MEMORANDUM.

Insanity in Relation to Syphilis,

A Thesis Submitted to the Medical Faculty of the University of Edinburgh by Richard Blackwell Mitchell, M.B., B.M., Candidate for the Degree of Doctor of Medicine

(With 7 lithographs)

(Companied by wet specimens and microscopical preparations)
Insanity in Relation to Syphilis

The whole subject of Insanity is an extremely obscure and complex one. This must be apparent when one considers how very little is really known as to the precise nature of that malady.

"To define true madness, what else but to be nothing else than mad?"

In the popular mind, and indeed in the mind of many physicians, the importance of moral causes is undoubtedly overestimated, and the existence of some variety of Neuropathic constitution (which in reality is the important predisposing cause) is too often unappreciated, or even ignored. There is no doubt that an ill-balanced nervous system exists in many persons who pass for being strong and healthy in all respects until they succumb to insanity or to some of the other neuroses, owing to the superimposition of some exciting cause. The fact that
the moon and stars in ancient times were credited with the production of insanity is historical. Many more fanciful agencies might be enumerated, but would only take up space needlessly.

To proceed to the consideration of some of the circumstances which are at the present time held as important causes of mental disorder. First and foremost we have to consider the neuropathic constitution. A person who has the misfortune to have a direct and strong hereditary pre-disposition to insanity may become insane at any of the important physiological crises of life (puberty, adolescence, climactic period) without our being able to assign any exciting cause other than the changes wrought in the individual during the crisis. In other words, the obscure tissue changes that occur then seem, when in operation in such a subject, of themselves sufficient to bring about the calamity
called madness. The brain tissues, doubtless, participate in the above changes in ways much too obscure at present for fruitful study, but in ways that no doubt have their differences in different people.

When we talk of "hereditary predisposition to insanity" we use a very wide and comprehensive term, and one which in reality includes many varieties of neuropathic constitution. The different shapes that this constitution assumes under different circumstances are well known. For example, that an epileptic father may beget a child that afterwards becomes insane, that a mother who is the subject of dyspsomania may have a child that is doomed to be an imbecile, are facts of almost everyday experience to the physician. There is then no doubt as to the polymorphism, so to speak, of the neuropathic constitution.

Next, to consider briefly
some of the agents credited as being "exciting" causes of insanity.

1. The effects of certain poisons when introduced into the system, or produced within it, which without of necessity producing structural changes in the brain yet cause insanity. Mental disorder is frequently caused by such agents as Indian hemp and opium. Cases of insanity from alcohol are unfortunately too common and familiar. Transient forms of madness ascribed to the poisons of acute rheumatism, gout, to uraemia, and the exanthemata are not uncommon.

2. Organic causes form an im-
Thus we may have Insanity brought about either by lesions of the brain, or by perverted conditions of the blood without such lesions. How do the agents in the first group act? Taking for granted the existence of a nervous system predisposed to mental disorder, it seems probable that they influence through the medium of the blood, the nutrition of the plasma of the brain-cells, thus leading to a disordered state of the dynamical conditions of these cells. Many men know by experience to what a depth of melancholy they may be driven for hours owing to the presence of bile in the blood. That alcohol causes insanity without necessity inducing any structural changes in the brain that can be made manifest is undoubted. Structural changes in the brains of persons insane through long-continued drinking are found without doubt, but this is by no means invariably the case.
It is a well-known fact that numbers of persons die insane in whose brains no deviation from the normal structure can be detected. Chemistry, perhaps, may someday do more to clear away the mists enveloping the subject of perverted brain functions than the microscope has been able to do.

Does acquired syphilis act as an exciting cause of insanity? There is no room for doubt that it does so, and that in two ways. These, shortly stated, are —

1. By inducing lesion or lesions of the brain.

2. By inducing a perverted state of the blood, without lesion of the brain.

That syphilitic intra-cranial lesions cause insanity goes without saying, and in many cases they doubtless do so in the same way as non-syphilitic lesions, such, for example, as cancerous or other tumors.

But I venture to suggest that we may have insanity from syphilis without
there being of necessity any intra-cranial lesion, and that this may happen in cases where there is a history of syphilis having been contracted many years, it may be, previous to the appearance of any sign of mental disorder.

May we not have insanity lighted up, so to speak, by syphilis in a person through its effects on the brain cells by the blood changes apart from brain lesion, — blood changes which are brought about on the reawakening, after years perhaps, of the specific virus, and which influence perniciously the functions of the brain cells? Such case, excepting the cachexia and other physical results of syphilis, may often resemble in their general mental features cases of insanity where there are toxemia and anaemia from poisons other than syphilis.

That syphilis may cause insanity in some cases without inducing structural changes in the brain, but
simply through preventing the state of the blood is a fact—beyond all dispute. Cases of insanity have been recorded as occurring during the development of secondary symptoms—cases in which the mental disorder was apparently caused by the syphilitic virus having influenced the nutrition of the brain cells through a perverted blood supply. Dr. Cadell has described such a case in the Journal of Mental Science (Vol. XIX. p. 564).

In the present state of our knowledge of syphilis can we say of any man who has once had the disease, that he has got thoroughly rid of it? The cases on record are only too numerous where syphilis, after lying dormant as it were for years, has, on the application of some determining cause, broken out in the tertiary form. Granting the presence of some particular variety of inherent weakness or instability of the brain in a person so tainted, is it not
likely that we may thus have insanity brought about by the syphilitic taint which has been only sleeping as it were in the system, and may be reawakened by some determining cause such as, for example, a blow on the head, excessive intellectual effort, or excess of any kind,—anything in short, which weakens or exhausts the ill-balanced brain? Dr. Clouston (Mental Diseases, p. 458) says "the cachexias, the blood-poisonings, and the diseases of nutrition in which blood is not made in sufficient quantity, may all be attended with danger to some brain functions, though certain brains seem to have the innate biologic energy to nourish their tissues and perform their function on less blood than others. In those predisposed by heredity to disturbance or enfeeblement of the mental functions it is the mind that suffers in con- ditions of bloodlessness." Leidesdorf (op.cit.) and Guislain (op.cit.)
have both accepted the syphilitic cachexia as a definite cause of mental disorder. Still more recently, a most careful observer (Wickle, Journal of Mental Science, Vol. XXXIX. p. 494) states his belief that insanity may be caused by the syphilitic poison "either by way of toxæmia or by way of the combined influence of the syphilitic cachexia and anaemia." So far as I can ascertain it is only during the past 33 years that syphilis has been assigned a place in the list of causes of mental disorder. To Dr. Thomas Reade, of Belfast, belongs the credit of having been the first to point out syphilis in a causal relationship to insanity (see Dublin Quarterly Journal of Medical Science, Feb. 1857). Since his paper appeared many authors have written on the subject.

No doubt the tendency to ascribe a syphilitic origin to a case of insanity is much

* An alphabetically-arranged list of writers and index of their contributions is given at the end of the paper.
greater where we have undoubted syphilitic intra-cranial lesions found post-mortem than where none such can be proved to exist. But, on the other hand, it must be admitted that we may have cases of mental disorder accompanied by and due to syphilitic intra-cranial lesions, and yet where after death no such intra-cranial lesions are found. It is extremely probable that we may have cases where syphilitic lesion has lighted up the insanity, and where the syphilitic lesion is got rid of by appropriate treatment; but the stone having been once set rolling, so to speak, the insanity runs its course into a chronic state, and when the patient dies after a course of years no syphilitic visceral lesion is found at the post-mortem.

In going over the records of the 3740 cases of all classes (1821 males and 1919 females) admitted to the Royal Edinburgh Asylum during the past
years (1874 to 1884 inclusive) I have found a history of syphilis in 64 cases (31 males and 33 females), and I think it probable that the insanity in many of these cases was due in no small measure to the syphilitic count in: cured in some of them, several years before admission. Among these some are included in whom no proof of intra-cranial syphilitic lesion has been obtained. In short I suggest that some of them may have had as one cause of their insanity a perverted state of the blood due to a syphilitic infection experienced years before symptoms of mental disorder appeared.

It may be safely asserted that few persons if any become insane from any one cause. The cause of insanity, in quo non, is the presence of an inherent weakness or instability of the nervous constitution of the individual. The cases forming a group in which insanity has originated
from syphilis (and especially those where no intra-cranial lesions exist), may exhibit considerable differences in their clinical phenomena, but so do individual cases in most diseases. The variety of guises which syphilis assumes in its physical manifestations are numerous enough. Is it likely then that we shall find greater uniformity in the psychical phenomena resulting from its effects on the nervous system?

I shall now give in a methodical form the general results of my examination of these by cases; later on treating in detail several of those which are typical or illustrative of different groups.

Sex. In 51 men (of all classes) and 13 women (all of the lower classes) a history of syphilis was obtained. At first sight the proportion of females to males seems very small, but it must be remembered that only
those cases about which there could be no doubt of a syphilitic taint have been taken into consideration, and that the difficulty of investigating the question of a syphilitic infection in a female is for obvious reasons greater where the patient is insane than where she is not. The patient's own statements can seldom be relied on, and even the statements of relatives have, in the majority of cases, to be taken cum grano salis. That a much larger proportion than 13 have suffered from syphilis, there can be almost no doubt. Although I bring forward no proofs, I may state my belief that syphilis seems often much more evanescent in its effects in women and more equivocal in its manifestations in them than in men. Men are, perhaps, more liable to cranial syphilis than women by reason of their being more exposed to such determining causes as blows on the head, intellectual exertion, and,
in the majority of cases, excesses in drink, venery, or other causes believed to have a specially disturbing or toxic effect on the brain and nervous constitution.

**Age.** The ages ranged from 16 up to 55 among the women, and from 20 to 57 among the men. The average age of the males on admission was 36.6; and the average age of the females was 32.8.

The average age of the 790 male patients admitted here during the past 5 years is 38.6. The average age of the 920 female patients admitted during the same period is 40.6.

The average age of the syphilitic cases is therefore below the average age of the patients taking all classes, and more especially is this the case in regard to the females.

The accompanying table shows in quinquennial periods the ages of the 64 patients on admission to the Asylum.
Table I

<table>
<thead>
<tr>
<th>Ages</th>
<th>M.</th>
<th>F.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 to 20 years</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>20 - 25</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>25 - 30</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>30 - 35</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>35 - 40</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>40 - 45</td>
<td>11</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>45 - 50</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>50 - 55</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>55 - 60</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>51</td>
<td>13</td>
<td>64</td>
</tr>
</tbody>
</table>

From this it is seen that the greatest number of male patients were admitted at ages ranging from 35 to 40, and in the case of the females from 20 to 25. Among men the period of life above noted is one prior to which the energies have in many cases been taxed fully for several years, and during which the struggle for existence is often severe. The importance of causes of this sort, especially among "head workers", is by no means slight, and has been alluded to
specially by Lancelaude (op. cit.).

Condition as to marriage.

Table II

<table>
<thead>
<tr>
<th></th>
<th>M.</th>
<th>F.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>24</td>
<td>7</td>
<td>31</td>
</tr>
<tr>
<td>Single</td>
<td>27</td>
<td>6</td>
<td>33</td>
</tr>
<tr>
<td>Widowed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>13</td>
<td>64</td>
</tr>
</tbody>
</table>

It is here seen that the majority of the male patients were single men, only a small majority however. One might have expected a larger proportion of single men, but it is scarcely necessary to remark that many men suffer for the errors of their youth at a period of time long after they have been, as they imagine, "happily married." In the case of the females it is a significant fact that the majority were married, and all of these, with one exception, had the reputation of being steady and well conducted. The painful inference that of course one is almost
compelled to draw is that these patients were infected by their husbands. The exception above alluded to was in the case of a young woman who while single had been a common prostitute, contracted syphilis in the course of her calling, and was admitted to the Asylum prior to 1874 labouring under severe head symptoms due to syphilis. She recovered and was discharged. Being possessed of good looks she found a husband not long after her discharge, but was again admitted some months after wards suffering from symptoms similar to those of the first attack. She was finally discharged cured, and has remained out since.

**Occupation.** — **Table III showing the occupations of the patients,**

<table>
<thead>
<tr>
<th>Females</th>
<th>Dagmaker</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Charwoman</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Domestic servants</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Housewives</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Prostitute</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>
**Males.**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker</td>
<td>1</td>
</tr>
<tr>
<td>Brassmoulds</td>
<td>1</td>
</tr>
<tr>
<td>Brewer</td>
<td>1</td>
</tr>
<tr>
<td>Builder</td>
<td>1</td>
</tr>
<tr>
<td>Butchers</td>
<td>1</td>
</tr>
<tr>
<td>Cabmen</td>
<td>2</td>
</tr>
<tr>
<td>Clerks</td>
<td>5</td>
</tr>
<tr>
<td>Draper</td>
<td>1</td>
</tr>
<tr>
<td>Engineers</td>
<td>1</td>
</tr>
<tr>
<td>Farmer</td>
<td>1</td>
</tr>
<tr>
<td>Gardeners</td>
<td>2</td>
</tr>
<tr>
<td>Grocer</td>
<td>1</td>
</tr>
<tr>
<td>Joiner</td>
<td>1</td>
</tr>
<tr>
<td>Labourers</td>
<td>4</td>
</tr>
<tr>
<td>Labourers (various)</td>
<td>3</td>
</tr>
<tr>
<td>Literary man</td>
<td>1</td>
</tr>
<tr>
<td>Medical Student</td>
<td>1</td>
</tr>
<tr>
<td>No occupation</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51</strong></td>
</tr>
</tbody>
</table>

Without going more into detail it may be stated that among the males 16 (or 31.3 per cent) were men who had received a liberal education, and whose occupation was one demanding a considerable amount of intellectual
labour. It is held that syphilis is more apt ceteris paribus to affect the mental functions among the educated classes and those that are "head workers"—perhaps especially so where the individuals are members of families who have been amongst the "well educated" for several generations. But blows on the head, intemperance in drink and venery, and excesses of all sorts, as has been already stated in a previous part of the paper, also seem to have a powerful determining influence in this direction. For testimony in support of this statement see Dowce on "Brain-syphilis." 7.17.

It is a fact that 35 of the 51 male cases (68.6 percent) were admitted by their friends to have been "loose in their habits," "very unsteady," "profligate," or "drunken," or both "drunken" and "loose.

Of these 35 again, 21 belonged to the uneducated classes, and were chiefly employed at hard physical labour.
of some sort; and of the 21 thue was a history of falls on, or heavy blows on the head in 8 cases at least.

Among the females the patients all belonged to the uneducated classes. It is a noteworthy fact that only one prostitute among those admitted from 1874-77, was known to have had syphilis. At the same time it may also be stated that during the 11 years under consideration 17 women were admitted that were for a certainty known to be prostitutes, — most of them being members of the lowest of that class in Edinburgh and Leith. Of these 17, six suspicious-looking scars and other marks existed on the body in 3 cases, but no unequivocal signs of syphilis were detected in them. It may also be mentioned that of 15 young women, mostly domestic servants, who had illegitimate children shortly before admission, none had any traces of syphilis: they were mostly cases of hysterical or lactational insanity....
In the table it will be seen that 6 out of 13 female patients were "Housewives", this term being used to designate all married women living at home, attending to household duties. Of the 13, 14 were domestic servants. This is perhaps only a small proportion of those actually having had syphilis. During the 11 years, 344 domestic servants were admitted to the Asylum labouring under different forms of insanity.

Habits. It has been already stated at page 20, that over 66 percent of the male patients were admitted by given either to intemperance in drink or to immoral habits or both. Of the unmarried females, 3 are stated as "somewhat loose" in their habits, al though not actual prostitutes, and 3 others are stated to be both "fond of drink" and "loose".

Time of infection. In 30 cases (20 males and 5 females), the time intervening between infection and date of admission
to the Asylum was ascertained with more or less accuracy. This intervening period varied from 3 months up to 30 years.

Table IV
Showing the period intervening between time of infection and admission to Asylum in those admitted.

<table>
<thead>
<tr>
<th>Period</th>
<th>M</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six months or under</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>From 6 to 12 months</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12 - 24</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>2 - 5 years</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>5 - 10</td>
<td>8</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>10 - 15</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>15 - 20</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>20 - 25</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>25 - 30</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>26</td>
<td>8</td>
<td>34</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>51</td>
<td>13</td>
<td>64</td>
</tr>
</tbody>
</table>

From this it is seen that in 8 cases out of the 51 (=15.6 per cent) the infection dated back to between 5 and 10 years previous to admission. In one case the infection dated back to 30 years before
admission. This patient is pale and cachectic, looking sickly, has a skin-disease, regarded as a tertiary manifestation, and is subject to epileptiform seizures at intervals.

The distance of time between the dates of infection and admission in some of these cases may tend to cause misunderstandings as to any causal relationship between the syphilis and the insanity; but the ground for these doubts is very much diminished when we take into consideration the following facts:

1. The property possessed by syphilis of lying long dormant, as it were, in the system, and its tendency, on the occurrence of some exciting cause or causes, to reawaken, bringing about anaemia, cachexia, and the attendant evils.

2. That in cases of insanity associated with, or arising from the disease of the arterioles described by Heubner, the syphilitic arteritis is generally, if not always, a very slow and chronic process.
Hereditary predisposition to insanity.

Table V.

<table>
<thead>
<tr>
<th>Relative or Relatives insane</th>
<th>M.</th>
<th>F.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Several near relatives insane</td>
<td>4</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Grandfather</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Grandmother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father (only)</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Mother (only)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Brother</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Sister</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Uncle</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Aunt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cousins</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Relationship not stated</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Unknown or denied</td>
<td>33</td>
<td>11</td>
<td>44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>57</td>
<td>13</td>
<td>64</td>
</tr>
</tbody>
</table>

Hereditary tendency to insanity was as: contained in 20 cases (18 males and 2 females) = 31.2 per cent. This proportion is in all probability very far short of the real one. The difficulty of obtaining the truth as to hereditary tendency to insanity
The father was insane in 4 cases
  Grandfather       3
  Uncle or aunts     3
  Mother            2

Total 12

Of the 2 females in whom hereditary pre:
disposition was admitted, the mother was
insane in one case, and an uncle in
the other.
In those male cases where it was known
that several near relatives had been insane,
it may be noted that in one case the
mother, sister, and brother had all
been insane.
In another case the father and mother
died insane, and several other relatives
were, or had been, insane. Both of these
men recovered, and were sent back to
their friends, although the first one
was here for 6 years. In a third male
case which terminated fatally after
4 years, both the father and the father's
mother were insane.
So far as they go these facts tend to
support the conclusions drawn by
Richard regarding hereditary tendency
of insanity. These were—
1st. That the chances of transmission
of insanity are greater if the mother
is or has been insane, than if the
father is or has been so.
2nd. That the chances of transmission
are greater for that child which is
of the same sex as, and which
resembles, the insane parent.

Mental features—
Considering the cases in reference to their
predominant features they may be
roughly separated into 4 groups, thus:
Group a. In which the dominant
feature was mental en-
selement.
Group b. In which the dominant feature
was mental depression.
Group c. In which the dominant feature
was mental exaltation.
Group d. In which depression and
exaltation alternated with
each other........
The following table shows the numbers in each of these Groups:

<table>
<thead>
<tr>
<th>Groups</th>
<th>M</th>
<th>F</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Enlenement, the predominant feature</td>
<td>19</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>b. Depression</td>
<td>19</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>c. Escallation</td>
<td>11</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>d. Depression and Escallation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>alternating the predominant feature</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>31</td>
<td>13</td>
<td>64</td>
</tr>
</tbody>
</table>

It may here be allowed to state the definition of the terms "hallucination" and "illusion" as given by a recent authority on mental diseases. (Spitzka op. cit. pp. 43-44)

"An hallucination is the perception of an object as a real presence without a real presence to justify the perception."

"An illusion is the perception of an object actually present, but in characters which that object does not really possess."

Regarding the above table it must be stated that Group a is not separated from Group b by any hard and fast lines such as can be drawn.
between the Groups b and c.

In all the enfeebled cases there was mental depression as well as enfeeblement, and this is shown in the nature of the delusions expressed by the patients in these two groups. In fact mental depression and enfeeblement seem the chief attributes in the great majority of cases of insanity which have a syphilitic history.

Table VII

<table>
<thead>
<tr>
<th>Delusions as to M.</th>
<th>F.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Conspiracy&quot; against them</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Poison in food</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Death from violent means</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Unseen agency</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Being &quot;watched&quot;</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>38</td>
<td>10</td>
</tr>
</tbody>
</table>

The nature of the "conspiracy" is not always exactly stated, but generally speaking the patients believed that...
they were unfairly used all round, or that certain persons were combining against them in plans to injure their prospects, or that everyone seemed joined against them, and so on. Several conditions usually combine to produce this state of mind. We have an ill-balanced brain supplied by blood faulty both as to amount and as to quality. This condition of the blood is manifestly very apt to occur in persons labouring under the cachexia of syphilis. A frequent predisposing condition also is a morbibly suspicious tendency inherent in the man's mind. Persons who are naturally of a "suspicious turn of mind", while reasonably sane, often develop this peculiarity in an amazing degree when they become actually non compos mentis. Sometimes hallucinations or illusions of hearing seem to originate the delusion regarding a "conspiracy". Thus the patient may hear "voices" telling him
that so and so or so and so is plotting against him, or he misinterprets voices' sounds that really exist, and imagines something similar to the above. These illusions are often the result of cerebral anemia following the toxicomic process, or from specific arthritis with consequent diminished blood supply. The tinnitus aurium or the "bust" thus produced is very apt to be misinterpreted by the insane in the manner above indicated. Moos, of Heidelberg, reports the case of a lunatic, who being annoyed and terrified by auditory illusions, the result of cerebral anemia, committed suicide. Organic lesions implicating the auditory "cortical centre" (the first temporal-sphenoidal convolution) may be sometimes the physical cause of hallucinations or illusions.

Delusions as to being poisoned.

In 14 cases (21.8 per cent) the patients believed their food or drink or both to be poisoned....
I am inclined to think that in many of these the delusion had its origin in a biphasic neurosis producing catarrh of the root of the tongue. A bad taste in the mouth from this cause is a common accompaniment of certain kinds of dyspepsia.

The delusion, in fact, seems in many cases to be founded upon an illusion of taste. The insane person misinterprets the impression, and is unable to correct it, owing to the fact of his reasoning power being impaired or in abeyance.

It is a fact that just in proportion as these patients improve in the state of their digestive organs and in their nutrition and colour, so do they tend to give less emphasis to these delusions as to poisoning, and sometimes lose them altogether. And inversely. If from any cause we have a relapse of the dyspeptic condition, the delusions tend to return in all their old intensity......
In many of these cases the dyspepsia is apparently attributable to the lowered state of general health consequent upon the syphilitic cachexia. Delusions as to murder. When a patient believes he is to be killed this is very often the result of an hallucination or illusion of hearing. He may hear a voice which tells him he is doomed to die at a certain hour by the hand of one of his acquaintances. Acting on this belief he may become very violent and dangerous to others. Delusions as to unseen agency. The variety of unseen agency which these patients most commonly imagine to be at work upon them is electricity. It seems probable that here too these beliefs have their origin in misinterpreted sensations. A sane person feeling the same sensations would say that he feels as if insects were crawling upon him, or that he feels numbness,
or prickling or tingling sensations. Degenerative or trophic changes in the spinal cord were probably the physical reasons for these sensations; but I have not got data to enable me to say anything decided on this point.

On considering the various causes that may have brought about all these various delusions, the balance of evidence seems in many cases to be in favour of their having their origin in morbid physical states of the blood or encephalic tissues due to the action of the syphilitic virus in ways indicated above.

Group (a). Enselement the pre-dominant feature.

This took the form of negative phenomena, such as different degrees of ataxia, dulness of comprehension, and confusion or impairment of memory more or less marked. In some cases there was a constant downward progression to fatuity, and in many of these organic intra
cranial lesions were found after death. In others, still living, the existence of such lesions seems very probable.

**Group (b). Depression the preceeding infant feature.**

This group has already been considered under "delusions of depression", and further space need not be devoted to it.

**Group (c). Excitation the preceeding infant feature.**

Excitation was the preceeding infant feature in 14 cases (11 men and 3 women) = 21.8 per cent. The male cases included 3 of "General Paralysis of the Insane", a disease in which delusions of grandeur are particularly common at certain stages. The relation of syphilis to "General Paralysis" is not yet decided, but it may be mentioned here that a great many eminent observers regard the former as a most important aetiological factor in the causation of the latter disease.—see (Differential Diagnosis of intracranial syphilis from "General Paralysis", p. 50).
The remaining 8 men all had delusions regarding their own great importance, or great possessions, or great physical or mental power. Two of them firmly believed that they were the Almighty himself. A man who expresses grandiose delusions when insane, has been generally considered boastful, vain, or more than averagely conceited even while sane, and long before any symptoms of insanity appear. It is in his nature to be boastful, vain, as Maudsley remarks (op. cit. p. 263), "the particular constitution or temperament, rather than the exciting cause of the disease, determines the form which the madness takes."

Some of these cases presented, in addition to grandiose delusions, affections of motility which rendered the diagnosis from "General Paralysis" very difficult indeed.

The anti-syphilitic treatment is not a crucial test; for on the one hand we may have a long remission of
all the signs and symptoms following anti-venereal treatment in "General Paralysis", leading us to discharge our patient, and to believe him for many months as cured. A case of "General Paralysis" has been recorded (see Mickle of cit.) where a remission of 12 months occurred. Baillarger is stated by Mickle (op. cit., p. 65) to have mentioned two cases of "General Paralysis" where there were remissions of two years duration. On the other hand, some cases of intra-cranial syphilitic lesions resist the most persevering specific treatment.

**Group 1d. Depression and Excitation alternating, or co-existing.**

This was the condition in two male cases. Both these men thought themselves geniuses, but at the same time believed that they were influenced by certain persons in ways which prevented their rating with that success which their merits deserved.
General Remarks.—It has been already stated mental depression and enfeeblement are the special characteristics of cases of insanity with syphilis. Depression as an early symptom, to be followed and accompanied later on in many cases by enfeeblement. Those cases in which a progressive enfeeblement, in spite of all "specific" and other remedies, goes on, have of course, a very bad prognosis indeed. Along with the depression—and chiefly in the early stages—there is a marked degree of irritability and general tendency to groundless suspicions.

Out of the 64, 37 (57.8 per cent) were rated as dangerous. Of these, 34 were men, and 3 women. Of the 34 males, 7 had laid violent hands on other people previous to admission, and nearly all at some stage of their malady, either previous to or after their admission here, threatened or attempted violence to other persons.
The class of cases of insanity with syphilis is evidently, therefore, a very dangerous one. The explanation of this, I believe, lies in the fact that so many of them are so peculiarly irritable and suspicious with their depression. The nature of the delusions under which they labour accounts to a great extent for this. For example, when a man whose power of self-control is reduced to a minimum by his disease (insanity), when he is aggravated by severe cranial pain and insomnia, when he believes some person is plotting against his life, he may be said with good reason to be in a state in which he is extremely likely to do violence, and even, as sometimes happens, actual murder. Such, crudely, is the general mental state of most of these patients at certain stages of their disease.

**Sensory System.**

Pains in the bones, chiefly the tibia, were noted in 3 cases. Severe headache was noted in 14 cases (11 males
and 3 females). The headache had generally the characters ascribed to that arising from syphilis; viz. the pain deeply seated, and increased when the head was warm on the pillow at night. The pain was chiefly frontal or vertexal. Paraesthesiae have been already noted when dealing with the mental features. The cutaneous sensibility was noted as "dulled" or "blunted" in 10 cases. In one case the sense of locality was impaired, thus—when the patient was propped in the left arm he felt the pain in his left thigh.

Special senses—(a) Sight—The sight was impaired or destroyed in 7 cases (all males). Of these, 5 died and 2 are chronic inmates, while 1 was removed home. In the 3 cases who died there were other tertiary symptoms, and there was a considerable amount of gross brain lesion attributed to syphilis. By hearing was much impaired in one woman who had tertiary lesions. (b) Taste—was im paired in 3 male cases. (c) Smell was
impaired" in 2 male cases. Taste and smell were both impaired in 2 male cases, and in another with extensive tertiary mania, the patient was blind and had his taste and smell greatly impaired.

**Motor System.**

The affections of the Motor System are shown in the following table.

**Table VIII.**

- **Paralytic affections**
  - Hydrocephalus: 1 female
  - Bell's Paralysis: right side 1 male, left side 2 females
  - Hemiplegia: right side 1 male, left side 2 males
  - Paraplegia: 4 males

- **Convulsive affections**
  - Nystagmus: 1 female
  - Chorea: 1 male
  - Epilepsy + Epileptiform attacks: 4 females
  - Right Hemichiasm: 2 males + 1 female
  - Left: 0, right: 0

Paralytic and convulsive affections were coexistent in the case of 5 males.

**Bullar Reflexes** were diminished or abolished in 11 males + 1 female.
(Cases of "General Paralysis" not included in this table).

It is seen from this that convulsive affections were much more common than Paralytic or Paralytic affections in the cases.

In both the Paralytic and the Convulsive cases the comparative frequency with which the left side of the body was affected as compared with the right is noticeable. Judging from this, one would be inclined to say that lesions of the right hemisphere are in all probability more frequent in this class of cases than those of the left.

In ordinary Hemiplegia the reverse is more often the case. Of the 3 cases in which there was paralysis of the facial muscles on one side, the left side was the affected one in 2 (both females). One male patient suffered from the same affection on the right. All were improved under anti-syphilitic treatment. Of the 3 subjects of Hemiplegia (all males) two had left, and only one right Hemiplegia.

Paraplegia. Four patients (all males)
suffered from Paraplegia.
One female suffered from Paresis, and another from Nystagmus along with other motor phenomena, which will be afterwards detailed. One male had Choristic movements of the muscles of the face and neck.

**Epileptiform attacks.** 18 males and 4 females are stated as suffering from epileptiform seizures at intervals, and it is noted that 5 males and 4 females suffered from unilateral spasms. Of these, 2 males suffered from right, and 3 from left hemispasms. Of the 4 females, 3 suffered from left hemispasm, and only 1 female from right hemispasm. In one of the male cases the epileptiform seizure sometimes takes on the peculiar irregular character similar to those of the case of the French magistrate, quoted by Rousseau. In the case resident here the man will suddenly go to a press and mutilate into it, being afterwards quite unconscious of what he has done.

Five males suffered from convulsive, as
well as paralytic or paretic conditions.

**Reflexes.** The Patellar tendon reflex was noted as exaggerated in 1 female and 3 male cases; diminished or absent in 11 males and 1 female. In the majority of cases noted there was diminution, therefore.

**Somatic traces of Syphilis.**

In addition to a history of syphilis, valuable evidence in the way of scars of chancre on the penis, pigmented cicatrices in the groin, copper-coloured traces of skin eruptions, ulcers of skin or throat, "nodes" on the bones, various disease of the bones, gummatous of skin, was obtained in 45 cases, of which 37 were men. Well-marked tertiary lesions were present in 14 cases (10 males and 4 females). In anaemic, cachectic appearance is noted in 17 cases (all males). Miscarriages are noted as having occurred in the cases of two women, and a third out of 12 children lost 7 very shortly after they were born.

Skin-affections or their traces were present
in 39 cases (32 males and 7 females).
Degree of cutaneous affection considered in relation to the mode of termination of these 39 cases.

Table IX

<table>
<thead>
<tr>
<th>Mode</th>
<th>Skin affection</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharged</td>
<td>slight</td>
<td>6 males = 7 female</td>
</tr>
<tr>
<td>&quot;Recovered&quot; or</td>
<td>&quot;&quot;</td>
<td>1 female = 12 extensive</td>
</tr>
<tr>
<td>&quot;Relieved&quot;</td>
<td>&quot;&quot;</td>
<td>5 females = 12 extensive</td>
</tr>
<tr>
<td>&quot;Still resident&quot;</td>
<td>&quot;&quot;</td>
<td>&quot;&quot; extensive</td>
</tr>
<tr>
<td>&quot;&quot;</td>
<td>&quot;&quot;</td>
<td>0 females = 12 extensive</td>
</tr>
<tr>
<td>Died</td>
<td>&quot;&quot;</td>
<td>6 males = 7 female</td>
</tr>
<tr>
<td>(Re-moined male)</td>
<td>&quot;&quot;</td>
<td>0 females</td>
</tr>
</tbody>
</table>

From this table it will be seen that of the 19 cases Discharged (nearly all as "Recovered"), in which syphilitic affections of the skin were noted, the skin was extensively affected in 12 (7 men and 5 women), and slightly affected in 7 cases (6 males and 1 female).

b. Of the 11 cases still here (all males) the skin affection was slight in 4, and extensive...
in 4. None of them can be expected to recover. Of the 9 cases who died (5 males and 1 female), the skin-affection was extensive in 3 only (2 males and 1 female). One male died at home. The other died here, and was found to have gross intracranial lesions believed to be due to syphilis. The female case was put under vigorous and longcontinued antisyphilitic treatment not long after the disappearance of secondary symptoms, and when she died (about 7 years from the date of her admission here) in another asylum, no macroscopic syphilitic lesions were found in the brain at all events.

Of the 6 males who died, and in whom the skin-affection was slight, 3 had gross intracranial lesions attributed to syphilis. From the above it would appear that 1st. In those cases where there is extensive skin disease the prognosis is brighter, and the chances as to the mental recovery of the patient, better; 2nd. the most serious intracranial lesions were found as a rule in those cases where the skin disease
was slight. At the same time it must be remembered that a large number of male cases in whom the skin affections were extensive are still resident, and likely to remain in the asylum.

Complications

In many of the 64 cases there were physical diseases coexistent with the insanity in addition to Syphilis. These are noted in the following table.

<table>
<thead>
<tr>
<th></th>
<th>M.</th>
<th>F.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuminuria</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Alcoholism</td>
<td>12</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Bronchitis</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Cardiac disease</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>General Paralysis</td>
<td>5</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Locomotor ataxia</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Phthisis pulmonalis</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Sunstroke</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

From this it is seen that at least 12 males were suffering from the effects of alcohol on admission. In the majority of these cases, doubtless, the drink was one of the
exciting causes of the attack of insanity. It has already been mentioned elsewhere that drinking habits seem to act as a predisponent to brain syphilis. Syphilis comes next in order of frequency as a complication, being present in 7 males and 2 females. Syphilis seems in these cases merely a casual complication. In 4 of these cases the lung disease was pretty well advanced on admission, and these patients died in the Asylum. General Paralysis was present in 3 cases (all males). Much has been written both in favour of and against the theory of a syphilitic origin of General Paralysis. Many authors hold that syphilis is a true cause of the disease. Supporting this view we have Gissinger, Clemenroft, Jann, Ludwig Meyer, Mendel, Oedmanson, Roller, Kendu, Schüle, Westphal, and Nigge. On the other hand Lancereaux in his treatise on syphilis, while showing that cases of intracranial syphilis may very closely resemble General Paralysis, yet holds that they are distinct and independent
in character. Buzzard, Poumier, Mickle, and Müller appear to take the same side as Lanceaude. Mickle (op. cit.) states that the kind of syphilitic brain disease which most frequently resembles General Paralysis is that in which the arteries of the brain, and usually its arteries, are extensively diseased, and in which sometimes also the cortical surface of the cerebrum and the overlaying membranes are the site of gummatus infiltrations.

It is quite possible, of course, that intracranial syphilis may coexist with General Paralysis. Mickle (op. cit.) gives the following differential diagnosis between cases of brain syphilis (where the mental features are those of acalculia) and General Paralysis, as follows: He says that the syphilitic cases may be distinguished,

1. By the distinct history or symptoms of syphilis.
2. By the preceding cranial pains, nocturnal and intense.
3. The excitation is less marked, less for: silent, and perhaps less associated with
general maniacal restlessness and excitement, than in most of the cases of General Paralysis.

(2) Sometimes by such complications as palsies of one or several cranial nerves, or hemiplegia, or paraplegia having the character and course of syphilitic palsies ... as adverted to above.

(3) By the greater frequency of optic neuritis, early amaurosis, deafness, local anæsthesia, vertigo, or local rigid contraction.

(4) The affection of articulation is paralytic rather than paretic, and usually such is not accompanied by any facial or labial tremors or twitchings.

(5) By frank cerebral or spinal meningitis or pachymeningitis.

(6) By the variety of the motor and sensory symptoms 

(6) By the effect of anti-syphilitic treatment."

Gonorrhœa was present in 5 cases on admission (3 males and 2 females).

Although it seems paradoxical to say it, there is some likelihood that in one sense the gonorrhœa may have been
a result of the syphilis. All of the gonorrheal cases were those exhibiting maniacal symptoms, and the local disease had been contracted in the earlier stages of the mental affection (when diminution of self-control is a very marked condition), and before it had been thought necessary to place the patient in an asylum.

Cardiac disease existed in 5 males and 1 female. In one of the male cases, aged 26, there was very extensive disease of the mitral and aortic valves, the cusps being thickly encrusted with large vegetations. The patient had been particularly temperate as to drink, although much given to the society of loose women. He had never had rheumatic fever, and there was no history of exposure to strains of any kind.

Were these vegetations syphilitic in their origin? There were lesions in the liver, spleen, and kidneys that were believed to be syphilitic.
Sunstroke. There was a history of inebriation in one male patient. It seems possible that inebriation, like blows on the head, may act as a determining cause of insanity in the class of cases under consideration. Albuminuria was stated as present on admission in 2 male cases. There were no further symptoms to indicate in them organic kidney disease. The patients have been inmates of asylums for 5 years.

Locomotor Ataxia. One male case suffered from locomotor ataxia along with General Paralysis. Dr. Bramwell states (The Diseases of the Spinal Cord, p. 223) that in the greater number of acquired cases (of locomotor ataxia) there is a history of syphilis, but that it is extremely doubtful, for reasons given at p. 78 of cit., whether syphilis is the sole cause of the affection. There was nothing in this case to influence the scale of evidence one way or the other.
in the least degree. The patient was re-moved after a stay of some months. Prognosis in regard to insanity complicated by syphilis.

1st Sex. It would appear that in the case of females, at least — if we may judge from such a small number of cases — that a syphilitic taint is not necessarily prejudicial to the chances of mental recovery. Of the 13 women, 11 (=84.6 per cent) recovered and were restored to their friends. They have not relapsed, — at least they have not been readmitted to the asylum. Only 2 (=15.3 per cent) died. In the case of the men, however, a different story has to be told. Only 10 (=30.1 per cent) were discharged recovered, and only 7 (=13.7 per cent) were dis-charged relieved.

13 (=25.4 per cent) died

13 (=29.4 %) remain undetected

The recovery-rate of the male syphilitic cases contrasts unfavourably with the recovery-rate in males generally......
The average percentage of recovery in the males admitted during the past 5 years, labouring under all the different varieties of insanity, is 42.9; whereas in the syphilitic cases only 30.1 percent recovered. On the other hand, the results in the female syphilitic cases are much better than those obtained from the female cases as a whole. The average percentage of recovery in the females admitted during the past 5 years, labouring under all the different varieties of insanity, is 40.8; whereas in the syphilitic cases 84.6 recovered.

2nd Time Infected. Table showing the period intervening between the time of infection, and the time of admission to the Asylum, in those Discharged, Died, and Still resident.
The influences one may draw from this statement are,—1st. That those in whom the "period" is not greater than 12 months have the best chance of recovery. 2nd. That the chances of recovery and in-curability are pretty equally divided in those male patients in whose cases the "period" extends from 1 year to 15 years. 3rd. That when the "period" is greater than this the chance of recovery is very small. Slow structural changes.
in the cerebral vessels have probably taken place in many cases in which the "period" is long, rendering them hopeless as to recovery.

3rd Occupation. — Of the 16 men who were well educated and whose occupations were those demanding intellectual work, 9 were discharged; whereas of the remaining 35, only 14 were discharged. It would therefore seem that ceteris paribus a well-educated train has a better chance of recovery than one that is not.

4th Habits. — If one may judge from the facts in the history of the 16 male cases discharged "recovered," "drunken" or "loose" life is not necessarily inimical to the chances of cure. Of the 16, 7 were stated to be "drunken," and several of the others were both "drunken" and "loose.

5th Heredity. — Of the 23 males discharged (16 recovered and 7 relieved), hereditary predisposition to insanity was ascertained in at least 8. The train of
or parents is perhaps the whole more liable to be thrown off its balance than in cases where the neuropathic taint is of a less decided degree.

3. Extent of skin affection. For this see p. 45, "Somatic Traces of Syphilis."

<table>
<thead>
<tr>
<th>Delusionsasto</th>
<th>Nos.</th>
<th>Recovered (males)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Conspiracy</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>b. Poison in food</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>c. Death from violence</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>d. Unseen agency</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>e. Being watched</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>f. Delusions of Grandeur</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

(excluding general paralytic cases).

From this it would appear that the cases in which exaltation is the predominant feature have the best chance of recovery. Fifty-seven percent of this sort recovered. In group (a) the chances of recovery are few, comparatively speaking:—

29.4% percent recovered. In the remaining groups the prognosis is bad.

8. **Complications.**—It goes without saying that the coexistence in the
case of such diseases as General Paralysis, advanced phthisis, or grave cardiac disease, form a very unfavourable element in prognosis.

_Treatment._ All cases in which there was a syphilitic history, or in which syphilis was diagnosed were at once put on specific treatment. The perchloride of mercury, the iodide of Potassium, either separately or in combination... Table showing in Quinquennial Periods the ages of the 64 syphilitic patients admitted, i.e. covered, relieved, died, and still resident.

### Table XII

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Admitted</th>
<th>Recovered</th>
<th>Relieved</th>
<th>Died</th>
<th>Still Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20 years</td>
<td>11</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>5</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>25-30</td>
<td>8</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>30-35</td>
<td>8</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>35-40</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>40-45</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>45-50</td>
<td>14</td>
<td>15</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>50-55</td>
<td>3</td>
<td>3</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>55-60</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>13</td>
<td>64</td>
<td>16</td>
<td>26</td>
</tr>
</tbody>
</table>
As might have been expected, the best results were, as a rule, obtained in those cases in which the syphilis had been of short standing. Thus the 3 patients in whom the "Period" was under 6 months, all recovered. The 3 females in whom the "Period" did not exceed 12 months all recovered also. The male patient is, however, mentally incurable; and I believe that in this case the syphilis was merely a casual complication. In the cases where several years have elapsed between the date of infection and the time when mental symptoms necessitating removal to an asylum supervened, the results to be looked for cannot, as a rule, be so favorable as in the earlier cases.

In many patients where the syphilis is of old standing organic cerebral changes have occurred. In advanced cases, where the mental disorder results from the calibre of the cerebral vessels being progressively diminished by the chronic inflammatory changes in the
coats of the arteries, no treatment can be said to be of much avail.
On the other hand, if the insanity has been caused by the syphilis without inducing alteration in the cephalic structures, there is a reasonable hope of recovery if anti-syphilitic treatment be early adopted.

Syphilis was very probably one of the exciting causes in many of the cases, but an exciting cause varying very much in its importance in different instances. In some it was par excellence, the exciting cause; in others an exciting cause of second-rate value; and in others it played a still less im-
portant part.

The presence of a syphilitic taint probably causes insanity in more cases than is generally supposed. At the same time I do not say that the insanity of every lunatic with a syphilitic history is dependent on the syphilitic taint. Far from it. I believe with just as good reason, that there are men
who could not be made insane by the effects of syphilis as that I believe there are many men who could not be made insane by grief, or any other powerful moral cause. The presence of some particular variety of the neuropathic constitution is probably required in order that a case of true syphilitic insanity may be produced....

Below are given in detail three cases where the mental disorder appeared to be excited by syphilitic intra-cranial lesion.

**Case I.** Primary syphilis between six and seven years prior to admission; convulsive attack; paresis of right arm and impairment of vision; cachexia; melancholia, passing into dementia; emaciation; death.

J. M. aet. 38, married, a tailor. Admitted 10th June 1884. Patient had been an active, brisk, intelligent man, a hard worker, and most temperate in regard
to alcoholic drinks; but he was very profi-
tigate, and had contracted both
gonorrhoea and syphilis. Excepting
these diseases, the latter of which he
contracted between six and seven
years before admission, he had en-
joyed excellent health.
No hereditary predisposition to insanity
could be detected. He came of a family
said to be healthy in all respects. No
cause for his insanity was assigned
by the friends who brought him here.
Although a married man he was
much given to the society of loose
women, and about six years before
his admission he had communicated
syphilis to his wife. She had the
usual secondary symptoms, and
when she called at the asylum to
see him, her pale anemic, cachectic
appearance was very noticeable.
Five months ago he had a "convulsive
fit" preceded by a scream and
accompanied by foaming at the
mouth. His wife cannot say for
certain whether he was conscious or not during the fit. Very shortly after this he complained of intense cranial pain, deep-seated on the left side of the head, and worse at night. He also noticed that his sight was worse immediately after this, and that the power in his right arm was diminished so that he could not use the heavy irons employed in his trade. Two months ago he began to express groundless fears, and then thought the police were coming to "fetch him away." He was very much depressed in mind, was restless and uneasy, could not sleep, and took very little food. Then he gradually became confused and stupid. When admitted here he seemed to be very melancholic. He sat in a chair with downcast head taking no notice of anything, and never uttering a word even in reply to questions. He was also confused, vacant, and somnolent. He refused all nutriment.
and resolutely resisted all such necessary processes as feeding, dressing, and undressing. Occasionally he smiled in a vacant, meaningless fashion.

Physical state. He was anaemic and cachectic in appearance, and was very thin, weak and exhausted. Hair of head abundant, but no beard, mustache, or whiskers. Right pupil dilated; sensory functions normal; grasp of right hand very weak; patellar reflex diminished; signs of consolidation at the apex of left lung; heart healthy; kidneys healthy; no eruption noted, but two small "punched-out" looking ulcers on left leg; no scars, cicatrices, or nodes; weight 112 pounds.

The above negative mental symptoms characterised the case during its course of six months. Without giving unnecessary details it may be stated that the patient seemed so weak that he was constantly kept in bed. He had to be fed by an attendant at every meal, and was inattentive latterly to the calls
of nature. For the most part he lay in a torpid or somnolent condition. The iodide of potassium was given from the time of admission in grain doses thrice daily. Three months after admission a haematoma appeared in the concha of left ear, but it was arrested by blistering fluid. Six weeks after this a papular eruption came out all over the body. The nodules grew to the size of a pea, and were chiefly on the legs. On the 5th December the patient was found early in the morning to have lost all power of movement. During that day he lay on his right side in a comatose state, breathing heavily, and with his eyes open and fixed. In the afternoon and evening he had several convulsive attacks; the spasms, which were done in character, being limited to the left face and limbs. He died at 3 A.M. on the following morning (the 6th December 1884).

Post-mortem 5½ hours after death. Body
greatly emaciated; reddish nodules the size of a pea and ulcerating at the apex scattered all over the body; no lymph nodes; no pigmented scars or other sign of disease in inguinal region; small scar near frenum.

Head. Skull cap normal in appearance and easily removed; dura mater healthy. A depression large enough to contain a full-sized hazel nut was situated an inch anterior to the fissure of Rolando at the apex of the brain and involving both the hemispheres at the same area on each side of the superior longitudinal venous sinus. The soft membranes appeared healthy to the naked eye. In addition to the above localised atrophy, others were noted at the following places.

Right hemisphere. The posterior portion of the right inferior frontal gyrus.

Left hemisphere. The left ascending frontal gyrus, in nearly its entire length, was very narrow and shrunken. looking, and had a dull ivory yellow
colour in strong contrast to the surr:
rounding gyri, all of which had a
pinkish tint. This gyrus also had
a firm, almost fibrous feel.

b. The angular gyrus, the supra-marg:
inal convolution, and portions of the
gyri next them were considerably
atrophied, and felt very soft to the
finger as compared with the surr:
rounding gyri which were of normal
consistence. Besides this the convolutions
were somewhat atrophied generally.

Base of brain, and other vessels there
appeared quite healthy. The ependyma
of the fourth ventricle was thickened and
granular, and, near the calamus scriptor:
ius, had a grey gelatinous look.

The hemispheres on section presented a
large number of small bleeding points.
The grey matter was a good deal congealed,
and in places presented a distinct grey
gelatinous-like layer. In it enormous
numbers of small congealed vessels could
be seen running down through the grey
matter in closely arranged parallel lines.
In cutting across the left ascending frontal convolution the white matter was seen to be very anaemic, and the grey matter also to a less extent. The lateral ventricles were somewhat enlarged but not granular on the floor. About the middle of the Pons, but posteriorly and to the left side of its centre was a small focus of softening, the size of a barleycorn. The encephalon weighed 420g.

The upper half of the upper lobe of the left lung was consolidated, but contained no vornicae. The other organs appeared healthy.

Microscopical examination of Brain:—

The parts most carefully examined were the left ascending frontal convolution, and the Pons Varolii (including the softened spot).

In the left ascending frontal, there was a marked tendency to the development of the neuroglia, at the expense of the nerve, elements. In many places the minute arteries were invaded by an extensive nuclear growth, which in the case
of some vessels almost obliterated the lumen. The nuclear infiltration seemed pretty equally distributed among the tissues of the vessel wall. (See fig. 1)

Fig. 1—Dis. small vessel having its coats infiltrated with nuclei and its lumen diminished. X 350.

Some of the smallest vessels were seen filled by a rouleau of coloured blood corpuscles. "Haematoidin" was seen about the vessels in some places, and corpora amylacea were pretty abundant, especially near the bottom of the sulci. (See fig. 2)

Note.—All the figures have been drawn on stone, from the sections prepared by the writer.
Fig. 2. Left ascending frontal at bottom of a sulcus, showing proliferation of nuclei in the pit mater and a group of corona amylacea. a, a; Corona amylacea. X 350.

In the Pons Varolii the axial cylinders of the nerve fibres appeared somewhat enlarged in places; e.g. near the softened spot. Some nerve cells in groups appeared blurred and indistinct in outline, but most seemed healthy. (See fig. 3), and no actual degeneration was noted.
The arterioles were diseased in the same way as has been above described in the case of the frontal lobe; one or two were seen which seemed completely occluded. The minute vessels in the brain generally were implicated in different degrees by the nuclear proliferation, but nowhere to quite the same extent as in the regions described.

**Remarks.** I think there is strong presumptive evidence that the insanity in this case was due to organic changes in the brain which were brought about by syphilis. The onset and course of the mental phenomena were just such as have been not infrequently found associated with the disease of the arterioles described by well-known authorities, such as Krause, to syphilis.

There was certainly no assignable cause for the mental disorder other than the above. The patient had been, previously to the first onset of his illness, reckoned by his friends a smart, intelligent fellow, with nothing "nervous or peculiar"
in the popular sense, about him, and there was no hereditary tendency to insanity. The local excesses to which the patient was undoubtedly given, formed in all probability an important determining cause of the vascular disease.

The theory of localization of function in the brain appears to receive some support from the testimony adduced in this case. It will be remembered in connection with the facts that vision and the motor power of the right arm were impaired, that lesions applicable to the unaided senses were found involving the left "cortical visual centre" (the angular gyrus and the suprasMarginal convolution, or lobule) and also part of the left "cortical motor area," viz., the left ascending frontal gyrus. The case ran a very short course for one of its class, the patient dying a little under 12 months from the time of the first convulsive seizure. Usually the cases of syphilitic arterial disease last much longer. It is possible that the sudden termination here
was due to a small aphasia or embolism involving some part of the medulla oblongata.

Case II. Primary syphilis "many" years ago. Intense cranial pain subject to nocturnal exacerbations; "convulsive fits" treated by the iodide; right hemiparesis; progressive mental enfeblement accompanied by occasional maniacal outbursts; finally a succession of fits; coma; death.

J. W. aged 52, married, engine fitter, was admitted to the Royal Edinburgh Asylum on 3rd March 1883.

History. He had been given to liquor to some extent. He appears to have contracted syphilis over 20 years ago. About 5 years ago he received a heavy blow from a hammer on the left side of the head, and had to stay in hospital for a short time. But he seems, on the whole, to have had fair health, generally speaking. He married at thirty years of age, and was the father of six children, of whom four are alive and healthy. His wife had
two abortions, one of these occurring in her
first pregnancy. The family history showed
the presence of insanity, phthisis, and
accordia.

About two years ago he began to suffer
severe pain at one spot on the right temple,
and not long afterwards on the left
temple also. The pain was described as
being "deep in the head," and at times
most severe, especially at night.

Fifteen months ago he had a "convulsive
fit"—the first he ever had. It did not
follow a drinking bout, and he went
to work next day as usual. After this
he had several fits at irregular intervals,
and the headaches continued. He was
trated by iodide of potassium, and the
fits diminished in number and severity
thereafter. He was able to attend to his
work until a month before admission
to the Asylum; and about a fortnight
before his admission he grew restless and
sleepless at night, and muttered a great
delusional talk to himself. These symptoms grew worse,
and then he threatened violence to his wife.
and children.

State on admission. - Physical development fair; complexion muddy and pallor; locomotion slow, and he dragged the right leg somewhat. Pupils normal; sensory and reflex functions normal. Tongue somewhat tremulous on protrusion; articulation markedly thick and closed. Mitral and aortic regurgitation were present. Temperature 98.6.

Mentally the predominant features were those of enfeeblement and retardation. His memory was much impaired, and he was very slow and confused in his ideas.

During the first week of his stay in the asylum he was generally restless, and was sleepless and excited at night. He once struck an attendant without any apparent reason. At the end of the week he had a fit, after which there was some diminution of fever on the right side of the body for some days. During the second week he was more restless and excited than before, and at night used
to try to tear open the window shutters of the dormitory where he lay. Then a change occurred. He became quiet and civil in his demeanour, could answer questions with a good deal of intelligence, made himself useful in the ward, and was gaining in flesh. He also slept pretty well at night. But at the end of eighteen days he took a severe fit in the early morning, and this was followed by a number of others at intervals of a few minutes. For 4 days he continued to suffer, with very trifling intervals, from these attacks, and on the morning of the fifth day he died comatose. All the vagaries observed had the characters of "Jacksonian epilepsy"; and further than this it is only necessary to say that the convulsions began always in the right cheek, and extended thus:—after successively to the right arm and right leg.

Autopsy forty-six hours after death (Wether cold). No oozes, spots, cicatrices, or nodes. Skull-cap thin, adherent to dura mater over the left frontal lobe at the posterior part
of its convexity. Dura mater adherent to the soft membranes over the posterior part of the second frontal gyri of right side; and in stripping it off, a tumour the size of a hazel-nut, and taking the shape of the gyri, was found growing from the deep surface of the pia mater. On section it was seen to have a pale yellow colour except near the circumference where a gray translucent narrow zone existed.

Over the middle portion of the ascending parietal and ascending frontal, and the posterior portions of the first and second frontal gyri of the left hemisphere, the meninges were greatly thickened and glued firmly together, the whole forming a tough, firm layer about one-eighth of an inch in depth, and presenting a yellow colour on section. Over an area the size of a crown piece this structure was strongly adherent to the subjacent gray matter, which was deeply torn when the attempt was made to strip off a small part of it. At one or two other spots the
Fidia mater was adherent to the gray matter, and laceration of the cortex resulted when the membrane was stripped off. The brain substance was very pale and soft beneath all these areas. There was no trace of disease or injury of the skull-cap at any spot.

The right temporoparietal lobe was soft almost to diffuseness. The base of the right frontal lobe, near the olfactory bulb, had an area of soft reddish material the size of a shilling. Encephalon weighed 5.5 oz.

Heart. - The mitral and aortic valves were incompetent; the aorta presented several nodular elevations near its origin.

Microscopical examination. Sections were taken from the convolutions (some including a part of the greatly thickened meninges), the lumour, and the corpora striata. In the convolutions there was a tendency to yellow granular degeneration of the pyramidal nerve cells, in the frontal lobes especially. The blood vessels were somewhat thickened in their coats at a few places.
and in the neighbourhood of the tumour some small vessels had their coats greatly thickened by infiltration of nuclei, and their calibre correspondingly diminished (see Fig. 4.)

Fig. 4. - I.S. of small vessel in right frontal lobe, showing infiltration of coats by nuclei and narrowing of lumen. X330.

Large haematoidin granules were very common, and many vessels were crammed with blood-corpuscles.

Corpora Striata. - Vessel walls greatly infiltrated with nuclei, and their calibre diminished.

The tumour chiefly consisted of an infiltration of small cells or nuclei. The arachnoid and pia mater over it...
showed great hyperplasia of the tissue elements, and were infiltrated with the small cells. Indeed, no very sharp line could be drawn between the pia mater and the tumour, the latter seeming to form a direct and continuous growth from the membrane. It spread inwards, involving the nerve elements as it went, becoming deposited among them, and finally replacing them—not making a bed for itself by pushing the brain tissue before it. Near the pia mater, about 1.40" of an inch in diameter, had been cut across, and exhibited the characters of an obliterate endarteritis, as seen in Fig. 5.

Fig. 5. Showing growth of new cells between the endothelium...
Sections taken through the large patch of thickened and adherent meninges on the left hemisphere, showed very great hyperplasia of the tissue elements, which were also infiltrated with new cells, and contained very thickwalled vessels. The brain substance beneath this diseased area had a loose, reticulated appearance, and the characteristic small cells were extremely numerous throughout it. The vessels in and near this part of the brain had their walls extensively invaded by the small cells, and their calibre correspondingly diminished.

In this case, it will be noticed that the meningitis on the left hemisphere had implicated an area of the brain cortex which includes a considerable part of the motor area as defined by Professor Ferrier; and it seems without doubt that this was the cause of the discharging lesion which gave rise
to the unilateral convulsive seizures from which the patient suffered. This case appears to be in its pathogeny similar to the above, at least so far as the vascular disease is concerned. But some of the gross brain lesions in this case were more of the nature of growth than of atrophy. Shatka has doubted the claim (put forward by several well-known authors such as Flechsig and Griesinger) of syphilitic meningitis to distinctive characters. But, certainly, to account for the presence of the meningitis in this case, on grounds other than syphilitic, would not be easy.

Case III. — Primary syphilis 10 years ago, followed by rash and extensive loss of hair; two years ago intense nocturnal headache, and pains (thought to be rheumatic) in arms and back; alteration in conduct; excitement at first, but very soon enfeeblement with depression and irritability and violence, progressing...
dementia, abscesses on head, over left shoulder and breastbone; exhaustion; death.
J.S. act 42, painter, married, admitted 22nd November 1877.
Patient had always been irritable and easily worried. He had never been much given to drink, but very little alcohol seemed to upset him, one glass of whiskey being enough to make him quite drunk. His grandfather had been insane, his father was consumptive, and his mother paralytic.
About 10 years ago he contracted syphilis, and had the usual "secondary" symptoms, but otherwise his health had been good. About 2 years ago he began to suffer from pain in the head about the sides of the forehead, and intensified at night. His sleep became much interfered with apparently on this account, and he soon began to show an alteration in his disposition. He had been a very affectionate husband, but now he became irritable and wayward.
and strange in manner. He was stated to have committed rape shortly after this, and was sent to Perth Prison. Here he was found to be insane, and was then sent to Morningside. On admission here his physical state was as follows: Pulse and temperature normal. Pupils equal in size, normal in their movements to light and for accommodation; hair of head brown and pretty abundant all over; fairly nourished; tongue clean, flabby, and protruded towards left side; choreic movements of the muscles of face and neck; common sensation dulled; heart, lungs, and kidneys healthy; copper-coloured traces of an eruption on the chest; weight 154 lbs.

Mentally, there was a marked amount of quiet exaltation. He affirmed that he was God in the image of man, that he was not in an asylum, and that he had been sent here by the Emperor of Germany. There was also some mental enfeeblement, and he was stupid.
and confused. His memory was impaired, he talked at times incoherently, and he could not give correct answers to questions. He seemed also to have auditory and optical hallucinations. The entries in the case-book extend over a period of 6½ years. The following is a condensed account of the progress of the case.

For the first six months or so there were the same features of excitement, but after this depression was present to a considerable extent, and the mental enfeeblement progressed steadily to dementia. He was at times subject to outbursts of excitement lasting a day or two, and was, as a rule, taciturn, suspicious, sulky and irritable, and was sometimes violent to those around him.

His physical health was reckoned fair, except when suffering as he did once for a week from bleeding internal piles. In the beginning of 1884 he was again confined to bed owing to a return of
the hemorrhoidal condition.
In the first week of April of the same year he suffered from an abscess over the acromial end of the left clavicle and on the matter being let out this part of the bone was found necrosed.
An ecchymosis the size of a sixpence came away afterwards. Within a fortight other abscesses appeared over the middle third of the sternum, the right parietal eminence, and over the angle of the fourth right rib.
Cavious bone was felt at all these points except the last, where the abscess was not opened. After these appeared the patient deteriorated steadily notwithstanding the most careful treatment, and died on 22nd June 1884.
Post-mortem 46 hours after death. Body emaciated. Rigor mortis absent. Marks of abscesses over the acromial end of clavicle, and over middle third of sternum. A little above right parietal eminence a brown scab or crust covering a hole in the scalp through
which carious bone was felt.

On reflecting the scalp there was found correspondingly to this hole, a carious patch 1 inch x 3/4 of an inch (oval in shape), situated at a spot in the right frontal bone about 1 1/2 inches from the sagittal suture, and 1 1/2 inches from the coronal suture.

A few drachms of dirty yellow pus lay on and around the patch of caries.

[Underlined] Skull-cap very adherent to dura mater.

On the dura mater, at a spot corresponding to the carious bone, there was attached a yellow caseous looking mass about the size of a filbert, and there was a hollow in the convolutions immediately beneath this mass as if some degree of local atrophy had been caused by direct pressure upon them.

The soft membranes appeared healthy. The large vessels at the base of the brain seemed healthy.

On section the cerebral hemispheres did not present anything that could be noted as abnormal, and even at the
spot above which the gummatous mass had lain, no lesion was observed.
Encephalon weighed 1450. The other organs were unfortunately not examined.

Microscopical examination of Brain:

In the cerebral cortex, the cells appeared fairly healthy, and only some of the large pyramidal cells of the fourth layer showed considerable yellow granular degeneration in places (See Fig. 6.)

---

*Fig. 6.* Shewing yellow granular degeneration in cells.

X 350.

None of the vessels were appreciably thickened, but some of the small arterioles showed marked nuclear proliferation in their walls.

Some "haimatoxin" was present. There were also
some circular patches of unstained material resembling "miliary sclerosis" (See Fig. 7.)

**Fig. 7.**- Shewing patches of "miliary sclerosis."

**Remarks.**—The cause of the insanity in this case was put down on the admission sheet as "syphilis." There seems little reason to doubt that the mental disorder was lighted up chiefly by the presence of the gummatous mass pressing on the convolutions. There was not a sufficient amount of vascular lesion in the brain to give ground for believing the vessels to be mainly at fault. Only an approximate idea could be formed as to the original size of the gumma; judg-

ing from the caseating remains of it
and from the depression on the gyri, it must have been large enough to excite a considerable degree of psychical disturbance by its presence. The syphilitic plant was, figuratively speaking, set in a congenial soil, for J.S. was told, it was predisposed to insanity, and possessed, as has been noted above, a brain that was ill balanced by nature and its equilibrium easily disturbed.

Below are stated in tabular form the particulars of eight cases.
<table>
<thead>
<tr>
<th>No.</th>
<th>Sex</th>
<th>Age</th>
<th>Mental Symptoms Previous to and on Admission</th>
<th>Signs and Symptoms of Syphilis Noted on Admission</th>
<th>Termination of Case</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>35</td>
<td>Confused; depressed; unfeuded; emotional. Cannot sit where she is or where she came from; not sure of her own name even. Weak without apparent cause.</td>
<td>Cachectic appearance. Painful node on left axilla, and marked tenderness on pressing the bone; node on right clavicle. Ulcerative ulcer on right leg.</td>
<td>Recovered</td>
<td>Contracted syphilis several years ago. No other disease assigned for insanity. No other physical disorder present. Had 15 g. of Potassium thiosulphate in daily. Duration of treatment here was 2½ months.</td>
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<tr>
<td>2</td>
<td>F</td>
<td>55</td>
<td>Confused; stupid, unfeuded. Mentally, incoherent; restless; delusional actions; memory seems impaired; unable to answer questions rationally.</td>
<td>Pal and cachectic hole in palate the size of a shilling; the result of syphilitic disease; tumour of sternum (erythematous) in posterior triangle of neck; cicatricial deformity of old ulcer at left infracteaneous area</td>
<td>Recovered</td>
<td>Date of infection unknown. Assigned cause of insanity was &quot;syphilis&quot;. Had the disease in large doses during residence here. Duration of residence here was 6 months.</td>
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<td>No.</td>
<td>Case</td>
<td>Nervous System</td>
<td>Mental Symptoms</td>
<td>Signs and Symptoms of Syphilis on Admission</td>
<td>Termination of Case</td>
<td>Remarks</td>
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<td>3</td>
<td>N. 41</td>
<td>Common sensibility impaired; motor system normal.</td>
<td>Depressed; liratic; delusions that his landlord was in the habit of poisoning his food, and that other persons had drugged him. Imagined that a cicatrix which was on his tongue, and an eruption on his body were due to his being drugged.</td>
<td>Anemic cachexia, syphilitic porosis on arms, legs and trunk; copper colored cicatrix on left groin, and on right side of scrotum; cicatrix of ulcer on back of tongue.</td>
<td>Repealed</td>
<td>Duration of residence was 2 months.</td>
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<tr>
<td>4</td>
<td>N. 28</td>
<td>Plantar skin reflex and Babinski tendon reflex increased.</td>
<td>Depressed, suspicious, was what found in manner. Delusions that certain persons watch him and plot against him to prevent his succeeding in anything that others lose interested.</td>
<td>Tendons in right arm enlarged and indurated, syphilitic disease of right testis, and node on right testis.</td>
<td>Repealed</td>
<td>Duration of residence was 1 month.</td>
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<tr>
<td>No.</td>
<td>Symptoms and Signs Previous to, and on Admission</td>
<td>Mental Symptoms on admission.</td>
<td>Signs and Symptoms of Syphilis noted on admission.</td>
<td>Elimination of Case</td>
<td>Remarks</td>
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<td>5</td>
<td>Intense headache sometimes, and a feeling of heat in head; voice impaired; right pupil dilated; patellar reflex exaggerated.</td>
<td>Irritable, suspicious, sometimes depressed, and some times confused; very violent at times; some mental enfeeblement; delusions that poison is put in his food; and that certain persons work upon him by magnetism.</td>
<td>Sallow and anaemic; one white papular ten. and one on corona glandis; glands on groin indurated; hair scanty; crescents of ulcer on left pillar of fauces.</td>
<td>Still under treatment.</td>
<td>Has been married seven years. Has one healthy boy 6 years old. Was infected 5 years ago. Melitis having had chancre, now tube, and ulcerated throat, and loss of hair. Solids 10 grs twice daily. Has been 3 years in asylum. Improving slightly.</td>
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<td>6</td>
<td>Complains of intense frontal headache at times, worst at night, and especially about 4 a.m.</td>
<td>Very irritable and suspicious, somewhat confused frequently; delusions that certain persons influence him by some unseen agency, and that other plot against him; threatened violence to persons.</td>
<td>Pale and yellow; hair very thin.</td>
<td>Still under treatment.</td>
<td>States that he had chancre, tube, and ulcerated throat and loss of hair. Solids 10 grs twice daily. Has been 3 years in asylum. Improving slightly.</td>
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<tr>
<td>Nervous System</td>
<td>Mental Symptoms</td>
<td>Signs and Symptoms of Syphilis Noted on Admission</td>
<td>Termination of Case</td>
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<tr>
<td>Symptoms and Signs Previous to and on Admission:</td>
<td>Previous to, and on admission:</td>
<td>Signs and Symptoms</td>
<td>Still in an Asylum</td>
<td>Also believed to have been infected through a wound on his finger while dressing a syphilitic patient. The case was complicated by alcoholism. Has been 11 years insane.</td>
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<tr>
<td>Balance, frontal headache, unsteady, at night, eyesight impaired, pains in back and joints, worst at night, and accompanied by rise of temperature. Epileptiform attacks, tendency to vomit at times.</td>
<td>Delusions of being depressed and imagined. He was to be killed; hypochondria, thought he had only one lung. To have considerably demented.</td>
<td>Yellow cachectic look; Frey's gland on left, leg and undivided; syphilitic eruption on tibia and legs, syphilitic cone, and coppery blotches on legs, fever on and tenderness of right thigh.</td>
<td>Still resident.</td>
<td>Contracted syphilis 15 to 20 years ago. Only two cases left male. Data of the deceased patient. This case was one of them. Memory of the brain, believed to be syphilitic, has been diagnosed by an eminent physician. Improvement. Dementia deteriorating. Has been 2 years insane.</td>
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<td>Intense, headache, at night, sleep became impaired, after years; voice defective; loss of hearing; fear and sensations of terror, revealed dulness of both of the ears; left ear was filled with thick, and the vein around ear dilated and dilated. Upper lip and produced towards left, external aspect of left eye which began 5 years ago, right pupil dilated; lanolin reflex diminished on left side, a degree of left hemiparesis, peculiar hysterical movements of head and neck.</td>
<td>Melancholia gradually deepening, then becoming intense and accompanied by strong suicidal impulse; attempt at suicide; great mental depression continues; dementia advancing, disregards out of nature. Efforts resisted and cannot be availed. Is irritable, suspicious, greatly depressed, and is becoming gradually more and more demented.</td>
<td>None while creatures on the brain, penis, on coffee causes in right ginn.</td>
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These eight cases may also be taken as fairly representative of the class in which syphilis is assigned with good grounds as one— if not the most important one— of the exciting causes of the mental disorder. After ascertaining all the possible causes for the symptoms, and eliminating those which have not a fair claim to be considered of consequence, the toxaemia resulting from the syphilitic taint remains as the most likely explanation of the morbid phenomena. This certainly applies to the first four cases.

If the effects of treatment are to be taken as a test, additional weight is given to the theory of a syphilitic origin by the results following the regular at: ministration of the Soda of Potassium. The beneficial effects of this drug were especially noticeable in the first two cases. In conclusion, I should state that I don't feel entitled to hold any decided opinions as to the causal relationship between insanity and syphilis in its late stages when we have simply a toxaemia and where no
intra-cranial lesion can be proved. It may be allowed, however, to suggest that this toxæmia is possibly a more widespread cause of mental disorder than is suspected. The subject seems one worthy of extended and careful observation.

Appended is a list of authors, with their contributions, arranged alphabetically.

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