a localised lesion of the nervous system, whereas neurasthenia is essentially a generalised exhaustion; for instance, hemianæsthesia, so common in hysteria, is never met with in neurasthenia, though generalised hyperæsthesia is fairly common. *Fourthly*, in hysteria the emotional disturbances predominate, whereas in neurasthenia intellectual weakness takes the lead, and attracts our notice first. In hysteria it does not at all follow that the intellectual functions are weak

or disturbed—some of the brightest intellects of our times have been hysterical subjects; but neurasthenia is always a bar to intellectual work. *Fifthly*, the age of incidence of the two maladies differs, as we shall see when we come to the etiology. *Sixthly*, hysteria, as I have shown elsewhere,[1] is essentially an *inherent congenital defect* in the nervous system of the individual, so that a person is liable to hysterical outbreaks throughout life, whereas neurasthenia is an *acquired disorder* determined by some morbid condition in the life of the individual. This last is an essential and pathological difference hitherto, I believe, insufficiently studied, which I hope to deal with on a future occasion. The clinical distinctions are summarised in the table on p. 48.

CASE VI.

Here is a case which presents symptoms of both maladies. Minnie H——, aged 29, a widow, came to the Hospital in October, 1897, on account of nervousness and depression of spirits. She tells us that her mother, and all her mother's family, like so many of the Jewish race to which she belongs, were nervous, and that her father died at the age of 50, of "creeping palsy." She and her two children live a very unhealthy life in one little room in the East End of London, where she earns a meagre livelihood with her needle. However, so great is the tolerance of Nature, that she remained in what she calls good health until 1895, when a man appeared upon the scene, who wished her to become his wife. He troubled her a good deal with his persistence, but she preferred her liberty, albeit in penury. How correct was her decision was shortly to be revealed,

[1] *The Lancet*, June 1 and July 23, 1901; *The Clinical Journal*, May 25 and June (pp. 88 and 103), 1904; and *The Lancet*, January 30, 1904, p. 273.

for in April of that year he committed a most savage attack upon her and stabbed her in the forehead and elsewhere, as a consequence of which she was laid up in a hospital for some weeks, though the actual injuries were not, as it turned out, very serious.

It was the shock from this injury which determined an outbreak of the neurosis hitherto dormant in her. It did not come on at once, but it is now well known that the manifestations, both of hysteria and neurasthenia, may be determined by traumatism and shock, although there may be an interval of some weeks between the cause and the effect. Shortly after the injury she became troubled with horrible nightmares, and after leaving the hospital was so "nervous," and the slightest noise startled her so much, and produced such trembling of the legs, that she could scarcely stand. She suffered from great depression of spirits, and from attacks of palpitation of the heart, chiefly at night. She complained from time to time of pain at the top of the head, and found that her memory was failing her.

She stayed a short time at a convalescent home, and had a variety of treatment; but all her symptoms have persisted on and off for two and a half years, though they have varied considerably both in kind and degree, and the nightmares have given place to sleeplessness. Doubtless her symptoms, once started, have been accentuated by her unhealthy existence, and my colleague, Mr. Dodd, has ascertained that she has congenital amblyopia in the left eye, and hypermetropia in both. In view of her occupation, that of a sempstress, this was quite sufficient to account for the headache, which in fact has disappeared since the error has been corrected by glasses.

TABLE OF DIAGNOSIS.

	NEURASTHENIA.	HYSTERIA.	HYPOCHONDRIASIS.
Sex . . .	BOTH SEXES ALMOST EQUALLY.	FEMALE SEX ALMOST EXCLUSIVELY.	MALE SEX ALMOST EXCLUSIVELY.
Age . . .	ANY AGE—YOUNG MALE ADULTS SLIGHTLY PREDISPOSED.	THE FIRST ACTUAL MANIFESTATIONS ALWAYS APPEAR BEFORE 30.	VERY RARE UNDER 30. PREDISPOSITION FROM 30 TO 50.
Mental Peculiarities	Intellectual weakness; memory defective; deficient power of attention.	Deficient will power (*i.e.*, vacillation, indecision). Want of control over the emotions.	Great determination and perseverance towards one end, viz., cure of an imaginary disease.
Causes . . .	Overwork; dyspepsia; other causes of malnutrition; auto-toxæmia; traumatic or nervous shock.	A patient is born with the hysterical diathesis. The determining cause of its active manifestations is generally an emotional upset or shock.	Solitary, sedentary life.
Onset and Course .	Starts somewhat gradually and runs a fairly even course.	HYSTERIA ESSENTIALLY A PAROXYSMAL DISORDER. All phenomena (healthy or morbid) vary from hour to hour, day to day, and paroxysmal outbreaks are frequent.	Starts very gradually and runs a very even course of most indefinite duration.
Mental Symptoms .	MENTAL EXHAUSTION and inability to think or study. Inattention. Memory deficient. Restlessness. Temper irritable.	Wayward, hard to please, EMOTIONAL, lazy, restless. No introspection, nor living by rule, nor study of medical works.	INTROSPECTIVE habit. Close study of medical books. Observing all accessible organs and secretions.
	Prostration and sadness. Not equal to the exertion of amusement. Sometimes suicidal.	If sad, it is transient (excepting in the male). Fond of gaiety and amusement. Usually joyous, but laughter and tears may alternate with great rapidity. No tendency to suicide.	Habitual sadness. No taste for amusement. But little tendency to suicide.

Somatic and General Symptoms . .	Occasionally attacks of vertigo, syncope rare. Convulsions never. Attacks of flushing and other sensations after meals.	SEIZURES OF DIFFERENT KINDS frequently arise. Always flush very readily at any time. Convulsive attacks in 75% of the cases (Briquet). Syncope very frequent. A great variety of symptoms occurring IN PAROXYSMS.	No attacks of any kind.
	Easily tired, easily startled. State of DEBILITY AND EXHAUSTION. Constant headache. Restlessness. Sleeplessness. Long-drawn sighs.	Between the attacks no symptoms usually present. But symptoms referable to the nervous and neuro-muscular system may be present. Thus :—	The digestion is often deranged, but in the patient's belief he has some grave disease either of the alimentary tract, abdominal, or other viscera.
	Hemianæsthesia never. General hyperæsthesia and dysæsthesia common. Pain in the back and sometimes in limbs. Reflexes may be increased, or normal.	HEMIANÆSTHESIA VERY COMMON (though may be undiscovered), or other anæsthetic areas. "Ovarie," tender spots around the mammæ, and in other positions. Reflexes usually increased. Borborygmi, globus, and other spasms of the involuntary muscles are frequent.	Small and insignificant symptoms, or even normal sensations, are endowed with great and perhaps lethal significance. Patient tries an endless succession of remedies and doctors ; always striving for a cure (which distinguishes hypochondriasis from the hopeless and suicidal tendencies of neurasthenia and melancholia).
Termination . .	Lasts many weeks or months.	The DIATHESIS lasts a lifetime ; but the active manifestations come on suddenly, and after lasting a short time, usually disappear.	Once established, the condition is very difficult to ameliorate, impossible to eradicate, and therefore—
	CURABLE.	SEMI-CURABLE.	INCURABLE.

During the eight months she has been under treatment here she has greatly improved. For the first four months she took ammoniated tincture of valerian, half a drachm three times a day, and all the while she has been taking bromide of ammonium, 10 grs., three times a day with saline aperients for the constipation which troubled her.

I thought at first this was a case of neurasthenia, on account of the *continuous nature* of the symptoms, but enquiry revealed the facts that she had been subject, *at intervals since the age of puberty*, and with greater frequency lately, to *attacks*, slight, but of a typically hysterical nature; that some of the symptoms of which she complained were paroxysmal; and finally, that she had the typical "ovarie."

Although the two diseases can generally be differentiated after careful investigation, I am bound to admit that there are a fair number of cases which it is hard to place in one or other category, and Prof. Charcot[1] describes such cases under the name hystero-neurasthenia. I think, however, this term should, as far as possible, be confined to cases of neurasthenia arising in subjects of the hysterical diathesis who have at some time in their lives presented the stigmata of that diathesis, as in the case I have just shown you. The previous history of Minnie H—— was of great assistance, because here we have another illustration that an hysterical subject is *liable to hysterical phenomena throughout life.* You will also have noticed that the symptoms of neurasthenia were more enduring and less variable than those of hysteria, which consisted of small attacks or transient manifestations. In brief, gentlemen, the features of neurasthenia are those of more or less lasting *exhaustion*; whereas the essential character of all

[1] Policlinique de la Salpêtrière, Leçons du Mardi, 1887–8.

phenomena of hysteria is their occurrence in *paroxysms* at intervals throughout life. The table on pp. 48, 49 will give you a summary of the differential features.

Hypochondriasis when pronounced is a malady not generally very difficult to distinguish from neurasthenia. But when prolonged neurasthenia passes on to hypochondriasis, as it is so apt to do, it may be very hard to say where one leaves off and the other begins.

The following case, which is now one of hypochondriasis, is worthy of some attention, if only from the fact that he has been under my observation on and off for eleven years. There was a long history of neurasthenic symptoms, and as he has always been of a morbidly sensitive and introspective disposition, he was very considerably alarmed when, at the age of 51 (in 1885) he had a convulsive seizure, for the first time in his life. He went to bed as usual, and was told that he screamed out and struggled; and he states that he bit his tongue during the night. He says that he was unconscious for six hours next day, and was "strange in his head" for the next two or three days, not recognising any one. I did not see him until July, 1887, but he was said to have had seven or eight severe fits and seven or eight slighter ones during the ensuing two and a half years, always at night. The convulsions were mainly, if not entirely, confined to the right side. Fits of this kind, coming on for the first time in a healthy man aged 51, are almost certainly indicative of intracranial syphilis. However, no history of the primary infection nor of secondary manifestations was obtainable, and there were no symptoms referable to the cranial nerves. Nevertheless, that such was the cause in operation was supported

CASE VII.

by the improvement he made under a mixture of bromide and iodide.

From this time forward he remained in a very low-spirited condition; his memory failed him, he was apt to repeat himself in conversation, and gradually, in the course of the ensuing two years, he drifted into a very aggravated type of neurasthenia. I saw him at intervals in 1887, 1888, and 1889, and he presented many of the symptoms of that disorder, complaining of nervousness, bodily enfeeblement, insomnia, and numerous disagreeable sensations. Even at that time he was tending to hypochondriasis; he always emphasised the most trifling details of his case, and spent a small fortune in going from one charlatan to another.

The abrupt way I had of reasoning him out of his more purely imaginary ailments apparently recommended itself to him, because some years later he traced me with much trouble to this hospital, where he has again been under my care as an out-patient for the last two or three years. During this time he has presented the typical symptoms of hypochondriasis. Every fresh symptom, every fresh pain, means, in his mind, some mortal disease. He has suffered a good deal from constipation, which was easily remedied by aperients, but nothing would persuade him that he had not got stricture of the rectum; and he has submitted voluntarily to a large number of examinations by different surgeons, all of whom have come to a negative conclusion. I need not trouble you with the endless series of complaints which he has manufactured. The pronounced sadness which you will observe upon his face is the outward evidence of the gloomy view he takes of life; and yet, strange to say, this man is always striving

after and hoping for cure, and there is not the slightest likelihood of his committing suicide, such as exists in the subjects of melancholia.

Not the least interesting feature of the case is the so-called "fits" from which he suffers. Ever since the first fit in 1885 he states that he has had smaller "attacks" from time to time. But they always occur at night; nobody has ever seen them, and he has never voided urine or fæces. My own belief is that these later attacks exist only in his mind, and I am supported in this contention by the fact that doing things which he does not like seems to determine the fits; whereas when his surroundings are congenial to him they occur much less frequently. For instance, in 1891 he went into the West London Hospital, and states that he had numerous fits the whole time he was there, for ten months, but that immediately on resuming cohabitation with his wife he did not have one for the next ten months. He comes to me each week with large packets of notes which he vainly hopes I am going to read, recounting all his various sensations, down to the minutest detail, during the intervening days. The treatment has been directed mainly to correcting the constipation, combined with an occasional dose of bromide, and valerian.

Here, then, is a typical case of hypochondriasis, about the diagnosis of which there is not much difficulty. But some of the slighter cases present considerable doubt about their diagnosis from neurasthenia. Nevertheless, if you bear in mind the points which are given in the table (p. 48), there will not generally be much difficulty in arriving at a conclusion.

Hypochondriasis formerly, and neurasthenia latterly,

have been regarded as a kind of hysteria in the male, but I trust that a study of this table will help to dispel these delusions. In their essential qualities, as drawn from a complete clinical picture of each, they are dissimilar. The respective mental attributes typically reveal this. Briefly it may be said that neurasthenia consists of an exhaustion of the nervous system, and the mind nearly always manifests this; in hysteria there is deficient will control and increased reflex irritability; whereas hypochondriasis is a peculiar mental attitude of alarmed and exaggerated introspection.

Neurasthenia is sometimes very difficult to distinguish from certain *organic diseases of the nervous system in their early stages*, and chief among these are general paralysis of the insane, tabes dorsalis, and disseminated sclerosis. The first of these is particularly apt to present many of those vague sensations referable to the extremities which are so common in neurasthenia, but these are sooner or later associated with the papillary changes, the fine tremor, especially of the tongue, the speech, and the mental peculiarities of general paralysis of the insane. Tabes dorsalis in its earlier phases is, as you know, a sensory disorder, starting in the muscle-sense organs, and it sometimes offers quite as much difficulty. But whereas the patella reflexes are absent from the very beginning in tabes, they are in my experience very rarely diminished, and never absent in neurasthenia. Both of these diseases, which in their earliest phases have so much clinical resemblance to some cases of neurasthenia, are usually regarded as parasyphilides, and therefore the result of a toxæmia. Disseminated sclerosis can usually be distinguished by the nystagmus and typical intention tremor.

The diagnosis of neurasthenia from actual *insanity* and the relationship of the mental symptoms of neurasthenia to insanity are matters of so much importance that they will form the subject of a separate lecture (Lecture VII). Many cases of cerebral neurasthenia pass on to true insanity; and often the first stage of a case of insanity is indistinguishable from neurasthenia. It is a practical point of the highest importance for you to remember that if there is a hereditary taint of insanity in a case of neurasthenia the patient will almost surely become insane unless very prompt measures are taken.

The nervous phenomena of *Graves' disease* (exophthalmic goître) bear a very precise resemblance to neurasthenia, and it should be remembered that the enlargement of the thyroid gland and exophthalmos may not become obvious until many months or even years after the nervous and cardio-vascular symptoms have appeared. However, if tachycardia, palpitation, and other cardiac symptoms constitute the leading features in a given case, Graves' disease should be suspected. There is no doubt in my own mind that many cases which are described as pseudo-Graves' disease or the pre-goîtrous stage of exophthalmic goître are in reality cases of neurasthenia in which the cardio-vascular symptoms are very prominent. The significance of the marked resemblance between these two diseases will be more fully appreciated when we have discussed the pathology (Lecture IV). Graves' disease is always, and, if my observations are correct, neurasthenia is in many instances, a toxæmia.

In certain cases of neurasthenia, particularly those in my experience which have some ocular defect, the symptoms have a paroxysmal quality which gives to them

some resemblance to *petit mal*, *migraine*, and other paroxysmal disorders. But here the presence of an aura, or of sensorial perversions which occur in migraine, such as scintillating scotomata, and the perfect health of the individual between the attacks, enable one to arrive at a correct conclusion.

In some diseases in which debility is the leading or perhaps the only prominent feature, such as *chronic Bright's disease*, *cardiac valvular disease*, *latent tuberculosis*, *incipient carcinoma*, *diabetes*, *myxœdema*, *disease of the pancreas*, *Addison's disease*, resemble neurasthenia, but by careful investigation and by keeping the patient under observation the correct diagnosis may be arrived at; and in some of these there is loss of weight, which should make us suspicious.

In *malarial poisoning* and other *hæmic* and *anæmic conditions*, there ought not to be much difficulty, in presence of the other characteristic symptoms, physical signs, blood examination, and history. In latent *syphilis* the same methods may be applied. The diagnosis from *lithæmia* is not always easy; but the presence of lithates in the urine, the absence usually of symptoms specially referable to the nervous system, and the somnolence (instead of insomnia) which characterise lithæmia, may aid us in what is sometimes a most difficult task, the differentiation of these two maladies. In *chronic alcoholism* the tremulousness, fleeting pains in the limbs, and debility, may resemble neurasthenia, but the characteristic facies, the hepatic disorder, and the history of morning vomiting should obviate mistakes.

It is unnecessary to pursue this question of diagnosis further, but there are two points which will have occurred

to you in the course of our studies to-day. First, that a considerable amount of difficulty may attend the diagnosis of neurasthenia; and you will rightly infer that this partly explains the apparent increased prevalence of the disorder in modern times. This apparent increase is due to improved methods of diagnosis, and is distinct from a *real* increase which I believe also exists, and which we shall consider hereafter. Secondly, you will have observed that a large number of the disorders which resemble neurasthenia, and have to be differentiated from it, are hæmic or toxæmic conditions, or are the result of some hæmic or toxæmic condition. This suggests that neurasthenia is itself a toxæmic disorder—a matter which we shall carefully consider at our next meeting.

LECTURE IV

THE ETIOLOGY AND PATHOLOGY OF NEURASTHENIA

ETIOLOGY:—*Multiple cause always in operation.—Predisposing and existing causes interchangeable and therefore cannot be sharply and accurately separated.—Influence of age, sex, occupation, heredity, nutrition, overwork, insomnia, worry, traumatism and nerve-shock, pain, ocular defects, nasal and aural troubles, masturbation, gastric disorders, constipation, gingivitis, alcoholism, drug-habits, influenza, convalescence from acute illnesses, Graves' disease, enteroptosis.*

PATHOLOGY:—*Only clinical methods available.—Neurasthenia an irritable weakness of the nervous system.—All cases due to one or more of four pathological conditions: Toxæmia, Malnutrition, Fatigue, and Emotional Shock or Traumatism.—Toxic neurasthenia considered.—Many toxic sources.—Relation to gastric disorder.—Gastric disorder sometimes neurasthenic, but mostly a cause of the neurasthenia.—Five reasons for this statement.—Neurasthenia of gastric origin is a toxæmia; proofs.*

GENTLEMEN,—Having in previous lectures considered the clinical features of neurasthenia, we are now in a position to discuss its Etiology and Pathology.

ETIOLOGY

The causes of neurasthenia cannot be sharply divided into predisposing and exciting, because they are interchangeable—a cause which at one time predisposes at another time may determine the occurrence of the disease.

Moreover, although there are in my experience always two, and sometime several, causes in operation in neurasthenia, it is often extremely difficult to apportion the relative potency or position of each cause, and to decide which is the predisposing and which the exciting factor.

Among the agencies which usually act as PREDISPOSING CAUSES may be mentioned the following:

(1) No age is wholly exempt, but the favourite age for the onset of neurasthenia is between 25 and 35 years. It certainly arises in childhood, and I shall have occasion to bring several cases before you (Lecture VII), but it is relatively less frequent than at other epochs. The causes must be very potent, and in quite a number of my young patients asthenopia or some other ocular defect has existed. The youngest case of neurasthenia I have identified was 5 years. Next in order of frequency comes advancing life. Here is the approximate result of an analysis of 157 hospital out-patients in the three epochs of life—

Childhood and adolescence.	Middle age.	Advanced life.
15 per cent.	65 per cent.	20 per cent.

(2) Neurasthenia is, I believe, about equally common in both sexes, though I have met with more cases in males (61 per cent).

(3) Certain forms of occupation, and especially those involving a sedentary indoor life, appear to predispose to the disease. For example, among the cases I have shown one was a cook, another an engine-fitter who sat at a lathe all day; another I mentioned to you on a previous occasion was a post-office clerk who sat at his desk all day calculating figures. Perhaps the most numerous and

typical examples are seen in clerks. Any occupation which involves sustained intellectual effort, such as the professions, or which involves emotional strain, such as traffic duty (or "point duty" as it is termed) among the police, also acts as a predisposing cause.

(4) Heredity does not seem to play so important a part here as it does in cases of hysteria. Nevertheless a study of my cases shows that there are four ways in which heredity as a predisposing cause of neurasthenia may, and does sometimes, act. First, a tendency to the development of nervous disease may be present as a *general neurotic taint* in the family, as manifested by the occurrence in various members of the family of insanity, epilepsy, hysteria, etc. The children of insane parents, for instance, seem specially prone to cerebral neurasthenia. Secondly, a predisposition even still greater appears in the children of *alcoholic parents*, even when the family presents no record of definite nerve ailments. Thirdly, for some reason which does not appear on the surface, I find among my cases quite a number whose family history shows no nervous ailments but *tuberculosis* on one or both sides. And fourthly, *debility in the mother* at the time of pregnancy, either from deficient nutriment or rapid child-bearing, seems to produce, especially in the younger members of large families, a proneness to develop the neurasthenia which does not exist in their elder brothers or sisters. In one or other of these ways an inherent weakness of the nervous system may result from heredity, and the nervous system thus being a "locus minoris resistantiæ," neurasthenia results when an exciting cause comes into operation.

(5) General malnutrition must be mentioned in this

connection, whether it arises from insufficient or faulty food, constitutional debility, or some wasting disorder, such as phthisis. Without doubt the nutrition of the body generally reacts on the nervous system (as in the case of the young girl mentioned in Lecture VII), and causes which would not otherwise act come into operation.

The following conditions may act as predisposing and contributory causes, or one or more of them—frequently two acting jointly—may act as *exciting causes* to determine an attack of neurasthenia.

(1) Overwork is one of the most familiar causes in the experience of us all; too long hours, too close attention to work without a break, and an inordinate desire to finish an allotted task. One finds it in busy city life, in the keen struggle for existence, and one finds it also most frequently in the autumn months, when men have not been away for some time. Overwork of the mind is what I am chiefly referring to, but physical exertion is also a strain upon the nervous system. Prolonged forced functioning of any nervous structures undoubtedly results in their malnutrition or atrophy. But it is surprising what the nervous system will tolerate, and how quickly and readily it will recuperate, *provided the mind be free from worry and anxiety.*

(2) Disturbed or deficient sleep may also determine the disorder. This is really another form of over-functioning, for the nervous system requires its proper proportion of rest in each twenty-four hours.

(3) Great grief, emotional strain of any kind, and prolonged anxiety, including the trouble and worry of making both ends meet, are all potent causes. A sense of failure or of unfulfilled ideals will prey on some minds, and,

without courage to fight a losing game, they by-and-by become neurasthenic.

(4) Traumatism, or severe nerve-shock without actual injury, or a severe surgical operation, may be a cause. I have a man, aged 37, attending among my out-patients at the present time, who received a severe blow on the head, and, as a consequence, suffers from neurasthenia, which came on suddenly the day after the injury. Sometimes, however, the symptoms do not appear for one or two weeks, or more. This traumatic neurasthenia is sometimes a matter of great importance in a court of law, where perhaps a large sum of money may be at stake. The absence of any definite physical sign in such cases gives rise to great difficulty and conflict of expert evidence. I remember being engaged in such a case where damages were claimed for severe neurasthenic symptoms which dated from a collision. Fortunately, in this case the patient complained of partial blindness, which I discovered was due to a very symmetrical contraction of the fields of vision such as could not have been feigned by the patient, a cabman of inferior intelligence (this case is given in fuller detail in Lecture V). I have seen many examples of this traumatic neurasthenia in the aged, and call to mind a very eminent member of our profession who has lately passed away. He was severely shaken in a cab by the horse falling down; he felt nothing much at the time, but shortly afterwards he had a shivering attack, which commenced an attack of neurasthenia, from which he never recovered. I have often noticed in the aged that neurasthenia, developed by a severe shock in this way, leads to a gradual extinction of life, as of a candle burning down in its socket. They have no power to recuperate,

but slip imperceptibly into the grave—death being produced, not by asthenia, but by neurasthenia.

(5) Severe, long-continued pain, which in itself is a most exhausting agency to the nervous system, is another cause. I have met with several instances in which intractable neuralgia has been followed by neurasthenia.

(6) Asthenopia, or eye-strain from error of refraction, may alone, though more often in combination with overwork or worry, result in neurasthenia, as in the case I narrated to you.

(7) Some mention nasal obstruction and middle-ear catarrh as exciting causes, but this does not correspond with my experience, unless there be any source of septic absorption, such, for instance, as that which occurs in suppurative antral disease, or suppurative otitis media. Prolonged uterine disorders may produce neurasthenia, but only when these are sources of septic absorption. Other causes of pyogenic blood infection, often very difficult to discover, may act similarly (compare also (10) below).

(8) Different views are held as to how far the habit of masturbation, either past or present, can cause neurasthenia and other nervous disorders. My own view is that it may be a causal agent in some cases, though not nearly so often as the patients themselves and some medical men are apt to believe. Excessive venery is certainly a cause, but masturbators do not always indulge their vice to excess. I take this opportunity of emphasising my belief that masturbation is more common in females than is usually thought. Within the last year I have met with several instances of the vice in women. There are three signs which I have learnt to regard as indicative of

masturbation in the female. One is an extreme sensitiveness of the genital organs. If you happen to propose an examination in such cases, it is very likely you may be informed of that sensitiveness at once, for the patient will protest against making the examination with unnecessary vehemence, and then possibly admit the habit. The second sign is dyspareunia. One of the cases I have seen in the last three months came to me at the request of the husband for this very reason. They had been married seven years, and the wife had never been free from painful coitus the whole of the time. The third feature is the neurasthenia.

(9) Dyspepsia often precedes neurasthenia for many months or years, and so leads to defective nutrition and perhaps other defects in the metabolism of the body. I have been engaged in making an analysis of my cases so as to ascertain what is the meaning of this important association between dyspepsia and neurasthenia, and I shall refer to this matter again directly.

(10) Chronic constipation is frequently present with any of the foregoing causal factors. It forms a very potent accessory cause, but I am not satisfied that it can act alone. The relation of neurasthenia to intestinal disorder is, I believe, an extremely important one, but it still remains to be worked out.

(11) Decayed teeth and gingivitis are causes which are possibly more frequently overlooked than any other. How they act is not certain, but it is probably by the constant absorption of the toxic material that is swallowed, and the continual septic condition that is kept up in the alimentary canal. In the summer of 1898, a single lady, aged 36, consulted me for nervousness, headache (a feeling of pressure, or of constriction), accompanied by

constantly recurring attacks of giddiness, worse when walking or standing, which made her reel like a drunken man. She had also a number of other peculiar

CASE VIII. nervous symptoms. She told me that she had suffered from indigestion all her life, though it had been worse lately, and that she had worn artificial teeth, which fitted her well, for seven years. Her dyspepsia, to which I attributed the nervous symptoms, rapidly improved under proper treatment, but the neurasthenic symptoms remained unaltered. Indeed, her nervous derangement became steadily worse until, one day in September, she happened to remove her tooth-plate, and I then discovered seven stumps in the upper jaw, each being a centre of suppurative gingivitis, and the roof of her mouth showed superficial ulceration. I at once ordered an antiseptic mouth-wash, and after considerable persuasion she had her stumps removed. Within a week her various nervous symptoms began to disappear (though no alteration was made in her treatment or mode of life), and she made a rapid and uninterrupted recovery. I have seen many cases of neurasthenia followed by a speedy recovery when these conditions have been removed. [Dr. William Hunter has recently associated a similar condition of pyorrhœa alveolaris with pernicious anæmia (Roy. Med. Chir. Soc., March, 1901).]

(12) Alcoholism, especially when combined with venery, may produce the disease, partly by the deranged alimentation which it induces, but chiefly by its own toxic effects.

(13) Excessive use of certain drugs is a potent cause of neurasthenia, and of these perhaps morphia and cocaine are among the commonest. Under these circumstances the neurasthenic symptoms are not felt while the drug is

being taken in full doses, but when the gradual daily increase for which they crave is not maintained, or when there is a sudden cessation of the drug, then do symptoms arise. I have often been asked concerning tobacco, but have only met with one case which could be traced to this cause. Perhaps you will think this strange in view of the optic atrophy which may result from its excessive use; but it is possible that its soothing effects, when used in moderation, may counteract any general toxic effect it may have on the nervous system.

(14) Convalescence from acute illnesses is more often a predisposing than an exciting cause. Pyrexia is of itself an exhausting condition to the nervous system, and neurasthenia may arise as a sequel to any severe pyrexial disturbance. Influenza, however, occupies a very leading position as an exciting cause of neurasthenia, and some of the worst cases I have shown you illustrate this fact.

(15) The early stages of Graves' disease, Addison's disease, and Raynaud's disease may all be attended by neurasthenia.

(16) A dislocated or floating kidney is often attended by severe neurasthenia, which disappears when the condition has been remedied by proper measures.[1] Some go so far as to hold that all cases of neurasthenia are dependent upon the displacement of one or more of the viscera, due to a laxity either of the abdominal walls or their supporting ligaments (enteroptosis, Glénard.)[2]

These are the principal causes of neurasthenia I have met with. The pathological conditions brought into operation by them must now be considered.

[1] Cases—Lect. VI; and compare Lect. VIII.

[2] *Vide* Appendix.

Pathology of Neurasthenia

Neurasthenia, although it may be so troublesome and persistent, is very rarely fatal, and there is no recorded case attended by autopsy, so far as I am aware. Nor has the disease been artificially produced in animals. Our methods of investigation, therefore, must be clinical, and you will pardon me if I venture at the very outset of our enquiries to sound one note of warning. When dealing with a disorder such as this, which is manifested almost solely by subjective symptoms, it behoves us to use the greatest care not to put "leading questions" to the patients. Their symptoms, albeit so distressing, are often so vague that even the most intelligent patient will sometimes answer in the affirmative when any symptom, no matter what it may be, is suggested to his mind. To let the patient unfold his own story and then cross-question him in detail involves a good deal more time and trouble, but it is worth the pains.

There are two facts which all observers now admit. The first is that neurasthenia is a legitimate morbid entity, or, more correctly, a definite and constantly associated group of symptoms, although the vagueness of its clinical features and the absence of physical signs render it less clearly defined than some other disorders. The other fact is that the greater number of symptoms are, as indeed you must have observed, referable to the neuro-muscular system—the brain, spinal cord, peripheral nerves and muscles—and the remainder to the neuro-vascular or sympathetic systems. According to some authors, gastric symptoms form an essential part of the disease; but the relation which the digestive disturbance, when present,

bears to the nervous derangement will merit our most attentive study.

All the symptoms point to an irritability and a weakness of the nervous system, an instability combined with a lack of endurance. Now, the two elements of which all nerve structures consist are cells and fibres, and the defect would seem to be more in the cells, whose function is to initiate and to act as centres of reflex action, than in the fibres, whose function is to conduct. There is in some respects, in spite of what physiologists may say to the contrary, a considerable resemblance between electrical and nervous forces, and in nothing more than in this matter of exhaustion. Just as a faradic battery, after continuous use, gradually becomes weaker—we can hear the note emitted by the interrupter become more and more feeble —and then after a rest becomes restored again, so does nervous force require periods of intermission for recuperation. This seems to me to be the simplest way of looking at neurasthenia due to overwork; and this, in turn, is the simplest form of neurasthenia to study. Investigation of neurasthenic patients who present retraction of the fields of vision, confirms the idea that neurasthenia is essentially a state of fatigue or exhaustion of the nerve cells, for I have on several occasions found that the retraction is absent, or less marked after periods of rest, and *vice versâ*. I hope to show you a case of this kind at our next meeting (Lecture V).

Let us consider a little more in detail how this irritability and weakness of the nerve cells may be produced. A very little investigation shows that they may arise, like many other pathological conditions, from a complexity of causes; hence one of the chief difficulties

in the task before us. A careful study of all the cases which have come under my notice leads me to believe that neurasthenia may arise under four different pathological conditions:—

I.—TOXIC BLOOD STATES, *e.g.*, the neurasthenia which results from septic conditions or supervenes on prolonged gastric disorder and constipation (Toxic Neurasthenia).

II.—MALNUTRITION of the nervous system, which arises in various debilitating conditions (Malnutrition Neurasthenia).

III.—FATIGUE or OVER-FUNCTIONING of the nervous system, such as may arise from overwork (Fatigue Neurasthenia); and,

IV.—EMOTIONAL SHOCK—grief, anger, or worry—and TRAUMATISM.

These will form the four pathological groups which we shall have to investigate.

Compound causes.—Just as we found in the etiology several causes may act together, so may two or more pathological conditions be in operation at the same time. Take, for example, such a simple case as the policeman who came before you at a previous meeting (Case I, Lecture II). Here, want of sleep (cerebral over-functioning) acted as the predisposing, and the "emotional strain" of traffic duty as the determining, cause of the neurasthenia. He had been on traffic duty before, but then his sleep had not previously been disturbed, and neurasthenia did not ensue. Take, again, the anæmic, badly fed schoolchildren who are often brought to this hospital for a variety of ailments. Here the nervous system is deficiently nourished, but this does not result in neurasthenia unless the child be overworked at school

(relatively to its strength); and it is the over-functioning of the nervous system which now forms the determining factor.

I.—TOXIC BLOOD STATES, the first pathological group, will entirely occupy our attention to-day, and especially the important relation which neurasthenia bears to various forms of gastric disorder. It is worthy of note in the first place that a very large proportion of the cases I have collected presented some feature in the history of their illness which was, at any rate, capable of producing a toxic condition of the blood. Decayed teeth, nasal, aural, or uterine disease, chronic appendicitis, and other pyogenic foci, are examples. Chronic alcoholism, Graves' disease, influenza, and other blood disorders, might also be mentioned; but certainly by far the most common cause in out-patient practice is some form of gastric disorder, mostly accompanied by constipation.

The frequent association of dyspepsia, or, at any rate, dyspeptic symptoms, with neurasthenia, is now very generally admitted. But their precise relationship is not yet agreed upon, and my belief is that it is very often seriously misunderstood. There are two possible relationships between these two conditions—dyspepsia and neurasthenia—which we shall have to consider: (A) that the gastric symptoms are a part of or a consequence of the neurasthenia; or (B) that the neurasthenia is a result of the gastric derangement. That they are both the product of a common cause is not tenable.

A.—Some authors—and these, as you are doubtless aware, are in the majority—hold that when gastric symptoms arise in conjunction with neurasthenia they are not due to disease of the stomach, but are *neurasthenic*

symptoms referable to that organ. Observers of this school are in the habit of speaking of "gastric neurasthenia," "cardiac neurasthenia," and so forth, when the neurasthenic symptoms are mainly referable to the stomach, the heart, etc. Many authors go so far as to say that gastric symptoms are always met with in neurasthenia, being due to the gastric myasthenia (want of muscular tone in the stomach) which is only part of the generalised neurasthenic condition. These authors tacitly deny, or at least do not adequately consider, the possibility that neurasthenia may result from previous gastric disorder. Some of them proceed to point out that "observers have often made the mistake of attributing these gastric symptoms in neurasthenia to dyspepsia or to definite gastric derangement." Prof. J. M. Charcot, for instance, reiterates this statement again and again;[1] but, contrary to his usual practice, he gives no proofs in support, so far as I have been able to find. Undoubtedly, in *a certain proportion* of cases of neurasthenia, some of the neurasthenic symptoms are referable to the stomach and alimentary canal, and you will notice in the table I show you (*infra*) that out of 102 cases of neurasthenia associated with gastric symptoms there were 13 in which the symptoms of neurasthenia appeared about the same time, and 15 where the gastric started *after* the neurasthenic symptoms. But there are, I believe, two arguments against the view that the gastric symptoms are *always* part and parcel of the neurasthenia.

First, the *stomach symptoms in such cases have special*

[1] Policlinique de la Salpêtrière, Leçons du Mardi. 1887–8; pp. 32, 63, and 518. The views of other authors on this difficult problem are summarised in the bibliography at the end of this work.

features which enable one to distinguish them with more or less certainty from cases of true gastric derangement.[1] In my experience these features are as follows :—(i.) The dyspeptic symptoms are variable and unstable from day to day; they come on and disappear suddenly, and often without any obvious cause. (ii.) They do not have such a constant relation to meals as in true gastric derangement; for instance, in one case I observed the pain one day come on directly after, the next day before, meals, and on another day one hour after a meal, as in hyperchlorhydria. (iii.) They may often be brought on by digestible food and relieved by indigestible. (iv.) They are always accompanied by the other manifestations of neurasthenia; and (v.) bismuth and the other usual remedies for simple dyspepsia fail to relieve them.

Secondly, there is, moreover, a very important circumstance against the view we are now considering. If the dyspeptic symptoms are only part of the neurasthenia, how is it that they should, in so many cases, *precede the other symptoms of neurasthenia by such long intervals as* six months, twelve months, three, four, five, and even ten years before the appearance of any of the other neurasthenic symptoms? This will be apparent from the table of analysis (*infra*).

B.—There is another possible relationship, namely, that the neurasthenia is, in a certain proportion of the cases, *the result* of the gastric disorder or deranged digestion;

[1] Beard himself points this out, and states that the pain and other gastric symptoms in such cases are characterised (1) by being worse when the stomach is (presumably) empty; (2) by the fact that they may generally be relieved by bromides, and not by bismuth and other drugs useful in true gastric disorder; and (3) by their coming and going independently of dietetic or other causes. Neurasthenia (Nervous Exhaustion)—New York.

and this, in spite of the high authorities just mentioned, is the one to which I firmly adhere. I do not deny that in some cases the gastric symptoms are simply part of the neurasthenia (this is the "gastric neurasthenia" of authors); but I hold that there is a large and important group of cases of neurasthenia entirely caused by antecedent digestive disorder. There are five reasons on which this statement is based, and these will now be considered.

(1) In out-patient practice I find that above half the cases of neurasthenia have suffered from *antecedent* gastric disorder. The subject is beset with difficulties. In both neurasthenia and digestive derangement we are largely dependent upon subjective symptoms for the diagnosis, and the symptoms of both complaints are very vague. However, I will ask your attention to this table (p. 74), in which I have analysed an unselected series of 157 cases of neurasthenia, and you will observe that 102 of these were associated in some way with gastric symptoms, and that in 74 of these 157 cases (47·1 per cent.) the *gastric symptoms preceded the symptoms of neurasthenia by varying periods of time* from a few months to several years. I have been through the cases referred to in this table again and again; I have followed up some of the cases to their homes to obtain further particulars and exclude the fallacies which surround out-patient practice. You will not fail, gentlemen, to appreciate the difficulties, the tediousness, and the liabilities to fallacy, in such an enquiry as this; but, so far as the facts can be made certain, the intervals given in the table are correct. These facts speak for themselves, and repay us for the labour involved in such an enquiry.

TABLE II., SHOWING THE RELATION OF NEURASTHENIA TO GASTRIC DISORDER.

Out of 157 consecutive cases coming for neurasthenia to the Hospital for Nervous Diseases, Welbeck Street, in 1896, 1897, and 1898, 102 were associated in some way with *symptoms of gastric disorder*. A large proportion of these had also suffered from constipation, sometimes of a most obstinate kind.

When analysed, the intervening periods between the advent of the gastric symptoms and those of the neurasthenia were as follows in these 102 cases:—

a.—In 6 cases the gastric disorder preceded the neurasthenic symptoms by more than 7 years.

b.—In 10 cases the gastric disorder preceded the neurasthenic symptoms by more than 5 and less than 7 years.

c.—In 13 cases the gastric disorder preceded the neurasthenic symptoms by more than 3 and less than 5 years.

d.—In 17 cases the gastric disorder preceded the neurasthenic symptoms by more than 1 and less than 3 years.

e.—In 19 cases the gastric disorder preceded the neurasthenic symptoms by more than 6 months and less than 1 year.

f.—In 9 cases the gastric disorder preceded the neurasthenic symptoms by 6 months or less.

74 cases of neurasthenia preceded by symptoms of gastric disorder.

g.—In 13 cases the gastric disorder and the neurasthenic symptoms started about the same time.

h.—In 15 cases the gastric disorder followed the neurasthenic symptoms.

28 cases in which the onset of the neurasthenia was accompanied or followed by symptoms of gastric disorder.

In regard to the 74 cases in which the gastric preceded the neurasthenic symptoms, the long period of time which, in some instances, separated the onset of the gastric disorder from the subsequent neurasthenia suggested the possibility that, in these instances, the dyspepsia may not have been sufficient alone to produce the neurasthenia

without some contributory cause. In point of fact, in some of the cases in groups *a*, *b*, *c*, and *d*, with long histories of dyspepsia, the evidences of malnutrition were also present. Some of them had also suffered bereavement, others from traumatism, some from over-work and mental strain, all of which conditions acted as contributory causes along with the gastric disorder. But, in most of the recent cases (groups *e* and *f*), and in the majority of the groups, the gastric disturbance was undoubtedly the principal and sometimes the sole cause in operation. Moreover, in case after case, as the digestion was gradually relieved, the neurasthenia began to disappear, even without any remedy directed to the nervous system. It is quite possible, also, that to produce their evil effects upon the nerve structures, the toxic products of gastric disorder require a considerable time to act; just as a man may go on burning the "midnight oil" year after year for a very long time with impunity, although the day of reckoning comes at length.

Another fact of some importance is this, that the *symptoms of gastric disorder in most of these 74 cases were definite, constant and consistent*, and differed, when careful enquiry was made, from those of a vague neurosis of the stomach previously alluded to (p. 72). Among the symptoms of gastric derangement presented by these cases were the following:—(i.) Constant and continuous pain or serious discomfort, either in the "chest," epigastrium, or in the back, having a definite and constant relation to meals; not directly after food one day and before food the next. (ii.) Other symptoms, such as anorexia, nausea, flatulence, having also a definite relation to meals. (iii.) Evidences of general dystrophy, which the experienced observer can

generally detect when the digestive assimilation of food is impaired, such as a pinched, thin, haggard look in the face, a dusky complexion, and sometimes definite loss of subcutaneous tissue, especially of the face.

The gastric derangement in these 74 cases was *due to the usual causes*, and it was therefore unnecessary to import neurasthenia to account for it. When enquiring into the origin of the dyspepsia in these cases, I was particularly struck with the frequency with which this was due to defective teeth. Many of the most aggravated cases were due entirely to this cause; and the early age (35, 29, 25, and even under 20) at which an entire set would rot away was a fact which caused me some surprise. Next in order of frequency came bolting of food and hurrying over meals, another outcome of the high pressure at which we live. Clerks, skilled labourers, shop assistants, male and female, seemed to vie with each other in the rapidity with which they could bolt their meals. Alcoholism was definitely present in the previous history of some 14 or 15 cases.

We have seen that the symptoms of the gastric disorder which preceded the neurasthenia were of a definite and typical kind, and due to the usual causes. But more than this, the disorder of the stomach belonged for the most part to the several recognised varieties. The greater number consisted of the "atonic dyspepsia" of authors. A few cases (about 12) belonged to the class of acid dyspepsia, or hyperchlorhydria, and these were attended by an aggravated degree of neurasthenic symptoms. Chronic gastritis appeared to exist in about 19 cases, in 3 of which cardiac valvular disease also existed. I examined a good many for dilatation of the stomach, and

it appeared to be present in 17 cases. In these also the neurasthenia was in an aggravated form.

Finally, in regard to the remaining 28 cases in Table II., in which the gastric started about the same time as, or later than, the neurasthenic symptoms, these I think must be regarded as cases of gastric neurosis, *i.e.*, gastric neurasthenia of some authors. Here the gastric symptoms were for the most part those previously described (p. 72).

(2) There are four other reasons of a more general kind, not relating to the statistics just brought before you, in support of my view of the relationship between neurasthenia and gastric disorder. You are well aware that gastric derangements, and indeed all abdominal disorders, are very prone to be attended by depression of spirits, general discomfort, listlessness, sometimes restlessness, and many other vague nervous symptoms; symptoms, in short, which pretty closely resemble those of a mild degree of neurasthenia. You are also aware that many circulatory symptoms, such as palpitation and irregularity of pulse, arise in the course of chronic dyspepsia.[1] These facts are a matter of daily observation. It is not surprising, therefore, that gastric disorders generally should be capable, as I maintain, of producing these same nervous and vascular symptoms in a more pronounced degree—in which circumstances they would collectively amount to neurasthenia.

(3) It may be said that proof of the kind which was submitted in reason No. 1, which formed the basis of the table of cases, and which rests on the patient's word,

[1] The late Dr. Charles Murchison used to hold that you may find *all* the symptoms of cardiac valvular disease in cases of dyspepsia without any organic lesion of the heart.

depending, as it does, on his memory, intelligence, and powers of observation, is not very reliable; in short, that the order of events may not be as he represents them. Now it is hardly likely that such a large proportion of patients would have fallen into the same error, but I am able to place before you proof of a still more definite kind, where the physician himself is the observer.

Nothing is commoner in cases of dyspepsia, whether attended by neurasthenia or not, than a tendency to recurrence or relapse; and if it happens that the doctor is in attendance all the while he may observe for himself the advent first of the dyspeptic symptoms and then, in a day or two, or perhaps even in a few hours, of the neurasthenic symptoms. A case of this kind has been under my care on and off for the last two and a half years, and I should like to narrate her history to you because it also shows how easily the dyspeptic origin of nervous symptoms may be overlooked. It further illustrates how the symptoms due to definite though slight organic disease of the throat or middle ear may assume undue prominence in such cases by reason of the hyperæsthetic condition of the patient.

CASE IX.

My patient, a single lady, now 35 years of age, comes of a nervous family; her brother was one of the worst cases of neurasthenia I have seen. But she herself has been comparatively healthy, and has had no serious illness excepting a bad "suppurating sore throat" at the age of 28. She first consulted me in 1896 for a "buzzing" in the right ear, and attacks of "giddiness." These symptoms had troubled her on and off for two years, but latterly the tinnitus had been incessant, and severe attacks of vertigo had occurred

twice or thrice a week. According to Dr. Scanes Spicer, who saw the case with me, the cause of these symptoms was a slight otitis media, of so trivial a kind as not to affect the hearing to any noticeable degree. As the nares were very narrow and the tonsils enlarged, Dr. Spicer removed the right inferior turbinate bone, and excised the tonsils, with immediate relief of the symptoms. Here the subjective symptoms (tinnitus and vertigo) were pronounced, but the structural changes underlying them so slight that they could be detected only by a specialist. This same disproportion is observable in the nervous symptoms I am about to describe and the gastric derangement to which they were referable.

For some six or eight years she had been subject at times to attacks of great nervousness, restlessness, sleeplessness, and lassitude, lasting for a few days or weeks, accompanied by a feeling of "depression and stupidity." Sometimes during these periods she dreaded society and would keep her room for days together; at other times she feared to be alone. While abroad in June, 1897, she was laid up for several weeks with a "severe illness," the account of which somewhat resembled a series of attacks of pseudo-angina pectoris consisting of painful "constrictions of the chest," attended by alternating pallor and flushing. These seizures were accompanied by painful "red blotches" on the skin, "like big nettlerash," which left "bruise-like stains" (? erythema nodosum). These symptoms are interesting as indicating the toxic character of the blood and the vaso-motor instability which are features in many of these cases.

I was unable for a long while to account for the neurotic seizures that had troubled her, but in the autumn

of 1898, when she was laid up with a severe attack of piles, I saw her constantly with her local doctor and had the opportunity of observing one of these seizures. It was preceded by an attack of dyspepsia—the symptoms being nausea, loss of appetite, pain in the epigastrium and fulness after eating. This was followed in two or three days by a definite recurrence of the neurasthenic symptoms just mentioned, which reached their maximum on the third or fourth day and declined *pari passu* in the course of ten days, first the dyspeptic and then the nerve symptoms, both improving under bismuth and alkaline carbonates. Bromides, which had formerly been given to relieve the nervous symptoms, were purposely withheld, so that we might see if they would yield to simple gastric remedies. She then informed me that her "nervous attacks" had always been preceded by some such disorder of the stomach, but that this had not been considered of any importance in comparison with the "horrible nervousness," etc.

In this patient, who was nervous by heredity, the tinnitus and the vertigo in the first place, and the neurasthenic symptoms in the second, were both out of proportion to the otitis and the dyspepsia which had respectively produced them; and the case shows how easily an organic cause may be overlooked. The symptoms of dyspepsia may be masked by those of neurasthenia, because to the patient these latter are far more troublesome. But it must be remembered that the dyspepsia is not always so ill-marked as it was in this patient; and in such cases, which are by no means uncommon, we see before our very eyes that the order of events is first indigestion and then the development of neurasthenic symptoms.

(4) It is a clinical fact of considerable importance that the neurasthenic symptoms in many of these cases are definitely related to, and considerably worse after, meals. In quite a number of cases they appear only at such times.

Patients not infrequently speak of these outbursts of symptoms—the nervousness, prostration, and the various other indescribable sensations—as "attacks" or "fits." The physician is apt in such cases to be misled into supposing that he has to do with hysteria, or some other paroxysmal disorder. But careful enquiry shows that they are not really "attacks," they are merely an exacerbation of the symptoms, and there can be little doubt that they are due to an overdose of the toxic materials entering the blood during the absorption that takes place after a meal.

In this connection, I should like to mention a somewhat remarkable case, which I saw several times in consultation with Dr. Jekyll, of Leytonstone, in 1897 and 1898. The patient was a gentleman aged 32, married, but with no children. He was a merchant who had travelled a good deal for his firm, and had been in the habit of taking hurried and irregular meals all his life. He denied alcohol, but it seemed probable that a certain amount of drinking had been incidental to his business. For many years he had been subject to severe indigestion from time to time, and for about eighteen months he had suffered from alarming "panics," coming on about once or twice a week, always after meals. He was a most intelligent man, and I asked him to describe these attacks to me. They always began from five to fifteen minutes after a

CASE X.

meal. "First of all," he said, "I have a twisting feeling in the stomach. This is followed, a quarter of an hour later, by shooting pains in the head; and then ten or fifteen minutes later I have an awful and indescribable feeling all over me, as though I were going to burst, and I then begin to make an ass of myself." During these attacks he could not sit still, could not concentrate his attention on anything for a single moment, and a "horrible indefinable dread of impending death" came over him. In these attacks his wife said he at first got pale, and that he acted and seemed like a madman, wandering about the room, doing and saying the strangest things. They lasted from one to several hours, and were followed by the passage of a large quantity of pale urine. Between the attacks, he had been subject to nervousness and to headaches. The memory had lately become less reliable, and his sleep disturbed. His temper also had become irritable, and from time to time he had "slight indications of the same symptoms" as those which appeared during the panics. Now he only got these seizures when his stomach was seriously "out of order," and they were worse and more frequent in proportion as the dyspepsia was more severe. Unfortunately, very little upset his stomach.

By paying strict attention to the diet, and by the administration of remedies directed to aid the digestion, the gastric disorder was slowly improved; the nervous symptoms (between the attacks) were gradually relieved, and the definite seizures became less and less frequent. At the present time (1898) Dr. Jekyll tells me that if he lives a rigorously hygienic life, and pays strict attention to his diet, he remains free from these most alarming symptoms.

I have met with many other cases presenting this same feature—exacerbations or "attacks" after meals—in a milder degree; and this point is of so much importance that I should like, at the risk of appearing tedious, to mention a similar case under my care at the present time (1898). The patient is a lady, aged 35, who used to have what she termed "attacks" after meals consisting of dizziness, a feeling of numbness in the extremities, stiffness and heaviness of the limbs, a dread of being alone, and other symptoms of neurasthenia. Sometimes in these attacks she used to complain of a "horrible feeling as though she were sinking through the floor," or "through the bed" if they came on at night. She had consulted several eminent neurologists without procuring relief, probably because the evidences of dyspepsia were not, in her case, very pronounced, and thus the true origin of the mischief was not recognised. She was thought to be suffering from some form of "hysterical seizures." Nevertheless, when the digestive organs were put in order, all the neurasthenic symptoms disappeared. They still, however, return when she commits any grave indiscretion in diet.

CASE XI.

We see, then, that not only are a large number of cases of neurasthenia associated with gastric disorder, but the symptoms of neurasthenia may be definitely aggravated by meals, the patient, and perhaps even his medical adviser, thinking that he is suffering from some paroxysmal nervous disorder.

(5) I have laid before you several very cogent reasons in support of my contention that digestive derangement may, under certain circumstances, be a potent cause of neurasthenia; but the fact which has carried as much

conviction to my own mind as anything else—because it has been so constantly present as week by week I watched the progress of cases—is this, that as soon as the indigestion improves the neurasthenic symptoms begin to disappear. It is true that bromide often relieves them for a while, but until dietetic and medicinal means are employed against the dyspepsia, the nervous symptoms infallibly return. Moreover, if the gastric derangement reappears, even after many months' interval, the neurasthenic condition very often returns also. Did time permit I could narrate many instances in proof of this, but I will content myself with referring you again to the two cases I have just given, in which this happened in a notable fashion. Both of these cases had been under nerve specialists, who, regarding the dyspepsia either as an accident of the situation or as part of the nerve condition, directed their attention solely to the nervous symptoms, and so failed to give the patients relief.

These, then, are the grounds on which I base the statement that, in a certain proportion of cases at least, neurasthenia may arise as a consequence of gastric disorder. From the relatively large number of cases I have collected at this hospital in a short space of time, it would seem to be a by no means infrequent cause of neurasthenia among the class which come as out-patients to this hospital.

The next question which arises is this, how, and in what manner, does dyspepsia produce neurasthenia? I may state, at the outset, my own view is that gastric disorder produces neurasthenia by an autotoxic condition of the blood acting on the nervous system. There can be no doubt that gastric disorder results in a defective

elaboration of the products of digestion, and the pouring into the blood of a large quantity of imperfectly elaborated and toxic products. Constipation is capable of acting detrimentally in the same way, owing to the reabsorption of many materials which are intended for excretion, and a large number of my 157 patients were very constipated. That a considerable amount of absorption takes place through the large intestine is sufficiently evidenced by the maintenance of nutrition and weight in cases that are fed by rectum only—cases, for instance, of gastric ulcer. Bad food or a dietary containing a deficiency or excess of certain articles, even without indigestion, are some of the other errors which, in persons otherwise predisposed, may, I believe, give rise to neurasthenia; but my cases do not afford statistical proof of this latter point.

It may be that, in some cases, a contributory cause is necessary to render the nervous system inherently weak; but such a cause does not seem to be always necessary; certainly in many cases it cannot be revealed, and one is almost led to infer that the toxic products of digestion have a specifically poisonous effect on nerve structures. This suggestion is rendered more probable by the frequent occurrence of prostration and other nervous symptoms with all derangements of the alimentary canal. I am not prepared to say that malnutrition, also a result of the derangement of digestion, does not play a contributory part; but this does not appear to me sufficient to explain all the clinical phenomena, and especially the exacerbations after meals. In further support of the toxic theory there are two important series of facts.

In the first place, the leading and most constant

symptoms of neurasthenia correspond with symptoms known to be due to toxic conditions of the blood. A moment's thought will show that this is so, and that the headache (which so frequently accompanies pyrexia and other toxic conditions), the disturbed sleep, startings of the limbs, the restlessness, nervousness and prostration, the hyperæsthesia and pains, the irritable temper, the readiness with which they are startled and become tired, the defective memory and lack of attention, may all be found in other morbid conditions known to be due to blood disorders, such as pyrexia, lithæmia, gout, rheumatism, chronic alcoholism, and the like.

In the second place, the diseases which most closely resemble neurasthenia in their clinical features are known to be due to an altered blood state. Take *lithæmia*, for instance, one of the commonest of toxic blood states. Many of the symptoms of neurasthenia have so strong a resemblance to those of lithæmia, that there is sometimes considerable difficulty in the diagnosis between the two conditions.

Influenza is another blood disorder, and one which we have had ample opportunity of studying of late years. Sometimes it attacks mainly the lungs, at other times mainly the alimentary canal; and as you are well aware, one of the commonest forms of the disease is that in which it attacks the nervous system. Now, it is in such cases one meets with one of the most complete examples of neurasthenia that it is possible to find. Here you get the nervousness, prostration, irritability, restlessness, and other symptoms of neurasthenia in their most typical form. We have, in short, the very group of symptoms we are studying produced by a specific bacterial toxin.

It would hardly be necessary to go further in search of proof were it not for a very interesting point which arises from a comparison between neurasthenia and *Graves' disease.* The symptoms of this malady consist, as you know, of thyroid enlargement, proptosis, with vascular, and numerous nervous, symptoms. These nervous symptoms are of considerable importance, and usually appear early in the disease. It is for this very reason that a large number of cases of Graves' disease come to this hospital for relief. Now, there is a very striking resemblance between the symptoms of neurasthenia and the nervous and many of the vascular symptoms of Graves' disease, if indeed they be not identical. Recent researches into the subject of Internal Secretion have shown that Graves' disease is due to a faulty action of the thyroid (one of the internal secretory organs), and therefore this disease is essentially an altered condition of the blood. The comparison is a most instructive one, for it is more than probable that the blood defect is of a widely different kind in the two diseases. Nevertheless, the nervous symptoms are identical.

In conclusion, I would once more remind you that neurasthenia is dependent on many other conditions besides gastric disorder. In the class of patients met with in the out-patient practice of this hospital, this latter forms, as we have seen, the largest group—47·1 per cent. of the 157 cases analysed. But overwork, insomnia, anxiety, grief, pain, Graves' disease, pyorrhœa alveolaris, influenza, and many other toxic and exhausting morbid conditions may also produce neurasthenia without any gastric disorder. These will be discussed at our next meeting.

Addendum (May, 1906)

Analysis of the Causes of 83 Cases of Neurasthenia met with in private practice between February, 1902, and August, 1905, *in which the Cause was confirmed by the results of Treatment*, showing the Percentage of each Cause in Operation.

	Cases.	Per cent.
Intestinal derangement, with or without mucus	33	39·9
Gastric dilatation and various other kinds of gastric disorder	26	31·3
Other septic and toxic conditions	10	12·0
Fatigue	2	2·4
Emotional and traumatic	2	2·4
Circulatory and lung troubles (? malnutrition)	5	6·0
Complex causes	5	6·0

This analysis of 83 cases met with in my private practice—a series of cases concerning which much more detail can be obtained and care observed in treatment than in hospital patients—shows that 31·3 per cent. were attributable to various forms of gastric disorder, 18 per cent. to intestinal derangement with mucus in the stools, 21·7 per cent. to intestinal derangement without mucus in the stools. The important part played by states of gastro-intestinal sepsis in the etiology and pathology of neurasthenia is revealed by the investigation of this series of cases of neurasthenia (see *The Clinical Journal* June 6, 1906, and Lecture VIII).

LECTURE V

THE PATHOLOGY AND VARIETIES OF NEURASTHENIA

SUMMARY:—*How each of the four pathological conditions operate in the production of neurasthenia.—Sources of auto-toxæmia numerous and often obscure.—How malnutrition and fatigue operate.—Emotional, traumatic, and surgical neurasthenia are pathologically similar; cases.—Relative proportion of cases in each group.—Clinical differentiation of the four pathological groups difficult.—Part of the nervous system chiefly affected in each.—Explanation of neurasthenic symptoms.—Increase of neurasthenia in modern times; explanation suggested.*

GENTLEMEN,—Last time we met I devoted so large an amount of time to the pathology of toxic neurasthenia, partly because we have in this hospital special opportunities for the study of that large group of cases which I regard as due to gastric disorder, and partly because the conclusions at which I have arrived are at variance with those of several eminent observers. It now remains for us to review the pathology of neurasthenia as a whole, and to consider four questions.

First, How each of the four pathological conditions (TOXÆMIA, MALNUTRITION, FATIGUE, and EMOTION or TRAUMATISM) operate in the production of neurasthenia.

Secondly, The relative proportion of the cases in each group.

Thirdly, Can we by the symptoms differentiate these

four pathological groups or varieties from one another; and what is the relative incidence of the disease in the different groups upon the different parts of the nervous system?

Fourthly, What is the explanation of the increase of neurasthenia in modern times?

First, then, how do these various pathological conditions operate in the production of that weakness and irritability of the nervous system which we call neurasthenia?

Group I.—*Toxic neurasthenia.* We need not dwell at any great length on the explanation of how various toxic conditions act specially on the nervous system. It is well known that there are many toxins—syphilis, lead, or influenza, for instance—capable of acting on the nervous system as a whole, and sometimes on special parts. We have discussed at some length the relation of neurasthenia to gastro-intestinal conditions, and found that there were 47 per cent. of cases in which this cause could be traced. I laid before you reasons for concluding that the gastro-intestinal disorder in these cases had given rise to an auto-toxæmia (pp. 73–87) which produced the neurasthenia, but what the precise nature of the toxin is we cannot at present tell. Pyorrhœa alveolaris, even without gastric disorder, seems also capable of generating a poison which, besides producing anæmia, seems to have a special faculty for producing weakness and irritability of the nervous system. I have mentioned several cases. It is surprising how prone one is to overlook this source.

Quite recently a young lady of 28 came to me complaining of inability to walk for more than a quarter of

an hour at a time, or to read or write without producing immediate headache, with palpitation, tachycardia, and other Graves' phenomena. She had no symp-

CASE XII. toms referable to the stomach or intestinal canal. She improved somewhat under electricity and various other treatments, but it was not until after she had been under my care nearly two months that I discovered she had severe pyorrhœa of the gums and bad caries of the molars. Now that these have been remedied she is rapidly progressing towards health.

Several other toxic conditions of the blood appear to be capable of producing neurasthenia, and I have met with instances where nasal, aural, or septic uterine conditions, chronic appendicitis, and other pyogenic foci, chronic alcoholism, Graves' disease, influenza, syphilis, and other acute specific fevers, have each of them played a leading part in producing irritable weakness of the nervous system. Pyogenic foci are, in my belief, more often sources of auto-toxæmia than might be supposed. They are often extremely difficult to discover even when they are suspected, and when unsuspected are very seldom found. They seem to have two results, to make the blood poorer in some way and to weaken the nervous system. Consequently, when marked anæmia is associated with neurasthenia, a pyogenic focus may reasonably be suspected, and in many cases the suspicion may be strengthened by the presence of leucocytosis. Dyspeptic cases very often get an earthy pallor of the face which is quite distinct from true anæmia.

Group II.—*Malnutrition neurasthenia.* The neurasthenia which arises in association with a deficiency of the general nutrition of the body is seen most typically

in cases of starvation, as in a case of cerebral neurasthenia which I shall bring before you next time (Lecture VII). It is also met with during convalescence after pneumonia, typhoid, or other exhausting illnesses. I have already shown you an example of this kind of neurasthenia in the case of the engine-fitter (Case III, Lecture II), who had developed a severe attack after an illness two years previously. The illness in this case had obviously been very severe, and the nervous system had never properly recovered.

The point which is most noteworthy about malnutrition-neurasthenia is that malnutrition appears incapable, as a rule, of acting as a cause alone. This is what one would expect, for there would otherwise be no reason why the nervous system should be more affected than any of the other physiological systems. Cases, however, do occasionally arise after undue fasting or privation, as in a girl whom I shall mention next time. It seems probable that in post-influenzal neurasthenia we have yet one more illustration of a compound cause, partly toxic, partly malnutrition.

General malnutrition, like the inherent weakness of the nervous system due to heredity, is more often met with as a predisposing than an exciting cause of neurasthenia. You have, no doubt, seen many cases where general debility has been unaccompanied for a long time by any nervous symptoms until a severe bereavement, or too much brain-work, has determined their occurrence.

Group III.—The neurasthenia due to over-functioning, or as it may be conveniently called, "*Fatigue-neurasthenia*," is due to exhaustion of the nerve cells, and you will remember that I likened the nervous system in these

circumstances to a faradic battery which had been in use for several hours without intermission. It is this variety of the disease one meets with among the professional classes. It is doubtless the commonest of the varieties met with in the private *clientèle* of all of us, and I need not bring any fresh cases to your notice beyond those which I quoted to you on a previous occasion.

It is a general physiological axiom that increased function, if regularly and gradually increased, leads first of all to increased growth. If, however, this increased function be carried to excess, and especially if the increase be irregular and spasmodic, it leads to atrophy and degeneration of the structures concerned, and if perpetuated this excess leads to overgrowth of the structures around. This is an old pathological principle which has recently been revived under the name of Edinger's law.

In this connection it is worth remembering that all functions of the body are dependent upon the nervous system, and therefore it is a mistake for a person to think that he can rest his brain after vigorous and exciting operations (on the Stock Exchange or in medical practice, for example) by taking a thirty or forty mile bicycle ride into the country. We have not two brains, and we have not two nervous systems, one for the workings of the mind and another for controlling the muscles. These facts should be remembered when selecting the kind of rest and recreation required in any particular case.

Group IV.—How an *emotional strain*, such as the bereavement which was in operation in the case of a woman whom I brought before you on a previous occasion (Case IV, Lecture II), produces neurasthenia is not quite so easy of explanation. It may, however, be borne in

mind that the effects of a sudden severe emotion are often very much like those of exhaustion or over-functioning; and both are capable of producing complete generalised weakness, a general inability to move the limbs (prostration, collapse, or shock), of a more or less transient kind. Both seem to paralyse the motor cells, and if this be so, why should not the same effect be produced upon the non-motor cells of the brain, cord, and sympathetic system?

It sometimes happens, as in the woman just referred to, that the resulting neurasthenia is of a very lasting character (two years in that case), and the question arises, why should this effect last so long? Now of course the grief or anxiety may be in continual operation all the while; but even apart from this, recovery depends on the state of nutrition and power of recuperation of the individual, and although the cause may be removed the nervous system may not recover.

The case of the policeman who incurred the disease while on traffic duty (Case I) might also come into the category of emotional neurasthenia, for this patient was subjected to a series of emotional shocks by frequently being nearly run over.

Surgical neurasthenia may be *traumatic* (after injuries) or *post-operative* (after operations).—In *traumatic* neurasthenia it is not the injury itself, but the emotional shock, the fright, or the sudden emotional effect which really produces the disease. Consequently, the pathology of traumatic neurasthenia resembles that of an emotional neurasthenia brought very suddenly into operation, of short duration, but very concentrated while it lasts. That neurasthenia may be determined suddenly by a severe

injury has only been admitted within the last few years, but there is no doubt that it may be so. It is, however, a curious circumstance that the neurasthenic symptoms do not necessarily follow immediately on the injury; there may be an interval of several weeks, or even months. In such cases I am inclined to think that there is very often some contributory cause which comes into operation later, such as the worry and loss consequent on the injury. Another fact which has been observed is that the nervous symptoms are often more serious when the injury is slight, which may be because the patient then resumes work too soon, or because the internal (functional) effects are most severe; in other words, the patient has been "more frightened than hurt."

The nervous symptoms which arise in cases of railway accidents and injuries to the spine (railway spine) or head, have afforded ample material for the study of traumatic neurasthenia; that which follows shocks and injuries to the spine afford some of the best and purest examples of "spinal neurasthenia" to be met with.

The question which arose in emotional neurasthenia occurs with even greater force here; why should a transient cause produce such a lasting effect? But here again recovery depends on the state of nutrition of the body and its power of recuperation. In the aged and those debilitated from some cause, this is much below par, and recovery may be indefinitely postponed, as in the case which I have already mentioned to you of an eminent scientist over 70 years of age who developed neurasthenia consequent on a cab injury; and you will remember that he died without recovering.

I should like to narrate to you an interesting case

which came under my observation some years ago, and which attracted a good deal of attention, because the patient, a cabman, was driving, at the time of his injury, a well-known metropolitan police magistrate.

CASE XIII.

The patient was 43 years of age, without any neurosis or facts worthy of note, either in his family or previous history. On October 15, 1884, he was driving his cab over Putney Bridge, when a brewer's dray ran into him, knocked him off the box, and turned the cab over. In falling, he struck his head and his side. He did not lose consciousness, but, getting up, walked over the bridge, procured another cab, and drove his fare a distance of two miles. This was about 5 p.m.; and at 8 o'clock, after getting home, he sent for a doctor, who told him that he had "two ribs broken." He was in bed for three weeks, and was attended by the doctor for eight weeks. He felt very weak when he got up, and did not recover his health. He suffered considerably from sleeplessness and dreams, in which the scene of the accident was repeated. He was also troubled much with "singing in the ears" at night, and in the daytime he was "nervous" and "shaky," and found it difficult both to see and to hear. In the course of a few months he tried to resume his occupation, but was unable to drive, partly because of pain in the side, but chiefly by reason of timidity in driving, and on account —though when pressed he could not give a name to them—of the "horrible fears" which came over him, especially towards the evening. If he attempted to go out after dark a "horrible dread" seized him, and he "shook all over." I did not see him until a year after the accident, when much the same symptoms still

remained. He professed himself to be almost deaf in the right ear, unable to hear a watch until it touched the ear. His vision, too, he said, was defective, for he could not "see things at the side" of him. There was no error of refraction, and the opthalmoscope revealed nothing. All the organs were normal, but there were signs of an old fracture of two of the lower ribs on the right side, at the seat of pain. He complained also of a feeling of fulness after meals when he felt more "tired" than usual; the appetite was good and there was no vomiting. The urine was normal. The matter had now come before one of the High Courts, and a considerable sum for damages was claimed, the patient being brought to me for a second opinion. I examined him thoroughly and could find no physical signs, excepting, first, a zone of hyperæsthesia around the middle third of both legs; and, secondly, a retraction of the fields of vision, most marked in the right eye. I submitted these signs to repeated tests, and came to the conclusion that they could not be the result of simulation. I also tested his fields of vision on several days and at different hours of the day, and found that they were more retracted towards the latter part of the day, particularly if he had taken, for him, much exertion. Under cross-examination I gave this report at considerable length in court, and full damages were awarded.

This case seems to me one of considerable interest, as being entirely due to the shock of the accident. The dyspepsia might perhaps have contributed slightly, but the gastric symptoms were such that they might very well have been part of the neurosis, and they had only come on quite recently. The nervous symptoms came on

immediately after the accident, and persisted. They remained also for some considerable time after the trial, until he went away into the country for three months. Not the least interesting feature of the case was the retraction of the fields of vision, which certainly helped more than anything else to establish the reality of the affection. It also affords a good illustration of the value of rest in such cases, for the retraction was less marked after rest. It seems, also, to show that in cases belonging to the group under consideration we have to do with a veritable exhaustion of the nerve cells; for after using the eyes the retraction of the fields became more marked, and *vice versâ*.

CASE XIV.

I should like to mention a case which was the result of a most extraordinary accident, and illustrated a most miraculous escape. Mrs. Z——, aged 41, a professional singer and pianist, was walking along the streets in Chicago one day in April, 1897, when a large window pane of plate glass, blown out by the banging of a door, fell upon her head from one of the seventh floor windows. Fortunately it turned as it dropped and fell flat on her head instead of edgeways; but the force of the blow felled her to the ground, where she lay, for ten or fifteen minutes, unconscious. She got up and walked home with assistance, and then had a "shivering fit" which lasted four hours. Ever since that time she has suffered from severe and persistent headache radiating from the left temple, which was the part struck, a feeling of extreme exhaustion, extreme nervousness, sleeplessness, "horrible dreams," "pains and weariness in the spine," loss of memory, confusion of thought, and complete inability to sing or play the piano. The loss of

memory was of a very special and, for her, most unfortunate kind. She could remember ordinary matters well enough, but could never recognise the faces of her friends, and found herself suddenly unable to read a single note of music or to recognise delicate shades of intonation; she had completely lost her highest and last developed faculties. At the time of the injury there had been a good deal of swelling and bruising over the left temple, but no fracture or paralysis anywhere. She came under my care six months later, and there was still extreme tenderness over the left temple, and inequality of pupils, the right hand was affected by a fine tremor and some weakness and stiffness, so that she could not write. These symptoms passed off in a few weeks; but the prostration, sleeplessness, loss of memory for musical signs, and other neurasthenic symptoms persisted up to August, 1898. When I last heard from her, in 1899, she had completely recovered and was at work again.

In 1898 a young actress came under my care who, six months previously, had unwillingly played the leading rôle in a tragedy on the stage of life. A persistent lover, after repeated refusals, called on her one day with an ultimatum and a revolver, and as she still declined his offer of marriage he shot her through the back and then blew out his own brains. The bullet traversed her right lung and apparently dropped into the lowest part of the pleura at the back, where it had been revealed by the X rays while she was under Prof. William Rose's care, and where it gradually became encysted. Symptoms of extreme nervousness and weakness, dreams and night terrors, starting up at night, creeping sensations in the head, and

CASE XV.

pains radiating from the bullet wound resulted. She got well in the course of a few months under nerve tonics, electricity, change of scene and air, and, excepting for the fact that minute pieces of lead made their way to the surface of the body in various places, the incident remained only as an ugly dream. Years ago this case would have been regarded as hysteria, but it had none of the paroxysmal characters of that disorder.

Post-operative neurasthenia is not, I believe, sufficiently recognised, possibly because surgeons lose sight of their operation cases, or because the nervous symptoms, as in traumatic neurasthenia, may not come on for some time after the operation—three months is the longest interval I have met with. It is quite as prone to follow minor as major operations (a fact which Mr. Edred Corner[1] has recently again pointed out), possibly because prolonged rest in bed is wanting after minor operations. One would imagine that neurasthenia would be more frequent after an unusual amount of blood has been lost, but I have not observed this. The pathological explanation appears to me to be very much like that of traumatic neurasthenia (p. 83), namely, the effect of the emotional shock of the operation, or the worry incidental to an operation, on a nervous system previously rendered unduly sensitive by some toxic, fatiguing, hereditary, or other predisposing cause. I am inclined to think that an operation cannot produce neurasthenia without some predisposing cause. The practical point is that prolonged rest in bed is the leading indication for treatment.

Now let us turn to the second question, the relative

[1] *The Clinical Journal*, February 7, 1906, p. 265.

proportion of cases in these four pathological groups. The proportion would no doubt vary in different fields of observation, and any such investigation among hospital out-patients is bound to be uncertain in its results in view of the difficulty of obtaining true and exhaustive histories, of getting treatment thoroughly carried out and ascertaining its real effects; also in view of the extreme frequency of compound causes. As far as I can tell, the 157 cases examined in my last Lecture would be distributed approximately as follows, though in very few was a cause operating singly. This is particularly true of the last three groups, in which an opportunity for more prolonged and thorough investigation might have resulted in some at least of these cases being transferred to Group I, the group of toxæmias. This group you will observe accounts already for 75 per cent., and I have a suspicion that some kind of toxæmic cause, capable of acting alone or in conjunction with other causes, might possibly have been traced in some of the other cases.

RELATIVE PROPORTION OF THE FOUR PATHOLOGICAL CAUSES IN 157 HOSPITAL CASES OF NEURASTHENIA.

Gastric disorder	74	47·2 per cent.	= 117 = 74·6 per cent.
Other toxic causes	43	27·4 ,,	
Fatigue	18		11·5 ,,
Malnutrition	10		6·2 ,,
Emotional and Traumatic	12		7·7 ,,
	157		100·0 per cent.

As one among many of the examples which might be mentioned of the obscurity and complexity of the causes of neurasthenia, and the presence of an unsuspected septic cause, the following case may be quoted. A lady, aged 40, came under my care for neurasthenic symptoms of nearly

20 years' duration, referable to the central nervous system and the sympathetic system, with varying periods of health. She had recently had a very severe ex-

CASE XVI. acerbation of cerebral neurasthenia, amounting almost to insanity, and had just returned from abroad. There was a long history of constipation and gastro-intestinal troubles, associated with painful and irregular catamenial periods. I regarded the neurasthenia as dependent upon the former, and certainly treatment directed to the gastro-intestinal derangement, combined with electricity, produced very considerable amelioration, and she left for the country. But shortly afterwards I was called to see her on account of the severe pelvic pain from which she was again suffering. Upon my advice laparotomy was performed. The uterus (containing fibromata) and appendages were removed, and among the diseased conditions in the latter was a thick-walled cyst the size of an egg, containing grumous, highly septic material, which had evidently been in existence a very long time, and had apparently been the source of both the menstrual trouble and (by absorption) the chronic septicæmia that had given rise to the prolonged neurasthenic condition. Thereafter she made a complete recovery of health after an epoch of twenty years' invalidism. Such cases illustrate the complexity of the causes of neurasthenia, the difficulty of arriving at a satisfactory statistical classification based on etiology, and the liability of overlooking, in any given case, the real root of the evil.

The third question we have to consider is whether one can, by the symptoms, *differentiate these four pathological varieties of neurasthenia* from one another, and so detect

the kind of cause in operation. Now, I do not know of any one set of symptoms which are absolutely characteristic of one pathological group, but the relative incidence of the disease on the different parts of the nervous system in a given case will sometimes afford a clue to which group the case belongs. This relative incidence is therefore a profitable enquiry, both clinically (from the point of view of diagnosis) and pathologically, and we will inquire briefly concerning each group, *the part of the nervous system chiefly affected*, and the symptoms which predominate in that group. Incidentally this will help to afford us a pathological *explanation of some of the many various symptoms* in neurasthenia.

First, in the large *toxic group*—by far the largest group of neurasthenic cases—cardio-vascular symptoms are, in my experience, more common and more prominent than in any of the other groups. Symptoms referable to that part of the sympathetic system which regulates the circulation are fairly common in all cases, but they are more prominent in toxic neurasthenia, as may be seen in the following cases.[1]

CASE XVII.

George B——, aged 42, came to the hospital complaining of nervousness and the usual concomitant symptoms. He also complained of "palpitations," "general flushings and burning feelings," followed by "pallor and coldness"; "dizziness and things going round," "swaying about and weakness" when he walked, and inability to go on with his work

[1] Beard points out the prominent part played by the sympathetic system. But his theory is that the symptoms of neurasthenia are due primarily to a want of cerebral control; consequently the vaso-motor centre not being under cerebral (? central) control becomes very unstable. The cardio-vascular system, having most sympathetic nerves, shows the symptoms most.—"Neurasthenia," Beard and Rockwell, 1891.

(that of a commercial traveller) on this account. At night, on going off to sleep, he had "a feeling as though I was falling through the bed," and other horrible feelings. There was a long history of gastric symptoms.

CASE XVIII.

Arthur W——, a clerk, aged 21, complained of being nervous, and of attacks of "flushing" accompanied by a "feeling as though I should burst," chiefly towards evening and at night, loss of confidence in himself, being slow at his work, listlessness, prostration, and "giddiness and reeling." He says his "hands and feet are very cold" on some occasions, but feel burning on others without adequate reason. He had very bad teeth and pyorrhœa, which being cured the symptoms passed away.

Careful enquiry—without of course putting leading questions—will in my experience invariably reveal some such vaso-motor or circulatory symptoms in all cases of neurasthenia, and more especially those which are of toxic, or mainly toxic, origin. Among such symptoms may be mentioned—rapidity and irregularity of the pulse, palpitation, sighing respiration, feelings of swelling, acro-paræsthesia, tingling, heaviness, feeling of "bursting," and sometimes actual swelling of the extremities, the disagreeable feeling of sinking through space, reeling, swaying, "dizziness" or vertigo. In quite a number of these cases the heart becomes dilated, and considerable benefit is derived from Nauheim and other methods of treatment.

In all probability, endless vascular irregularities occur in all the physiological systems, and hence the endless variety of the symptoms and sensations; and the feeling, as more than one patient has put it "as though my whole inside was in a whirl," "the inability to think for two seconds

together,"—and the general want of harmony and co-ordination in the economy. The relative amount of blood entering an organ at different times regulates its nutrition and its functions, and if the flushing or pallor of an organ take place irregularly and at the wrong times, its functions must manifestly be upset and its nutrition will gradually become impaired.

Even the cerebral symptoms—such as confusion of thought, loss of memory, irritability of temper, broken sleep, bad dreams, nameless fears, "horrible thoughts," sometimes hallucinations, a "bursting" feeling in the head (the *casque neurasthenique*), forgetfulness, inattention (and consequent inability to do business)—may be due either to the irregular blood supply of the brain or to the direct action of toxic blood (in toxic neurasthenia) on the cerebral structures.

Other parts of the sympathetic system are probably also affected. In that variety of the disease which some observers call "gastric neurasthenia," but which is really gastric myasthenia, the gastric symptoms which imitate true gastric disorder might be accounted for by sudden irregular flushings or pallor of the mucous membrane of the stomach and intestines,[1] or by a paresis of the involuntary muscular tissue. The dilatation of the stomach, which is a frequent accompaniment of neurasthenia, could be readily accounted for by paralysis of its muscular tissue; and the constipation, which is certainly present in a large number of cases, by paralysis of the bowel. This I believe to be the explanation, already adopted by many, of these two symptoms.

[1] Some French authors have included certain cases of hæmatemesis under neurasthenia; if the above view is correct such cases can be explained.

But, you will say, how are we to account for the *pain* and some of the other sensory troubles? Now, in the first place, I am inclined to think that Beard's suggestion that the pains may be produced by local congestions (or vascular constriction) is a not unreasonable one. This is almost certainly true in regard to the different varieties of headache complained of. In the second place, it should also be remembered that true pain—pain of a neuralgic character, as we understand it—is not such a frequent symptom in neurasthenia as one would imagine, for the term "pain" is most vaguely used by patients to describe any feeling of discomfort. This more often takes the form of tingling, pricking, formication, and the like—symptoms which, as I have just mentioned, are generally associated with local vaso-motor disturbances. Even when actual pain is complained of, it is found very often to consist of a dull, weary aching like that met with in over-fatigued muscles, and may be explained by irregular supply of blood, or toxæmia, or both.

The conclusions, gentlemen, at which I have provisionally arrived in regard to the relation of neurasthenia to the sympathetic system are as follows:—

(*a*) That when cardio-vascular symptoms are most prominent we probably have some toxic condition as the chief cause in operation.

(*b*) Sympathetic and vaso-motor symptoms are met with in the great majority of neurasthenic cases, but are most prominent in toxæmic cases.

(*c*) The frequency with which cardio-vascular and sympathetic symptoms are met with at some time in the history of these patients leads one to suspect that toxæmia may play some part in all cases of neurasthenia.

Secondly, in *malnutrition neurasthenia—i.e.*, where the chief cause appears to be an insufficient supply of nutrition to the nervous system, a very much smaller group than the preceding—the symptoms have usually seemed to me to be more generalised, and to involve the brain, the spinal cord, the nerves, and the sympathetic system, more or less equally. Moreover, as previously mentioned (p. 92), the causes which act in this way generally act more or less equally on all the other physiological systems (unless the nervous system is predisposed by heredity or some other contributory cause), so that all the physiological systems manifest evidences of deficient nutrition, and the body weight diminishes, a symptom otherwise absent in neurasthenia.

Thirdly, in *fatigue neurasthenia*—neurasthenia the result of prolonged forced functioning—the symptoms are chiefly referable to that part of the nervous system which has been overworked—namely, the brain or spinal cord, as the case may be. In most cases it is the mind that has suffered, and if so the patient complains of loss of memory, deficient attention, and other mental symptoms. The history generally reveals the pathological cause in such cases. In most instances the only difficulty we have to avoid is lest there should be some contributory cause in operation which needs our more serious attention, such as toxæmia or malnutrition on the one hand, or worry, anxiety, or grief on the other. It is sometimes hard to sort out cases of fatigue neurasthenia from the preceding and succeeding groups, for overwork, pure and simple—without worry, toxæmia, or other contributory cause—seldom produces the disease. The neurasthenia which follows over-athleticism and the anxiety for success incidental thereto is a neurasthenia of compound causation.

Fourthly, in *traumatic* and *emotional neurasthenia*, both of which I have included in one pathological group for reasons already given, the incidence of the disease on the several parts of the nervous system varies in different cases. Traumatic neurasthenia, the history of which is generally very clear, often affects the part of the nervous system injured, as in the case of the Chicago lady I narrated to you (p. 98). But in all of these cases, in addition to the local injury, there is another, and often more important, element in the shock to the nervous system as a whole. In emotional neurasthenia this latter is also a leading feature, but here it is the mind which suffers in consequence of the grief, disappointment, anxiety, or what not, and the patient complains of defect of memory or attention. Sometimes the mind becomes a blank, sometimes insanity ensues.

By way of summarising what has been said concerning the relative incidence of the disease in the four pathological groups on the different parts of the nervous system and the symptomatic differentiation of these groups, I will ask your attention to the following table :—

Pathological Group.	Predominant Symptoms.	Part of the Nervous System chiefly affected.
Toxic neurasthenia . .	Cardio-vascular, vaso-motor, and sympathetic.	Sympathetic, and thus all the functions of the body.
Malnutrition neurasthenia	Generalised.	All parts.
Fatigue neurasthenia .	Mind and special senses or spinal symptoms.	Part which has been overworked.
Emotional neurasthenia .	Mental symptoms.	Brain.
Traumatic neurasthenia .	Part injured chiefly.	Part injured or general shock.

Finally, let me remind you once more of the great frequency with which mixed causes are in operation. These pathological groups overlap at every turn. In some cases it is quite impossible to allocate a case in one pathological group, and hardly a case occurs of which it can be said that a single cause is in operation. But one can, after thorough investigation, generally arrive at a fairly accurate conclusion as to which of the four pathological groups we have before us by a study (1) of the history; (2) of the particular set of symptoms which predominate (which depends on the relative incidence of the disease on different parts of the nervous system); and (3) of the effects of treatment.

There is still one question in connection with neurasthenia which I desire to touch upon before passing to the consideration of treatment, namely, is neurasthenia a new disease? or, if not actually new, why has it increased so much in modern times?

Now, it cannot be regarded as a new disease, for we have records of cases belonging to this category dating from, at any rate, the early part of the nineteenth century, and, as already stated, there are good reasons for believing that it was formerly confused with hysterical conditions. Neurasthenia, therefore, is a disorder which has been sorted out from another large functional nervous disorder in the process of the evolution of medical science.

But, even allowing for improved methods of diagnosis, there can be little doubt that the number of cases of neurasthenia has considerably increased in modern times. At this hospital more cases of the disease apply among the out-patients than formerly—say than 10 years ago.

Now, what is the cause of this increase? Is it a product of our modern civilisation? Is it a product of the evolution of the race?

After carefully considering all the various causes which may produce this condition, the reasons of the increase appear to me to be at least three in number. In the first place, we shall do well to bear in mind how extremely prevalent influenza has been of late years, and how patients who suffer from this disease are extremely liable to develop neurasthenia. There is, indeed, one form of the malady in which the poison seems to attack only the nervous system, and the symptoms of influenza really take the form of a severe variety of neurasthenia. It is now some eighteen years since influenza reappeared in our midst after a considerable absence; and since then we have had a constant succession of epidemics. But this is not the principal reason.

The chief reason is the remarkable tendency which there is, and has been, in the present and the preceding generation, to decay of the teeth. I have already pointed out to you what a large part dyspepsia plays in the production of the disease, and I have mentioned that amongst the out-patients of this hospital by far the most frequent cause of their dyspepsia is decayed teeth. We hear of our ancestors having had a sound and complete set of teeth at the age of 50, 60, or 70, but nowadays it is comparatively rare to find an absolutely sound set of teeth after the age of 21, especially among hospital patients. What the cause of this is, does not affect my present argument. There is the fact, that the teeth for some reason decay at a very early period, and consequently that important part of digestion which is performed in the mouth is left undone, and at a

comparatively early age the patient becomes a martyr to one of the most insidious and intractable forms of dyspepsia that can be met with. Incidentally, however, I may remark that in my belief a fruitful cause of this extraordinary change in the life of the teeth is to be found in the fashion of eating ice-creams, which first became prevalent among the children of the lower orders about the middle of last century. Nothing can be more damaging to the teeth of children than the application of ice-cold fluids. It causes the enamel and even the dentine to split, and thus numerous microbes find access to the interior, and decay speedily ensues. This, however, is not a question which I ought to pursue further on the present occasion.[1]

These are probably two of the causes in operation among the lower classes; but there is a third, which is perhaps the chief cause of the increase in the disease among the upper and great middle classes, to wit, the greater pace at which we live. The introduction of railways and other improved means of communication, the large proportional increase of town dwellers, as compared with rural folk, all tend largely to increase the rate at which life is carried on. This is especially so in the metropolis, where nearly every other person you meet seems to be trying to get two days' work into one. The insufficient air and light and the fogs of our great cities are also, without doubt, potent factors in the increase of neurasthenia.

There is possibly a fourth cause in operation. In modern times the increased prosperity of the masses has

[1] Dental caries acts as a cause of neurasthenia in two ways—by the consequent oral sepsis, and by the resulting gastro-intestinal disorder. Further remarks on this subject occur at the end of Lecture VIII.

led, I am persuaded, to a proportionate increase in the amount of drinking amongst them. This I have had many opportunities of observing, and especially at Warrington—which may be taken as a very fair type of an average provincial town—where day after day, for nearly two years, I mixed freely with the masses.[1] It was quite a remarkable event when I came across what could be really called a "steady man," and comparatively rarely a steady woman. Much the same may be observed among the masses in the metropolis, though not perhaps to quite the same extent. The conditions now compare unfavourably with those of former times, when these same people had more limited means and less opportunity to drink. Now, the effects of alcoholism on the individual are well known, especially its destructive effects on the nervous system and on the involuntary muscular tissue. But the effects upon the progeny are not sufficiently realised. Again and again have you had the opportunity here of seeing these effects. You know that there is no more potent cause of that inherent weakness of the nervous system, which constitutes a predisposition to neurasthenia and other nerve diseases in an individual, than alcoholism in one or both parents. We have seen it many times where the family history was absolutely free from any kind of neurotic taint whatsoever. This I believe to be an additional reason why neurasthenia has increased so much among the masses of the population.

[1] Having been deputed by the Royal Commission on Vaccination to investigate the small-pox epidemic, 1892-3, in that town.

LECTURE VI

TREATMENT

SUMMARY:—*Rational and prolonged treatment necessary.—Must vary according to which of the four pathological causes is in operation.—In toxic neurasthenia often difficult to ascertain the source.—Importance of thorough examination of all organs; illustrative cases. Value of rest and nutrition to allay nervous irritability.—Isolation not generally indicated.—Hypnotism; hot and cold baths; exercise. Symptomatic indications.—Importance of medical supervision.*

GENTLEMEN,—All rational and efficacious treatment must be based on pathology, and the long consideration we have given at our previous meetings to its pathology leads us naturally to certain indications for the treatment of neurasthenia. By some the malady is regarded as mostly incurable; but, in my experience, it has proved to be mostly curable, although nothing can be done excepting by a systematic and sometimes very prolonged course of treatment. At the outset let us warn our patients not to expect sudden and miraculous cures. When a patient comes and asks in a simple way for "some strengthening medicine" just to relieve his nervousness, I sometimes think of the remark made by the King of Israel upon receiving the letter from the King of Syria concerning Naaman—"Am I God to kill and to make alive?"

But furthermore, so slow is the nervous system to recover in some instances that cure does not take place

until long after the cause has been removed, and, as a consequence, it not infrequently happens that the medical man who is the real agent of the cure of the disease does not get the credit for it. Such a man, however, may derive consolation from Sir James Paget's remark that we often get credit where no credit is due, and on the whole the balance of praise is in our favour.

Our methods must differ considerably according to which of the four pathological causes referred to in my last lecture is in operation; and, before deciding on a plan of action, we must identify the pathological group to which the case belongs.

We will commence with the first, and in this clinique the most common group, toxic neurasthenia. Here the first, the most important, and often the most difficult step is to discover the cause, the source of the toxæmia; and the next step is to lessen the irritability of the nervous system, and to improve its nutrition.

The problem whether we have before us a case of neurasthenia due to disorder of the stomach, or neurasthenia with symptoms referable to the stomach (gastric myasthenia), is also one of considerable difficulty. When discussing this question, I gave you the clinical features on which you could rely (pp. 71 and 75); but sometimes the problem is one of extreme difficulty, and can only be solved by a very thorough and skilful investigation, and by carefully watching the case from day to day.

In order to relieve the indigestion, if any be present, there are of course many means at our disposal. The diet should be carefully enquired into and a written dietary adhered to. The teeth very frequently require attention, and there are many other points which it would

be out of place to discuss here. Bromides may relieve the symptoms for a time, but the reason they so signally fail in some cases—as in the case of Mrs. X., whom I have mentioned to you—is due, I believe, almost entirely to the omission to investigate the true source of the neurasthenia. Sometimes it is the alimentary system, sometimes it is the emunctories, which need attention, each by appropriate (and sometimes opposite) measures. A very thorough examination of all the organs is therefore an indispensable preliminary procedure.

The importance of an examination of the abdominal organs could not be better illustrated than by the following case of floating kidney. A lady, aged 56, the wife of a medical man, was brought to me for some of the most severe neurasthenic symptoms I have seen. She was extremely depressed and melancholic, and her friends feared her mind would go. Her sleep was disturbed with terrible dreams and she woke each morning in an excited state. She dared not be alone on account of "horrible dreads." She suffered from dyspepsia and was very prostrate; she had dragging abdominal pains, and could only walk a few yards at a time. I did not at my first examination discover the dislocated organ, and directed my attention to the dyspepsia, with only partial benefit. A few weeks later she told me casually "the only position in which I can get relief from the pain in the abdomen is by sitting forward supporting the belly with my two hands." This gave me the clue, and on being provided with a proper belt all her symptoms gradually disappeared.

CASE XIX.

Here is a case which exemplifies the importance of examining the chest. A clergyman, ætat 38, consulted

me in August, 1900, for a number of neurasthenic symptoms. "My brain becomes fatigued and clouded by any continued reading, writing, or study, or even by a prolonged conversation; if persisted in, giddiness and a distressing exhaustion result." These symptoms also arose after any worry or excitement, and sometimes without any apparent reason. These and other nervous symptoms (*e.g.*, disturbed sleep) had come on gradually seven years previously when he was recovering from an attack of "influenza and lung disease," and when he studied very diligently indoors. He had been given phosphorus pills and other nervine tonics without benefit, getting only worse, so that he had to give up his "living." The case looked like one of post-influenzal neurasthenia, but on examining his chest I found he had marked emphysema (accompanied by asthmatic attacks), considerable dilatation of the right heart, and a suspicious spot as of old tubercle at the apex of the right lung. He was surprised at my directing attention to his chest, saying, "It is my brain, doctor; I cannot read for two minutes without it getting cloudy." Nevertheless, all his nerve symptoms disappeared without any remedies specially directed to the nervous system. He lived an absolutely outdoor "open-air" life in Scotland, did respiratory exercises (for the emphysema) three times daily, and took the following prescription: Tr. nuc. vom. ♏vj., tr. digit. ♏iv., sp. am. aromat. ♏xv. sod. bicarb. gr. x., ext. casc. sag. liq. ♏v., inf. gent. co. ℥i. *ter die ante cib.* In October (two months later) he wrote me: "I can read and write a longer time, banish worrying thoughts, and recruit rapidly after the nervous attacks, which are fewer and shorter." By treatment directed solely to the cardio-

CASE XX.

pulmonary conditions he completely recovered from the neurasthenia in the course of about twelve months.

When dealing with the toxic variety of neurasthenia I devoted myself chiefly to the consideration of gastric disorder as a cause, but it may arise equally well from hepatic and renal disorder, or from some general dyscrasia. Galvanism of the cervical sympathetic and along the course of the pneumogastrics I have found very useful in some forms of neurasthenia of gastric origin.

The constipation, which also exists in a very large number of cases, must never be neglected. It very often gives the physician a great deal of trouble, especially in women, in whom perhaps uterine retroversion may also exist. For hospital patients I frequently order mist. mag. carb. cum mag. sulph., two or three times a day; or one dose early each morning. For private patients I find an aloin tabloid, administered daily with dinner, useful.

In cases of very obstinate constipation, the bowel must be washed out daily by means of a douche-can. Several pints of water, to which a little boric acid has been added, should be slowly introduced, the patient lying in the dorsal position, with the hips raised. I have also found the administration of a tablespoonful of olive oil with each meal useful, and if the difficulty still persists, an enema of freshly made soap rarely fails.[1]

With these procedures we must combine measures to allay the irritation of the nervous system. This may be done to some extent by means of the bromides, which in some cases I have found most useful. The bromide of

[1] Mix two tablespoonfuls of sodæ bicarb. with two tablespoonfuls of olive oil, adding just sufficient warm water to dissolve it. Then add one pint of hot water, and inject slowly into the rectum with the patient lying on the back.

ammonium seems less depressing than bromide of potash or soda. But the leading indication is to provide rest. This is not always procurable by patients who come to us in the out-patient department, but I have had excellent results, even among these, from a descending galvanic current applied to the spine. It ought to be administered daily, but every other day sometimes does good. You will remember a severe case which I brought before you in my first lecture on this subject. He was a male cook, A. H., aged 28, who had suffered from nervousness, headache, prostration, restlessness, attacks of shivering, and other alarming symptoms for several years. He improved considerably up to a certain point, but after a course of treatment extending over three months he came to a standstill. He was then ordered descending spinal galvanism three times a week. At once the effect was obvious, and after a course of three months' electrical treatment he wrote me a letter (August, 1898) full of gratitude, adding, "I found that the electrical treatment did me much good. I now feel so much better that I should certainly like to see how I get on without any treatment." In view of the severity and long duration of the symptoms from which he had suffered before coming under treatment, this may be regarded as a most satisfactory result. You will remember that this man had delusions and hallucinations of some gravity, and in my belief he has been saved from insanity.

That neurasthenia may arise when the digestive organs, the liver, kidneys, and other organs are in perfect health is a fact which is frequently impressed upon me in private practice, and it was illustrated by several of the cases you have seen. In simple cases of this kind the two chief

indications are rest in its widest sense and improvement of the nutrition of the body in general, and the nervous system in particular. Now, both of these indications are sometimes fulfilled by what is called the Weir-Mitchell treatment for hysteria, that is to say, isolation, over-feeding, massage, and rest in bed. But in neurasthenia, isolation is not called for as it is in cases of hysteria, provided only the patient ceases from the conduct of his business. Indeed, a little cheerful society is good in the former disease—anything like strict isolation fosters the tendency to melancholy. On the other hand, over-feeding, massage, and rest in bed are of value in uncomplicated cases. I could mention several severe cases where this treatment was successful after other measures had failed. But it is not always possible to apply this treatment, nor is it always necessary to proceed to these extreme measures.

So long as the patient is awake, some part of his nervous system is always in action; but we have in sleep the most perfect form of rest to the nervous system possible, and one of our first cares should be to relieve the insomnia which is so frequently present. One is justified in these cases, to some extent, in the use of the hypnotics which you will find enumerated in works on therapeutics, to tide over the difficulties of the moment, with due care, and provided they be combined with other measures directed to the removal of the cause. Ten or twenty grains of bromide three times a day, or even less, is useful, not only for relieving the restlessness by day, but also for procuring calm sound sleep at night. Very different doses of this drug are successful in different cases. As little as 7 grs. thrice daily is often sufficient. I have very rarely seen any ill effects arise from even prolonged use of

this drug, using very largely, as I do, the ammonium salt. While taking it, many patients complain that their memory is defective and their minds may be a little confused at times, but this always passes off immediately on the cessation of the drug. But I have often found that still simpler measures will procure sleep, such, for instance, as a glass of "toddy" the last thing at night, or warm milk and water containing twenty grains of hypophosphite of soda. Among my private patients I stipulate that they shall spend twelve hours in bed, taking their breakfast before rising. You will pardon my entering into what may appear such trivial details, but success in the cure of this disease often depends on attention to minutiæ. I well remember a lady, aged 53, a professor's wife, who consulted me in 1896 for melancholic vigilism—that is, wakefulness at night, attended by imaginary fears and terrors, accompanied by attacks of prostration, of sighing, and other obscure neurasthenic symptoms. I treated her upon the lines previously described for some time, but her improvement dated from the day when she commenced hypophosphite of soda in warm milk at night and took her breakfast in bed each morning. She herself attributed her recovery to the latter, for, she said, "it relieves me of the bustle and rush of the morning."

Descending spinal galvanism and hypnotism are means on which one can also rely to allay the irritability of the nervous system. I have already referred to the former. General faradisation of the limbs and static electricity are invaluable remedies to promote the tone of the muscles. Great results have been claimed for the d'Arsonval method of applying the high frequency current in neurasthenia.

Hypnotism and auto-suggestion can only be of service

in uncomplicated cases, under certain conditions, as adjuncts to other treatment. I have known them successful in cases due to shock, grief, drink, and anxiety. They may be useful in procuring sleep, or the calm which closely resembles it ; but post-hypnotic suggestion is not so useful in neurasthenia as in hysteria. Faith healing under one name or another is as old as the gospels, perhaps older. But it has lately attracted a good deal of notice in lay, clerical, and medical circles under various names, such as hypnotism, mental healing, rest cures, Christian science, and many other cults. Undoubtedly the bodily sensations can be influenced through the mind, and some benefit may be accomplished in some cases of emotional, traumatic, fatigue, and malnutrition neurasthenia. But certainly harm may be done, and at the utmost nothing more than temporary palliation of symptoms can be accomplished, in cases of toxæmic neurasthenia, which form, as we have seen, the largest group ; and much valuable time may be lost by the employment of any of the varieties of faith healing or hypnotism in these conditions.

Nerve tonics are useful adjuvants when the *primæ viæ* are in good order. Among the most useful of these I have found a mixture of damiana and phosphorus. Nux vomica is most suitable in the neurasthenia of the aged ; it sometimes produces twitchings of the limbs in young and middle-aged people.

In cases where irritability of the nervous system is present, I have found nothing more useful than a series of warm baths, and particularly in the form of the Turkish bath taken leisurely, and allowing a full hour for rest in the cooling room. The sweating aids elimination, and the heat and repose act as nerve sedatives. Exercises in

the art of muscular repose as employed by Mrs. William Archer are also useful in such cases. For irritable cases cold douches should be avoided. But on the other hand, where spinal weakness is a feature, cold douches to the spine are useful. I remember a male patient, whose condition was accompanied by impotence, who derived considerable benefit in this way. In either case, whether hot or cold baths are employed, a course of several weeks is necessary. No improvement must be expected with the first few baths.

The question of exercise—walking, riding, or bicycling—is one of some importance, and one in which you must be guided by circumstances, and also largely by the inclinations of the patient himself. In general terms, gentle muscular exercise is liked by, and is beneficial to, patients suffering from cerebral neurasthenia; whereas in spinal neurasthenia it is generally found fatiguing and harmful, and in these, rest or passive movements only are permissible. We must therefore ascertain which predominate, the cerebral or the spinal symptoms.

A sea voyage, if the patient can afford to travel in comfort and free from anxiety, is especially indicated in cases due to mental strain and overwork. It is impossible to undertake any serious brain work on board ship, and the freedom from the hourly postman's knock is in itself a therapeutic agent of some value.

Finally, we have in the soothing influence of the pipe a preventive measure of whose value I am fully persuaded. More than one over-worked doctor have I rescued from impending neurasthenia by inducing them—with the full support and concurrence of their wives—to take, albeit late in life, to that ofttimes abused, and sometimes over-used, fragrant weed.

The symptomatic indications in this disease are endless, but there are one or two which may be briefly referred to. Many of the vaso-motor attacks, flushing, pallor, shivering, giddiness, a feeling as though they were going to faint, etc., may be relieved by a draught of sp. ammon. aromat. ℥xv., tr. digit. ℥v., aq. chlorof. ℥i.; and in three cases in which I have used the trinitrin tabloids (gr. $\frac{1}{100}$), given when the attack was impending, they have warded it off. A patient of mine, aged 40, has carried some of these tabloids in her pocket habitually for two years, and has thus successfully avoided the syncopal and other attacks for which she originally consulted me, by occasionally taking one, when she felt an attack coming on. The "sinking feeling in the stomach," and—strange as it may seem—the feeling "as of sinking through the bed," may be sometimes relieved by wearing an abdominal belt or flannel roller round the belly. It is a good plan to examine the abdomen in all cases of neurasthenia, for, as I have previously pointed out, it may be associated with floating kidney or other displacement of the viscera; though I cannot go the length which M. Glénard does of attributing the disease in all cases to a hypothetical dislocation of the abdominal viscera, which he calls enteroptosis. (Compare views of authors and bibliography.)

Finally, gentlemen, the treatment of neurasthenic cases should never be undertaken excepting under the supervision of a medical man. I have drawn your attention (p. 71 and elsewhere) to the difficulty of deciding whether gastric symptoms when present are part of the neurasthenia or due to dyspepsia, and also to the great difficulty and the great importance of ascertaining the cause of the neurasthenia. How can one expect a person without a thorough medical training to fathom these problems?

But it is within my knowledge that a certain section of the public, with more money than sense, is a prey to unprincipled, unqualified charlatans who, by playing upon the patient's fears, and adopting elaborate local or electrical treatment, or some system of "rubbing" or massage (which in certain cases and under medical supervision is of undoubted benefit), keep the patient under prolonged treatment, until, valuable time having been lost, the disease terminates in permanent invalidism, hypochondriasis, or insanity. Patients with exhausted frames, and exhausted purses, have from time to time consulted me in circumstances such as these—the case of hypochondriasis, now beyond retrieve, whom I brought before you (p. 51), was one of these—and have told me, with an approximation to truth, that medical men in England did not undertake the treatment of these "nervous patients."

The longer this disease lasts without adequate treatment, the more firmly established does it become, and the more likely is it to result in insanity, hypochondriasis, or some other incurable condition.

It is matter for regret that in England there is no legal process to check such procedures. This, however, is all the more reason why the medical profession as a body should be prepared to deal with each and every ailment, no matter how trivial or vague it may appear. It is our duty to try to relieve all the symptoms which distress our patients—*all* the disagreeable sensations they experience, no matter whether these sensations appear *to us* to be serious or not. And it is no less our duty to combine in this and other ways to oppose unprincipled persons who trade upon the ignorance, the weakness, and the frailty of humanity.

Addendum *re* Diet in Neurasthenia (1906).

I am often asked as to the best diet for neurasthenia, but it is impossible to lay down any general rule. The subject, however, is important, because a diet directly indicated in one class of case may be directly contra-indicated in another; in short, this, like other treatment, depends almost entirely upon the cause in operation. Moreover, too much uncertainty—or more correctly, transition—exists at the present time in professional opinion as regards diet for me to lay down general rules. There are at least two diametrically opposite views now current in the profession on the subject of diet. The anti-red-meat school, as one might call it, rose long ago with the idea that gouty conditions are due to uric acid and its congeners. Dr. Alexander Haig[1] who is now the chief priest of this order, would exclude not only meat, but nearly all animal proteids from the diet, feeding his patients upon the sparest dietary of milk, bread, cheese, and raisins—articles which themselves contain no uric or hippuric acids—thereby curing not only gout, but all rheumatic conditions, migraine and other paroxysmal neuroses, and many other ills that flesh is heir to. In some instances relief has certainly been attained. The opposite school is represented by Dr. Salisbury and his followers, who maintain that the way to happiness is by a diet consisting *solely* of finely divided meat and copious libations of hot water. And the curious thing is that arthritic and many gouty conditions and forms of headache may certainly be cured also in this way. In neurasthenia each of these methods may be attended by success.

[1] "Uric Acid in Causation of Disease," Churchill, London, 1903.

In regard to the *quality* of the food, those cases of neurasthenia where there is gastric dilatation or retention of food-products require a concentrated proteid diet such as the Salisbury diet, at any rate for a reasonable time, though not for long, else the patient loses too much weight. Dr. Haig's diet is rarely indicated in neurasthenia unless some arthritic disease is also present. If the gastric symptoms are purely neurasthenic it does not matter much what the patient eats, though in general terms sugars and starches—foods which are so liable to ferment—should be taken in moderation. I have elsewhere shown (Lectures IV, V, and *The Clinical Journal*, May, 1906) what an important part gastro-intestinal fermentation plays in neurasthenia. And at the time of writing (February, 1906) a work on diet by Dr. Francis Hare has just been published [1] which traces a great many nervous and articular phenomena to an excess of carbonaceous material in the blood, a condition which he describes as hyperpyremia.

In many cases a point of more importance than the quality is the *quantity* of food taken, especially in the better social classes where the quantity is usually excessive. A considerable change has recently come over professional opinion on the quantities of food necessary to maintain life. Formerly it was held that 15 to 20 grammes of nitrogen (*i.e.*, 100 to 133 grammes proteid) and 250 to 300 grammes carbon were necessary per diem, but Professor Russell Chittenden,[2] of Yale, U.S.A., has shown not only that life is maintained, but that weight is preserved and hard work done on a dietary consisting of under 7 grammes

[1] "The Food Factor in Disease," Longmans & Co., London, 1906.
[2] "Physiological Economy in Nutrition," London, 1905.

nitrogen (or 48 grammes of proteid approximately) or only about one-third to one-half of that which was formerly considered necessary. The precise amount requisite must always depend on the character of the proteid, more, for instance, of vegetable proteid being required than animal proteid, which is more assimilable.

A point of quite equal importance to the quantity and quality is the *mastication* of the food, which must be performed slowly and thoroughly. I have sometimes found it necessary to oblige the patient to take his meals in solitude, so that he may become gradually re-educated in the art of thorough mastication. Mastication of every mouthful until it has lost all sense of taste or form was advocated to promote longevity several years ago by Dr. Van Someren,[1] and has since been preached as a cult by Mr. Horace Fletcher. By adopting this method much less food is necessary.

In general terms, therefore, one may say that in toxic neurasthenia the diet is usually of considerable importance, and must be made to suit the special conditions of the case, and of the particular cause in operation; that in malnutrition, fatigue, and emotional neurasthenia it should be liberal within the limits of assimilation; and that thorough mastication is of the highest importance in all varieties. It is certainly very advantageous in cases of neurasthenia dependent on incipient mucous colitis. In the great majority of cases alcohol in any form is altogether unsuitable in neurasthenia. I infer from the symptoms it produces in this malady that it aggravates the paresis of unstriped muscular fibres on which so many of the symptoms depend, and aggravates any toxæmia present.

[1] *British Medical Journal*, 1901, vol. ii. p. 1082.

LECTURE VII

ON THE MENTAL SYMPTOMS OF NEURASTHENIA AND THEIR DIFFERENTIATION FROM INSANITY

SUMMARY:—*Frequency of mental symptoms in neurasthenia.—Illustrative cases of Cerebro-Spinal Neurasthenia, Cerebral Neurasthenia, and Neurasthenic Insanity.—A classification of disorders of the mind attempted.—Mental symptoms met with in neurasthenia; three grades.—How cerebral neurasthenia and neurasthenic insanity differ from true insanity.—Prognosis of mental disorders in neurasthenia.—Treatment.—Dangers of asylum treatment.—Conclusion.*

GENTLEMEN,—Neurasthenia is but the first step to madness in a certain number of cases. Madness is especially apt to complicate or follow neurasthenia where there is an hereditary taint of insanity; in which circumstances the prognosis as regards the mind is always grave. The mental disorder in such cases differs in no way from the various forms of true insanity described by alienists.

But, without going on to the chronic insanity met with in asylums, cases of neurasthenia always present mental symptoms of various and sometimes very serious kinds. Casual observers would be apt to describe the more serious cases as ordinary insanity, and they might certainly form the basis of certification in lunacy. These cases, nevertheless, present certain differences from true insanity, which I hope to lay before you. The bodily weakness and other symptoms of neurasthenia are present, at any rate at first,

though they may be overshadowed by the mental attributes of the case. For this group of cases I have suggested the name *neurasthenic insanity*.

In point of fact it is very rare to find the mind quite unaffected in neurasthenia, and pure spinal neurasthenia is relatively uncommon. But for the purpose of our studies to-day, and for practical purposes generally, neurasthenia may be associated with mental symptoms in four clinical conditions—namely, cerebro-spinal neurasthenia, cerebral neurasthenia, neurasthenic insanity, and neurasthenia complicated with or passing on to some form of true insanity. We will consider the mental symptoms of these various groups of cases in order of increasing severity—*i.e.*, the order in which I have just mentioned them.

After showing you, or quoting, cases, and mentioning the circumstances under which these varieties may arise, I want to bring to your notice an attempt I have made to classify the different disorders of the mind, both trivial and severe. This will, I hope, enable us the better to undertake the principal task of to-day—namely, the differentiation between Cerebral Neurasthenia and Neurasthenic Insanity on the one hand, and true Insanity on the other; because practical questions relating to prognosis and treatment differ in these conditions.

I.—We will commence with a case of **Cerebro-Spinal Neurasthenia.** Some of the most important symptoms of this, the commonest form of the disease, are referable, as you will remember (Lecture II), to the mind. Indeed, it is not infrequently on account of the inability to collect their thoughts, or to "remember names of

things," that such patients consult us. Some of these symptoms are sufficiently grave. You will remember, for example, the young man who was troubled every now and then with an impulse to murder his own child; and another who felt he "must jump out of the window." These mental symptoms are generally of the sombre type which is usually in marked contrast with the gaiety of hysteria. The tendency is almost without exception towards melancholy; the intermittent joyousness of hysteria is altogether wanting.

CASE XXI.

I am able to show you a typical illustration in the person of Wm. B——, aged 36, who is a strong and apparently healthy labourer in the Bessemer steel furnace at Woolwich. He works the "blast," which has a pressure of 28 lb. to the square inch, and he attributes his illness to the "vapours" which come from the furnace. There is no insanity or other noteworthy fact in his family history, and his previous history is healthy, excepting that he has suffered from "severe indigestion on and off for five or six years," due, it seems, to his extremely bad teeth. The "nervousness" has been coming on for the last two or three years, but has been much worse since he was startled a few weeks back. He complains of a "tight pressure on the top of his head," that he "feels as though something dreadful were going to happen," though he does not know what, and "cannot do his work for the feeling"; that he "can't remember things," that he "dare not ride in a tram-car for fear something is going to happen," that he "gets all of a tremble and bursts out crying," and has "a great temptation to jump into the canal." He feels "pretty fair" as long as it is

bright and the sun is shining, but as soon as it rains, and in the dusk of the evening, he feels "something awful." For the last few weeks he has suffered from "wandering" (talking and walking) in his sleep, which has been disturbed by horrible dreams; sometimes he is very sleepless. The viscera are normal excepting for the dyspepsia above mentioned, from which he still suffers; the pupils are widely dilated; the patellar reflexes are + 1 (+ 3 being the maximum increase) on both sides.

This is a fairly typical case of cerebro-spinal neurasthenia. The mental are more prominent than the bodily symptoms, but a general review of the case reveals the fact that it is quite as much a question of bodily as of mental weakness and hypersensitiveness. Some years ago this case would have been classed as "hysteria," or vaguely called "functional," a synonym in those days for hysterical. Attention would have been drawn to the remarkable fact of the disease occurring in a sturdy labouring man. But these cases are of everyday occurrence now, and this extreme morbid timidity is an ordinary feature of the disease. I could show you many cases of a like kind on any of my out-patient days; and you have seen several at our previous meetings, when we discussed this type of neurasthenia and the circumstances under which it arose.

II.—**Cerebral Neurasthenia** is well illustrated by the two following cases. The condition occurs in children, but is less common in them than in adults.

Agnes C——, a healthy-looking child, aged 11, was brought to the hospital by her parents (both of whom were under treatment for neurasthenic symptoms, and her mother for incipient phthisis) for attacks of crying

and depression, two or three times a day, which had come on during the last few weeks. She did not have fits of gaiety and laughter such as hysterical

CASE XXII. patients do, and she often sat brooding for hours together, saying she thought everybody was "against her." Her sleep was broken and disturbed by bad dreams, and she wandered downstairs to her parents almost every night on account of the gloom and sadness of her thoughts. The appetite was bad, bowels regular, and all the organs normal. Some improvement ensued upon the administration of quinine, hydrobromic acid, and bromide (8 grains t.d.); but it seemed as though insanity was coming on, for, a little later, the fits of depression alternated with attacks of excitement and "silliness," her mother said. This child was found to have an extraordinary degree of hypermetropia, her vision being only $\frac{6}{12}$ths of normal. When this was duly corrected by glasses, and an appropriate regimen was enjoined, she began to make steady improvement. The immediate cause of her symptoms appeared to have been a too close application to study.

William F. C——, aged 14, a pale, rather undersized boy, coming of nervous parentage, complained of having been getting gradually more and more "nervous"

CASE XXIII. during the last few weeks, and gradually losing his memory. He suffered a good deal from headache (chiefly near the eyes), disturbed sleep, night terrors (which is a frequent symptom of neurasthenia in children), and attacks of giddiness and faintness on returning from school. His appetite was poor, and the bowels apt to be confined, but there was no evidence of dyspepsia. All the viscera were normal. His mother had regarded

him as "delicate," and he had been kept from school. As a consequence of this he was backward, and had only reached the fourth standard. To regain the lost ground he had recently been working extremely hard, to which, and a slight degree of hypermetropia, his condition was attributable. However, he immediately began to improve, without wearing glasses, on taking mag. sulph., mag. carb., and am. brom. (gr. 5) t.d., and attention being paid to the diet and school hours; and in the course of a few weeks was quite another child.

III.—The next case is one of what might be called **Neurasthenic Insanity**, and it illustrates very well the truth of the statement that one-half of the world does not know how the other half lives. The other day one of my out-patients, after having been in to see me as usual, came back to the hospital in great alarm about her cousin, a young girl (Gladys F——) who had come with her to the hospital simply as companion, and who seemed to have suddenly gone "wrong in her head." She was a tall, spare, unhealthy-looking child of 14 years of age. Certainly her wild, terrified look and wandering gaze were well calculated to alarm her companion. She talked at random, hardly knew where she was, and her manner was very strange.

CASE XXIV.

I learned that she had been "out of health" for a few weeks, complaining that she could not remember things, and lately had seemed a little "curious in her manner," but nothing more. She had been sleeping badly and dreaming much, sometimes restless at night, and somewhat listless by day. But none of these symptoms had seemed important enough to lead her friends to consult a doctor.

The catamenia had appeared, for the first time, the day before I saw her. I prescribed full doses of bromide with plenty of milk, and of other food, and twelve hours of sleep per diem. The following week she was better; and her mother, who came with her this time, informed me that for six or eight months she had been gradually getting listless, feeble, nervous, and easily tired. Lately she had begun to go about with her tongue hanging out of her mouth, and was otherwise "curious in her manner," "inventing things," *i.e.*, romancing—a frequent sign of incipient mental disorder in childhood—and she had been steadily losing flesh and strength all this time. The family history was without taint of insanity, nerve disease, or phthisis.

This child was one of a family of seven brothers and sisters. The father was a pensioner on £60 a year, nearly the whole of which sum he had spent in drink during no less a period than the past seventeen years. Moreover, he frequently pawned the furniture, and the only clothes which the children possessed, for drink. These children therefore had to stop indoors, with the blinds down; and not infrequently they had to sleep naked on the floor. Our patient, being the eldest, had often given up her scanty meal to the little ones. Deprived, therefore, of clothes, food, light, and air, is it any wonder that this poor child should develop mental derangement?

I use the phrase "mental derangement" advisedly, for her mental symptoms did not correspond definitely to any recognised form of insanity. She had no definite delusions, no maniacal violence, no melancholia, and the condition could not be called dementia. But the case very properly comes under the denomination cerebral neurasthenia—*i.e.*, *neurasthenic insanity*. The asthenic condition had fallen

most heavily on the brain. Her general condition was one of extreme debility, but none of her bodily symptoms were of a pronounced kind. Her mental symptoms, on the other hand, consisted of extreme loss of memory, and loss of attention so great that she was unable to finish a sentence. The will-power was in abeyance, and the emotions uncontrolled, for she was occasionally in floods of tears. But all the symptoms were unstable and changing in the highest degree ; and the affection was transient and curable. She has made a speedy recovery in the course of a few weeks under the good living, and in the happy home of the friends with whom she is now staying.

The circumstances under which this form of mental derangement arose in this case were very typical. In the first place you will observe that there was no family history of insanity. Nor was there a family history of tuberculosis which is often revealed in these cases. But I cannot help regarding the family history of alcoholism which existed in this case as a predisposing factor of the child's neurosis, although I am aware that this is contrary to the views of Dr. Archdall Reid. In the second place, the father's drunken habits had also brought into operation another potent predisposing factor, in the starvation and the extremely unhealthy life which this unfortunate child was compelled to live. Finally, the somewhat sudden appearance of the menses acted as the determining cause of the mental attack, the advent of which we had such a unique opportunity of observing.

One of the worst cases I have ever met with, of the condition I wish to include under the term Neurasthenic Insanity, was in a gentleman whom we will call Mr. T., 65 years of age, who came under my care in August,

1896. He came of an intellectual but eccentric family, and had himself been somewhat "peculiar" all his life, though full of energy, and very successful in his profession. His peculiarity took the form of extreme self-will or obstinacy, and tenacity of purpose; together with a certain "radical" tendency which must always be reforming or opposing somebody or something. You will see shortly why I lay stress on these points. Several of his relatives had had attacks similar to the one I am about to describe. I have studied the history of this family, a large and prolific one, very carefully, and there are three features which have particularly struck me:—(1) They could nearly all of them be described as eccentric, peculiar, or of a nervous temperament; they were cranks or faddists, though they were all (with only one or two exceptions) of a high order of intellect, and successful in life. (2) Several of them had had attacks of mental peculiarity, but the symptoms were of such a nondescript kind that they could not be classed either as mania, melancholia, dementia, or any other definite form known to alienists. (3) Although these attacks were, in some instances, very severe, they had all passed off after a few weeks or a few months, and the patients had returned to their avocations in life, without it having been necessary to place any one of them in an asylum.

CASE XXV.

These are some of the features which appear to me to distinguish the mental derangement of neurasthenia from that of true insanity, namely, its nondescript character and its curability under measures directed mainly to the physical condition. Now, since these facts are not, I believe, sufficiently recognised, and as this case presents

other features of interest besides his remarkable recovery at the age of 65, I think it is worth while to study it in some detail.

Full of the energy which declines to receive assistance in detail work, with a large and successful *clientèle* to manage, and parliamentary duties to discharge, this gentleman had lived a very busy life. He suffered from unmistakable symptoms of arterial thickening as early as the age of 43 (which I learned from the physician who saw him then), more than twenty years before he came under my care, and from time to time thereafter. He is said to have had a slight attack of "depression" after his first marriage at the age of 32, and also after his second at the age of 39. With these exceptions, and an occasional gastric upset, he kept well until December, 1890—an interval, be it observed, of twenty years. In that year, at the age of 59, he had his first "nervous break-down," due, it was thought, to overwork. His symptoms were great bodily weakness followed by depression, despondency, irritability, loss of memory, and a lack of power of attention, accompanied by some confusion of thought. After a few months he recovered. The next winter (1891) he had a similar attack, and also in January, 1893, February, 1894, and March, 1895. Each time the attack was preceded by physical weakness; it lasted only a few months, and disappeared with rest and travel or country air. In 1891 some moral obliquity appeared, for, although a man of the highest moral rectitude, he began to mix with women; and in August, 1892, he contracted syphilis, but was thoroughly treated for two years, and he never had any symptoms of consequence referable to this malady, either at the time or subsequently.

I will ask you, in passing, to notice the time of year at which this patient suffered from mental disturbance, namely, in the winter and early spring. Now, it seems probable that his arteries had been for a long time the seat of what I have described elsewhere as arterial hypermyotrophy[1]; and in this disease the vaso-motor regulation is considerably disturbed, consequently heat production and loss, and tissue change, are considerably deranged. I venture to think that this disturbance of metabolism, which would be greater in the winter and spring, was the principal determining cause of these attacks. In favour of this view it may be mentioned that during the three autumn months when he was under observation in 1896 his temperature was always extremely low, varying between 95° and 97° F.

The attack I am about to describe commenced in the spring of 1896 (about March), when he complained of feeling weak, tired, and listless. In April he became depressed, and complained of "confusion of thought," "inability to collect his thoughts"; loss of memory and power of attention, again accompanied by considerable prostration. He suffered also greatly from disturbed and insufficient sleep. "Rubbing," which had done him good in previous attacks, was tried (without any medical supervision), with the effect only of making him worse; and there can be no doubt that valuable time was lost in this way. He gradually became more and more abstracted, silent, almost morose, and haunted by an extreme dread lest any one should know of his ailments, especially the syphilis, and of his previous moral obliquities. He avoided

[1] *British Medical Journal*, March, 1897, and *Transactions of the Pathological Society of London*, 1904.

persons whom he met and particularly his old friends and his relatives. During July he became slowly but steadily worse; and it was about this time that he first began to speak in a whisper, a symptom which remained until the end of November.

In the beginning of August when I first saw him his aspect was furtive and fearful, and he was full of remorse, fear, and suspicion; he spoke in a whisper all the time, continuously repeating "it is no good." He was hopeless of ever getting better, or of retrieving the past. He thought some one was watching us from the window. On physical examination, the arteries were found considerably thickened, not apparently with atheroma, but with uniform sclerosis; heart somewhat dilated with a systolic ventricular murmur of dilatation (which subsequently disappeared). Arterial tension very markedly high (to which there was a tendency throughout the illness). Lungs slightly emphysematous; liver dulness somewhat contracted; bowels with a great tendency to constipation; appetite good, almost ravenous; temperature 97°.

Soon after this, the ravenous feeding produced a very severe gastric upset, and with this the bowels became very obstinate, the arterial tension very high, and muscular rigidity and tremor supervened. He had to be dressed and undressed like a child, and not infrequently passed both urine and fæces either in bed or in his clothes, taking a childish delight in the trouble caused on these occasions. He talked quite rationally about committing suicide once or twice, but never made any real attempt. During the day he would stand for hours together at the gate, and unless some one were there to prevent, he would go out and wander.

During September, he had three more bad attacks of gastric disturbance, each being attended by very high arterial tension, muscular rigidity and tremor, and constipation. On each of these occasions he became violently resistive. He would do nothing that he was asked, and opposed with active violence everything that was done for him, so that it became a stand-up fight to dress or undress him.

Between these attacks the mind seemed to be a blank. The suspicions and delusions had passed away. He hardly ever spoke even when addressed, although he seemed to recognise some people. Left alone, he would remain in one position for hours at a time ; spoken to or approached, he put up his hand to resist. This condition was interrupted every few days with a glimmer of returning intelligence, in which he would ask a few simple questions like one awaking out of sleep.

It is worthy of note that throughout his life, in spite of many excellent qualities and much kindness of heart, he seemed to find pleasure in taking the "opposite view" to every one he met. He was one of those people, and the English race produces quite a number, who carry independence to an extreme, and always seem to be playing the part of the "opposition." Combined with this was a remarkable strength of will, which had always characterised his actions. A knowledge of these two points afforded a key to the leading mental symptoms in this case, which consisted not of an alteration of character, but simply an exaggeration of certain of its normal constituents, while others became diminished or lost.

Now, it is hard to find a name descriptive of this

form of mental disorder. One eminent alienist who saw the case declared he was quite unable to give it a name, but when pressed to do so, suggested that it somewhat resembled "stuporose melancholia"; another had similar difficulty, and then suggested "subacute dementia." The last of the resistive attacks above referred to occurred at the end of September, and from this time he made gradual improvement, both in body and mind.

During October, on milk diet, the tongue cleaned, and the bowels became more regular. The muscular rigidity was present each morning only, and then gradually disappeared, though it was still apt to reappear whenever there was any gastric disturbance. The heart also gradually improved (less dilatation and irregularity), and the arterial tension became less. He still passed his evacuations involuntarily up to the end of October. During October the temperature varied between 95° and 97°; and when weighed in the last week of this month he was found to be one stone below par, and correspondingly thinner. As regards his mind, the delusions and suspicions did not return. He became docile, but very childish and simple, frequently asking childish questions. He took no interest in things around him for a considerable while, and sat for hours together with a book in front of him. He understood nothing that he seemed to be reading, and very little of what was said to him. His mental condition, however, varied considerably from day to day, and he was much brighter on some days—when, be it noted, the arterial tension was low.

In November he first began to understand things, and voluntarily to pay attention to the calls of nature. He

was still very silent, and spoke in whispers, but he began to take some interest in his immediate surroundings, and to read the newspapers, though, as a rule, not comprehending much.

In December the weight gradually improved; the intervals of intelligence became longer; the different faculties of the mind one by one gradually returned; and he recognised and conversed with his friends and relations. From January onwards he made slow but steady progress towards recovery.

The most noteworthy features of this case appear to me to be three in number.

1st.—The definite and proportionate association of bodily ailment with the mental disorder. In the first part of the case bodily and mental weakness moved *pari passu*. In the second part, the muscular spasm and other signs of irritability of the nervous system and violent resistance were associated with, and directly proportional to, the gastric disorder. In the third, or concluding part of the case, the mind recovered as the body got stronger.

2ndly.—The leading feature of the psychical condition was mental weakness. From time to time, active perversion of the mind appeared to be coming on, but this was always transient, and the condition again relapsed into one of mental ablation.

3rdly.—The most troublesome of the mental symptoms, and the only ones besides the amentia just named, consisted of an extreme exaggeration of the two mental attributes normal to the patient in health, viz., his self-will and opposition to others. His delusions were not fixed, and were not wholly unreasonable or illogical.

The treatment adopted varied at different stages. The

first, and most essential, point was his complete isolation from his friends, and from the conditions under which the disorder arose. It was deemed advisable that he should never be left alone, but certification and removal to an asylum were never seriously entertained; and though he talked (rationally enough) of suicide he never made any real attempt in that direction. Had it not been for the extreme perverseness of his character, and the occasional violence which in my opinion arose out of this, one person could have managed him all the while, day and night.

As to the value of drugs in this case, there can be no question, and no one who watched the case from day to day could doubt, that the possibility of his developing acute mania on the one hand, or drifting into chronic dementia on the other, was averted by these means. Bromides were most useful, and, combined with a moderate amount of alcohol (4 or 5 ounces a day), procured rest and sleep, after which he always seemed better. In the stage of violent resistance, which was obviously dependent upon the alimentary disturbance, and the consequent high tension, gastro-intestinal remedies and a regulated diet were employed, combined with bromides to allay the neuro-muscular irritability. In the later stages, to promote the nutrition both of mind and body, careful but liberal feeding, phosphorus, strychnine, cerebrin, damiana, didymin, and the hypophosphites, combined with pepsin at meals, and careful regulation of the bowels were employed. As he was recovering, gentle massage, *under medical supervision*, expedited matters considerably.

IV.—**True Insanity.**—Having now presented to you examples of the various ways in which mental derangement

may form part of neurasthenia, we are in a position to review the whole subject. With this object allow me to draw your attention to this table (below) of the classification of mental disorders of all kinds. It is a difficult subject, and this classification is doubtless full of imperfections, but it is based on experience, and has aided me for some years in the diagnosis of different mental affections.

It is not possible, even if time permitted, to give you examples of all the many and varied forms in which true insanity may be met with. These can only be seen in the various County Asylums, or better still, in the lunatic wards of the large Metropolitan Workhouses and Infirmaries.

It is a matter which I never cease to regret that the lunatic wards of the Workhouses are not rendered available for teaching and research. It is here alone that the subject of mental disorders can be studied in all its completeness. It is here alone where we can study many of the slighter cases, and many of the earlier phases of true insanity, imbecility, and idiocy, in cases which often do not go to an asylum at all. These either stay in the Workhouse or the Infirmary, or go back to their friends. It is becoming more and more the fashion among quite respectable and even well-to-do classes of the community, for the purpose of certifying a mental patient to pass him through a workhouse. In this way a field for clinical teaching and research is growing larger and more varied day by day; a field which would be of the greatest value to science, for purposes both of instruction and research, and would, if rendered available, benefit the profession, the patients and, indirectly, the public generally.

It must suffice on the present occasion to state that by true insanity I mean a definite aberration of the mind coming under one of the great groups Mania, Melancholia, Dementia, or General Paralysis of the Insane, in which there are not necessarily any symptoms referable to the body, excepting in the last-named, in which the bodily symptoms are of a definite kind, though differing considerably from those which characterise neurasthenia.

Classification of Mental Disorders.

Taking mental disorders as a whole, cases may, I believe, generally be included in one or other of three great groups: A—Deficiency or excess of one or more (not all) of the faculties of the mind; B—Deficiency of the mental faculties as a whole (imbecility); C—Active perversions of the mind (insanity proper). Each of these groups contains several subdivisions.

A. **Deficiency or excess of one or more (not all) of the mental faculties.**—The relative preponderance of one or other faculty constitutes the "type of mind," or "character." An abnormal deficiency or excess of one or other of the faculties is met with in neurasthenia and mental weakness from any cause, in the beginnings of insanity, and in "borderland" cases. The following are the principal defects which cases coming in this group may present.

I. Deficient *Memory* (amnesia), which may be complete or partial:—

(*a*) Complete amnesia may be met with, for example, in five conditions:—

(1) Senile amnesia.
(2) Chronic alcoholism.
(3) Neurasthenia.

(4) Dual memory (*i.e.*, dual consciousness).

(5) Incipient insanity.

(*b*) Forms of partial loss of memory may be met with in five varieties :—

(1) Agraphia (loss of the mental motor image of writing).

(2) Aphemia (loss of the mental motor image of speech).

(3) Word-deafness (loss of the commemorative auditive image).

(4) Word-blindness (loss of the commemorative visual image).

(5) Mixed forms of the foregoing.

II.—Deficiency or excess of *Attention.*

(1) Excessive Attention is met with as a normal feature in "strength of mind." It also constitutes the leading element in "fixed idea" (monoïdeism), ecstasy, and hypochondriasis.

(2) Deficient Attention is met with in neurasthenia and mental exhaustion of all kinds, and in the beginning of many forms of mental disorder.

III.—Deficiency or excess of *Will-Power.*

(1) Excessive will-power is seen normally in "strength of mind" and "obstinacy."

(2) Deficient will-power is seen in the indecision and loss of control which are met with typically in the hysterical diathesis. It is sometimes a feature of neurasthenia.

IV.—Deficiency or excess of the *Feelings.* This is met with in neurasthenia, hysteria, and incipient insanity.

B. **Deficiency of the Mental Faculties as a Whole** (imbecility), including delayed mental processes.

I.—Idiocy (*i.e., congenital imbecility*). This is met with in seven different forms[1]:—(1) Simple congenital idiocy; (2) microcephalic idiocy; (3) hydrocephalic idiocy; (4) scaphocephalic idiocy; (5) paralytic idiocy; (6) sporadic cretinism; (7) endemic cretinism.

II.—Mental aberration *arising in childhood.* Seven causes:—(1) After infantile convulsions; (2) after epilepsy; (3) after cerebral lesions (accompanied by paralysis); (4) of inflammatory origin (? meningeal); (5) hypertrophic cerebritis; (6) reflex insanity; (7) mania and melancholia of childhood (rare).

III.—Dementia (*i.e., acquired imbecility*) may be:—(1) Primary (*e.g.*, senile) dementia; (2) secondary to some other form of mental disease, or to Neurasthenia; (3) due to gross intracranial lesions (*e.g.*, arterial, meningeal affections, etc.).

C. **Active Perversions of the Mind (Insanity proper).** Three great groups:—

I.—General paralysis of the insane.

II.—Melancholia (depression and slowness of mental action).

III.—Mania (excitement and rapidity of mental action).

In addition to the foregoing, authors have at different times employed various names, according to the leading feature of the case, or its cause; thus, Delusional Insanity; Emotional or Hysterical Insanity; Moral Insanity; Alcoholic, Puerperal, Phthisical, Syphilitic, Epileptic, Visceral, and Toxic Insanity.

[1] This is my colleague Dr. Fletcher Beach's classification of the different forms of idiocy.

This table has doubtless many faults, as all classifications of mental disorders must have, one group overlapping another. But it has helped me in my work at the Infirmary, where, as I have just remarked, one meets with a wide range of mental disorder, both as regards variety and severity.

Characteristics of the mental symptoms in all forms of Neurasthenia.—Now, Group A comprises, it will be seen, cases of commencing insanity, borderland cases, and other forms of mental weakness. It even includes two conditions which are sometimes classed as true insanity—namely, monoïdeism and ecstasy. But the important fact is this, that the mental disorder in neurasthenia—of no matter what variety it may be, Cerebro-spinal, Cerebral, and even Neurasthenic Insanity—belongs very largely to this group, *i.e.*, to the group in which one or two only of the mental faculties are affected. Severe cases of neurasthenia may drift into hypochondriasis (Group A) or into dementia (Group B), but the mental disorders which form part of neurasthenia rarely or never exactly resemble the mental perversions described under Group C.

Cases as severe as that of Mr. T—— are rare, and in cases of neurasthenia of less severity, in the great majority of all neurasthenic cases in short, the mental aberration belongs to Group A. It may sometimes need a little thought and careful enquiry to make this out, but with care you will find that the mental symptoms of the disease can be severally explained by disorder of one or other of the fundamental faculties of the mind mentioned in that group.

Let us analyse this statement a little more closely. In neurasthenia we have two qualities—a weakness, and an

irritability of the central nervous system—and the mental symptoms seem to depend chiefly upon the former.

Among the mental symptoms, *loss of memory* is perhaps the commonest. So frequently is amnesia met with, that I gave it, you will remember, among the definite symptoms of the disease (Lecture II). It may be one of the partial forms (Ib), or it may be a complete form (Ia). On the whole, I think partial forms are more common. For example, a man whose malady dated from his rescue of a burning child four years before, described his mental defect thus: "When I want to say something, it seems as if I could not get the words out; I know the words, but I cannot say them." He was suffering, you will observe, from aphemia. I have met with several cases where the visual or auditory memory failed, the other kinds of memory remaining perfect, and the patient gradually learning to conceal the defect by the use of the other forms.

Deficient power of concentrating the *attention* is equally common, and a large number of these patients come because they cannot on this account transact business. Not infrequently they find themselves unable to write a letter. In several instances inability to write letters has been the first serious symptom which induced them to consult a doctor. When deficient power of attention is carried further still, it leads to confusion of thought. This is always a symptom of some gravity, for it indicates considerable mental exhaustion, and patients should come under treatment without delay. Excess of attention is not met with in neurasthenia, and thus there is no fear of confusing this condition with cases of monoïdeism and ecstasy.

Deficiency of the *will* is another symptom in neurasthenia, and is manifested chiefly by indecision and want of control. Irritability over trifles, through lack of control, is almost as common as defects of memory.

As a consequence of the *irritability* of the nervous system, it responds more readily to (and magnifies, so to speak) all impressions received from the outer world. Thus, in these patients the vibration of a train may have the same effect as the vibration of an earthquake on others, and so we get "train panic." The closeness of a room in this way may produce an extreme sense of oppression, and then we get claustrophobia, a dread of closed spaces. On the other hand, an open space seems like an infinity of distance, and thus we get agoraphobia. The simplest doubts acting on an irritable nervous system become indescribable dreads and "terrors" (p. 26). And from these we insensibly pass to the despondency which is so characteristic of cerebral neurasthenia.

Diagnosis of Neurasthenia from true insanity.—Having now referred to the mental symptoms most common in, and most characteristic of, neurasthenia as a whole, we next have to consider the differentiation of the several varieties, or grades, of mental aberration attending neurasthenia on the one hand, from true insanity on the other.

The form of true insanity which the mental symptoms of neurasthenia are most apt to resemble is melancholia, by reason of the despondency just referred to. The diagnosis, I must admit, is sometimes a little difficult; but by taking a general view of the case and carefully investigating not only the patient's present condition (mental and physical), but also his previous and family

histories, it is, in my belief, always possible to locate it in one or other of these groups. I think it will be well to present the diagnostic features belonging to typical examples in a tabular form (p. 152).

In *Cerebral Neurasthenia* we find, in a typical manner, the mental symptoms (those, namely, in Group A) which I have just been describing. Such bodily symptoms as are present consist chiefly of weakness and prostration, and they are overshadowed by the mental condition. With these are associated the history or evidences of one or more of the etiological conditions discussed in Lectures III and IV.

What I have called *Neurasthenic Insanity* is in reality an exaggerated degree of the foregoing, and presents an extreme degree of mental weakness, or a partial mental defect (Group A). It differs from Group C in that there is no active perversion of the mind and, as a rule, no delusions or hallucinations.

Chronic Insanity of the kinds found in Asylums may, of course, arise as a complication in the course of neurasthenia, or may succeed that disease, with or without an interval of apparent recovery. But by neurasthenic insanity I do not mean this, but a form of mental disorder which in my belief is special to, and a part of, neurasthenia. To the casual observer this may perhaps not differ very much from ordinary insanity. But at the Infirmary and elsewhere I have met with a considerable number of cases of this form of mental disease, and it has seemed to me that the mental symptoms of neurasthenia (whether you call them cerebral neurasthenia or neurasthenic insanity matters not) differ from true insanity in six respects :—

(1) The bodily weakness or other physical disorder which precedes and accompanies the mental disorder.

DIFFERENTIATION OF NEURASTHENIA FROM TRUE INSANITY.

	In typical cases of CEREBRAL NEURASTHENIA and NEURASTHENIC INSANITY.	In typical cases of TRUE INSANITY.
Family history.	Parents often alcoholic or consumptive. May be family history of "oddity," originality, or even genius; or of temporary aberration of mind hardly sufficient for asylum treatment; *not of true insanity.*	Family history of definite insanity, or relatives in asylums.
Previous history and causation.	History of antecedent neurasthenia, due very often to overwork of the mind, worry, or grief; sometimes alimentary derangement or obscure toxic conditions or organic disease (*vide etiology*). Puberty and menopause favourite epochs for onset.	Symptoms may come on in a person in perfect bodily health without history of any apparent cause.
Physical condition.	Always symptoms of exhaustion and other evidences of neurasthenia. Thorough examination may reveal disorder of the stomach, heart, kidneys, or other organs which may be causally related to the neurasthenia. Aspect presents nothing peculiar.	Physical condition may be perfectly normal and general health good. Facial aspect often characteristic and distinctive.
Mental symptoms.	Characteristic deficiency of memory and attention. Despondency and depression usual; but mental condition does not conform to a recognised type of true insanity. Delusions and hallucinations very rare. May be suicidal, but homicidal tendency rare.	Memory may be perverted or it may be unaffected. Mental symptoms correspond to one of the types described by alienists. Often delusions, hallucinations, homicidal or suicidal tendency.
Results of treatment.	Cure depends on rest of mind, alimentation, and other measures directed to the physical disorder or cause in operation. May require removal from friends; but restraint or asylum treatment seldom required.	Restraint in an asylum usually necessary.

(2) The usual curability of both the mental and physical conditions under appropriate measures directed mainly to the latter after a duration of a few weeks or months.

(3) The most prominent feature of the mental condition is mental weakness, or a defect in one of the mental faculties—particularly the attention and the memory. Delusions and hallucinations, as a rule, are absent.

(4) It is difficult to make the mental symptoms correspond with any of the ordinary types of insanity found in asylums.

(5) The mental symptoms vary from day to day, and the patients have distinctly lucid intervals from time to time, during which a casual observer might find nothing wrong with them.

(6) The family history is free from any cases of definite chronic insanity.

The differential features are summarised in the table on p. 152, but it will be advisable to consider these differentiating features somewhat more closely, with special reference to the case of Mr. T——, as being a typical though very severe case of "neurasthenic insanity."

(1) The physical weakness or physical disorder which accompanies these cases is always a notable feature. In narrating the case of Mr. T—— I dwelt chiefly on the mental changes, but you will remember that these were preceded and accompanied by great bodily weakness. The mental improvement took place in such exact proportion to the physical that one could almost judge of the amount of mental progress by knowing the distance

he could walk without fatigue. In addition to the general debility, many of the other bodily symptoms of neurasthenia which we have already considered (see symptoms and etiology) were also present.

(2) As regards curability under appropriate measures, no one who saw the case of Mr. T—— could fail to be impressed with its apparent hopelessness; and had I not, in the infirmary, seen similar cases having the features of "neurasthenic insanity" recover under equally adverse circumstances, I should certainly have given an unfavourable prognosis. There were *five untoward features* in his case. *First*, his age; for we know that ordinary insanity coming on at 65 almost invariably drifts into chronic dementia. *Secondly*, the marked heredity, a feature which governs, more than anything else, the prognosis of ordinary insanity. It was only late in the history of the case that I learned sufficient details to enable me to form the opinion that the illnesses of the relatives also belonged to the category of neurasthenic insanity. *Thirdly*, the slow and gradual advent of the illness, through a period of five years, separated at first by long intervals, but each attack becoming more enduring than the previous one. *Fourthly*, the presence and history of marked arterial sclerosis. Upon making careful enquiries, I found that this patient had been subject for twenty years to symptoms (giddiness, palpitation, etc.) which could only be explained by the existence of arterial sclerosis through this long period of time. We know, moreover, that this condition markedly impairs the nutrition of the organs, and of none more than the brain. *Fifthly*, the history of recent syphilis, acquired at the age of 59. This was the least unfavourable element, for he had hardly any serious

symptoms consequent upon the malady. Nevertheless, we know how seriously this poison affects the nervous system generally. Against all these unfavourable symptoms there was hardly one which, on the other hand, could be regarded as hopeful, until, in due time, his response to remedies *directed mainly to the physical conditions* produced a palpable improvement.

(3) The most prominent feature about the mental condition in neurasthenic insanity is mental weakness: it is, in short, a condition of amentia, or rather partial amentia. The mind at first shows one or other of the defects in group A in the table of mental disorders, by far the commonest defect being some form of defective memory, and a deficient power of attention. In *severe* cases the mind becomes a complete blank. Indeed, the chief danger in such cases is lest they should become chronic dements. This was so in the case of Mr. T——, the only mental symptoms, besides this amentia, being an exaggeration of certain normal defects in his character, which became emphasised owing to the want of the habitual control. With this exception, and the *very natural* remorse he felt for his own misdeeds, all the qualities of the mental condition in this case were negative, purely negative. In neurasthenic insanity and cerebral neurasthenia the patient may be, and very often is, suicidal, but delusions, hallucinations, and homicidal tendencies are distinctly rare.

(4) The names in current use amongst alienists are not descriptive of these cases. You will remember that two physicians, both men of large asylum experience, were unable to bring the case of Mr. T—— into any of the recognised groups of insanity under which they were

accustomed to classify asylum insanity. One suggested "melancholic stupor," another "sub-acute dementia," as a possible appellation; and the latter of these seems to be the only term which at all described it. The view I took of this patient's case was this: He had previously been the subject of attacks of mental and bodily "depression," which corresponded in all respects to cerebro-spinal neurasthenia; finally, in the illness we dealt with in detail, one of those attacks passed imperceptibly into a condition of mental ablation, and therefore I would suggest that such a case should be called "neurasthenic insanity."

(5) The variability of the mental symptoms, and the occurrence of lucid intervals, is another feature in neurasthenic insanity. If on rare occasions they do resemble any of the types of insanity, such as mania, melancholia, or General Paralysis, that type is constantly shifting from hour to hour or from day to day. The case may resemble mania at one moment, melancholia the next, then again mania, developing in turn the grandiose ideas of General Paralysis. A case I well remember had one morning all the depression of melancholia; in the afternoon he became cheerful and self-assertive, as would a general paralytic, saying, "I will have you know that if I wish to go and see my uncle I will do so, for no one on earth is strong enough to stop me." In the evening he became fairly intelligent and cheerful; and the next day his mind again was a blank. Delusions are not as a rule present, but if so they have reference to some previous occurrence, as in Mr. T——'s case, who for a short time had delusions of persecution based on his previous misdeeds. They have a reality, therefore, which is only

half unreasonable; they are not wholly delusions. Hallucinations are rare.

(6) Given sufficient time and opportunity to make the necessary enquiries, a very important distinction can be drawn between the family history of actual insanity on the one hand, and a family history of neurasthenic insanity on the other. You will remember that in Mr. T——'s case there had been no definite or chronic lunacy in the family, but several of its members had been eccentric and neurasthenic. Whereas there is often no history of definite insanity in the family of a neurasthenic patient, the members of the family may have been "odd," "eccentric," or "peculiar"; and they may have suffered from transient attacks of cerebral neurasthenia, for which it has not been necessary to place them under restraint.

It will be desirable briefly to refer to the *prognosis* and *treatment* of the mental affections met with in association with neurasthenia, for it is in their amenability to adequate treatment, at any rate in the early stages, that these mental disorders of neurasthenia differ from true insanity more widely than in anything else. You will remember that the three children (pp. 132 and 133) suffering from cerebral neurasthenia were well in a few weeks, although the mental disturbance was really very considerable. Practically, nearly all neurasthenic mental cases recover.

The prognosis of cerebral neurasthenia was discussed with the other forms of neurasthenia (Lecture II), for it is guided by the same rules as these. It remains only to say a few words concerning the *prognosis of neurasthenic*

insanity. Now, there are three possible events, which in order of frequency are as follows:—

1st,—Recovery; and this may take place even after a very prolonged course, as we have seen. Practically, as I have just said, the major portion (speaking from memory, about nine-tenths) of the cases I have met with have terminated in this way.

2ndly,—In a few cases, all of which have been advanced in years, the mind fails to recover; all the faculties slowly deteriorate, and a condition of dementia gradually supervenes.

3rdly,—Death may occasionally ensue either from progressive asthenia, or more often from some intercurrent malady to which their lowered vitality renders them liable. The most frequent of these, perhaps, is a low form of pneumonia.

The first and most important question in the prognosis as regards the mental condition relates to the family history. If this be free from mental disease of any kind, if the ancestors of the patient were long-lived, and, moreover, if his previous history be free from any illness which leaves damaging effects behind it, and, finally, if the age of the patient be moderate at the advent of the disease, a favourable outlook is justified. Cases which come on slowly usually run a prolonged course. If the disease has lasted a considerable time, either for want of treatment or for any other reason, it is generally slow to yield. This is almost an axiom in all varieties of mental disorder, and it certainly comes into operation here; for you know that nerve impulses tend to travel along paths of least resistance, and every time an impulse travels along a certain path the resistance becomes less, and thus

abnormal or vicious paths become established when the disease has lasted long. If, on the other hand, a patient comes under treatment early and responds readily to it, the prospect is good, however unfavourable matters may seem. The presence of arterial hypermyotrophy, arterial sclerosis, or atheroma adds to the gravity of the outlook. Many of these cases drift into dementia, though even here one should not hazard an unfavourable prognosis until the powers of assimilation and the efficacy of treatment have been ascertained.

The *treatment* of neurasthenic insanity need not detain us very long. All that has been said on the treatment of the other forms of neurasthenia applies equally here, excepting this important addition, that the patient generally needs to be isolated from his friends. There must be no communication, either by interview or by letter; and the sooner the patient is removed from anything which reminds him of his work or his domestic worries, the sooner will he recover. In a large proportion of cases the pathology of neurasthenic insanity resembles that of post-febrile delirium, or, as it is sometimes called, post-febrile insanity; they are both essentially conditions of faulty or insufficient nutrition of the brain. In Toxic Neurasthenia there is cerebral dystrophy, and in the Fatigue and the Emotional Varieties exhaustion.

The indications, therefore, are—rest, with a carefully regulated alimentation, massage, tonics, sedatives as may be necessary, combined with any other treatment specially indicated by the bodily condition. One point which has often struck me is that these cases seem to bear opium, bromides, and other narcotics much better than ordinary insane persons do. Attention must of course be paid to

the condition of the *primæ viæ*, and to any dyscrasia which may be present, such as syphilis. In less severe cases a change to the seaside, or some bracing mountain district, with some friend or relative who is agreeable to the patient, may be sufficient. Bracing mountain *air* is good, but the altitude should not exceed 1,000 feet. But in other cases it is desirable to place the patient in the house of, and under the care of, a medical man, for these cases generally require constant medical supervision. I have seen valuable time lost, and even still more disastrous results ensue, when relatives—who had formed the opinion that "nothing but a thorough rest and change" was needed—have taken the matter entirely into their own hands. In other cases there has been every reason to believe that the daily watchful care of a skilled medical attendant has restored the mind of a case which at one time appeared hopeless.

One of the reasons why I have attached so much significance to the diagnosis of cerebral neurasthenia and neurasthenic insanity is to avoid the certification of such cases, and their removal to asylums, where as a rule little or nothing is done to diagnose or treat any obscure bodily ailment on which the mental condition may depend. Moreover, one of the characteristics of these cases, as I have before remarked, is their variability from day to day, and lucid intervals are frequent. A gastro-intestinal upset, the receipt of a letter, or even a more trivial cause, will determine a relapse; on the other hand after a good night's rest, a brisk purge, or without any apparent cause, the patient will become reasonable and altogether intelligent. Now, to find himself, at such times, in contact with a number of insane persons is the worst possible thing that can happen to the patient. I well remember two

young women who were admitted some years ago to the workhouse lunacy wards about the same time, who presented a most remarkable similarity in their cases in all respects, the family history in both being free from insanity. One, who was poor, was transferred to the infirmary and made a speedy recovery; the other, who was rich, was certified and sent to an asylum for reasons which I need not now mention, where she afterwards became hopelessly insane. I had good reasons for believing that the result in this case was due to the effect of her surroundings upon her.

Gentlemen, you will have observed that a practical lesson of the highest importance is embodied in our studies of to-day, viz., that a very great deal can be accomplished for neurasthenic mental disorder—mental disorder which is mainly dependent on some bodily condition—by attention to the digestion, alimentation, cardio-vascular system, pulmonary, hepatic, genito-urinary, or vaso-motor apparatus or other part which is defective in function or structure.

Cerebral neurasthenia and the condition which I have described as Neurasthenic Insanity are extremely common conditions. They formed quite one-third of the cases passing through the lunatic wards of the Paddington workhouse. In many instances they bear a very close resemblance to true insanity, and are, I am persuaded, very often mistaken for it and dealt with accordingly, without sufficient examination and treatment being directed to the organs and general condition of the body.

A single lady, aged 30, was brought to me recently for mental symptoms which had been diagnosed as melancholia. She had lately drunk some poison when

left alone, and it had been proposed by her physicians to certify and remove her to a private asylum. The case hardly seemed to be typical of melancholia,

CASE XXVI. and the first thing I noticed was her very flushed (almost bloated-looking) face, which I was told was always worse after meals, and had first started nine months before, about the same time as the melancholia (a most interesting circumstance) and I wondered whether both the mental disorder and the bloated face could be produced by an auto-toxæmia. I found also she had a huge appetite, a long history of most intractable constipation, a dropped kidney, and cardiac dilatation. She was accordingly placed with a companion in a nursing home, treated with Schott movements, a rigid dietary, electricity, and other methods, and at the end of six weeks joined her people in the country and ultimately made a perfect recovery.

The facial symptoms remind me of a similar case, aged 39, the wife of a doctor, who was unfortunately not brought to me until after she had been in several

CASE XXVII. asylums. She also had been regarded as melancholic. Her face represented an advanced degree of acne rosacea, a condition which I have in so many cases found to be associated with gastro-intestinal sepsis. So it was in her case, and after six months' systematic treatment by diet, medicines, massage, and other measures, she returned to her home after an absence of two years. But in this case the treatment came perhaps too late; for, though very greatly improved, she never quite got back her old health of mind.

Of late years a great deal has been said—much that is no doubt correct—about the influence of the mind on

the body, but I fear we are in danger of forgetting the enormous influence which the body has on the mind.

If Macbeth had asked in these days—

"Canst thou not minister to a mind diseased?"

the answer, in my belief, would be, "Yes, if the case be one of cerebral neurasthenia or neurasthenic insanity, by ministering to the body."

LECTURE VIII

THE ETIOLOGY AND PROGNOSIS OF NEURASTHENIA,

BASED ON AN ANALYSIS OF 103 PRIVATE CASES[1]

SUMMARY: *Difficulty of ascertaining relation of neurasthenia to intestinal disorders—Analysis of a series of cases—Age and sex—Conditions necessary to ascertain the cause—Eleven etiological groups—Analysis of eighty-three cases in which treatment of the causal factor relieved or cured the nerve symptoms—Preponderance of intestinal and gastric causes discussed—Explanation—Review of all the causes of neurasthenia—Part played by deficient mastication—Remarks on prognosis based on* 103 *private cases.*

GENTLEMEN,—The examination of the stools is a difficult and unpleasant task. Nevertheless, I believe that if it could be done more frequently and more thoroughly, considerable light would be thrown on the pathology of alimentation, on the various forms of toxæmia, and, in particular, on the pathology of neurasthenia.

I have on previous occasions[2] dwelt on the important relation which various gastric disorders bear to neurasthenia among hospital out-patients, and for some years I have been inclined to believe that various intestinal conditions allied to mucous colitis play an equally im-

[1] The substance of this lecture appeared in *The Clinical Journal*, June 6, 1906.

[2] *The Clinical Journal*, January, 1897; and "Lectures on Neurasthenia," 1st edition, 1899. London: H. J. Glaisher; and p. 70, *et seq. ante.*

portant *rôle* in the etiology of neurasthenia, but the opportunity of testing this belief has been wanting in hospital practice.

To ascertain the truth in this matter it would be necessary to inquire, first, what proportion of cases of neurasthenia have been preceded by symptoms of intestinal derangement; and, secondly, whether adequate treatment adopted for the relief of the latter also cured or relieved the neurasthenic symptoms. Now, a hospital out-patient clinique such as I have availed myself of on previous occasions does not afford very good material for arriving at a conclusion on these points. The symptoms of intestinal derangement are of a kind which escape the notice of the ordinary hospital patient, who does not, as a rule, even if he is sufficiently intelligent, observe the character of his motions; the time or opportunity in out-patient practice is not sufficient for a physician to examine these cases thoroughly for obscure intestinal troubles; and finally, the treatment for mucous colitis and other intestinal conditions cannot be carried out with sufficient diligence or care to afford reliable data. With private patients, however, all the conditions are more favourable, and I propose now to avail myself of this field to investigate the two points just mentioned. In this enquiry I shall be able incidentally to review the etiology of neurasthenia as a whole.

During the three and a half years February 27, 1902, to August 18, 1905, 103 cases of neurasthenia came under my notice in private practice. These 103 cases were all that were met with in my private work between the dates mentioned; they are in series and unselected, and none have been excluded.

There were 55 male cases, and the average age of these was 40½ years, the youngest being 14 years and the oldest 62 years of age. There were 48 female cases, and the average of these was 38 years, the youngest being 16 years and the oldest 71 years. Taking male and female cases together, there were:

3	in	the	decade	10	to 19
20	„	„		20	„ 29
33	„	„		30	„ 39
28	„	„		40	„ 49
16	„	„		50	„ 59
2	„	„		60	„ 69
1	„	„		70	„ 79

Among these cases, therefore, as in my hospital series, there was a marked tendency for neurasthenia to affect the early and middle decades of life, 81 cases being in the three decades 20 to 50. A slight predisposition in the male sex, 55 as compared with 48, is in marked contrast with hysteria.

All of these cases came under notice for the symptoms of neurasthenia. In order to classify them on an etiological basis I have first tabulated the particulars concerning age, symptoms presented, history, antecedent clinical conditions, nature and results of treatment. These tables are too bulky for reproduction, but after a careful study of them I have grouped the cases according to the principal cause in operation into the eleven etiological groups given below.

Now, in order to assign a single or principal cause to neurasthenia in any given case the greatest care is needed. Not only are many of the causes extremely obscure, rendering repeated examinations necessary, but, as previously pointed out (*loc. cit.*), several causes are nearly

always in operation at the same time, and it is often difficult to assign the leading *rôle* to any one. Careful and repeated investigation of the case is also necessary to ascertain two points, first, *whether the supposed causal factor was antecedent in point of time to the neurasthenic symptoms.* In these cases the history was subjected to the closest scrutiny; many of the cases had been under my observation or that of the medical men with whom they were seen in consultation a considerable period of time, and eleven of the male patients were themselves medical men. The second condition necessary is *to ascertain whether treatment specially directed to the supposed cause relieved the neurasthenic symptoms.*

The results of my investigations on the two points just referred to have led me to classify these 103 private cases into the following eleven Etiological Groups. The reference numbers are those of my private case-books.

Group I.—Twenty-one cases of neurasthenia due primarily to *intestinal derangement* attended by a greater or less degree of *mucus in the stools*, cases which might, therefore, be classed provisionally as mucous colitis, though in the majority of instances this must have been in a very early stage.

In all of these cases there was a long history of bowel trouble antecedent to the nervous derangement, such as constipation (in the majority) or irregularity of the bowels, with intercurrent attacks of diarrhœa, unhealthy, undigested, and frequently highly offensive stools, colicky pains, and other vague abdominal sensations. Many of these cases presented signs of dilatation and atony of the colon; some of them presented what I believed to be physical signs of thickening of the wall of the cæcum or

colon. The presence of more or less mucus, either in chips, flakes, or "casts," was detected in all of these cases, and in some there was a history of it of some duration. But it cannot be affirmed with precision whether the mucus in the stools was or was not really antecedent to the nervous symptoms. The mucus was often discovered by accident, and the precise date of onset of such a symptom must always be a matter of uncertainty. The friends of several patients complained of the peculiarly offensive stools.

The treatment adopted in these cases, often extending over a very considerable period of time, was in point of fact that ordinarily employed for mucous colitis, and consisted mainly of dietetic measures, directions as to mastication, systematic purgation, intestinal antisepsis, and intestinal lavage. Nine were cured, six relieved, one unrelieved, two did not adopt the treatment advised, and in three the sequel of the case is unknown.

Three of these cases may be mentioned as having features of special interest, two of them because they presented skin symptoms which varied proportionately with the neurasthenic symptoms, suggesting that the same toxin which produced the former produced also the latter. I have seen many instances of this association.

Case 20, male, æt. 32 years, came in August, 1902, with neurasthenic symptoms of over a year's duration. He had a history of constipation and insufficient mastication all his life, with occasional mucus in the stools since about February, 1901, and latterly attacks of diarrhœa, with mucus, specks of blood, and undigested food. A fixed pain and undue resistance in the left hypochondrium made me suspect a band of adhesion, which was partially confirmed by a skiagram. He was

operated on by Mr. Leonard Bidwell, and a band was found constricting the splenic flexure of the colon. He made a good recovery, and was then gradually relieved by lavage and other intestinal treatment. In August, 1905, Dr. Frood wrote to me that "he is now much improved and in business again, though he still has occasional indigestion, constipation, and mucus in the stools."

Case 4, male, æt. 45 years, came under treatment March 21, 1902, with a very long history of bolting of food, and constipation all his life; during the last few years occasional attacks of diarrhœa, ending in mucous discharge. Latterly he had had illnesses with neurasthenic symptoms, attended by dermatographia and irritability of the skin, and occasionally large blotches of urticaria. He was cured of both the skin and the nerve symptoms after some months of treatment directed to the intestinal canal.

Case 182, male, æt. 45 years, was sent to me by a medical man in the country for neurasthenic symptoms, associated with recurrent urticaria and pruritus of considerable duration and intractibility. After a couple of months' treatment directed to the catarrhal derangement of the bowels, which had been discovered after careful enquiry, he made a complete recovery from both the skin and the nerve symptoms.

Group II.—Eighteen cases of neurasthenia primarily due to *intestinal derangement* (intestinal dyspepsia)—*i.e.*, presenting intestinal symptoms identical with the preceding group, associated in some cases with vague gastric symptoms, but unattended, as far as could be ascertained, with mucus in the stools. Treatment on the same lines as in the preceding group, and particularly by intestinal

antiseptics, resulted in cure of both the intestinal and the neurasthenic symptoms in twelve cases and relief in six. The stools in these cases were peculiarly offensive.

Case 18, male, æt. 45 years, came on August 12, 1902, for neurasthenia associated with inveterate hyperidrosis of the axillæ, preceded by gastro-intestinal derangement, both of the former being relieved by treatment directed to the latter. When I last heard of him the neurasthenia was cured, but the hyperidrosis still troubled him to a less degree. Here, again, the same toxin seemed to affect both the nervous system and the integument.

Case 129, male, æt. 39 years, came to me in August, 1904, for vague neurasthenic symptoms. I was unable to identify the cause; but in view of the fact that dermatographia was a notable symptom and there was a history of urticaria, I put him on a course of antiseptic intestinal treatment and he made a very rapid recovery.

Case 108, male, æt. 44 years, came to me in March, 1904, for morbid dreads, panics, and other neurasthenic symptoms. There was a long history of indigestion, unmasticated food, and headaches (which I deemed to be of asthenopic origin). Prolonged treatment directed to the gastro-intestinal condition, extending over upwards of a year, resulted in recovery.

Group III.—Twelve cases of neurasthenia, classed as primarily due to *gastric dilatation*, or *myasthenia gastrica.*

The only true test of gastric dilatation is that the stomach contains food residues at a time when it ought to be empty, as tested by the gastric aspirator six or more hours after an ordinary mixed meal. In these circumstances Dr. George Herschel makes three degrees of myasthenia—those in which the stomach is found to have

emptied itself in six hours after an ordinary mixed meal, those in which it empties itself during the night, and those in which it is not found to be empty even in the morning. It should be mentioned that this test was not applied in these cases, and the diagnosis rested on the percussion signs associated with more or less characteristic gastric symptoms. Under dietetic and other measures directed to gastric myasthenia, these symptoms and the nerve symptoms subsided *pari passu* in eight cases and they were relieved in two. In two cases the result was unknown. As examples of this group the following may be mentioned:

Case 35, male, æt. 43 years, came in November, 1902, for morbid dreads, anginoid, and other neurasthenic symptoms, and he sought my advice preparatory to giving up medical practice. There was a prolonged history of gastric trouble and evidences of gastric dilatation. Measures directed to the gastric condition resulted ultimately in complete restoration.

Case 39, male, æt. 52 years, came in December, 1902 for attacks of giddiness, unsteadiness in walking, and neurasthenic symptoms of a more definite kind. There was a prolonged history of gastric dyspepsia and evidences of gastric dilatation. When, in the course of a few months, these latter were relieved all his other symptoms disappeared.

Case 90, male, æt. 59 years, was sent to me in November, 1904, by the late Dr. Daniels, of Epsom, for curious neurasthenic symptoms, which had compelled the patient to give up work. The leading and most troublesome symptoms were an inability to read and also to write consecutive English, an awkward circumstance, for his

occupation was that of a journalist. The history and signs pointed to gastric dilatation, and on the adoption of electrical and other treatment for this condition he became quite well, and resumed work in the spring of 1905.

Group IV.—Eighteen cases of neurasthenia, due primarily to dyspepsia and gastric derangements of various kinds without definite evidences of dilatation.

Twelve of these were cured, and four were relieved of the neurasthenic symptoms by the usual treatment for dyspepsia.

As an example the following case may be mentioned:

Case 70, male, æt. 29 years, came in July, 1903, presenting many interesting neurasthenic symptoms. He was a young doctor, and had treated himself with nerve tonics for several years in vain. After talking with me some time he remarked, as though he had made some great discovery, "I am beginning to think that the frequency and severity of my symptoms vary with the state of my stomach." In fact, there was a long history of atonic dyspepsia, and when this was remedied the nerve symptoms entirely disappeared.

Group V.—Three cases of neurasthenia due to various *other abdominal conditions*.

Chronic appendicitis was in operation in 3 cases. Dropped kidney existed in 6 female cases, but in all of these it appeared to me only to act as a contributory cause in association with some other condition. It was not discovered in any of the male cases in this series.

Group VI.—Ten cases of neurasthenia due primarily to certain *septic* or *toxic conditions* (other than those of abdominal origin already mentioned).

Pyorrhœa alveolaris and oral sepsis appeared to be the primary cause in 5 cases—2 cured and 3 relieved. It is met with less frequently among private than among hospital patients. Oral sepsis was also a notable *contributory* cause in 7 other cases.

Prostatic blenorrhagia, 2 cases—both cured.

Chronic alcoholism, 1 case—relieved.

Excessive smoking, 1 case—cured.

Antral disease, 1 case—cured.

The three cases of appendicitis mentioned in the preceding group might, perhaps, have been included in this group. In some of the indeterminate and complex cases in Group XI (below) septic conditions of the female pelvic organs acted as an important *contributory* cause.

This group of cases, when the true cause is detected, forms one of the most curable, and it is not surprising to find that six of these cases were restored to health and four were relieved. As instances the following may be mentioned:

Case 2, male, æt. 34 years, and case 3, male, æt. 32 years, both by a curious coincidence came under treatment in March, 1902, for neurasthenic symptoms which appeared to be dependent upon urethritis involving mainly the prostatic portion, for they both got quite well after the latter was cured.

Case 54, male, æt. 38 years, was brought to me in March, 1903, for numerous neurasthenic symptoms, including a widespread neuro-muscular irritability, a symptom which I have observed in a lesser degree in other toxic cases. He had a most severe degree of pyorrhœa alveolaris, and as this became relieved the other symptoms gradually disappeared.

The disastrous effects of oral sepsis are hardly yet recognised, in spite of Dr. William Hunter's valuable contributions on its relations to serious anæmia.[1] I have recently seen a case (not included in the above list) where the gravest consequences ensued from unrelieved oral sepsis. The patient, a man aged thirty, was sent to me in the early part of May, 1906, by a doctor at Ilfracombe, for intractable neurasthenia of several years' duration, on account of which he had entirely abandoned a lucrative business in December, 1904. His symptoms had consisted chiefly of restlessness, insomnia, inability to work or to think, vague pains, cold sweating feet; he could not cross a road for nervousness, and was exhausted after walking a quarter of a mile. In March, 1905, he had been laid up for four months with an illness which had consisted of "purpura rheumatica," complicated by pericarditis and profuse hæmorrhage from the gums. I also learned that there was a history extending over upwards of fourteen years of very defective teeth (associated with gastric derangement), and that he had always refused to have his mouth put in order. In May, 1906, the gums were still very spongy, most of the molars were missing, suppuration was going on round the remaining teeth and several stumps, and there was slight swelling over the right antrum, due to an abscess at the root of one of the stumps. On examination, the skin presented a pronounced toxic erythema, but there were no other physical signs, and there was no cause for the profound disturbance of the nervous system other than the condition of the mouth. The patient consented to go into

[1] Royal Medical and Chirurgical Society's Transactions, 1901, and elsewhere.

a nursing home, where the mouth and teeth were promptly attended to, gastro-intestinal antiseptics and electricity administered, and his food carefully regulated and masticated. Systematic lavage of the large bowel brought away quantities of undigested particles of food encased in mucus. At the time of going to press (July, 1906), the erythema has disappeared, and he has considerably improved, but it will be many months, perhaps years, before his health is fully restored. In this case the oral sepsis was of long standing, and the relief of the nervous symptoms when treatment was directed to the mouth leads to the conclusion that the oral sepsis was the causal agent. It seems to me highly probable that the purpuric eruption and other symptoms he suffered from in March, 1905, were also due to autotoxæmia produced by the same cause.

Group VII.—Four cases of neurasthenia primarily due to *fatigue of the nervous system*:

Overwork, 2 cases—1 cured and 1 unrelieved.

Inveterate masturbation, 1 case—result unknown.

Asthenopia and nervous fatigue, 1 case—relieved.

Anxiety and domestic worry also acted as a potent *contributory cause* in many of the cases in the other groups. Asthenopia, which is sometimes a consequence of neurasthenia, acted also as a *contributory cause* in at least two other cases.

Treatment directed to the primary condition resulted in cure of the nervous symptoms in one and relief in one. No result was accomplished by treatment in one; the result is unknown in one.

As examples the following cases may be mentioned:

Case 83, male, æt. 14 years, was sent to me in October, 1903, for nervousness, tremor, hastiness, exaggeration, and

a tendency to untruthfulness. He had been overworking and overworrying at school and lately a considerable defect in his vision had been observed. Three months' complete rest, with nerve tonics, cured all his symptoms.

Case 150, male, æt. 37 years, came to me in March, 1905, with numerous neurasthenic symptoms, which arose, in my belief, mainly from long hours and an unhygienic mode of life. He had gradually become so nervous that he was unable to witness a signature. There was a certain amount of dyspepsia which was, however, secondary in point of time, and treatment directed to this has up to the present afforded no relief. His environment needs to be changed.

Group VIII.—Two cases of neurasthenia due to *emotional strain*. Treatment directed to the primary condition resulted in cure in one and notable relief in the other case.

Case 85, male, æt. 55 years, came to me in October, 1903, suffering from neurasthenia, with a history of prolonged and intense anxiety. There was also slight gastric atony and cardio-vascular failure. Treatment was, of course, directed to all of these conditions, but in my belief it was chiefly the clearing up of his business worries which led more than anything else to his recovery. He relapsed again two years later under a recurrence of the anxiety, and was cured by the same means.

Group IX.—Various *circulatory disorders* appeared to be in operation as the principal cause in four cases:

Aortic valvular disease and high arterial tension, 1 case.

Cardio-vascular failure, 1 case.

High arterial tension of indeterminate origin, 1 case.

High arterial tension associated with chronic renal disease, 1 case.

In the first of these the nerve symptoms were cured, and in the three others they were notably relieved, by measures directed to the circulation.

Case 49, male, æt. 56 years, came in February, 1903, for marked neurasthenic symptoms. The arterial tension was very high (210 mm.), and there was aortic valvular disease. After a course of Nauheim treatment the tension became lowered and the nervous symptoms disappeared, though the valvular mischief, of course, remained the same.

Case 37, male, æt. 62 years, was brought to me by his son, a medical man, in December, 1902, for neurasthenia. I could find no physical signs excepting constant high arterial tension varying between 150 and 190 mm. about the causation of which I was never able to satisfy myself. He gradually improved, however, as the blood-pressure became lower under regular purgation and diuretics.

Group X.—Three cases of neurasthenia were found to be dependent on *incipient phthisis.*

In one of these cases the neurasthenic symptoms were relieved by attention to the pulmonary condition; the other two passed to the care of others and the result is unknown.

In two other cases phthisis was a *contributory* cause.

Group XI.—In eight cases of neurasthenia the causes were so *complex*, and the part which each played so uncertain, that it was impossible to ascribe to any one of them a leading *rôle.*

Only one of these was cured (temporarily), four were relieved, two were wholly unrelieved, and the result of one case is unknown.

For instance, case 26, a medical man, æt. 46 years, came to me for neurasthenia of considerable duration,

associated with gastric derangement, chronic Bright's disease, and overwork, which had gradually supervened in a person the subject of marked nervous heredity. He was cured for a time by measures directed to the first two causes, but he relapsed six months later and committed suicide.

The etiological grouping of these cases is based, as I have said, on the chief cause as diagnosed by a careful review of the case and the revelation of the facts, first, that the history of the cause was, as far as could be ascertained, antecedent in point of time to the neurasthenic symptoms; and secondly, that treatment directed to the cause relieved or cured the nervous symptoms.

Now, let us examine more closely the second of the two conditions investigated in these 103 cases, namely, whether *treatment directed to the supposed cause resulted in cure or relief of the neurasthenic symptoms*. The fact that the supposed cause antedated the nervous symptoms is one of considerable importance, but, like all matters of history, it is open to a certain amount of fallacy. If, however, the effects of treatment specially directed to the supposed cause was successful in relieving both the cause and the neurasthenia it will afford the best available proof that this was the *causa vera*. This table (Table I) gives the results in detail of all of the etiological groups.

The term *cured* (51 cases) indicates that the neurasthenic symptoms, for which advice was sought, had disappeared, and the patient had returned to his or her duties in life. In some cases a very long course of treatment was necessary to accomplish this.

Relieved (32 cases) indicates that notable relief was observable when the patient was last seen or heard of.

Unrelieved (4 cases) indicates the converse, and this may have been due either to error of diagnosis, or to the intractable nature of the cause.

Those marked *untreated* (2 cases) did not for some reason adopt the treatment advised.

Result unknown (14 cases) indicates that these cases passed from under my care, and in spite of efforts to trace them the result was not revealed; they may or may not have recovered or have been relieved.

There were no *deaths.*

TABLE I, *showing the Results of Treatment in the several Etiological Groups in* 103 *Private Cases of Neurasthenia.*

Etiological groups.	Cured.	Relieved.	Unrelieved.	Untreated.	Unknown.	Total Cases.
I. Intestinal cases with mucus .	9	6	1	2	3	21
II. Intestinal cases without mucus	12	6	—	—	—	18
III. Gastric myasthenia . . .	8	2	—	—	2	12
IV. Dyspepsia of various kinds .	12	4	—	—	2	18
V. Other abdominal conditions .	—	—	—	—	3	3
VI. Other toxic and septic conditions	6	4	—	—	—	10
VII. Nervous fatigue	1	1	1	—	1	4
VIII. Emotional and traumatic shock	1	1	—	—	—	2
IX. Circulatory troubles . .	1	3	—	—	—	4
X. Phthisis	—	1	—	—	2	3
XI. Complex and Indeterminate .	1	4	2	—	1	8
Totals	51	32	4	2	14	103

It will be seen from this table that of the 103 cases, 83 were either cured or relieved. This in itself is a very strong confirmation of the general correctness of the etiological grouping, especially when we remember that out of the remaining 20 cases the result was unknown in 14—in which the treatment may or may not have been successful.

However, in order to obviate any possible source of error I have prepared the following table (Table II) from the results of the 83 cases in which the diagnosis of the cause was confirmed by the results of treatment directed to that cause, these cases being either cured or notably relieved thereby.

TABLE II.—*Analysis of the Causes of* 83 *Cases of Neurasthenia in which the Cause was confirmed by Treatment, showing the Percentage of each Cause in Operation.*

	Cases.	Per cent.
Intestinal derangement, with or without mucus	33	*39·9*
Gastric dilatation and various other kinds of gastric disorder	26	*31·3*
Other toxic and septic conditions	10	*12·0*
Fatigue	2	*2·4*
Emotional and traumatic	2	*2·4*
Circulatory and lung troubles (? malnutrition)	5	*6·0*
Complex causes	5	*6·0*
	83	

Undoubtedly the most striking and important circumstance brought out by an examination of this series of private cases is the great preponderance among the causes of neurasthenia of intestinal (33 cases) and gastric derangements of various kinds (26 cases), which together amounted to 59 out of the 83 cases which we are now examining (*i.e., 71 per cent.*). This preponderance confirms and extends the conclusions I have previously arrived at.

In the series of hospital cases which I published in 1899[1] the chief cause in operation was found to be "gastric disorder"—74 out of 157 cases of neurasthenia (47·1 per cent.). If, therefore, it be remembered that a number of gastro-intestinal conditions were possibly included among these hospital cases, owing to the difficulty of

[1] p. 74, *et seq. ante.*

analysing the precise nature of the alimentary disturbance, the percentage of gastric disorder in the private cases (31·3 per cent.) and in the hospital cases bear a fairly close resemblance. In both series there is a notable predominance of the same kind of cause. In the private cases, however, much greater accuracy, both in the detection of gastric and intestinal disorders and in the analysis of the precise nature of the alimentary disturbance, is attainable for reasons already mentioned.

I am the more concerned to again insist on this causal relation because it has not been sufficiently admitted or emphasised even yet in writings on the subject. Moreover, it has appeared to me that both the existence of the various gastro-intestinal conditions here referred to and their true relation to neurasthenia are very frequently overlooked. All of these fifty-nine cases sought advice, not for any abdominal condition, but for neurasthenia. In some cases the abdominal derangement had not been detected, or, if detected, had been regarded as of minor importance. In others the gastric or intestinal symptoms were regarded as part of, or a consequence rather than the cause of, the neurasthenia. Many of these patients had wandered from one "cure" to another, or had tried every conceivable form of dietary, or had taken nerve tonics *ad nauseam* without getting relief until adequate measures were directed to the gastro-intestinal condition. This oversight of relationship is not surprising when one remembers the prolonged and insidious character of the earlier symptoms of most intestinal conditions, and the difficulty of differentiating the gastric disorder which produces neurasthenia from the gastric symptoms which are a consequence of neurasthenia (p. 71 *ante*).

That the gastric and intestinal symptoms were not a result, or an integral part, of the neurasthenia in this series of cases was evidenced by a careful study of the history and symptoms of each of these patients, by the failure in some instances of treatment directed at first to the neurasthenia alone, and by the fact that treatment directed to the abdominal condition always cured or relieved both the gastro-intestinal and the nervous symptoms in the 59 cases under consideration. The whole question has already been fully discussed on a previous occasion (Lecture IV), and it is quite clear that in these 59 cases the neurasthenia was the result of the gastric or intestinal derangement. This is the salient fact again brought out by this series of cases.

How then, and in what manner does gastro-intestinal derangement produce neurasthenia? Is it a question simply of malnutrition — *i.e.*, insufficient or perverted nutrition of the nervous system? I think not, else why should not the other physiological systems suffer more? Occasionally one finds that when these patients have at last come for relief they are losing weight, but this is not the rule, and even in these cases the nervous symptoms had generally been going on long before the loss of weight began. In 1899 (Lectures IV and V *ante*) I showed, contrary to the views then prevailing, that gastro-intestinal derangement produces neurasthenia by means of an auto-intoxication of the nervous system, and this conclusion is supported by an examination of the fresh data now submitted. That gastro-intestinal disorders are attended by fermentation and are capable of producing an auto-intoxication we know from various considerations.

1. Some authors state that mucous colitis is always attended by nervous symptoms, though others[1] deny this. My experience has led me to believe that in the first, the prolonged, the insidious (the ante-colitis) stage, which may go on for years in a more or less intermittent fashion, neurasthenic symptoms *always* arise; and further, that when the colitis reaches a later and unmistakable stage, where the amount of mucus in the stools and diarrhœa form perhaps the most striking and pathognomonic features of the case, nervous symptoms disappear or become less prominent. This, I believe, accounts for the fact that many bath-physicians of great experience in the treatment of *advanced* colitis deny the constant presence of neurasthenic symptoms in cases of colitis. A critical examination of the intestinal cases in Groups I and II, which differ only in the presence (21 cases) or absence (18 cases) of fæcal mucus, shows that even in the former the amount of mucus, with only two exceptions, was never great, was always intermittent, and might disappear altogether for a considerable time. If, then, the cases in Group I could be classed as colitis, the majority of them belonged only to the prolonged incipient stage of that malady, the pre-colitis stage, the stage of intestinal sepsis, when only "intestinal derangement" and constipation were constant, and actual catarrh of the bowel and diarrhœa were only present from time to time.

In the earlier phases of the bowel trouble which leads to colitis, diarrhœa and fæcal mucus are mostly absent, but we get all the evidences of chronic intestinal fermentation—flatus (gastric and rectal), borborygmi, colicky

[1] *e.g.* Dr. Bottentuit of Plombières-les-Bains. *British Medical Journal*, June 27, 1903.

pains from wind passing along the bowel, irregularity of the bowels, undigested and offensive stools, excess of bacillus coli in the stools, but little mucus, associated with constipation rather than diarrhœa. Now, these are just the symptoms which were common to all the 33 cases in Groups I and II, and these were really cases of intestinal fermentation, attended in a certain number by more or less mucus in the stools from time to time. In short, gentlemen, we are dealing in both of these groups with cases of intestinal derangement, when the food, instead of being digested, ferments and decomposes. This leads, on the one hand, to a general toxæmia or auto-intoxication of the blood, acting apparently with special virulence on the nervous system ; and, on the other hand, it leads in the course of years by its local effects to mucous catarrh (at first intermittent) and atony (loss of muscular tone) of the bowel.

2. In both of the next two groups—Group III with 12 cases which I have classed as gastric myasthenia and dilatation, and Group IV with 18 cases of various forms of dyspepsia—we know that fermentation occurs, and they need no further discussion (compare pp. 73 to 88 *ante*).

3. A considerable number of the 59 cases in the four groups under discussion presented other evidences of toxæmia, such as dermatographia, urticaria, twitching of the limbs, dreaming, broken sleep, and so on.

4. Antifermentative measures, both gastric and intestinal, were undoubtedly the most successful means of curing or ameliorating both the morbid condition of the alimentary canal and the neurasthenia in all of these 59 cases.

The conclusion is irresistible that the pathological cause in all of the 59 cases in my first four groups was an auto-infection or auto-intoxication of gastro-intestinal origin. As to the nature of the toxin, considerable doubt, in the present state of our knowledge, must exist. It may be one of the chemical products of gastric or intestinal fermentation, or it may be microbic. Many microbes are found in the intestines, but suspicion is at once fixed on the *bacillus coli communis*, which appears to be a very constant inhabitant of the large intestine, and is greatly increased when the mucous membrane is unhealthy or fermentative processes are going on. At one time this microbe was regarded as non-pathogenic, but we are gradually learning that this bacillus may have far-reaching pathogenic effects, and some observers have attributed to it specially disastrous effects on the nervous system.[1]

There may be another possible view of the causation of neurasthenia by gastro-intestinal disorder. We know that

[1] The bacteriology of the intestinal canal still remains to be worked out, but at the present time (July, 1906) pathologists are fairly agreed that the bacteria found in this situation are mainly of two kinds (A. E. Wright), *bacillus coli communis* and a streptococcal organism allied to the pneumococcus; further, that these are usually found only in small quantities and limited to the large intestine, except in morbid conditions of the bowel, when they greatly increase in quantity and spread to the upper parts of the alimentary canal and its appendages, such as the gall-bladder and the appendix (giving rise to appendicitis), and to the genito-urinary apparatus. The *b. coli* is greatly increased in gastro-intestinal catarrh, of which it is regarded as the cause by some observers.

Now, it seems quite clear from an examination of the above series of cases that intestinal catarrh associated with (either as a cause or a consequence) excess of *bacillus coli* in the stools is a very potent agent of neurasthenia, certainly in 20 per cent. (the cases with mucus), probably in 38 per cent. (if the cases of intestinal derangement without *a history* of mucus are included). In view of all the facts it seems so highly probable that *b. coli* is the cause of the toxæmia which produces the neurasthenia, that it would be worth while testing the opsonic index of such patients, and trying the effect of a vaccine prepared from the particular form of *b. coli* infesting a given patient.

all gross intestinal lesions are attended by a totally disproportionate amount of prostration, and Sir Lauder Brunton has very kindly indicated to me some experiments by Ludwig and Dolgiel in 1867[1] which showed that a mechanical stimulus applied to the intestines greatly accelerated the flow of blood through the carotids. Dr. Leonard Hill[2] more recently has shown something of the same kind, namely, that the blood supply to the brain varies inversely to that in the abdomen. In this way a direct or reflex nervous influence might be invoked through the sympathetic nerves terminating in the intestines. But in view of the generalised nature of the nervous derangement in neurasthenia, which is not, as we have seen, limited to the brain, it seems much more probable that the essential pathological change is a widespread toxæmic or hæmic change of some kind which damages all the nervous structures.

Passing in review all the possible causal agents of neurasthenia, they may, in my belief, be brought under one of four pathological factors (Lecture IV)—Toxæmia of the nervous system, Fatigue of the nervous system, Emotional or Traumatic causes, or Malnutrition of the nervous system. The series of 103 cases we are now considering may, therefore, be thus classified on a pathological basis as follows:

Class A.—Toxæmia of the nervous system: Groups I and II, intestinal derangement, with or without mucus—49 cases; Groups III and IV, gastric myasthenia and

[1] "Sitzungeberichte der math.-phys. Classe der K. S.," "Gesells. d. Wissensch.," Band xix, p. 257, and Ludwig's "Arbeiten für 1867," p. 253.

[2] "The Physiology and Pathology of the Cerebral Circulation." J. and A. Churchill. London, 1896.

various forms of dyspepsia—30 cases; Group V, other abdominal conditions—3 cases; and Group VI, other toxic and septic conditions—10 cases. Total, 82 cases.

Class B.—Fatigue of the nervous system: Group VII, overwork, etc.—4 cases.

Class C.—Emotional or *traumatic* shock: Group VIII, emotional shock—2 cases.

Class D. — Malnutrition of the nervous system: Group IX, circulatory troubles, and Group X, phthisis (both groups provisionally classified here)—7 cases.

Complex causes unclassifiable: Group XI—8 cases. Grand total, 103 cases.

This series of 103 cases is sufficient to draw fairly definite conclusions. It follows, therefore, that in the largest proportion of cases (83·2 per cent of the 83 cases verified by the effects of treatment, and 79·6 per cent. of all the 103 cases) the cause of the neurasthenia is an auto-intoxication specially affecting the nervous system and so producing symptoms of nervous exhaustion, instability, or irritability. But this autotoxæmia is not indispensable to the production of neurasthenia. The nervous system may be damaged by other means; by overwork, worry, shock, malnutrition, and other causes. There is, moreover, a compound cause in operation in nearly every case. The question of how each of the four pathological factors just named acts on the nervous system has already been discussed (Lecture V *ante*), and the question of heredity and other predisposing factors referred to (p. 58 *ante*).

Before concluding I should like to take one step still further back in the etiology of neurasthenia and enquire what is the causation of the gastro-intestinal sepsis which

is such a potent factor in the pathology of neurasthenia. *Rich foods* and dietetic errors played an important part in some of the wealthier patients. A long history of *constipation*, which was present in 17 out of the 21 cases in Group I, undoubtedly played an important part in the production of the intestinal sepsis. But there is no doubt in my mind that the leading *rôle* was taken by *insufficient mastication* of food. In no fewer than 19 out of the 21 cases forming Group I (those in whom mucus was at some time discovered in the stools) there was a distinct history extending over very many years of insufficient mastication, and a similar history was revealed in many cases in the other toxæmic groups. In all of the first four groups many of the patients when first seen had very defective teeth (even apart from pyorrhœa alveolaris), and it was not until these had been remedied and the patients had been taught to use their teeth that their condition made substantial and permanent improvement. Others, clerks and business men and women, volunteered or admitted that in the nature of things their meals were extremely hurried. Others, higher in the social scale, admitted or complained that the carrying on of interesting conversations at meal-times was inconsistent with adequate mastication. Many neurasthenic subjects are persons of very considerable intelligence and brilliancy, who, therefore, take a leading part in society, and are much in request as "diners out." Many of them belong to the nervous type of individuals who do everything hurriedly, including meals. Among my hospital out-patients the same conditions of hurried meals and insufficient mastication obtain: the presence of bad teeth and a history of bolting food is revealed with monotonous reiteration among the

procession of neurasthenics who pass through the out-patients' room.

The conclusion to be drawn from the foregoing considerations is that the rapidity of life in our modern civilisation undoubtedly acts as an important factor in the causation of neurasthenia; but it acts mainly by the habitual bolting of food and the insufficiency of mastication, combined, no doubt, with the tendency to decay of the teeth at an earlier age than in previous generations (compare also p. 111 *ante*).

"The pace we live at" is undoubtedly deleterious, by its wear and tear of the nervous system; but the pace at which we eat, coupled with the early decay of the teeth, is, in my view, mainly responsible for the increase of neurasthenia in modern times.

Prognosis

Some valuable lessons as to prognosis may be drawn from this series of 103 private cases, where treatment could, in most instances, be more thoroughly and adequately adopted. They were all seen for the first time between February 27, 1902, and August 18, 1905. Many of them were under treatment for a considerable time, and I have traced the result in all those where it was possible (Table I above). In 14 cases the result was unknown, either because the patient passed from under my care or could not be traced; they may or may not have been cured or relieved. In 2 the treatment advised was not carried out. Of the remaining 87 cases in which the treatment advised was carried out and the result known 51 (*49·5 per cent.*) were cured, 32 (*31 per cent.*) were notably relieved, and 4 (*3·9 per cent.*) were neither

cured nor relieved. Two of the 51 cases relapsed some time later to my knowledge, and some of the others may have relapsed or may hereafter relapse, without my knowledge, but they all returned to work and became, to all intents and purposes, well. On the other hand, of the 32 cases classed as notably relieved, some may have subsequently recovered; in some their complete relief was prevented by their environment, in others by the confirmed establishment of the disease, and in others by the incurability of the cause.

The recovery of *half* the cases in this series and the relief of nearly *one-third* is a somewhat striking fact, but I have gone carefully through my notes several times These figures form a sufficient refutation of the statement which some make that neurasthenia is essentially an incurable condition. The more I see of neurasthenia the more I am persuaded, first, that neurasthenia is capable of cure or amelioration in a large proportion of instances, and secondly, that its curability depends upon two chief factors—(1) the discovery of its cause, and (2) the possibility of applying adequate means for the removal of the cause. It is often extremely difficult to detect the chief cause in operation. The most thorough and painstaking investigation, based on a wide knowledge of general medicine, is called for, as a list of the etiological groups above mentioned will show. For success a case must be repeatedly investigated, all the various possible causes considered, and their relative importance carefully weighed.

But if the discovery of the cause is difficult the possibility of adopting adequate means for its cure is often still more so. For successful treatment one has to gain

and retain the confidence of a most vacillating patient, and one has to carefully gauge the human and individual factor of each case. Of all the patients with whom I become acquainted neurasthenics are the most trying. A prolonged course of treatment which alters the whole mode of life of the patient is often necessary. This may be quite beyond the means or the wishes of the ordinary individual, who has perhaps already tried many "cures" and lost his faith in "doctors"; who has established, through a long course of time, a confirmed and vicious condition of the nervous system; and who is apt to question the necessity of abandoning old habits for the remote cure of a disease which, however chronic and however inconvenient and incapacitating, is regarded by him as non-fatal.

There are, of course, other factors in the prognosis of neurasthenia which have to be considered. The previous duration is one of these, and I am accustomed to tell the patient that the treatment required will probably need at least as many months to relieve as the years through which it has lasted. But there are certainly some cases which, by their long duration, it is impossible to cure even when the cause is removable. The question of age is also a factor in prognosis, and undoubtedly after fifty it is often impossible to completely restore health, especially where the malady has arisen, as we have seen that it often does, between twenty and thirty years of age.

A history of nervous heredity also adds greatly to the gravity of the prognosis and the difficulty of cure, particularly in cerebral neurasthenia. In such cases the delusions and other mental symptoms are very apt to become persistent, and the patient gradually drifts into

chronic insanity. Changing delusions are not uncommon even in favourable cases, but the persistence of any one delusion, and especially a delusion of persecution or being followed, is very grave, and so also are hallucinations of hearing and sight. A nervous heredity is also unfavourable in cerebro-spinal neurasthenia and hystero-neurasthenia. It is always difficult, but in my view not impossible, to eradicate neurasthenia from a person who is born nervous.

ADDENDUM

VIEWS OF AUTHORS ON THE NATURE OF NEURASTHENIA. BIBLIOGRAPHY.

By Agnes F. Savill, M.A., M.D.

Summary:—*Various terms which have been applied to a condition resembling neurasthenia.—Views of Beard and other authors as to the nature of neurasthenia.—Traumatic neurasthenia, views of authors as to its nature and origin.—Bibliography.*

Throughout medical literature from the time of Galen, we find endeavours to describe certain nervous troubles which, distinct even from the milder forms of hysteria and insanity, yet by their fleeting nature eluded positive definition. Cases presenting many of the features of neurasthenia have at different times been described under the following names: Affections vaporeuses (Panum), hystéricisme (Louzer-Villemay), nevrose protéiforme (Cerise), nervous debility, nervous hyper-excitation, nervous fever, general hyperæsthesia (Monneret), general neuralgia (Valleix), depressive form of spinal irritation (Rosenthal), neuro-spasmia (Brachet), nervosism (Bouchut), nervous state (Sandras), nervous malady (Brochin), nervous wasting, cerebro-cardiac neuropathy (Krishaber), cerebro-gastric disease (Leven), acute cerebro-gastric neuropathy (Girard), nervous cachexia, maux de nerfs (Huchard), topoalgia (Blocq), rachialgia.

Beard of New York was the first, in 1868, to bring order into this chaos, by connecting these symptoms with one another, and grouping them under the name neurasthenia. In 1880 he published his views in book form, and under the name neurasthenia, or nervous exhaustion, he described and differentiated a condition which up to that time had been confused with other diseases, and referred to under a varying nomenclature. The primary factor in the causation of neurasthenia, in Beard's opinion, was Over-Civilisation. This disturbs the balance between nerve waste and repair, and results in a weakened and unstable nerve-force. With this weakened nerve-force comes excessive irritability, direct and reflex, local and general. The three chief centres of irritability are the brain, the digestive, and the reproductive systems. The various symptoms of neurasthenia are due to reflex irritation through the sensory, motor, and sympathetic or vaso-motor nerves. The cardio-vascular system, being so largely supplied by nerves, is the first to be acted upon by reflex irritation ; consequently, it is in a condition of abnormal instability, with a tendency to dilatation or local hyperæmia. In asthenopia, for example, there are distressing symptoms without any objective changes discoverable, other than a local hyperæmia. Beard considers it probable that local hyperæmia of the various parts of the body will account for all the symptoms in neurasthenia. Could we but examine them, we should find hyperæmia of the brain and membranes in the neurasthenic headache, of the cord in "irritable spine," and so on. As the same amount of local hyperæmia would, in a healthy person, give rise to no symptoms, he insists on the vaso-motor changes being subsequent to derangement of the central nervous system.

With regard to dyspepsia in neurasthenia, Beard says it may precede, accompany, or follow other neurasthenic symptoms. In those cases where it precedes other symptoms, Beard holds that the nerves governing the stomach are the first part of the nervous system to yield; just as, in another individual, the first to yield may be the spine or brain. In support of this view he claims that nervous dyspepsia can be diagnosed from the dyspepsias of local origin by its coming and going without cause, by the symptoms being worse when the stomach is empty, and by its recovery under drugs, such as bromides, which have no direct action upon the stomach.

In 1885 *Glénard* published an important work in which he attributed neurasthenia to a condition of Enteroptosis or prolapse of one or other of the abdominal viscera. He proposed a classification of the symptoms of neurasthenia into four groups:—(1) Asthenic, *e.g.*, debility and lassitude; (2) Mesogastric, *e.g.*, sensations of uneasiness, weight, dragging, craving, emptiness, etc.; (3) Gastric; (4) Nervous. The symptoms of the malady, he maintains, in all cases appear in that order, *i.e.*, asthenic, mesogastric, and nervous. In advanced cases gastric splashing, or evidences of prolapse of an organ, are readily elicited; but even in cases where physical examination reveals no abnormality Glénard asserted that the asthenic and mesogastric symptoms in neurasthenia pointed to a local origin—the former to laxity of the abdominal wall, the latter to prolapse of an abdominal organ. Because of its abdominal origin, neurasthenia never occurs without dyspeptic symptoms, either apparent or latent. A committee was appointed to investigate the matter; and in 1886 M. Féréol published a report which, while placing high value on the

researches of Glénard, adverted to the fact that there may be prolapse of the viscera without neurasthenic symptoms, and on the other hand, advanced neurasthenia without gastric symptoms. He came to the conclusion that Glénard was not justified in declaring Enteroptosis to be the more scientific definition of the condition known as neurasthenia.

Arndt (1885) held that in neurasthenics there was a defective development of the nervous system, and very frequently a concurrent defective condition of the blood. Under the term neurasthenia he includes almost every characteristic of the nervous temperament, from the discontented ambitious man to the man of genius, from the world-weary man of culture to the melancholic. As a critic in the Revue de Medicine (1887) expresses it, "Je pense que, pour Arndt, il n'y a que les stoiques, les impassibles qui ne soient pas neurastheniques." The primary factor in neurasthenia therefore, for Arndt, is an hereditarily degenerate nervous system.

Kowalewsky, basing his views on the physiological experiments in which nerve-cells showed coagulation necrosis and vacuolation after prolonged peripheral irritation, considered neurasthenia to be due primarily to overworked nerve-elements, with their consequent defective nutrition and auto-intoxication from an excessive katabolism and insufficient anabolism. A general malnutrition ensues from defective tissue oxygenation, and the altered blood still further injures the nerve-cells. Hereditary neurasthenia is due to poisoning of the nervous system by the ptomaines of hereditarily defective processes of metabolism.

Von Ziemssen, in 1887, defined neurasthenia as a functional debility, affecting part or all of the nervous

system, causing inefficiency of action in (1), the intellectual and psychical centres chiefly, or (2), the reflex and inhibitory centres, or (3), the paths of nervous conductivity. Certain nations show a wearing out of the intellectual energy; their young men become blasé, and lose enthusiasm and capability for work at an early age in comparison with those nations of more vigorous nerve power.

Charcot did for neurasthenia what he did for hysteria—pointed out its essential symptoms. More than once in his Leçons du Mardi (1887-89) he remarks that neurasthenia due to overtaxing of the brain very rarely occurs under the age of 15 to 17. A child, when fatigued, spontaneously ceases to work; but an adult forces his weary brain to continue. The morbid fears and melancholy so often accompanying neurasthenia are not essential features of the condition: they are found only in patients with a neurotic heredity. He further insists on the recognition of neurasthenia amongst the working-classes—"l'hérédité nerveuse n'est pas l'exclusif privilège des grands de la terre." With physical fatigue, poverty, and the constant anxiety to make both ends meet, one finds a combination which is as potent a factor in the production of nerve-exhaustion as the purely brain work of professional or business men. The dyspepsia associated with neurasthenia is merely one of the symptoms, not a cause, of the malady. Charcot admits, however, that "certain forms of gastric dilatation are capable of producing diverse nervous symptoms." [1]

Paul Blocq (1891) considers neurasthenia to be a cerebral weakness, a depression of intellectual energy,

[1] Leçons du Mardi à la Salpêtrière, 1887-8, p. 518.

which, in the cerebral type of the disease, renders the sufferer incapable of concentration. To this diminished power of the brain to regulate the rest of the nervous system can also be attributed all the other forms of the disease. Thus, in the spinal and sympathetic form, those functions which normally take place outside consciousness are no longer under cerebral control, and so give rise to the disagreeable sensations and pains which constitute the symptoms of neurasthenia. Local forms of neurasthenia may be explained as due to the abnormal prominence and persistence in consciousness of any sensation.

Mathieu (1892) considers neurasthenia to be due chiefly to hereditary predisposition, and overstrain of the central nervous system, by the various mental, moral, and physical causes present in highly civilised states. The neurasthenic person has usually a neurotic family history, which may be manifested in three directions, namely, (1) the cerebral type—genius, idiocy, etc.; (2) the neuropathic type—hysteria, chorea, epilepsy, etc.; and (3) the arthritic group—rheumatism, diabetes, and gout. The symptoms of neurasthenic dyspepsia are usually due to atony of the stomach and intestine; and half an hour or so after meals the abdomen becomes distended. The cardiac irregularity, sensations of fulness, and flushing of the face, are not symptoms of dyspepsia alone, but are due in great part to the pushing up of the diaphragm by the distended intestine. There may be constipation alternating with diarrhœa; in severe cases there may be mucous or membranous enteritis. Such symptoms are explained by the neuro-muscular weakness of the alimentary canal. Mathieu criticises the theory of *Bouchard*, that neurasthenia is due to auto-intoxication in cases of dilated stomach.

Bouchard's clinical methods of diagnosis he does not consider reliable. Again, Mathieu has seen many cases in which neurasthenia and dyspepsia came on simultaneously; but to prove auto-intoxication to be a cause of neurasthenia it would be necessary to prove that dyspepsia preceded neurasthenia. Mathieu admits, however, he is not in a position to prove that the dyspepsia does not occur first in some cases. On the other hand, cases with prolonged histories of gastric dilatation often exhibit no nervous symptoms.

Erb (1893) speaks of "the increasing nervousness of our times," of which neurasthenia is the most common form. There is a disturbance in the nutrition of the nerve elements, occurring more especially after mental overwork, emotional overstrain, or a combination of those two factors. In other cases only a physical cause is present; of such the chief are muscular over-exertion, sexual excesses, convalescence from fevers and influenza, and the abuse of alcohol, tea, or tobacco.

Löwenfeld (1893) considered that the conditions of physiological fatigue must be be better understood before we can satisfactorily explain neurasthenia. In health the nerve-tissues are repaired during sleep; but in neurasthenia the balance is not made up during sleep. The condition of the brain being so dependent on its blood-supply, as evidenced by the exhaustion or even unconsciousness consequent on hunger or hæmorrhage, it is possible that a chronic cerebral exhaustion is due to a defective development of the cerebral vessels.

In the "Traité de Médicine," a work which in France corresponds to the "System of Medicine" edited by Clifford Allbutt in England, there is given in the 1905

edition a summary and criticism of the views prevalent in France to-day regarding the pathology of neurasthenia.

1. The teaching of Bouchard, that all the symptoms of neurasthenia were found in cases of gastric dilatation and auto-intoxication, has received wide acceptance, notwithstanding the fact that many cases with gastric dilatation present no neurasthenic symptoms, and that many neurasthenics have no gastric symptoms. "These objections suffice to show that the theory of gastric dilatation and auto-intoxication is not applicable to the majority of cases of neurasthenia."

2. "The theory of M. Glénard, who explains by *ptosis* of the abdominal viscera . . . the neuropathic troubles he has observed in his patients, can no longer be accepted, because enteroptosis is absent in a large number of neurasthenics. Besides, M. Glénard himself recognises that the neuropathic syndrome that he has had in mind is not neurasthenia as it has been defined and described by Beard and Charcot." [1]

3. The determining causes of neurasthenia are so diverse—digestive or genito-urinary disturbance, infectious disease, grief, overwork—that it would appear that a certain inherent quality in the nervous centres, hereditary or congenital, is the necessary and primordial condition for the development of neurasthenia.

The term **Traumatic Neurosis** is employed to express any functional nervous condition arising after an accident. The three forms usually met with are hysteria, neurasthenia, and hystero-neurasthenia. In Charcot's experience

[1] See the note of Glénard, quoted by Mathieu in his monograph on Neurasthenia, p. 155.

the last-named was the most frequent; Löwenfeld in Germany found neurasthenia more common, and was the first to show that Traumatic Neurasthenia differed in no way, excepting in its cause, from the recognised form of neurasthenia. Various opinions are held as to the origin of Traumatic Neurasthenia; some ascribing its origin chiefly to the mental, others to the physical, effects of the accident.

Charcot considered the mental factor the more important; the accident was merely an exciting cause in an individual already predisposed to nervous disturbance. Hence in different persons neurasthenia, hysteria, epilepsy, chorea, or even paralysis agitans may develop after traumatism.

Erichsen argues that, although the pathology of the primary effects of railway accidents is uncertain, the secondary effects are of an inflammatory character, because of their correspondence with those symptoms known to be due to chronic meningitis and subacute myelitis of the cord. His arguments are severely criticised by *Page*, who considers that the cord is so thoroughly protected that it is very rarely injured. He suggests that in the severer cases the general lowering of health consequent on an accident may permit the more rapid development of a pathological process, already started, that would otherwise have remained latent.

Von Ziemssen's Cyclopædia concludes a summary of the various theories by stating the most probable one to be that "which supposes only molecular changes in the finer nerve-elements to have occurred, giving rise either to an immediate and complete functional paralysis of the latter, or forming the commencement of further disturbances of

nutrition, which at a later time may result in degenerative inflammation." [1]

Vibert, who had a wide experience in accidents, considers too much stress has been laid on the mental effect of terror. It is true that in highly neurotic persons trifling injuries may be followed by grave symptoms; but in such cases there is probably a predisposition to nervous derangement. It is equally true that in other cases persons who have been greatly terrified develop no neurasthenic symptoms; and, on the other hand, those who do develop such symptoms have often shown no terror at the time of the accident. Moreover, how comes it that neurasthenia is developed so commonly after explosions, carriage, or railway accidents, and so rarely after other classes of accidents (such as knife injuries, attempted strangulations, etc.), equally productive of terror? This admits of a ready explanation when we remember that in the former class of accidents there is often serious "commotion" of the nervous system; and on closer examination we find those are the worst cases in which there is a history of blows upon the head or spine. Thus a "commotion" not sufficient to cause a gross lesion may yet be sufficient to cause a molecular disturbance with symptoms of a "traumatic neurasthenia."

A LIST OF THE MORE IMPORTANT CONTRIBUTIONS ON NEURASTHENIA.

Beard	Boston Med. and Surg. Review ...	April,	1869
Krishaber	De la névropathie cérébro-cardiaque		1873
Conrand	De la névropathie cérébro-cardiaque		1873
Peter	De la névropathie cérébro-cardiaque (Trousseau clinique)		1874
Arndt	Uber Neuropatische diathese (Berl. Klin. Woch.)		1875

[1] Ziemssen's Cyclopædia, vol. xiii., Eng. Trans.

Beard	Certain Symptoms of Neurasthenia (Virginia M. Month., Richmond)	1878
Rosenthal	Forme dépressive de l'irritation spinale (Traité clinique des maladies du système nerveux)	1878
Brochin	Art. maladies nerveuses du Dict. Encyl. des Sci. Med.	1878
Beard	Neurasthenia as a cause of Inebriety (Quart. J. Inebr., Hartford)	1879
Beard	Other Symptoms of Neurasthenia (Chic. Journ. Ment. and Nerv. Dis.)	1879
Beard	Cases of Neurasthenia (St. Louis Med. and Surg. Journ.)	1879
Dowse	On Neurasthenia and its treatment (Proc. Med. Soc., London)	1879-81
Beard	The nature and diagnosis of Neurasthenia (New York Med. Journ.)	1879
Möbius	Ueber Neurasthenia Cerebralis (Memorabilien Heibr.)	1879
Jewell	Varieties and causes of Neurasthenia (Journ. Ment. and Nerv. Dis., Chicago)	1880
Weir-Mitchell ...	Neurasthenia, Hysteria, and their treatment (Chicago Med. Gazette)	1880
Beard	Neurasthenia (New York)	1880
Beard	Neurasthenia, with cases of sexual neurasthenia (Maryland Med. Journ., Balt.)	1880
Beard	The Symptoms of Sexual Neurasthenia (Independ. Pract., Balt.)	1880
Beard	The sequences of Neurasthenia (Alienist and Neurologist, St. Louis)	1880
Beard	The Traumatic Neurasthenia (N. Eng. M. Month., Newton, Conn.)	1881
Huchard	De la Neurasthénie (Union Méd., Paris) ...	1882
Playfair	Systematic Treatment of Aggravated Hysteria and certain allied forms of Neurasthenia (Brit. Med. Journ.)	1882
Weir-Mitchell ...	Fat and Blood (with treatment of Neurasthenia)	1883
Landouzy	Progrès Medical ... ... Sept.,	1883
Möbius	Zur lehre von der Neurasthenie (Centralbl. für. Nervenkr., Leipzig, vi.)	1883
Axenfeld and Huchard	Traité des névroses	1883
C. Allbutt	Visceral Neuroses	1884
Le Gros Clark ...	Remarks on Nervous Exhaustion and on Vaso-motor action (Journ. of Anat. and Physiol., London)	1883-4
F. Richter	Die Neurasthenie und Hysterie (Deut. Med. Ztg., Berlin)	1884, i.
Ewald	Die Neurasthenia Dyspeptica (Berlin Klin. Woch.)	1884
Jahn	Ueber Behandlung von Neurasthenien (Deuts. Med. Zeit., Berlin, ii.)	1885
Kowalewski	Neurastenija i patophobija (Archiv. Psych. Charkon, vi., pt. 3. *Also*—Centralbl. f. Nervenh., Leipzig, 1887, x.)	1885

P. Berger	Die Nervenschwäche (Neurasthenie); ihre Wesen, ihre Ursachen und Behandlung—(Berlin) ... ... 1885 and	1886
Strahan	Puzzling Heart Conditions dependent on Neurasthenia (Brit. Med. Journal)	1885
Arndt	Die Neurasthenie, etc. (Berlin)	1885
Glénard	Application de la méthode naturelle à l'analyse de la dyspepsie nerveuse. De l'entéroptose (Lyon Médical)	1885
Glénard	Soc. Méd. des Hôpitaux ... ... Dec.,	1886
Glénard	L'entéroptose (Sémaine Médicale) ... May,	1886
Howell	On Some Conditions of Neurasthenia (London)	1886
Playfair	Observations on what is called Neurasthenia (Brit. Med. Journal)... ... ... Nov.,	1886
Rosenbach	Neurasthenia Vasomotoria (Breslau Artzl Zeitsch.)	1886
Sir A. Clarke... ...	Some Observations on what is called Neurasthenia (Lancet) ... ... Jan.,	1886
Grasset	Traité pratique des maladies du système nerveux	1886
Howell	On some further conditions of Neurasthenia (London)	1887
Lafosse	Étude clinique sur la céphalée neurasthénique (Thèse de Paris)	1887
Löwenfeld	Die moderne Behandlung der Nervenschwäche (neurasthenie) der Hysterie und Verwandter Leiden (Wiesbaden)	1887
Von Ziemssen ...	Die Neurasthenie und ihre Behandlung (Leipzig)	1887
Kraft-Ebing	Wien Med. Presse, No. 5, p. 161	1887
Ziemssen	Neurasthenia and its treatment (Klin. Wort., *translated* New Syd. Soc., 1894)	1887
Glénard	Un cas de Neurasthénie gastrique (Province méd., Lyon)	1887
Lemoinne	Path. et Traitement de la Neurasthénie (Ann. méd.-psychol.) ... ... Sept.,	1888
Berger...	Die Nervenschwäche, ihre Ursachen und Behandlung	1888
Rockwell	Neurasthenia and Lithæmia: their differential diagnosis (New York Med. Journ.) ...	1888
Mathieu	Prog. Méd. ... ... July,	1888
Wilhelm	La neurasthenie, sa marche et sa guérison ...	1889
Trastour	Les déséquilibrés du ventre (gastro-entéroptose neurasthénie)	1889
Bordaries	Contribution à l'étude de la neurasthénie ...	1890
Monier	Des troubles gastriques dans la neurasthénie (Thèse de Paris)	1890
Blanc Champagne ...	Étude pathogénique et thérapeutique sur la dilatation de l'estomac et sur son influence dans la neurasthénie (Thèse de Paris) ...	1890
Loh	Die Neurasthenie und ihre Behandlung (Wiesbaden)	1890
Charcot	Leçons du Mardi à la Salpêtrière ...	1888-90
Levillain	La neurasthénie...	1891
Bouveret	La Neurasthénie (Paris), 2nd edit.	1891

A. Clausse	Contribution à l'étude de la neurasthénie (Paris)	1891
Paul Blocq	Neurasthénie Monosymptomatique (Gaz. Hebd. de Méd. et de Chir.) ... May and June,	1891
Régis	Les neurasthénies psychiques (Journ. de Méd., Bordeaux)	1891
P. Brauns	Die Neurasthenie, etc. (Wiesbaden)	1891
Grasset	Quelque cas d'hysterie male et de neurasthénie (Montpellier Medical) ... May and June,	1891
Blocq	Neurasthenia (Translation)—Brain, vol. xiv.	1891
T. S. Dowse	On brain and nerve exhaustion, etc. (London)	1892
Pitres	Sem. Med. p. 400 (Paris)	1892
E. Emmel	Neurasthenie, etc. (Freiwaldau)	1892
C. Paul	Traitement de la neurasthénie par la transfusion nerveuse (Bull. Acad. de Méd., Paris)	1892
Goodhart	Common neuroses (London)	1892
A. Mathieu	Neurasthénie (Paris)	1892
P. Weill	Des neurasthénies locales (Nancy)	1892
Kowalewsky	Centralbl. f. Nervenh. u. Psychiat., Coblenz and Leipz., n. F., iv., 113	1893
Hösslin, etc.	Handbuch der neurasthenie (Leipzig) ...	1893
R. Saundby	Clin. J., London, i., 49	1892-3
Robinson	Electro-therapeutics of Neurasthenia (Detroit)	1893
Lefèvre	Les neurasthénies d'origine toxique (Ann. de Psych. et d'hypnol., Paris)	1893
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Hedley	The Insomnia of neurasthenia (Lancet) June,	1893
Löwenfeld	Pathologie und Therapie der Neurasthenie und Hysterie (Wiesbaden)	1893
Vigoureux	Neurasthénie et Arthritisme (Paris)	1893
Dercum	Treatment of Neurasthenia (Therap. Gaz. Detroit)	1893
Evans	Neurasthenia treated with Nerve Extract (Brit. Med. Journ., ii.)	1893
Ballet	Sem. Méd. (Paris)	1893
Rauzier	Sem. Méd. (Paris)	1893
C. Paul	Bull. gén. de thérap., etc. (Paris)	1893
F. Boissier	Essai sur la neurasthénie, etc. (Paris) ...	1894
Ausset	Gaz. hebd. de méd. (Paris)	1894
R. Browne	Neurasthenia and its treatment by hypodermic transfusions (London)	1894
Kothe	Das Wesen und die Behandlung der neurasthenie (Jena)	1894
A. Hally	Contribution à l'étude de la cephalée des Neurasthéniques (Nancy)	1894
Dejérine	Compt. rend. Soc. de Biol. (Paris)	1894
Discussion	Brit. Med. Journ., ii.	1894
Mesnard	Gaz. hebd. d. sci. méd. de Bordeaux, 8v., 556	1894
(also)	Ann. de la Policlin de Bordeaux, iii., 110, 215	1893-4
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Rockwell	Internat. Clin., Phila., 4. s. iii., 151	1894
J. Grandclément ...	Essai sur la Neurasthénie (Lyon)	1894
C. Darroux	Des rapports de la Neurasthénie avec l'artério-sclérose (Bordeaux)	1895

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Sweeney	Relation of intestinal irritation and absorption to neurasthenia (North-west. Lancet, St. Paul, xvi., 46)	1896
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G. Herschel	Med. Times and Hosp. Gaz., London, xxiv....	1896
F. Levillain	Essais de neurologie clinique (Paris)... ...	1896
J. M. Bernuchon ...	Contribution à l'étude des hémorrhagies muqueses dans la neurasthénie (Bordeaux) ...	1896
Hilty	Ueber Neurasthenie (Bern.)	1897
A. Vial	Dégénérescence mentale et Neurasthénie (Lyon)...	1897
Ausset...	Des Hémorrhages dans la Neurasthénie (Rev. de Méd., Paris)	1897
Giles de la Tourette ...	Revision nosographique des états neurasthéniques (Sem. Méd., Paris)	1898
Morel-Lavallée ...	Neurasthénie : psychose et dermatose vicariantes (J. de Méd. de Paris)...	1898
Höffmayer	Deutsch. Archiv. für Klin. med.	1899
F. S. Pearce	Penna. Med. Journ. ... ... April,	1900
Bardet...	Soc. de thérap. ... ...Dec. 12,	1900
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Ingelrans	L'écho méd. du nord. ... ... June 3,	1900
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Allen Starr	New York Med. Rec. ... ... March 11,	1901
de Fleury	Des grands symptomes neurasthéniques (Paris)	1901
Kuss	Le Bulletin medical ... ... Jan. 9,	1901
P. Joire	Nord. méd. ... ... April 25,	1902
W. Walker	Phil. Med. Journ. ... ...Nov. 22,	1902
Albert Robin... ...	Rev. de thérap. méd. chir.	1903
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L. Cappellatti ...	La Neurasthenie (Milan)	1904
S. J. Sharkey... ...	Brain	1904
R. T. Edes	International Clinics, vol. i.	1904
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Higier...	Neurol. Centralbl. ... ... March 16,	1904
R. T. Edes	International Clinics, vol. ii.	1905
Mitchell Clarke ...	Hysteria and Neurasthenia (London) ...	1905
David Drummond ...	British Medical Journal ... ... July 7,	1906

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Erichsen	Concussion of the Spine, Nervous Shock (London)	1882
Von Ziemssen... ...	Cyclopædia, vol. xiii., Eng. Translation ...	
Herbert Page... ...	Abuse of Potassium Bromide in treatment of Traumatic Neurasthenia (Med. Times and Gazette, London)	1885
Page	Injuries of the Spine and Spinal Cord (London)	1885
Oppenheim	Die traumatischen Neurosen (Berlin) ...	1889
Charcot	Leçons du Mardi	1888-90

Schultze	Ueber Neurosen nach Trauma (Samml. Klin. Vort.)		1891
Hoffmann	Die traumatische Neurose (Samml. Klin. Vort., n. F., Leipz.)...		1891
Oppenheimer... ...	Die traumatischen Neurosen (Berlin) ...		1891
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Vibert	La névrose traumatique		1893
Strümpell	New Syd. Soc. Translation		1894
Horsley	The Clinical Journal	March 4,	1896
Vitek	Casopis lekaru ceskisch...		1899
J. H. Lloyd	Journ. Amer. Med. Assoc. ...	Sept. 22,	1900
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Corner...	The Clinical Journal	Feb. 7,	1906

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