The Diathesis of General Paralysis. By G. R. Wilson, M.B., C.M., Assistant Physician, Royal Edinburgh Asylum, Morningside, Edinburgh.

Ten years ago Mr. Jonathan Hutchinson said that the description of a fresh diathesis was almost as easy as the discovery of a new nerve centre or the revelation of a new bacterium. Yet no new diathesis, so far as I know, has since then become generally recognized in our special branch of medicine. To-day the neurotic diathesis stands as god-mother to a large family of diseases, and little has been done to differentiate their ætiology, or to trace their genealogy. On the contrary there seems to be a tendency to exaggerate the importance of environment in the ætiology of many of the diseases of the nervous system, and to ignore the hereditary factor. Especially is this the case with general paralysis. Excepting the writings of a few, a course of reading on the ætiology of general paralysis would incline one to believe that there is no evil under the sun—from syphilis to the cessation of lactation—that may not sufficiently account for the onset of that disease. It seems almost as if the observers had first tried to find an acknowledged *raison d'être*, and, failing in that, had adduced as "cause" anything in the recent history of the patient at all out of the common, or which had ranked as important in the estimation of his friends.

This paper is not meant to originate anything on its subject, but rather to put in a more definite form an induction hinted at by many authorities, and to assign to the two sets of ætiological factors what seems to be their proper importance. To say that syphilis is a cause of general paralysis seems to me as untrue as to say that exposure to cold causes acute rheumatism, or that a blow on the hip sufficiently accounts for morbus coxarius. My object is to emphasize the importance of the inherited tendencies of the individual, and to put forward some arguments in favour of the hypothesis that "general paralytics are born, not made." Perhaps we may advance to the recognition of a general paralytic diathesis—a structural proclivity to the disease, the inherited tendency of certain types of cerebral constitution. A glance at one or two of the most commonly assigned causes of general paralysis raises important questions seeming to demand some such solution.

Sexual excess is believed by many authorities to be a common cause of general paralysis. If that be so, what is it

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

that determines that sexual excess should be followed in some cases by neurasthenia only, in others by melancholia, and in comparatively few by general paralysis? And, again, why do confirmed masturbators almost never become general paralytics? In inveterate masturbation there is all the exhaustion of extreme sexual excess, and, in addition, the worry of a bad conscience and of a habit to be concealed. And the fact that masturbators become melancholic, maniacal, or delusional, but very rarely general paralytics, signifies surely that sexual excess and worry will not produce the disease unless the individual be of a peculiar diathesis. As a matter of fact it will be found that general paralytics, as a rule, have had too much self-respect and common-sense to become the victims of a sexual perversion, though not sufficient respect for society to be self-controlled.

With *alcoholic excess* the same question arises. Why should abuse of alcohol produce alcoholic insanity in one case and general paralysis in another? And, in both, is not the constitutional proclivity the important factor? One might learn something by inquiring from what manner of craving the two patients came to be alcoholic, the form of drinking preferred, and the action of the drug. It is very remarkable how many general paralytics have had alcoholic parents—as large a percentage, I believe, as of patients suffering from alcoholic insanity. Unfortunately the habits of half a century ago, in Scotland at all events, make one prepared for almost anything in the way of alcoholic parentage in the middle-aged patients of to-day in all kinds of insanity. But there are large differences in the relation of these two classes of patients to alcoholic excess. On inquiry we find that one class—those suffering from alcoholic insanity—have in many cases, like dipsomaniacs, become alcoholic in obedience to a congenital predisposition. They have had a cerebral mechanism with an "organic desire" for alcoholic stimulation which they have not had self-control enough to withstand. And there is also a peculiar liability to the immediate and remote cerebral effects of the stimulant. General paralytics, on the other hand, have, as a rule, no such congenital alcoholic predisposition. What craving they have is generally a craving acquired from previous excess—an excess which is often the outcome of more sane characteristics, such as strong social instincts and the love of good-fellowship. And the immediate effect of alcohol on their cerebral mechanism is also different, being very much the effect that it has on healthy brains, and not an unusual effect as in the case of

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

neurotic patients. These distinctions are not invariable. There are many mixed cases. For example, there are cases such as those reported by Magnam, in whom general paralysis followed chronic alcoholism after several attacks of alcoholic insanity, pointing to diathetic proclivities in two directions. But such cases are exceptional, and, on the whole, the contrast between the two classes of patients is strong enough to indicate a distinct difference in inherited liabilities.

Similarly we might criticise the ætiological importance of syphilis, sunstroke, worry, excitement, prolonged fatigue, and all the other "causes" of general paralysis. Their name is legion, and with each of them one may well ask if it is at all adequate to explain the disease.

Such a line of argument may be taken as a plea for a diathesis for almost any form of disease. The facts that make the case exceptional for general paralysis are the enormous number and variety of assigned causes and the absence of any assignable cause in some cases; the trifling nature of many of these causes compared with the fatally progressive nature of the disease, so that one wonders if such conditions can possibly be held to account for the overthrow of a human brain were it of anything like a normal constitution; and, lastly, the extreme rarity of the disease compared with the frequency with which we are all exposed to one or several of the acknowledged causes. In many cases one is bound to suspect that the assigned causes have had very little importance in the production of the disease—are accidents, not essentials. At all events, I think it will be admitted that we now know enough of the exciting causes of general paralysis to guard against them in any individual case if only we knew the kind of constitution likely to be attacked and the stock from which it springs. And it is in view of the possible prevention of the disease—the only hopeful treatment, as it seems at present—that it appears important to turn our attention from the immediate ætiology to learn something of the pedigree of the disease.

Another argument for the importance of the hereditary factor in general paralysis is the occurrence of the disease in very young subjects in whom the usual conditions for its development have not been fulfilled. Many cases of precocious general paralysis have been recorded, several of them about, or even before, the age of puberty. Within the last year two such cases, both of them girls, have been treated at Morningside, and have been recorded by Dr. Clouston as illustrating one of the "Neuroses of Development" in his Morisonian

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

lectures of last year (see "Edin. Med. Journal," also published separately). We commonly associate general paralysis with the age of mature intelligence, and with the complex mechanism of an adult cerebrum correspondent to a busy and responsible life, and reacting to heavy stresses. The interest of these young cases lies in the absence of these conditions. In most of them also there has been a marked deviation from what one usually regards as a typical symptomatic progress—a deviation to be expected as a manifestation of the disease in brains arrested in development. Nor do the accounts of the previous histories of these children contain, as a rule, any remarkable experience which might be held to account for the onset of the malady. Blows on the head, the worry incidental to parental discipline, the strain of reproductive development are stresses of universal experience; and we turn, therefore, to a study of the inherited tendencies in such cases to find the explanation of their occurrence.

But the most conclusive argument for a general paralytic diathesis comes from a fairly large class of cases in which the disease is manifestly a family affair. We have had several cases of the kind at Morningside.

Within recent years two brothers have been treated at Morningside, both of them, undoubtedly, suffering from general paralysis. Their father was alcoholic and died from cerebral apoplexy; their mother, a highly educated woman of violent temper, was also alcoholic, and had to be placed in a home for inebriates. In one of them the disease was attributed to sunstroke. They were men of good physique, keen, ambitious, and passionate, both of them alcoholic and one at least excessively sexual. They followed the same occupation —a very trying and exciting kind of life—and were conspicuously successful. And both of them broke down under general paralysis between the ages of 40 and 45.

The case of A. B., who recently died here, is another case in point. He came of a stock in which there have been numerous breakdowns from neuroses of the higher levels. His father was a shrewd, steady, successful business man, his mother an energetic, pious housewife. He had a full cousin by both sides, who, I believe, died in the Crichton Institution, Dumfries. The fathers were not strikingly alike, but the resemblance between the mothers was a matter of general remark. Almost exactly at the same age a busy, immoral life culminated in both of these men in the onset of general paralysis.

And, lastly, there is the remarkable case recorded by Dr.

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

Savage and Dr. Clouston of general paralysis occurring in twin brothers. In his text-book of mental diseases Dr. Clouston gives the following account of their case:—"Lately I had a general paralytic, and Dr. Savage has his twin brother, there being a strong family history of insanity, both men of the same temperament and disposition, viz., sanguine and keen, both being of very active habits, both indulging to great excess in wine and women, both following a similar occupation —an exciting one—and both being affected by the disease within a year of one another. Such a clinical history has never been put on record before, and it shows conclusively that heredity may predispose to the disease." (See also "Journal of Mental Science," April, 1888.)

These facts seem to me to be conclusively in favour of a general paralytic diathesis. Of the nature and mode of development of that morbid proclivity we cannot at present speak definitely. The hereditary factors which determine it probably cannot be recognized until more complete records of family diseases are habitually made by the general public. But it is obviously unscientific to minimize the importance of heredity on account of the extreme rarity of general paralysis in successive generations of the same family. Doubtless the disease has allies which would be found commonly enough if only we knew what to recognize as such. It may be that in some cases there is a far-reaching pedigree. The vicious strain, which culminates in this morbid proclivity, may have run through many generations, each of them having peculiarities in cerebral organization marking the stages in the evolution of the disease. More often, it may be, the record of its descent would be short. The evil tendency might evolve rapidly as the outcome of a pernicious environment or a modification by perverted function. In any case the general paralytic individual commonly exhibits a preference for mating with a certain female type which seems calculated to modify considerably his children's morbid tendencies, and this may in part explain its non-transmission as such. Further, the type of constitution and the mode of life characteristic of general paralytics are apt to mark the beginning of a degeneration for the race as well as for the individual, and their children are little likely to be of a type favourable for the development of a disease which commonly needs a strongly developed organism for its occurrence.

Whatever the structural basis of the general paralytic diathesis may be, its recognition would put the disease on a

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

satisfactory basis, at least so far as ætiology is concerned. In this, as in all hereditarily determined diseases, the relative importance of the two factors—the predisposing diathesis and the exciting cause—will be found to be far different for different individuals. In some cases no adequate exciting cause can be adduced, and in them we must fall back on a particularly strong diathetic element. Notably, I think, the very young general paralytics form such a class, and now and then one meets with adult cases of men who have lived uneventful, unexciting lives, and whose environment has been very much what it is with all of us. On the other hand, there are many cases—a much larger number—in whose history there are incidents enough to furnish adequate exciting causes for a whole generation of general paralytics. The life record of some of these men reads like a novel by Charles Lever—brimful of incident, stress, and struggle. Such cases, I think, too commonly furnish our idea of the typical history and symptomatology of the disease.

With a view to ascertain something definite as an indication of the morbid proclivity, I have gone more or less minutely into the life-histories of a large number of undoubted general paralytics. The inquiry has satisfied me that there is a fairly constant general paralytic character. And, again, the frequency of this character in our cases here seems to me another proof that they were of a common diathesis. My observations were largely made on the poorer classes of general paralytics—chiefly the artisan class—and exclusively in the male department. I suppose it may be regarded as in part characteristic of what used to be called the "sanguine temperament," of old regarded as predisposing to the disease. It may be said that this general paralytic character is such as is commonly met with in patients of the general paralytic diathesis, but in whom the proclivity is not so strong as to dispense with exciting causes; and of course the diathesis is something apart from the character. All that one can say of the latter is that it frequently accompanies the morbid proclivity in the tissues, and may be regarded as a manifestation of it, just as the hepatic diathesis is often manifested in cynicism. In other words, persons who inherit a proclivity to this progressive degeneration often inherit also the physical basis of this keen character. In the words of Mr. Jonathan Hutchinson, the character may be regarded as a "revealing symptom."

The following is a sketch of the important characteristics commonly associated in general paralytics; and while, as in all

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

else, a perfectly typical specimen is rare, yet, if we lay aside mannerisms and other superficialities, a large number of patients will, I think, be found to conform to the type in its more fundamental characteristics.

The General Paralytic Character.

Of the childhood and early life-history of general paralytics I have not full information to record; my authority has so often been the patient's wife. But it is interesting to find that many of them have been members of considerable or large families, as was the fashion of previous generations. And another fact which may throw light on their character is that, not infrequently, I have been told that one or both parents lived rather too freely.

At school the patients, whose history I have got, have been active and fairly intelligent, but not remarkable either in the class-room or the field; though at home they may have been regarded as the smart ones of the family. Sometimes the scantiness of his education has made the youth start life badly handicapped, and in adolescence he has overworked in order to come up with his neighbours; more often I have been told that he left school rather early, choosing an occupation for himself, and entering on it with some determination and ambition.

Nothing, as a rule, can be learned from the occupation of the patient. It is the man's manner of living and not his sphere of life that is of importance. He will live like a general paralytic whether he be a mason's labourer or a barrister. As often as not I have been told that, his first choice disappointing him, he has changed it for some other which better suited his tastes and ambition.

This impatient restlessness which often characterizes general paralytics seems to me to throw some light on the distribution of the disease. It appears that, even in well-advanced races, there are large numbers who have not attained that degree of civilization at which the disease occurs, and that the complex environment of city life is almost essential for its development. In considering these facts it is well to bear in mind that, in the rush from country to town, which is characteristic of our money-making age, general paralytics are not the kind of men to sit and watch the stream go by. And, while it is true that Irishmen, for example, seem to need the stress of town-life in order to the development of the disease, it is also true to say that individuals constitutionally prone to it are generally men of a

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

restless spirit that will not brook the narrow sphere which a hum-drum country life affords.

As to physique, the records I have seem to contradict the idea that there is anything like a constant physical type among the victims of general paralysis. On the contrary, they vary much in appearance—in height, weight, build, pigmentation, etc.—in accordance, I suppose, with their racial descent. Short of a typical physique, however, there are certain physical characteristics almost universal among general paralytics. As a rule they are well nourished, and not of a neurotic, phthisical, or otherwise delicate appearance. On the contrary, they are spoken of as men of "strong constitutions," full-blooded and vigorous, well-favoured men. In short, they are good animals. Their neuro-muscular constitution is such as makes them capable men in situations requiring good nerve, a quick reaction time, and great powers of endurance under heavy strains. After many specific inquiries I have found it an almost invariable rule that the general paralytic is not of a conspicuously athletic constitution. On the contrary, many of them have almost entirely eschewed sports of all kinds. Certainly none of our cases here have been of the kind who *must* play, none of them dominated by the joys of asserting athletic superiority or by the delights of elaborate motor accomplishments. In considering such a statement, it must be borne in mind that my observations were made chiefly, though not entirely, on patients of the artisan class.

An inquiry into the life-purpose of these men brings out an important and almost constant characteristic. Their view of life is rarely, if ever, that of men commonly called "good." It is essentially a selfish, non-moral view. That is to say, they are not men of persistently altruistic purpose. They are described as men who "would do nobody a bad turn," "kind-hearted," "generous," "hard-working," sometimes even "conscientious." But none of the men whose history I have got have been men with any religious interests or of any great moral ambition. The characteristic general paralytic is a man with a large belief in himself, restless, ambitious, and with a relentless desire for the good things of this life. He is at bottom an egotist, with a great capacity for amusement, and incapable of any constant sacrifice even for those nearest him.

Alongside of the restlessness, the energy, and the capacity for enjoyment I should place an unusually strong sexual nisus as one of the fundamental characteristics of these patients. Given a general paralytic, and the making and marring of

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

more than one or two of his lady-friends may be taken for granted. Much more even than with most men is it true that a woman is at the bottom of the interesting things in his life. He was "secretly married to a prostitute in Paris," "he made a foolish marriage with a pretty girl much below him in station," or "he was an awful man for women"—such are the tales one hears when the informant is not the patient's wife. Whether he has had syphilis or not to add to the exciting causes of his disease seems to be largely a matter of accident; if not, it may, as a rule, be taken for granted that it was only "because he was lucky," and not that he never risked it. In some cases, of course, one gets the history of married excess instead of promiscuous indiscretions. So invariable is this sexual factor, and so constant the sexual choice, that one cannot infrequently pick out the "G.P. wife" in the visitors' room. Dr. Savage says he has been "struck with the frequency of the occurrence of general paralysis in the husbands of some women of voluptuous physique," and they possess other qualities besides the "voluptuous physique" that are consonant with the husband's tastes. Their sense of the moral obligations of life is usually not too exacting, and their tastes and feelings not too refined to suit the husband, while they bring him an acceptable love of social pleasures, a capacity for making things "go," and a sufficient amount of ambition to match his own. It is often remarkable how well these wives bear up under the distressing realization that the patient is fatally diseased. It is almost unnecessary to add that there are many exceptions to such a type. As a further manifestation of the strong reproductive instinct in these men one may mention that they incline to adornment of the person such as is favourable in sexual selection with the women of their class. The patient A. B., whose case I have already quoted, was a man of the middle-class of society, and was described to me by a colleague as the "best-dressed gentleman he had seen admitted to Morningside," and this characteristic has often been observed by the patient's wife or friends.

In close relation to the strongly-developed reproductive instinct the general social instincts are, as a rule, well marked in the typical general paralytic. The desire to be considered a "good fellow" is on a par with his desire for social advancement. Of one patient an Irish acquaintance informed me that "the praise of the populace was the apple of his eye." And many of the patients' wives have told me somewhat bitterly that the husband's good qualities were conspicuous in society

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

and not at home; but they have this compensatory advantage, that the husband takes pains to make his wife cut a good figure in society. Impulsively generous, good-natured, and generally companionable, the general paralytic, as a rule, has many admiring acquaintances, and I have been struck with the frequency with which I have been told that singing, and still oftener reciting, has been one of the patient's accomplishments —an interesting fact in view of the consideration how early the vocal and articulatory mechanism gives way in the course of the disease. I have already remarked that in many cases the social habits of the patient account for his alcoholic excess rather than any congenital alcoholic predisposition; and it seems in place to repeat that his reaction to the stimulant is not an eccentric one, but very much what it is in the case of healthy brains.

Dr. Clouston sometimes says that "general paralysis is, as a rule, a certificate of general intelligence." And it is undoubtedly the case that in this respect the general paralytic is usually above the average, with a mind for practical affairs rather than of a philosophic or speculative bent. His view of debatable questions is generally the conventional one, and he is commonly impatient of unpractical eccentricities.

In temper he is described as "having it soon over," though sometimes passionate. His "spirits" are generally good, and he inclines to a hopeful view of things, born of a firm belief in his own capabilities. He is not notably emotional in the sense of defective control; his fits of depression are soon over, but he is not always gay, nor of a sense of humour above the average.

Such, in the rough, are the fundamental characteristics frequently, though by no means invariably, associated in the victims of general paralysis. Regarded as a whole, the type is characteristic as much in what it lacks as in what it possesses. General intelligence and common sense, ambition and energy, sociability and a large capacity for enjoyment, a firm belief in oneself and a preference for handsome women are all eminently sane characteristics according to our present standard. On the other hand, some admirable qualities are notably wanting—qualities which make for a higher control to temper the tendency to excess, the selfishness, and the restlessness. I cannot refrain from mentioning Mr. R L. Stevenson's beautifully drawn character of "Will of the Mill" as a typical contrast to these restless general paralytics, exhibiting some of their best qualities and many more besides, which they conspicuously lack.

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press

Finally, I quote a case whose ætiology is complicated and interesting, and seems to exemplify well the conclusions in point.

C. D. was admitted into Morningside Asylum, at the age of 35, with unmistakable symptoms of general paralysis. He was one of a family of eight, of hard-working, steady parents. His education was poor, and he left school early in life, of his own accord, choosing the trade of a plumber, entering on his work and persevering in it with great energy and industry. As a young man he was prepossessing in appearance, ruddy in complexion, with fair hair and blue eyes, of stature below the average, but well-nourished and strong. He was always a favourite with the ladies and fond of their society. In his youth he was fast-living—given to excess with wine and women. After his marriage, at the age of 26, he was less alcoholic, but continued his sexual excess. His wife did not correspond to the type of physique alluded to above, but in character she was keen and social. He was always a busy man and unrestful, never happy in idleness. He was a very capable workman, and "often preferred by his employers to finish a difficult job." About three months before his marriage he worked for a week, night and day, without once being in his bed, at a piece of plumber's work on a cylinder in such extreme heat that he had to work naked. He dated his illness from that time, and his sweetheart thought this strain had a permanent effect on his constitution. Again, eighteen months after his marriage, he worked for a week late and early at a piece of work in an air-tight cylinder. He was feeling ill all the time, and at the end of the week he came home "blue in the face" and "fainted." Soon after that he was in hospital suffering from well-marked paretic symptoms of lead-poisoning. For four years he did nothing, and at the end of that time he started a shop on some little capital from a plumbers' society. In a short time, with much worry and chagrin, all his means were gone. Then he began as a cabman, and was a good driver, until one day a wheel came off his cab and he was thrown heavily to the ground, sustaining a fracture of the right leg and a severe blow on the head. Towards the end of his treatment in hospital he became manifestly insane. Now, which of these many causes accounts for his disease? Was it his early alcoholic and sexual dissipation, the latter persevered in through married life, or was it the strain of prolonged work at a high temperature, or the sustained effort with insufficient air, the lead-poisoning, the business worry, or the

https://doi.org/10.1192/bjp.38.160.30 Published online by Cambridge University Press