Essay on General Paralysis of the Insane

Walter Smith Kay, M.B.
General Paralysis at the present day is a disease well known clinically in all lunatic asylums. It is many years since Bayle first described the symptoms constituting General Paralysis and since then, many authors have added their experience and testimony but even at the present day its etiology and pathology are to a very great extent hypothetical.

Of all descriptions of the disease that I have seen, none seems to me the best by General Paralysis is a group of symptoms which represents a form of disease which is characterized by a progressive diminution of mental power, and by a paralysis which creeps on stealthily, increases gradually, and invades progressively the whole muscular system. The concurrence and concurrent increase of mental and motor disorder are not accidental, but constant: the patient loses the power of performing both ideas and movements, and gets worse and worse gradually in both respects, till he dies.

This short essay has no pretension to be a complete exposition of all the opinions that have been given on the subject, but rather the result of my own experience of the disease. The Commissioners in Lunacy in their last
annual report give, that of all patients admitted to asylums, 7.4 per cent were suffering from General Paralysis: of course large asylums, which draw their patients from a working class, such as is found in the West Riding of Yorkshire, have a much higher percentage of General Paralytics than asylums in agricultural districts have. In the North Yorkshire Asylum from March 1st 1872 to February 28th 1873, there were admitted 260 men and 275 women, and of these 66 men and 88 women were diagnosed as suffering from various stages of General Paralysis: being a medical officer in the above asylum, I have thus had ample material from which to draw conclusions.

Etiology

Etiology of General Paralysis may truly be said to have given rise to a great deal of discussion and in my opinion no very satisfactory conclusions have been arrived at. Maudsley assigns as the chief cause, sexual excess, giving as a reason, that the disease is most frequently met with in the prime of life between 20 and 45 years of age, and that it
is at that age you find people married and having constantly the means of gratifying their desires; the rarity of General Paralysis in Scotland and Ireland rather militates against that theory; as Irishmen and Scotchmen can scarcely be said to pass greater lives of celibacy than Englishmen.

Syphilis has caused the most of aiding largely in the production of General Paralysis; & it was well of large use to think it was the chief cause, but he like Dr. Willis of London, Paris, has changed his opinion about it.

Former of St. Louis Hospital, Paris describes a form of General Paralysis due to Syphilis and calls it "Paralytic General Paralysis." Syphilis has given rise to symptoms simulating General Paralysis in the early stage, but the course of the disease is very different, generally symptoms of a definite kind appearing sooner or later, such as Paresis, hemiplegia, etc. I recall very well, once seeing a very typical case, a woman was admitted having symptoms both mental and motor of General Paralysis in the early stage; but in six weeks, she was in a state of complete hemiplegia with Paresis and had all the signs of advanced brain wasting. A Post-Mortem examination re-

3.
Sealed gross aphatic lesions.

Dr. Ashe in the Journal of Mental Science for April 1876, ascribes to beer as one of the causes of General Paralysis, because in England, when the term General Paralysis is very common, it is much more generally drunk than in Scotland or Ireland, where General Paralysis is comparatively rare. (W. Trees.) Phosphorus in the system as an admixture can, he says that in people who lead active intellectual lives, the Phosphorus passes off in an oxidized state, being burnt off as Phosphoric Acid; but when such people, as retired merchants, lead a retired life, the Phosphorus is not oxidized, because they have no further need to exercise their brains to such an extent as formerly, and thus the Phosphorus remains in the blood and so causes General Paralysis, but how and why he does not say.

Injuries to the head have certainly aided very materially in producing General Paralysis. I have seen several cases of General Paralysis, where the symptoms began soon after the injury, and the histories of these patients were sagacious in every other respect as regards other causes of insanity.

Lead Poisoning is at the present time occupy-
ing the attention of Asylum Physicians as one of the
causes and there is very little doubt that
cases of General Paralyzis have arisen from that
cause. I have at present two patients being very
good examples of General Paralyzis, both with a
negative history of insanity in every respect
except that due to the lead poisoning; they were
both sufferers and have been treated at the
Sheffield Infirmary for lead poisoning, and since
then their mental symptoms have appeared; in
both cases beginning with Mania with grandiose
ideas gradually tapering into dementia; the
motor symptoms also being well marked.
The propagation theory receives a few words. Foillé
in the Annals Psychologiques 1873. says
that he considers General Paralyzis as a primary
central disease with a special pathology entirely
independent of any other nervous disease;
but occasionally General Paralyzis is consequent
upon another affection of the Nervous System, such
as Loco-motor Ataxia, Paresis or Diphtheritic
paralyzis! there is no doubt that General Paralyzis
has frequently complicated cases of Loco-motor At-
taxia; I have seen several such cases, and at
present have two well marked examples of
General Paralysis following on Locomotor Ataxia and in both cases the friends of the patients attribute the insanity to the Ataxia. Dr. MacDowall of the M'Farland Asylum has advanced the opinion that General Paralysis is a parasitic disease, but how and by what it is introduced as to what nature the parasite is, he does not say. Very often a history of intemperate influence is found among General Paralytics: though it is not the general rule.

Intemperance in intoxicating liquors seems to me the most frequent cause of General Paralysis and the statistics from the last Commissioners' report bear any statement out. annexed is a copy of a table showing the caution of General Paralysis, taken from the last report of the Commissioners in lunacy. From Maudsley's excellent definition of the disease, fails to include some of the most salient features of the disease. The disease (or diseases in my opinion a more appropriate term) has by no means always the same course; in some cases the patients rapidly progress to a fatal termination with both the mental and motor symptoms well marked; these cases might be termed galloping General Paralysis; other patients
<table>
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<th>M</th>
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<td>4.2</td>
<td>9.4</td>
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<td>Acute circumstances (including business arrangements and personal difficulties)</td>
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<td>Religious excitement</td>
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<td>Death and inebriation and phthisis</td>
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<td>Partial duration</td>
<td>24.4</td>
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<td>Intoxication in drink</td>
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<td>Scurvy</td>
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<td>Pregnancy</td>
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<td>Paralysis and the puerperal state</td>
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<td>Uterine and ovarian disorders</td>
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<td>Puberty</td>
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<td>The age of life</td>
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### Continuation of Table

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<tr>
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Total Values: M: 6.5, F: 1.1, T: 3.4
seen in the very last stage and apparently at death's door, when a happy result for these patients occurs by a gradual but apparently a complete remission and they are at times sufficiently well to be discharged from an asylum and able to earn their own living for a short time. I have seen several such cases and verified my diagnosis by having these same patients under my care at a later period.

Our present knowledge of General Paralysis is so indefinite as regards its precise nature and its course so varied that in my opinion nothing like a strange and just description of its varieties can be given.

Dr. Mischke has defined groups of General Paralysis based on pathological grounds, which may be roughly designated as follows:
1. Hypomania
2. Atrophy
3. Disease mostly on the left side
4. Disease mostly on the right side
5. Sclerosis: each group has many symptoms, but as far as my experience goes, far too numerous and various in exact definition for any practical purpose.

My own division is a simple one and of more practical import from a clinical point of view.
by Maniacal, Melancholic, and Dementia Tyes. 

These are the varieties, each with various mo.

The symptoms, which are generally met with in asylum.

The symptoms may be divided into Mental
and Physical. I propose to enumerate the
Mental symptoms in the first place, because
it is with them we, as asylum physicians,
have first to deal.

Mania is the variety next to the dementia var-

iety, most frequently seen: out of 66 male Gen-
eral Paralytic patients admitted, 27 were suffering from
Mania, 12 from Melancholia and 27 from De-

nentia and out of 50 female General Paralytic
patients admitted, 6 were suffering from Mania, 1
from Melancholia and 15 from Dementia.

In the patients suffering from Mania with
General Paralysis, on enquiring of their
friends, you will find as a rule, some
slight depression of spirits and alteration in
character had been noticed to be the first
thing wrong with them.

The Mania takes a character almost
peculiar to General Paralysis, the symptoms
of exalted ideas of his strength, wealth, and
projects are well known, there is loss of self-restraint as regards simple matters and in their behavior, their desires becoming transformed into beliefs and these generally of an exalted character. In conversing with them, you find them gentle, almost childlike being easily led from subject to subject in conversation; they are often benisoned and at times destructive, but this, as a rule, is towards the end of the disease. Occasionally, they are acutely maniacal, being noisy, very restless, incoherent, and sometimes delirious, being violent without any warning or the slightest provocation; these disorders are very difficult to deal with, as they are so apt to be hurt in any trifling.

Hysteromania is a very common symptom and all sorts of things are collected; some patients being very amusing and steal most out of the way things. Hysteromania is sometimes the first thing noticed to be queer in a patient; he steals something generally nothing of any importance and so frequently gets himself imprisoned for theft! but very soon other symptoms indicating insanity appear and the
disease is recognized.

This class of General Paralysis gives endless amount of trouble in asylums; as they advance in the disease, they are often found very disgusting, and lose all that is noble in man, becoming very degraded in their tastes, eating and drinking their own excrement and secretion: a very common trick for a General Paralytic is to hide himself, dress naked, and wear his India rubber coat as a cape; this fact is recognized among attendants as almost pathognomonic General Paralysis.

Monomania type may be included under the Mania here in this experience. The delusions are those of persecution, chiefly to the effect, that they believe themselves to be acted upon, by unseen agencies, such as electricity, Galvanism, and Gases: as a rule, this class is quiet, sociable, and has the motor symptoms well developed, sufficiently to aid in the diagnosis; remissions recur occasionally in this form.

In the Melancholic Variety, you find the patient very quiet, with great dip...
fruits being induced to enter into conversation and in this clan, convulsions occur at an apparently early period of the disease. Dements in all its forms is met with and occasionally simple progressive dementia is the prominent mental symptom without any preceding symptoms of mania or melancholia.

Occasionally patients are admitted, who when you come to examine them, appear quite sane, though showing the physical signs of the early stage of General Paralytic; their mental symptoms being complete in abeyance for the time being. These patients on being questioned will generally admit that they had been guilty of some excess, as intemperance in drink etc. before admission. Some or later mental symptoms will appear and justify their detention in asylums.

In the beginning of the disease sexual desire is increased, but as the nervous system becomes exhausted, as the disease progress, so does the sexual appetite fall into abeyance.

The motor symptoms will first occupy our attention and then
course is sufficiently and sharply marked out. Most frequently the inequality or irregularity of the pupils is one of the first signs to appear, along with tremulousness of the tongue, the tongue being first seen in the faucial, and ultimately in the whole tongue, the organ being with difficulty protruded and evident by requiring the patient to make an effort to do so. The tremulousness of the lips soon appears, being due to a want of coordination of the muscles; the recipta mental muscle is often in a state of contraction, as are also the zygomatic muscles giving to the patient a pleased or happy expression. As the disease progresses, walking becomes affected and its character is peculiar to General Paralytic the patients keep their legs widely apart so that the centre of gravity may more easily fall between them, and in walking they stutter a good deal and are easily upset. Again in writing the progress of the disease can be seen, as very fine muscular action is required for writing: as the disease progresses the muscle cannot be sufficiently coordinated and so theahuners in the handwriting is pro-
The speech is often sufficient in itself to diagnose the disease, although many patients suffering from epilepsy have some thing of the same type of speech. Mild general Paralytics hang a little longer over their words than epileptic patients do.

In the later stages of the disease, the patient becomes completely helpless, being apparently paralyzed in all his muscles. Incontinence of urine and involuntary defecation being generally present, along with marked tenderness to the formation of bedsores, apparently due to some atrophic changes in the Nerve supply. Very often there is a spasmodic contraction of the masticatory muscles causing grinding of the teeth and toward the end, Atretization of the limbs very often occurs. Retention, instead of incontinence, of urine sometimes occurs, and in my experience always prognosticates an early fatal termination and that as a rule suddenly, though not by convulsions, but by sudden failure of the heart's action.

Convulsions are very frequent in General Paraly, between 60 and 70 per cent of the cases suffer from them and occasionally in spite of all
active treatment, they are the immediate cause of death. The convulsions are sometimes general, sometimes confined to one side of the body, and occasionally to one limb or even one side of the face producing a sort of grimace on the patient's face instead of convulsions, attacking hemiplegia with aphasia occur, though the symptoms are of a fleeting character, rapidly going away though at times reappearing later and the attacks fits of apoplexy occasionally take place instead of convulsions. Before the convulsions come on, it has been said by some authorities, that a slight increase of temperature by one or two degrees takes place; though in our own experience, we have not found it so. The rise of temperature, if there is any, in many cases might be explained by the resumption of the patient causing increased waste of material and so raising the temperature.

Hallucinations of hearing is the most frequent of those of the special senses, though it is by no means a frequent symptom of General Paralysis. Some authorities have stated that the persecution has its usual change in cases of General Paralysis: I know one case of a General
Paralytic, that whenever he becomes excited, his perspiration or exhalation from the skin smells most horribly, but as the excitement passes off, so does the foul smell disappear. I mention this in passing, though I do not consider it ought to be classed among the signs of General Paralysis.

The disease is generally met with between the ages of 35 and 45. Although it is by no means always confined to these ages, as I have seen it as early as at 18 years of age and as late as 61 years of age.

Men suffer much more frequently from General Paralysis than women and when you consider the causes, it is not surprising that it is so, though women are affected with the disease in greater numbers than used to be thought.

Pathology.

The Pathology of the Disease is still far from being definitely settled. There are many cases which in life present all the characteristic symptoms, both mental and motor of General Paralysis, but when you come to make a post mortem examination...
Nothing but disappointment met us at least as far as naked-eye appearances go: though it must be to the microscope that we will have to look for anything like a satisfactory solution of this difficult vig The Pathological Histology of General Paralysis.

The theory which is most generally believed in at the present day is that it is the connective tissue which is the element of the brain tissues that is principally affected: it is in fact a form of scleroses and perhaps if one considers alcohol taken in excess as its chief cause, it is not to be wondered at, seeing alcohol has the effect of increasing or stimulating the growth of Connective tissue. Stücker, in Virchow's Archiv, Vol. 16, 1879, says, that the origin of Psychical disturbances is to be sought for in the anomalies of the blood distribution and its consequences; with the hypoaemia, begin changes in the nutrition of the nuclei of the nervous which lead to increased development of their elements, which, in their turn take on morbid action and this is proved by the modification of morbid appearances seen.
according to the length of time during which the case has lasted: he endeavours to establish a chronic inflammatory condition of the connective tissue of the cortical substance of the brain, as the anatomical basis of General Paralysis.

Dr. Houston, in his Morisonian Lectures for 1873, says that the origin of the disease is usually in exhaustion or irritation of the brain cells, that regulate and control the coordinating centres of mental function and motion—in other words, that element of the nervous centres, that has the new highest and most important function of all; this irritation or exhaustion sets up a diseased degenerative process in them, which slowly but certainly spreads to every group of cells in the nervous system, with which those higher centres have direct relation and that the disease generally begins in the outer layer of the cortical substance of the brain.

Dr. Thompson of Bristol used to have the opinion that the organic changes which exist in the very early stages of General Paralysis consist of diminished...
calibre of the vessels, which is of the nature of a persistent spasm, also that this spasm, persistent if left untreated, is if recognized early, amenable to remedial measures and that the lesions found after death are not the cause, but the result of early organic changes, that need be only of a temporary duration. This theory was based on the persistent spasm of uniform appearance obtained in pulse tracings in the early stages of General Paralysis and that the arterial spasm was due to a heightened susceptibility of the vaso-motor system to such influences as are likely to affect it.

Kighsworth, in a paper in the Pathology of General Paralysis in the Journal of Mental Science, 18 Jan., 1838, says that General Paralysis is a true interstitial inflammation of the brain, running a subacute or chronic course, that it is, in fact, a true cirrhosis of the brain, altogether comparable to cirrhosis of other organs such as that of the liver; in other words, that connective tissue hyperplasia is the primary element in the disease, and the disease
of the nerve cells secondarily.

The naked-eye appearances which are most frequently met with, after the calvarium, which is often thicker and denser in substance than is normal, has been removed are the following. The arachnoid mater is generally found to be thickened, and in a few cases, adherent over the frontal lobes to the calvarium; the arachnoid mater is generally very opaque, most marked over the frontal and parietal lobes; sometimes it has a gelatinous appearance, from the serum being in considerable quantity in the subarachnoid cavity; the meninges is usually found to be thickened; the dura mater is also as a rule found to be thickened and in about 60 to 70 per cent of the cases, it will be found impossible to stip it off the brain, without tearing away little pieces of brain matter, and the surface of the brain then looks as if it had been nibbled at by mice. These adhesions are only found in the frontal, parietal, and temporal-sphenoidal lobes and only on the tops of the gyri of these lobes, deeper in my experience being found in the subiculi. The vessels at the base of
the brain as a rule present nothing abnormal, though occasionally some slight thickening of their walls is seen.

In section of the brain, when the disease is advanced, as a rule very considerable wasting of the brain, especially of the cortical parts, is seen; the lateral ventricles present different degrees of dilatation and their lining membrane has occasionally a thickened density to the feel, as if fine sand had been sprinkled over it; the choroid plexuses are often very edematous. The surface of the brain feels soft, though the white substance has a firmer consistence, but not to any great extent; the other ganglia present generally nothing abnormal to the naked eye. Though in rare cases definite lesions are present, such as local softening.

These are the pathological conditions that are generally expected to be found, but in about 10 to 20 per cent of the cases, when the patients during life presented well marked symptoms of General Paralysis, no adhesions of the Pia Mater to the surface of the brain are to be found.
In these cases the Pia Mater fills readily, but leaves a somewhat roughened surface on the prominent parts of the gyri, due to numerous minute depressions; the gyri are much atrophied, and there is considerable amount of fume between the sulci.

In Dr. Trichon Brown's opinion, the adhesions found to exist between the Pia Mater and eutax of the brain, constitute the most constant pathological change in General Paralysis, i.e. they explain the essential nature of the morbid process in that disease, viz. that they will also, when minutely studied, explain its symptoms and progress.

In cases where no adhesions are found, it is supposed that the diagnoses of these cases were uncertain, from the ill-defined motor impairment, and want of prominent delusions.

The adhesions found in General Paralysis are required to be distinguished from those found in Tubercular Meningitis: in the latter, myelium tubercles will be found and the adhesions generally are at the base of the brain or in the neighbourhood of the
Ophthalmic pustules also distinguish them from those found in chronic meningitis, here the
similarity is great, but pus will generally be found in some regions of the brain.

The foregoing pathological condition, at least of the membranes, point to a disease of an inflammatory nature besides the increase of temperature that has been found by some authorities, points to the same conclusion. Dr. Monro found the vein of the urine to be increased, and one often sees patients suffering from General Paralysis rub their heads, in fact till they rub nearly all the hair off, which fact clearly points to some irritation going on. All these facts seem to indicate that the nature of the disease must be inflammatory.

T. Brown in The West Riding Reports for 1846 says that in the outer layer of the cortex connective tissue is present, which, when there is inflammation, pours out an exudation that becomes organized into fibrous tissue and that as the tops of the gyri are brought into close apposition with the membranes covering them, from being forced against the inner surface of the skull, so adhesions
are formed. When no adhesions are present, there is supposed to be too great wasting of the surface of the brain, and a space containing fluid always remains between the surface of the gyri and the membranes, and so prevents apposition of the two surfaces.

The frequency of fatty degeneration in the liver and kidneys, or fatty degeneration of the kidneys in the bodies of General Paralytics, point to some cause, such as Alcohol, and are in favour of the disease being inflammatory in its nature.

Very often the bones of the body of General Paralytics are noticed to be very brittle, evidently having undergone some chemical change or other; and this fact may account for the frequency of fractured bones especially ribs that occur among General Paralytics.

Echelle-Twille has a paper on the Relations between troubles of movement in General Paralytics and areas of the cortical parts of the ponto-papeilal convolutions in the Annales Medico-Psychologiques January 1877, and runs up as follows: 1. General Paralysis of the Insane has as pathognomonic symptoms: constant motor troubles and anatomically a
constant alteration of the cortical substance of
the fronto-parietal convolutions. 6. The relation-
ship between General Paralysis and the changes
described in the cerebrum and medulla, is not clear, but
J. Hetky and Leuven's discovery of an excitable and
motor region in the surface explains all. 7. The
localization of small centres explains the many
local paralyses seen in the disease. 8. The
excitement produces the hypertonicism, that pro-
duces the other symptoms and end in degene-
tration. 6. In General Paralysis the cortical
lesions of the fronto-parietal convolutions are the
direct cause of the motor trouble; on the locality
and the intensity of the lesion depend the
nature and intensity of the ataxic accidents
(pleurodemic paralysis).

Diagnosis.

This from the preceding descriptions would
seem an easy matter and in many cases so
it is, at least as regards many patients ad-
mitted to asylum. The astonishing thing is
how their mental state has so long escaped
attention, as frequently the patients are
verging into the last stage of the disease, when
they are admitted, and surely they must have shown some peculiarity before, at least in their behaviour. I understand that the engine driver of one of the Scotch express trains was recently admitted into one of the asylums in the North of England, being in an advanced stage of General Paralysis, and that actually he had been employed driving his engine a very short time before his admission; such a case seems to point to a great difficulty in diagnosing the early stage of the disease, for surely any peculiarity in a man holding such a responsible post would be noticed.

In the very early stage of the disease the difficulty lies and in fact in many cases it is impossible to be sure of the diagnosis, although there is frequently a very strong suspicion of the disease being present. The diagnosis is most likely to be made, when the patients are admitted or soon after, as they are more likely to be excited or upset, or accident of being brought to an asylum: as a rule the state of the pupils, and some slight want of coordination of the muscles of the lips and tongue along with their mental symptoms are, that it to
be found. Yet in many of them, there is a prevalence in their discomfort, impossible to describe, but which I have found from experience to point to General Paralysis and in very many cases my suspicion of the disease held proved to be too true by the progress of the case. On the other hand, it happens occasionally that General Paralysis is diagnosed, when it is not present, but the progress of the case will very soon make the error apparent.

There are several diseases that might be confounded with General Paralysis and they are chiefly chronic Atherosclerosis, Saturnine Pseudo-General Paralysis, disseminated sclerosis, syphilitic Pseudo-General Paralysis, Chronic Meningitis, and damage due to tumors of the brain or that of the embolism.

As General Paralysis may be due to intemperance in alcohol, so therefore it will be an easy matter to confound it with chronic Atherosclerosis: in alcoholism the muscular tremors, as of the hands, are more frequently met with, than in General Paralysis and at the same time sensation, chiefly of the extremities is found to be more or less affected.
Batty Duke says that in Alcoholicism, you have impaired reflex action, regular and normally sized pupils and transient hyperemia of the retina, which conditions are not found in General Paralysis.

Dagenet of St. Anne Asylum, Paris, describes a form of Alcoholic Insanity which takes the form of Congestive Mania: the symptoms are maniacal excitement, exalted ideas and inconscience, but little or no embarrassment of speech or impairment of muscular power; the patient may recover or sink into dementia. Again in chronic Alcoholic epilepsy, fits occur, which might readily be mistaken for the convulsions of General Paralysis and render greater the difficulty to distinguish the one from the other. Of course in patients with chronic alcoholic insanity various mental symptoms are met with which might easily belong to General Paralysis. In chronic Alcoholicism the pathological conditions one finds are atrophy and atrophy of cerebral substance along with effusion into the ventricle.

Dr. Negri of St. Anne Asylum, Paris has described a form of General Paralysis due to...
lead poisoning, and the peculiarity of it is, that it is a temporary and unripe disease and so requires to be differentiated from the common General Paralysis; he names it Saturnine Pseudo-general Paralysis and says that the muscular tremors of the hands are well marked along with mental symptoms of a melancholic type. He further says that all patients suffering from General Paralysis, who have been exposed to lead poisoning are not necessarily of this character. I agree with him there, as one two cases of General Paralysis due to lead poisoning are out of the variety described by him in disseminated sclerosis or la Sclirose. The plaques disseminates of the cerebellum is a disease which of all diseases described is the one most allied to General Paralysis. Its symptomatology and course resemble those of General Paralysis very closely. The chief distinguishing feature in disseminated sclerosis seems to be the trembling of the muscles, which comes on when any voluntary action is performed. The mental symptoms are chiefly those of a melancholic type gradually lapsing into dementia affections of sight, fairly frequent such as dysphasia, fits of various kinds and gastric affection are
among the symptoms of disseminated sclerosis, there are also affections of speech, contraction of the limbs is another frequent symptom, and in the beginning of the disease vertigo is often present. Disseminated sclerosis is most frequently met with in females between the ages of thirty and thirty and is chiefly due to moral causes.

Fournier of St. Louis Hospital Paris has described a form of General Paralysis due to Syphilis and calls it Pseudo-General Paralysis. In this disease the patients have no very exacted ideas, theirs being more of a timid, modest and fluent character. The trembling of the tongue is rare here and that of the muscles of the upper lip, so frequent and characteristic in the common General Paralysis is almost always wanting: the form of trembling of the tongue when met with here, is nothing like the fibrillary or vermicular trembling, but more of an ordinary nature. In Fournier's disease there is no true paralysis, but a want of coordination a defect of precision a very different thing from abolition of muscular power: in this disease one is sometimes obtained.
Chronic Meningitis might be confused with General Paralysis, but its history and course ought to be sufficient to diagnose it. In Meningitis symptoms are more definite, as headache, instability of tongue and after a time some definite motor or sensory symptoms will appear and so settle the question.

Fursors of the Brain occasionally give rise to symptoms similar to those met with in the earlier stages of General Paralysis and it is only as the disease progresses and gives rise to definite symptoms, that a clear diagnosis can be arrived at.

Again in patients who have partially recovered from hemiplegic attacks with aphasia, one most probably to embolism of the middle cerebral artery, a very striking resemblance to cases of General Paralysis is sometimes seen: have you the tremulous lips, instead of tremulous tongue, which is however often protruded to one side, and the inequality of the pupils, the mental symptoms being chiefly those of melancholia with some dementia. The history of the case is very different and its course is more to the production of some
local paralysis due most probably to some local softening, the mental state progresses generally to dementia without any marked symptomology of Mania or Melancholy.

Treatment.

The treatment of General Paralysis will merit very our attention, but owing to our very imperfect knowledge of its nature, nothing of any real value is known as regards a curative agents. Of all drugs perhaps Phosphorina, active principle of Calabar Bean, has enjoyed the greatest renown; it was brought before the Profession by M. B. Brown several years ago, but further experience has failed to discover its curative power. The reason why it came to be employed was when General Paralysis was thought to be due to some spasmodic affection of the blood vessels of the brain, then Phosphorina was employed with the aim of counteracting the spasm and in this way arrest or even cure the disease.

As the precise pathology of General Paralysis is known, no very satisfactory therapeutic results can be hoped for at the present time.
it must be in the prevention of General Paralysis, more than in its cure, that we must look to, to lessen this frightful decimating weapon of our modern armaments.

The mental state of the General Paralytic is principally what we have to treat; its chief condition is restlessness and destructiveness, and very often a sedative is required to combat them. Of all sedatives, the organine in my experience has proved the most efficacious. It may be given hypodermically beginning with 1/16 of a grain once a day or 1/32 of a grain by mouth once or twice a day as the case requires; and give me or two doses is sufficient to bring the patient into a very manageable condition. Chloral is useful in some cases of continued convulsions, then it acts more surely when given per rectum in doses of about 40 grains.

In the early stages tonics as iron, sleepyine, cod liver oil, etc. with careful diet and good hygienic conditions help to appear to bring about a remission; and from being delirious, occur occasionally after severe injuries or illnesses, the idea has often occurred to me, that some form of counterirritation might
be useful in bringing about that happy result; but what kind of counter-irritant and how and where applied, I am not prepared to give an opinion. As the disease progresses and the paralysis increases, the prevention of bedsores and choking are our especial care and object. The sensory part of the disease is completely in abeyance and so it is that choking is so frequently frequent occurrence in General Paralysis.

The termination of General Paralysis is always fatal, though its mode varies a good deal. In many cases convulsions is the immediate cause of death, even when the patient seems far from the last stage of the disease, though the convulsions prove fatal more frequently when the patient is in the last stage of the disease. Very often when the disease has reached its last stage, intercurrent disease as brain abscess of the lungs, Pneumonia, or Diarrhea is the immediate cause of death. Again death sometimes occurs from exhaustion after Mania or Melancholia and in a few cases from sudden failure of the heart's action, these cases being preceded by Tension of the urine as a rule.

The duration of General Paralysis is
also uncertain, the majority of patients admitted suffering from General Paralysis die within two years, though in other cases the disease may last four, five, six, and even seven years. I have at present under my care two patients, who were diagnosed to be suffering from General Paralysis seven years ago, and since then they have passed more or less of their time under treatment and the former diagnoses have been fully confirmed.

I recall very well, when I was a student, Dr. Houston showing a patient (male) suffering from General Paralysis, which had been going on for sixteen years. From the above it is seen that General Paralysis has no definite period, which fact is in my opinion, in favour of the idea that General Paralysis is a generic term, including many varieties.

In beginning this short essay, I promised it by saying that my description of it was quite more from my own experience, than a complete account of all that had been written on the subject. I have thus endeavoured to bring out all the points of most interest to the clinician; but as I said before, till the precise nature of the disease is known, we cannot expect to make rapid progress in its treatment.
and I trust that the day is not far distant, when our knowledge of the precise nature of the disease will be such, that we may hope for some definite results from our treatment; and I think we may consider ourselves well on that way, when we bear in mind the fact, that numerous workers are endeavouring to bring about that happy result.