A STATISTICAL NOTE ON TWO HUNDRED AND THIRTY-FOUR CASES OF PARESIS, WITH SPECIAL REFERENCE TO ITS ETIOLOGY.¹

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THE following is offered as a slight contribution to the statistical data that may serve for the elucidation of certain points in regard to the etiology of paretic dementia or general paralysis of the insane.

Since the first opening of the Illinois Eastern Hospital for the Insane, in 1879, there have been received, exclusive of certain cases of which the diagnosis is yet doubtful, two hundred and thirty-four cases of paresis, forming nearly five per cent. of the total number of patients admitted up to the present date.² Of these, 199 were males, and 35 were females, the relative proportions of the sexes being thus about 6 males to 1 female. The average age at admission was forty, and the extremes in this respect were twenty-five and fifty-eight years. There were 5 cases, 4 men and 1 woman over fifty years of age, in these cases the diagnosis was only made after careful examination and continued observation had excluded any other. The patients were of all races and nationalities represented in the institution except the Hungarian and Mongolian, and the native Anglo-Americans were in rather larger proportion among the paretics than in the total population of the asylum. All classes of occupations were also represented, mechanics, farmers, laborers, professional men, etc., but there was a decided predominance of individuals engaged in commercial pursuits, including transportation, over fifty per cent. of all those whose occupations could be ascertained being of this class. This was still more marked among the female paretics, seventy per

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cent. of whom were wives of men engaged in some commercial pursuit, including in this twenty per cent. of the whole number who were wives of railroad employes or commercial travellers.

About three-fourths of all the paretics were or had been married, but the number of divorced or separated was unusually large and in the females amounted to one-fifth of the whole number. Only three of the female paretics were single, and one of these had been a mother. Two or three of the women might be considered as belonging to the disreputable classes.

As regards residence, about seventy per cent. of the whole number might be reckoned as coming from the urban as distinguished from the rural population, including in the latter all residents of towns or villages of less than three or four thousand inhabitants. Naturally, the largest proportion was furnished from the city of Chicago.

All the above points have only an indirect bearing on the question of the etiology of the disorder; although they furnish some indications. The statistics of assigned causes, as given in the papers of commitment cannot be considered as reliable in all respects as it rarely happens that all the facts are brought out in the jury trials that are compulsory in the State of Illinois. In the city of Chicago, which furnishes the great majority of the paretics that come to the hospital, the proceedings are apt to be very brief, and only such testimony as is necessary to establish the patient's insanity is required or given and the papers are made out accordingly. Nevertheless the assigned causes have a certain value as far as they are given at all, if it is only as a text for the discussion of the fuller data that can be obtained by close examination of the patients themselves and inquiry of their friends. The accompanying table gives the causes as stated in the verdicts—not in the exact term used, but grouped and condensed under general heads for the sake of brevity.

With the exception of those cases that were credited in the verdicts to "softening of the brain," "paralysis," "brain disease," etc., which I have grouped under the heading of

"Disease of Brain," and those credited to "heredity," the above table probably represents the facts as presented to the jury in regard to the exciting cause of the disorder. In about forty-one per cent. of all the cases no cause is given and taking the remaining fifty-nine per cent. by itself we find of this remainder sixty per cent. given as due to the three usually recognized principal causes of paresis, viz.: overwork, worry and intemperance. It is a little noticeable however, that worry and trouble seem to occur as a cause less frequently than overwork and ill health, which is, I think, rather contrary to the generally obtaining opinion as to the relative importance of these respective exciting

TABLE I.

ASSIGNED CAUSES.	MALES.	FEMALES.	TOTAL.
Bodily disease, overwork, etc.....	28	6	34
Mental strain, worry, domestic or financial trouble.....	20	5	25
Excesses, alcoholic.....	25	1	26
" narcotic.....	1		1
Traumatism.....	7	1	8
Exposure to cold.....	2		2
"Disease of Brain," etc.....	12	3	15
Menopause.....		5	5
Religious excitement.....	1		1
Syphilis.....	15	1	16
Sunstroke.....	2		2
Heredity.....	3		3
Unknown.....	83	13	96
Totals.....	199	35	234

causes of paresis. So far as these two heads are concerned, a careful examination of the histories of all the patients has not yielded any further data of any value to supplement the facts in the above table.

The case is somewhat different, however, with intemperance, which ranks second in point of numbers. It has always been the practice to obtain as full data as possible in regard to the personal habits of the patients in this respect, and facts as to drunken habits of a large number were obtained. Seventy-eight, all males but one, out of the

whole number of paretics treated, either were or had formerly been excessive in the use of alcoholic drinks, or were steady "moderate" drinkers, and less than a dozen were put down as abstainers or temperate. No special statements were recorded as to the remaining sixty-seven per cent. of the two hundred and thirty-four patients, but I am certain that while it includes a number of hard drinkers, it also contains a much larger proportion of persons whose habits have been temperate or comparatively so. There were no cases of acute alcoholism, and only a very few in the whole number that gave any record of former delirium tremens. The statistics of paresis in this respect are not so strikingly different from what is observed in the average of male patients who are not paretics, though the percentage of drunkards is considerably larger.

Thirteen of the twenty-eight male paretics whose disorder was attributed to ill health or overwork were hard or regular drinkers; five of the twenty cases from worry or trouble, one of those attributed to exposure to cold, three of the cases assigned to "brain disease," and seven of those credited to syphilis were of the same category. The single case attributed to narcotic indulgence was also given to excesses in alcoholics.

One of the living questions in regard to general paresis at the present time is that of its relations with syphilis. In the table here presented, syphilis is given as the cause in sixteen cases. I have included in this number all those in which it was mentioned in the papers received with the patient, whether alone or in combination with other causes. In eight of the sixteen no other cause was given. Intemperance, heredity and overwork were also mentioned in two cases each, and two others had traumatism and exposure respectively, given as adjunct causes. In former years no very special investigations were made as to the history of syphilis in paretics, and the facts in regard to the earlier cases are somewhat limited. Within the past three or four years, however, great pains have been taken to obtain all possible information in this regard. The difficulties are obvious, there is a very natural tendency

to conceal facts of this kind and it has frequently happened that after positive and repeated denials a full and incontestable history of infection has been obtained, and in others the diagnosis has been unquestionable. In a certain appreciable percentage also there has probably been honest ignorance both on the part of the patients and their friends. I have only been able to obtain positive statements of the facts in fifty-four per cent. of all the paretics which are summarized in the following table.

TABLE II.

	MALES.	FEMALES.	TOTAL.
Syphilis admitted and indisputable.....	87	4	91
“ highly probable	18	3	21
“ denied, but other venereal disease (chancroid, gonorrhoea) admitted.....	3		3
“ denied, and no positive evidence	9	2	11
Total number of cases in which facts or statements were obtained.....	117	9	126
Percentage of cases of undoubted syphilis			72.2
“ “ “			
and of probable syphilis			88.8
No facts or statements.....	82	26	108
Total of cases.....	199	35	234

In the remaining forty-six per cent. of cases the facts could not be obtained in regard to this point, the great majority having been dead for years, or received without any history and unable to give any account of themselves.

From the table it appears that a little over seventy per cent. had been undoubtedly infected, a result agreeing very closely with Mendel's figures. The probable cases, in regard to whom there was very little more doubt, increase the percentage to nearly eighty-nine. I have included under this head of "probable" cases, such as have been known to have been under specific treatment or in whom there was otherwise a history that could hardly point to anything else, without there being any positive statements or admissions as to the nature of the disorder.

In three cases, two syphilitic and one probably syphilitic, there had been made a diagnosis of locomotor ataxia, prior to any special cerebral or mental symptoms. One of these patients was still somewhat ataxic when admitted, the others were not noticeably so.

Of course in the greater number of cases it is necessary to rely on the history, but otherwise there would be no possibility of any evidence. The infecting attack of syphilis that causes brain or nerve lesion is generally a mild one and leaves no traces after the length of time that has elapsed when these latter have developed—a period in our cases ranging from two or three to twenty-five years and probably averaging eight or ten years. The statement made by some French authorities that there is a certain method of diagnosing former syphilis is not, I think, supported by experience or by the majority of competent specialists in this class of diseases; the history therefore is as a rule the only recourse. The difficulties of obtaining facts are obvious enough; but this, so far as it has any signification at all, indicates that the whole truth has probably not yet been obtained. Out of the eleven instances given in the table in which syphilis was positively denied, two were cases of conjugal syphilis—a dissipated railroad employé and his wife—and the other female was a woman of decidedly loose character.

Taking now the table of assigned causes, we find that seventeen of the thirty-four cases assigned to ill health and overwork were undoubtedly syphilitic and three more probably so; making altogether eighty-three per cent. of the cases in which any facts could be obtained; in like manner seventy-seven per cent. of the cases attributed to worry, one hundred per cent. of those attributed to alcohol and traumatism had also undergone prior specific infection.

Syphilis and intemperance seem from the above to be the most frequent antecedents of general paralysis, but the former is apparently the more general one. In the fifty-five patients in regard to whom statements as to syphilis and drinking habits could both be obtained, fifty were intemperate, of whom forty-eight were certainly or probably

syphilitic; one confessed to non-specific venereal disease, and one denied all infection but was a case of conjugal paresis, his wife also a paretic. Five were said to have been temperate, three of whom were syphilitic, one admitted non-specific disease and one denied all infection. The combination therefore of drinking habits and syphilis seem specially predisposing to paresis, while temperate habits are no protection if syphilis exists.

The accompanying tables and remarks taken from the last report of the hospital for the biennial period ending June 30, 1890, are of interest in this connection as showing to some extent the relative frequency of syphilis in paretics and in the other forms of insanity.

TABLE III.

Assigned Causes of Disease in Paretic Dements Received During Biennial Period.

ASSIGNED CAUSES.	M.	F.	T.
Overwork	7	1	8
Business trouble	6		6
Syphilis	7		7
Intemperance	4		4
"Paralysis"	2		2
Traumatism	2		2
"Cerebral meningitis"	1		1
"Disappointment in marriage"		1	1
"Cocaine"	1		1
"Heredity"	1	1	2
"Ill health"	1	1	2
"Tapeworm"	1		1
Unknown	31	6	37
Total	64	10	74

"Twenty-seven non-paretic patients (22 males, 5 females) were admitted during the biennial period with a history of syphilis, out of a total of 1,266. One or two of these are possibly cases of paresis. In other words, syphilis is twenty times as frequent in paretic as it is in non-paretic patients. Leaving out probable cases of syphilis (that is, those in which it is probable, but not certain) the percentages of

this disease for the biennial period may be stated as follows, in paretics and non-paretics, respectively, as far as we have the facts: Paretic dementes, 40.56 per cent. syphilitic; non-paretic insane, 2.13 per cent. syphilitic."

When we consider that from ten to fifteen per cent. of all cases of insanity are reckoned by the best authorities to be directly due to intemperance, the relatively greater share of syphilis in the production of paresis is very strongly suggested.

TABLE IV.

Condition as to Specific Disease of Paretic Dementes Admitted During Biennial Period.

CONDITION.	M.	F.	T.
Undoubtedly syphilitic.....	29	1	30
Probably syphilitic	11	1	12
Syphilis denied but other venereal disease admitted.....	2		2
No facts obtained.....	22	8	40
Total	64	10	74

Heredity, which was the assigned cause in three cases plays a comparatively small part according to our statistics in the production of paresis. In our 234 cases, facts or positive statements as to heredity could be obtained in 160. In 117 of these it was pronounced good—there was no taint of insanity or neurotic disease in the family history. In nine cases there was only a general statement that the disease was "hereditary." There was direct paternal heredity in six cases, four men and two women, and in one of the latter the father's disease was likewise paresis. Collateral paternal heredity occurred in two males and one female. Direct maternal heredity was reported in four patients, three men and one woman, and collateral maternal heredity in three, all males. In one male and one female there was a heredity of insanity on both sides, and in two males paternal and maternal collateral heredity. In one case (male) the par-

ents were first cousins. In thirteen other cases, all males but one, there was a heredity of "paralysis," alcoholism or epilepsy, thus making a total of 43 individuals with a neurotic heredity out of 169, or, counting cases in which no data were obtained, out of a total of 234. In other words, considering only patients, in regard to whom some history can be obtained, we find a heredity of insanity or a neurotic taint in twenty-six per cent. of our general paretics, while in the average of our patients taken altogether, the same methods of estimation have given in former times over forty per cent. These statistics, therefore, so far as they go, seem to support the older view of Morel and others that general paresis is one of the least hereditary forms of insanity.

Without venturing any positive generalizations from this small number of cases, it may nevertheless be stated that they indicate to a certain extent that

1. While it often does occur in those hereditarily predisposed to neurotic or mental disorder, general paralysis is more than most other forms of insanity an acquired disease, not dependent on hereditary neurotic taint.

2. That while it may be ascribed to various exciting causes, such as mental strain, worry, ill health, or overwork, it is found, when all the facts can be ascertained, to have as an antecedent, syphilis, in a great majority of cases.

3. In a small number of cases in which there is found to be no positive syphilitic history, it is possible that no such taint has preceded the disease and that its symptoms can be produced in non-syphilitic individuals. These cases, considering the great predominance of specific antecedents, may, reversing the former usage, be properly called cases of pseudo-general paresis.

4. Intemperance, while a frequent antecedent of paresis, is not by any means a universal or essential one.