at some length. We do not find the arguments which the author employs to confute the hypothesis at all cogent.

In dealing with the genesis of imperative ideas considerable stress is laid on the importance of emotional factors. One misses, however, any reference to the antecedent psychasthenic state which Janet considers an essential condition in the production of obsessions.

The author's views in respect to delusional states are of considerable interest, and repay careful study. He attaches paramount importance to the influence of the affective life in the production of insane ideas. All recent psychology tends to accentuate the importance of this factor in both normal and abnormal states of mind, and the older conception of a so-called primary intellectual disorder is now almost universally recognised as being contrary to all experience.

The whole book is abundantly illustrated by references to actual cases, a feature which considerably enhances the value of the conclusions which are drawn. It contains much that is original and suggestive, and brings together a number of observations which were previously isolated and scattered.

Possibly owing to the difficulties of translation, which are very considerable in a work of this type, one finds it at times difficult to follow some portions, and the style is somewhat pedantic.

Its many features of interest, however, render it worthy of careful study.

H. DEVINE.

Syphilis and the Nervous System [*Syphilis und Nervensystem*]. By Dr. MAX NONNE, Senior Physician to the General Hospital, Hamburg-Eppendorf. Second Edition, Revised and Enlarged. Pp. xviii—700. 8vo. Berlin: S. Karger, 1909.

The first edition of this work, based upon lectures delivered in 1899, 1900, and 1901, was published in November, 1901, and was reviewed in the *Journal of Mental Science* in the following year.

In the preface to the new edition, Nonne remarks that in the six years that have elapsed since the first publication of the book, numerous and important additions have been made to our knowledge of syphilis; and no small proportion of these relate especially to his chosen subject, syphilis and the nervous system. Since the new century began the *Spirochæte pallida* has been discovered; the same period has witnessed the utilisation of cyto-diagnostic methods and of the chemical examination of the cerebro-spinal fluid in cases of tabes, general paralysis, etc.; finally, within the last year or two, has come the application by Wassermann and Neisser of sero-diagnostic methods (*die Komplement-Ablenkungs-Methode*) to the diagnosis of syphilis. Various other matters in respect of which the new edition marks an advance in our knowledge will be mentioned in the course of this review. In the dedication of the work there is naturally no change. This edition is inscribed, like the first, to Wilhelm Erb; and it is an admirable tribute to one of the great founders of modern neurology.

The new edition contains 640 pages of text, in addition to an elaborate bibliography and indexes. There are nearly 100 illustrations

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and it is praise enough of these to say that they are worthy of the work. Printing and paper are alike excellent.

The book is divided into nineteen chapters, or lectures, all full of interest to the practising physician and to the pathologist, but not all, of course, of equal interest to the readers of this JOURNAL.

The first chapter is devoted to general considerations, to etiology, and diagnosis. Nonne first alludes to the general impression, which he shares, that syphilis is on the increase, but points out that in the absence of notification—for which in most countries public opinion is not, as regards venereal diseases, as yet ripe—scientific proof of such increase is unattainable. Apart from clinical experience, we have, as he well says, general grounds for believing that the disease is increasingly prevalent. It is propagated from individual to individual, that is to say, it is associated with human intercourse, and of late years, with increasing facilities, there has been an enormous increase in intercourse throughout the world; in the working classes, increasing economic pressure has led, in the female sex, to increasing prostitution, in the male sex, to increasing celibacy; large towns have grown enormously at the expense of the rural population; in most countries universal military service, enforcing garrison life on all young men, greatly increases the exposure to infection; and, finally, alcoholism, which at the same time increases the exposure to infection, and the liability of infection in those exposed to it, is also everywhere on the increase. The author then proceeds to discuss the manner in which modern conditions, more especially town life and the other effects of the industrial revolution, have, apart from syphilis, given rise to a general increase in nervous disorders—to a general debilitation of the nervous system—to the production of "nervous cripples." To bring these last considerations into relation with his particular theme, "Syphilis and the Nervous System," he writes:

"We may thus assume, *à priori*, that syphilis, as an ever more frequently acting noxious influence, exerts its effects upon a nervous system whose powers of resistance are increasingly diminished. You are aware that as long ago as 1858 Rudolph Virchow, in his classical researches regarding 'The Nature of Co nstitutional Syphilitic Affections,' came to the conclusion that syphilis worked its evil effects in the organism by preference upon a *locus minoris resistentiæ*, and you know that the subsequent study of the pathology and anatomy of visceral syphilis, rendered possible by Virchow's own pioneer investigations, has served only to confirm this doctrine."

Here, briefly stated, we have the theoretical grounds for a belief in the increase in the frequency of the syphilitic affections of the nervous system, which direct clinical experience enables us to detect.

After some statistical data relating to the frequency of syphilitic affections of the nervous system, from which it appears that in his own practice as a neurologist, syphilitic cases (*not* including tabes and paralytic dementia) make up from one to one and a half *per cent.* of all cases of nervous (and mental) disease. Nonne gives a sketch of the history of our knowledge of syphilis of the nervous system, which begins, of course, only at the end of the fifteenth century, at the time of the first appearance of syphilis in Europe. He then passes to con-

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sider the actual exciting cause of syphilis, our true knowledge of which dates only from 1904-5, from the date of the inoculation experiments on monkeys made by Metchnikoff, Roux, and Neisser, and the discovery by Schaudinn of the *Spirochæte pallida*. Although Koch's postulates have not in this case been satisfied, we can in most instances detect the spirochæte in syphilitic products, whilst in other morbid products it is not to be found; Nonne considers, therefore, that we may, in the present state of our knowledge, regard the spirochæte as the actual cause of syphilis. The probability that this is so borders on certainty. But as regards syphilis of the central nervous system in adults, the *Spirochæte pallida* has not yet been detected in the syphilitic products. In syphilitic disease of the nervous system in congenitally syphilitic fœtuses, on the other hand, the organism is present in overwhelming abundance. Examination of the cerebro-spinal fluid for the organism in cases of tabes and paralytic dementia has hitherto given negative results.

The latter part of the first chapter deals with the general principles of diagnosis in cases of syphilitic diseases of the nervous system. In view of the fact that in these diseases—except, as already mentioned, in the case of hereditarily syphilitic fœtuses—the *Spirochæte pallida* has not yet been found in the morbid products and has only been found in very exceptional instances in the cerebro-spinal fluid obtained by lumbar puncture, and since, further, every syphilitic manifestation of nervous disease can be simulated in non-syphilitic cases, the *history* of syphilitic infection is of great importance in every case. It must never be forgotten, in this connexion, that, altogether apart from the deliberate misstatements that are so common, the patient may be honestly unaware of the fact that he has suffered from syphilis. We must also remember that nervous disease occurring in a person known to have suffered from syphilis, is not *necessarily* itself syphilitic in nature. The probability of the nervous disease being syphilitic in such cases is, however, greatly increased by the co-existence of other unmistakable physical signs of syphilitic infection. Finally, the author considers that only a moderate weight attaches to the fact that a presumed syphilitic affection of the nervous system improves under "anti-syphilitic" treatment; and conversely, the failure of anti-syphilitic treatment must not lead us to infer that the patient's nervous trouble is not syphilitic in nature.

The second chapter deals with the pathological anatomy of syphilitic affections of the nervous system. In the first place there may be syphilitic disease of the spinal column or of the skull, the latter being much commoner than the former. Such bone disease may cause nervous affections in either of two ways, by pressure, or by extension of the syphilitic process. As regards syphilis primarily affecting the brain and spinal cord, there are three main varieties of syphilitic disease: first, syphilitic neoplasmata—syphiloma or gumma; secondly, chronic hyperplastic inflammatory changes; thirdly, syphilitic disease of the vessels. The consequences of syphilitic vascular disease are not specific in character; they are those which necessarily result from interference with or arrest of the nutrition of the tissue supplied by the diseased vessels. In practice, in cases of syphilitic disease of the nervous system, we very rarely find disease which can be placed in one

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only of the above categories; the lesions are a combination of all three pathological processes in various modes and degrees. In addition to these distinctively syphilitic affections, there are to be considered simple degenerative processes of manifold kinds, which on clinical grounds must be regarded as to a variable extent etiologically dependent upon a previous attack of syphilis, but which are not specifically syphilitic from the pathologico-anatomical standpoint; these typical and atypical parenchymatous degenerations are classed as post-syphilitic or meta-syphilitic (para-syphilitic) diseases. Apart altogether from the comparatively common para-syphilitic affections of the brain and spinal cord, respectively, paralytic dementia and tabes dorsalis, we meet from time to time with exceptional cases, in which the changes in the nervous system are not characteristically syphilitic—cases of encephalitis, softening, induration, sclerosis, and simple atrophy of nerve-nuclei—which we must regard as late effects of the syphilitic toxæmia.

A considerable portion of the third chapter is devoted to a discussion of the interesting question opened up more especially by cases of the kinds last mentioned, as to whether the syphilitic toxin has, in general, in certain predisposed individuals, or in certain conditions as yet unexplained, a specially poisonous influence upon the nervous tissues—similar to the affinity of lead for the motor tracts, or that of ergotin for the posterior columns of the cord. Is there a *lues nervosa*, a *syphilis à virus nerveux?* A number of considerations incline us to answer this question in the affirmative, and perhaps the most striking of these is the occurrence of tabes and tabo-paralysis in infants and young children, whose parents have had syphilis but have themselves remained free from post-syphilitic affections of the nervous system. Nonne discusses the objections that have been urged against this view, and dismisses them as inadequate. But he admits that much more information is needed before the theory can be accepted as proved. With regard to the affinity of the syphilitic virus for nerve tissue, he quotes a striking observation from Ehrmann, who has recently been endeavouring to ascertain the route by which the syphilitic virus becomes systematised in cases of Hunterian chancre of the prepuce. In two such cases, in the cutaneous nerves of the part, Ehrmann found spirochæte in great numbers, and this not in the perineurium only, but actually interspersed among the nerve fibres. Fig. 27 of the work under review is from a preparation of Ehrmann's showing this remarkable discovery. It raises interesting speculations as to the possibility of an ascending syphilitic neuritis, and as to analogies with leprosy, hydrophobia, etc. The analogies between the reputed lues nervosa and lepra nervorum ("anæsthetic leprosy") are discussed by Nonne at considerable length. While he admits that the whole question of lues nervosa is still *sub judice*, the space given to the question in this edition as compared to that given in the first edition of *Syphilis and the Nervous System* indicates how the doctrine is gaining ground.

Space will not permit any discussion of the 4th, 5th, 6th, and 7th chapters of the work, and we pass to consider the 8th chapter, which deals with "Psychoses and Neuroses in Syphilitics, and in those affected with Syphilitic Brain Disease." This chapter opens with the words—

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"In our discussion of the subject of 'brain-syphilis' especial attention must be paid to *psychical* disturbances; first, because in true brain-syphilis manifold and frequent disorders of intellectual activity occur; secondly, because even in the absence of gross organic changes in the brain we observe in syphilitic patients, and in association with syphilis, various mental disturbances both typical and atypical; and thirdly, because in the great majority of instances paralytic dementia, a disease of overwhelming practical importance, is to be regarded as a post-syphilitic disease of the brain."

This passage gives the keynote of Nonne's treatment of the subject under discussion. In works on mental disorder syphilis often comes under consideration; the alienist has to deal with this disease from the alienist's point of view, as it affects the etiology, pathology, diagnosis, and therapy of the insanities. But here it is from the standpoint of the syphilologist that we have to consider syphilis in relation to mental disorder.

There are five ways in which syphilitic infection may lead to disturbance of the intellectual functions; first, it may lead to nutritive disturbances by causing changes in the composition of the blood; secondly, it may lead to nutritive disturbances by inducing changes in the bloodvessels; thirdly, the toxin or toxins produced during syphilis may have a directly deleterous effect upon the nerve-elements themselves; fourthly, psychical causes connected with the syphilitic infection (syphilobia, etc.) may lead to disorder of the intellect, and the influence of these psychical causes is likely to be more potent in individuals in whom the brain has already been damaged in one of the three ways first enumerated; fifthly, we have to take into account the possibility of psychical disturbance resulting from the deleterious effect upon the nutrition of the brain of the remedies used to combat the syphilitic infection, more particularly mercury and iodide of potassium. As with mental disorder in general, so also in respect of insanity following syphilitic infection, it is inaccurate to speak of a single cause; the etiology of insanity is always complex. Changes in the blood itself, changes in the bloodvessels, the psychical trauma to which in many persons the idea of syphilitic infection gives rise, the hypothetical nerve-toxin inducing "*syphilis à virus nerveux*," and the varying individual susceptibility to disturbance of brain function by mercury and the iodides—all these influences may co-operate in varying proportions to produce mental disorder. And obviously, in every case, other factors of insanity—anxiety, sorrow, alcoholism, hereditary predisposition—may all play their part, in addition to the directly evil influences resulting from syphilitic infection.

From these preliminary considerations Nonne passes to deal with the different forms of disorder of cerebral function which may result from syphilis. These are the following:

1. *Simple nervousness.*—Not infrequently do we find that after infection with syphilis persons previously healthy exhibit signs of general nervous disorder; impaired sleep, heightened nervous irritability, diminished power of clear thought and of attention, etc. It is of practical importance to note that such symptoms, occurring in those who have been infected with syphilis, in the absence of definite mani-

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festations of that disease, often yield to a course of anti-syphilitic treatment.

2. *Cerebral neurasthenia.*—Here also it is seldom that a single cause is operative. Nutritive disturbances, alcoholism, hereditarily diminished powers of resistance, etc., combine with the syphilitic virus to give rise to cerebral neurasthenia.

3. *Hysteria.*—Charcot was one of the first to lay stress on the fact that the virus of syphilis ranks with other poisons, such as alcohol, lead, and arsenic, among the "*agents provocateurs*" of hysteria. But before we can infer with any confidence that hysterical manifestations are due to syphilitic infection, we must first satisfy ourselves that the patient was free from such symptoms prior to the infection; and secondly, that improvement or cure follows anti-syphilitic medication.

4. *Chorea.*—Here the same conditions must be fulfilled; and chorea is, in fact, a rare result of syphilitic infection.

5. *Epilepsy*, on the other hand, is intimately related to syphilis. If we exclude from consideration, first, symptomatic epilepsy, the result of severe syphilitic organic brain disease; and secondly, the eclamptic seizures which occur as manifestations of paralytic dementia, we encounter in addition to these a number of cases which symptomatically may be indistinguishable from ordinary "idiopathic epilepsy," but which are, in fact, the result of syphilis. This "parasyphilitic" epilepsy ranks with tabes and paralytic dementia among the manifestations of the degenerative effects of the syphilitic virus on the nervous system; they are forms of "lues nervosa." These three diseases do not belong to the chapter of true syphilitic organic disease of the central nervous system; it is not by pathological anatomy that their dependence upon syphilis is shown. The relationship is proved rather by etiological and clinical considerations. An obvious objection to this doctrine is that inasmuch as syphilis and epilepsy are both common diseases, it is only to be expected that they should sometimes occur in the same individual. But cases of epilepsy following syphilis, cases in which inheritance, psychical trauma, head injury, alcoholism, and every other known cause of epilepsy can be excluded, are sufficiently common to provide an answer to this objection. Moreover, these cases occur at a time of life at which "idiopathic" epilepsy very rarely begins. Unfortunately this parasyphilitic epilepsy shares with tabes and paralytic dementia the characteristic of being refractory to anti-syphilitic therapy. Still, these measures should always be tried, and in exceptional cases will be found successful. The symptomatology of this parasyphilitic epilepsy resembles that of "idiopathic epilepsy" rather than that of "cortical (Jacksonian) epilepsy."

6. *Hypochondriasis.*—The simplest cases are those of a pronounced syphilophobia, the details being coloured by the perusal of quack treatises or genuine medical works. Medical men suffering from syphilis are often affected by such syphilophobia. The hypochondriacal cases are sometimes complicated by fixed delusions, passing into cases of hypochrondriacal paranoia.

7. *Melancholia.*—There is no characteristic syphilitic melancholia; but melancholia resulting from syphilitic infection often yields quickly to anti-syphilitic medication. Here, however, we must avoid hasty

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conclusions, remembering that the tendency of melancholia in all cases is to spontaneous remission. Moreover, melancholia occuring in the degenerative period of life must not readily be supposed to depend on syphilitic infection.

8. *Mania.*—It is unquestionable that pure mania may occur in persons who have had syphilis, but who are at the time free from other symptoms of syphilis, in the absence of psychopathic hereditary taint and of any history of previous attacks of mania; but mania may also result from organic syphilitic disease of the brain.

9. *Alternating Insanity or Manic-depressive Insanity* may also occur in syphilitics and in cases of brain-syphilis.

10. *Paranoia.*—The same applies to this form of insanity. The occurrence of hypochondriacal paranoia in syphilitics has already been mentioned.

11. *Amentia* may occur in syphilitics, with or without syphilitic brain disease.

12. *Dementia.*—This is the commonest form of mental disorder met with in persons who have suffered from syphilis. It may arise in various ways. Frequently it is the terminal stage of hypochrondriasis, melancholia, mania, or paranoia. Some writers go so far as to say that for these psychoses to pass on into dementia is "characteristic of syphilitic psychoses"; this statement of the case is inaccurate, but there is no doubt that such a termination is extremely frequent. Dementia also results in many cases from diffuse syphilitic organic brain disease, affecting the meninges, the brain-tissue itself, or the cerebral blood-vessels. We also meet with a primary dementia in syphilitics, and these cases are often difficult to distinguish clinically from certain types of paralytic dementia. This primary dementia may be, and most commonly is, progressive; it may remain stationary, especially as a result of anti-syphilitic therapy; finally, recovery may occur, but it is in these cases extremely rare, and in most instances of the so-called "cure" of syphilitic primary dements, careful observation will enable us to detect persistent defects of intelligence. Primary syphilitic dementia either takes the form of simple intellectual weakness, or else manifests itself rather in the form of ethical defects—coarseness, brutality, mendacity, egoism, or tendency to alcoholism or extravagance.

It will have been seen that in his enumeration of the possible effects of syphilitic infection, Nonne has gone through the entire nosology of the disorders of the higher cerebral functions. And, in fact, in summing up this chapter of his work, he says that the question, "Are there specific syphilitic mental disorders, diagnosible as such from their symptomatology alone?" must be answered definitely in the negative. His own experience leads him to agree with all those who have made a special study of the relationships between syphilis and insanity, that there is no such thing as a specific syphilitic psychosis. On the other hand:

"From the diffuse clinical states dependent upon a general nutritive disturbance of the brain, and the various forms of simple psychoses with no known anatomical basis, to the psychoses arising from localised or diffuse organic diseases of the brain, . . . there is no form of psychical disorder which may not come under our observation as a result of syphilis."

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Thus we see that it is as true of psychiatry as it is of dermatology and of most other branches of medicine and surgery, that "syphilis is the great imitator," and that in deciding whether the particular disorder under observation is or is not due to syphilis, we must be guided, not by symptomatology alone, but by a comprehensive view of the history, the etiology, the pathology, and the subsequent course, of the case under review.

The ninth lecture is mainly devoted to a discussion of the important and interesting question regarding the relationship between syphilis and paralytic dementia. At the outset the author expresses his opinion that paralytic dementia is not a specific syphilitic disease of the brain; but, on the other hand, the relationships between the two diseases are manifold and intimate, and the question is one to which great attention is being paid at the present time. He regards it as definitely established that paralytic dementia has of late years become much more prevalent than formerly. Mortality statistics do not afford a trustworthy guide to the frequency of the disease, in the first place because the majority of paralytic dements die of complications of the primary disease, and secondly because a number of patients die without the true nature of the disease having been recognised. And this last happens more often than formerly because it is above all in the simple dementia form of "general paralysis of the insane" that the greatest increase has taken place. Two important additional clinical facts regarding paralytic dementia manifested during recent years are, first, the unmistakable tendency of the disease to appear at an earlier age than formerly, and secondly, the greater proportion of women that now suffer from the disease.

The causes of the increasing prevalence of paralytic dementia, and of the changes in the age-incidence and sex-incidence of the disease, are by some found in the increase in the influences unfavourable to the integrity of the nervous system which characterise our life to-day, among which the wider diffusion of alcoholism and the more eager pursuit of pleasure and self-indulgence are all-important; but others find in the increasing prevalence of syphilis an explanation of all the facts above mentioned.

Apart from statistical evidence as to the frequency with which general paralytics have suffered from syphilis, as to which very different reports are given by different observers, among the most important clinical facts showing a close relationship between the diseases in question are as follows:—General paralysis in children and young persons can almost invariably be shown to occur in congenital syphilitics, or to ensue upon syphilis acquired in infancy. As with tabes, so also with paralytic dementia, when these diseases occur at a more advanced age than is usual, it can in most instances be shown that the patient also acquired syphilis later in life than is common. In autopsies on general paralytics, obvious syphilitic brain disease is found in a considerable proportion of cases. General paralytics appear to be immune to syphilitic infection (von Krafft-Ebing), and as far as we know such immunity depends on a previous attack of syphilis. To these important considerations, a new one may now be super-added:

"The question as to the relationship between paralytic dementia and

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syphilis is nowadays intimately connected with the question of the lymphocytes and the globulin content of the cerebro-spinal fluid and also with that of the antigen reaction of the blood and the cerebro-spinal fluid (Neisser, Wassermann, and Plaut). In no other disease of the nervous system are pleocytosis, an increase in globulins, and the *Komplement-Ablenkungs-Reaktion* in the blood and the cerebro-spinal fluid, more regularly found than in cases of tabes and paralytic dementia, and this new clinical experience provides important evidence in favour of the syphilitic nature of paralytic dementia (and tabes)." (I may mention in passing that the papers of Ford Robertson and McRae on general paralysis and tabes dorsalis, published in the JOURNAL in July and October, 1907, do not appear to have come under the author's notice. The only reference in Nonne's book—a very brief one—to Robertson's work, on page 307, appears to be based on the latter's paper in the *British Medical Journal*, of June 29th, 1901.)

Nonne then passes to consider opposing views. Among German authorities disinclined to accept the doctrine that paralytic dementia is solely or even mainly due to previous syphilis, Näcke is one of the most vigorous. He bases his objections largely on the ground that sufficiently careful statistical investigations show neuropathic inheritance in a very large proportion of cases. Again, most experienced observers record cases of paralytic dementia in persons in whom they believe that previous syphilitic infection can be confidently excluded. Further, it must be admitted that pathological anatomy does not provide much support for the doctrine of the dependence of general paralysis upon syphilis. Finally, the failure of anti-syphilitic medication to do good in cases of paralytic dementia is considered by some to negative the idea of a connection between the two diseases. The counter-arguments to all these objections are so obvious that it is hardly necessary to dwell on them. The last objection applies equally, of course, to all the supposed "para-syphilitic" disorders; and, as Nonne points out, no one doubts the dependence of post-diphtheritic paralysis on the toxin of diphtheria, notwithstanding the fact that antitoxin is useless for the relief of this condition. It is certain, he concludes, that—

"Much depends upon the individual disposition of the brain. The organisation of the brain determines whether, after infection with syphilis, a man becomes neurasthenic merely, or prematurely arterio-sclerotic, or has a gumma in his brain, or becomes a paralytic dement . . . In fine, most authors conclude that syphilis is of preponderant importance to the development of paralytic dementia, but that the former is not a *conditio sine qua non* of the latter."

Nonne concludes his discussion of this question with an interesting account of Spielmeyer's work on the clinical and anatomical relationships between paralytic dementia and sleeping sickness, with especial reference to the close biological relationship between the *Spirochæte pallida* and the trypanosomes.

As regards the possibility of cure in cases of general paralysis of the insane, Nonne does not speak dogmatically, but he details a number of remarkable cases of which he says with truth that they would unhesitatingly have been diagnosed as paralytic dementia, had their termination proved unfavourable.

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The tenth, eleventh, and twelfth lectures deal with various affections of the spinal cord, which need not here be considered. Nor is it necessary to say much about the able discussion, in the thirteenth lecture, of the relationship between syphilis and tabes dorsalis, since the arguments are naturally a repetition, *mutatis mutandis*, of those we have already dealt with regarding paralytic dementia—for the clinical and statistical considerations are identical in the case of both these "para-syphilitic diseases," and further, Nonne definitely expresses the view, now so widely held, that tabes and general paralysis of the insane "are alike in their essential nature, and differ only in their localisation." Thus it is that just as general paralytics are immune to the experimental inoculation of syphilis, so "no one has ever come across a tabetic suffering from recent syphilis." The patients are immune in both instances, because they have had the disease before. Nonne, in fact, is inclined provisionally to accept the hypothesis, which in Germany was first advocated by Strümpell, that these para-syphilitic nervous affections are produced by a syphilitic toxin, which has an elective influence on particular regions or tracts of the cord and brain. It may be observed in passing that this theory does not conflict with the possible truth of the views of Ford Robertson and McRae, that the immediate cause of tabes and general paralysis is a toxin produced by certain "diphtheroid bacilli." We may suppose, either that previous syphilis paves the way for the growth of the diphtheroid bacilli, which are not as a rule able to flourish in those who have not suffered from syphilis; or we may assume, and this seems the more plausible view, that the hypothetical syphilitic toxin predisposes certain nerve-tracts or regions to degeneration, but that the toxin engendered by the diphtheroid bacilli is needed to complete the process. If we further suppose that in exceptional instances the toxin of the diphtheroid bacilli is competent, acting alone, to induce tabes or general paralysis, the cases in which these diseases occur without antecedent syphilis are explained. But much further investigation will be required before such hypotheses can be regarded as established. Before dismissing this subject, Nonne remarks, again following Strümpell, that those who deny that syphilis is the most important causal antecedent of tabes and general paralysis, should endeavour to find a country or a class of the population in which the latter diseases are prevalent although syphilis is rare or unknown! But if, as appears to be the case, general paralysis and tabes are on the increase especially in those communities in which the more undesirable characteristics of "modern" life are predominant, we have to accept the joint causation summed up by von Krafft-Ebing in the phrase "syphilisation and civilisation."

The fourteenth lecture discusses cerebro-spinal forms of syphilis; the fifteenth, syphilitic affections of the peripheral nerves; and the sixteenth, congental syphilis and the nervous system. It is remarkable to learn, from a reference in this last lecture (pp. 556–7) to the "nervous form of rickets," that Nonne appears to share the view, not uncommon on the Continent, that rickets is a manifestation of congenital syphilis. English authorities have never accepted this view. As Hutchinson says (*Syphilis*, p. 408), "The typical forms of rickets are constantly met with in conditions which do not lend the slightest support to the

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suggestion of syphilis"; and Cheadle remarks, "syphilis modifies rickets, it does not create it."

The sixteenth lecture is devoted to the question of treatment, whilst the two last lectures, the eighteenth and nineteenth, deal fully from the clinical, though not from the technological point of view, with cyto-diagnostic methods, to which during the last three years the author has given considerable personal attention. He considers the demonstration of a high degree of lymphocytosis of the cerebro-spinal fluid a most valuable addition to our means of diagnosis in early and doubtful cases of tabes and paralytic dementia.

In concluding this brief review of Nonne's exhaustive and interesting work on *Syphilis and the Nervous System*, I venture to express a hope that it will before long be translated into English.

M. EDEN PAUL.

Contributions to the Pathology of the Metabolism in the Psychoses; Second Part—Epilepsy [*Beiträge zur Pathologie des Stoffwechsels bei Psychosen; Zweiter Teil—Die Epilepsie*]. By Dr. MAX KAUFFMANN. Jena, 1908. Pp. 199, 8vo.

It is indeed difficult to group under one nosological term a symptom which has so many causes and so many endings, and is complicated with so many diseased conditions.

The author gives us in detail his studies in this disease, which are very thorough, entering into the whole pathology of epilepsy, and describing a number of cases.

He has made many careful examinations of the temperature and pulse, and the state of the urine and other excretions in epilepsy. He has found much increase of indican in the urine of epileptics, sometimes as much as one gramme daily. He does not think that this is produced through fermentation in the intestinal canal and favours the idea that the indican is increased under nervous influences.

Kauffman considers experiments on animals of little use towards explanation of the pathology of epilepsy, as the human brain is much readier to react to stimuli.

He has observed cases of genuine epilepsy where no lesions have been found after death, and thinks that the changes in the nerve-cells and fibres described by some pathologists follow long-continued attacks without having been causes. Like some previous neurologists he is disposed to assign to epileptics a primary constitutional weakness or convulsibility.

Most interesting are his observations on the states of the blood in the disease toxæmia and the production of autotoxins. His researches are mainly carried on by chemical examinations.

He finds no abnormalities by the microscopic examinations of the blood. Many of his observations and tables can scarcely be followed by the reader, but will be useful for those who make original researches in the same field.

Coming to therapeutics, Kauffmann considers that curative effects of bromine are only realised when a slight narcotic effect is produced.

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