

THE CLINICAL ASPECT
of
GENERAL PARALYSIS OF THE INSANE

From The Study Of
50 CASES

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In selecting General Paralysis of the Insane, as the subject of my thesis, I am not prompted by the hope that I may be the means of bringing to light new signs and symptoms of importance in the diagnosis of this much discussed disease. My object rather, is, by dealing with the subject from a purely clinical standpoint, my knowledge being obtained from observations made by me upon a number of cases and, as far as possible, by the confirmation, or otherwise, of the different facts already at my disposal, to give an idea of the manner in which its diagnosis has been made, for me, less difficult and more certain, at an earlier period of its course. In spite of the fact that it has been so much discussed, and that the literature upon it is profuse, it is a disease which, presents many difficulties, to the general practitioner, particularly in its early stages, possibly because it is on the border-line between Special, and General Medicine ; for this reason, therefore, in many instances it is not until it is well advanced that its true nature is suspected. During the five months that I was engaged in Asylum work, I had an excellent opportunity of studying the disease in its different phases, and, as the result of this study, my conception of it has undergone a considerable alteration, especially with regard to the significance of certain of its clinical features which, until then, I had not regarded as having any very important bearing upon the disease.

On taking up the duties of Assistant Medical

Officer at Berrywood Asylum, I was much struck by the way in which the old attendants were, frequently, able to recognise a case of General Paralysis almost at a glance, or, at any rate, between the time of conducting him from the waiting-room to the ward, and, the cases I refer to were, by no means always, the typical and far advanced ones, which are comparatively easy of diagnosis, but ones which, to my inexperienced eye, might have been Disseminated Sclerosis or Tabes

Dorsalis. When asked to give their reasons for calling such and such a patient a General Paralytic, they were frequently unable to do so, but, in the course of a few months, their diagnosis, almost invariably, proved to be correct. This being the case, and, being much interested in General Paralysis, it occurred to me to make a special study of the clinical side of the disease and to endeavour, if possible, to find out, by close observation of cases under my care, and, from the study of the notes on General Paralytics taken, from time to time, at the Asylum, for the benefit of the Commissioners, that which had been taught the Attendants by long experience.

It is a disease which is unfortunately on the increase and is, at present, most fatal in its course and unamenable to treatment. In certain cases, there is great difficulty in differentiating between it and Tabes Dorsalis or Disseminated Sclerosis and, to add to one's confusion, "sometimes a case of Tabes will culminate and terminate in General Paralysis";

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in a typical case, however, there is always a group of symptoms which readily distinguishes it from any other nervous disease, although Dr. Reginald Farrar,⁽¹⁾ in an article on the subject, is not disposed to regard it as a separate and distinct morbid entity.

The difficulty in diagnosis in this, as in every disease, is either, when the case is not typical, and, in such an instance, it may simulate a variety of diseases owing to the fact that, practically, any part of the nervous system may be primarily or secondarily affected by the pathological change, a point to which Bevan Lewis⁽²⁾ draws attention in the following terms:-

"no single portion of the cerebro-spinal system and its peripheral nerves (not even the sympathetic system itself) is safe from the encroachments of this far-reaching disease": or else, in the very early stages of the disease when the symptoms so slightly deviate from the patient's normal condition that they are completely lost sight of and go unrecognised. The onset of the disease is often so insidious and gradually progressive that the recognition of health from disease is a matter of great difficulty, and, it is not until the disease is well advanced that its true nature is diagnosed, although, by refreshing the memory of friends one may find that, for some time

(1) Jour. Ment. Sc. 1895 P. 460

(2) Bevan Lewis- A Text-book of Mental Diseases
P. 285

back, slight actions on the part of the patient have been compatible with the early signs of General Paralysis. As far as its treatment is concerned, a late diagnosis is, perhaps, not of much importance as, up to the present time, nothing has been found which can be given with the confident feeling that the progress of the disease will be arrested, although, according to Dr. Lewis Bruce ⁽¹⁾, the chance of recovery is not so hopeless as was formerly thought to be the case and, he goes so far as to state that, by means of the injection of serum derived from cases of General Paralysis in a state of remission, out of eight cases thus treated, three had apparently made complete recoveries, whilst, of the remainder, one was relieved and four were not improved. It is possible that a remission has been induced and its length prolonged as, under ordinary circumstances, Dr. Savage records a case where it had lasted sixteen months, and one case at Berrywood remained in this state for fifteen months, but, one has to remember that, in General Paralysis, there is an actual destruction and degeneration of the cortical cells of the brain and, in consequence, it is difficult to understand how these can be replaced or repaired to such a degree that that portion of the brain can carry on its usual functions as well and without any more apparent signs of General Paralysis than was the case before the lesion. In certain cases anti-syphilitic treatment has appeared to do good

(1) Brit. Med. Jour. Jan to June 1901 P. 1600

but, in all probability, such cases have been those of syphilis of the brain, a condition which may very closely resemble General Paralysis of the Insane. The chief importance, in my opinion, that an early diagnosis of the disease should be made is that, in the first place, the patient may be put under careful surveillance in order that no harm may come to himself or anybody else as, at any time, he may become violent and commit an assault, or else appropriate articles which do not belong to him: and, in the second place, that proper care may be taken to protect the property and belongings of himself and family as, owing to his peculiar psychological derangement he is liable to rapidly, and recklessly squander what money or property he may have the management of. The early diagnosis is even more important in the case where the unfortunate patient is a professional man as then, not only are precautions necessary to protect his own interests, but also those of the people who may be acting upon his advice.

In this thesis I propose, as I have before mentioned, to deal with General Paralysis from a purely clinical point of view and, in a great measure, from observations made and notes taken by me from a series of fifty cases. I shall first of all describe the clinical course of the disease from the onset to the termination as gathered by me from my observations, and will then treat, more in detail, certain of the more important symptoms under their own especial headings.

I have found it most convenient to regard the disease as consisting of three main types.

(1) The Common or Slowly Progressive Type.

(2) The Acute Type.

(3) The Melancholic Type.

Each of these types consists of three well defined stages. The first stage consisting of that period between the commencement of the disease and the acute maniasal outbreak, which may be regarded as a crisis ushering in the second stage. The second stage commences at this crisis, and lasts up to the time when the patient is so paralysed, that he is practically bed-ridden and is losing control of his bladder and rectum; this stage also terminates in a crisis differing, however, in its outward manifestations. The third stage is the remaining period of its existence and is usually of short duration. The whole time occupied by the disease is generally, according to most authorities, on an average, between three and four years, as was noted by Calneil on his investigations of the disease when it first came to be regarded as a distinct nervous disorder; he then gave as his opinion that, in certain cases, the paralytic patients live eight months, in others, a year or eighteen months; others linger for two or three years and rarely beyond; (1) there are, however, exceptional cases, notably one, recorded by Dr. Clouston, which ran a course of over thirty years, and, there is

(1) Blandford- Insanity and its Treatment P.299

a patient still alive at Berrywood Asylum who, ten years ago, presented all the signs of General Paralysis. On the other hand, the duration may be extremely short, and in a very acute case the patient may die well within three months of the onset.

The Common type of General Paralysis has, within the last thirty years, considerably changed its character, and the elated, grandiose, boisterous form described under that heading, has, to a great extent, given place to the calm, demented type, a fact which has been remarked and emphasised upon by Dr. Clouston.

Dr. F. St. John Bullen collected the opinions of the Superintendents of Asylums in different parts of this country, and, the result of his investigations on the whole bears out the above statement, although it was ascertained that, in some districts, the old type still maintained its position. (1)

On the Continent, the same increase of the demented form has been recorded by Soukhanoff, (2) Gannouchkine, (3) Dr. Moravesik, (4) and Behr, (5) who expresses the following opinion that, "the agitated variety has within the last twenty years fallen from $\frac{1}{2}$ to 33%, whilst the demented variety has

(1) Brit. Med. Jour. 1892 JULY to DEC P. 409

(2) Jour. of Ment. Sc. 1903 P. 178

(3) " " " " " " " "

(4) " " " " " P. 574

(5) " " " " 1901 P. 805

increased in frequency, being now seen in more than half the cases. In women, the demented form has always been more frequent, than the others." In my experience, a modification of the old type has been most common; by this I mean that the grandiose ideas have, certainly, not been so prominent, and volunteered so freely as was the case in the old type, whilst there was generally a period of maniacal excitement ushering in the second stage, followed by a remission of varying duration; at the same time, I could not describe the cases as having the calm demented characters prominently persisting throughout.

The disease is more particularly associated with urban rather than rural conditions of life, affecting, chiefly, males between the ages of thirty and fifty years, and, more particularly, those from whom a definite history of syphilis can be elicited. Dr. Clouston gives the age of incidence as between 25 and 50 years but, with two exceptions, all my cases occurred between 30 and 50 years; the exceptions referred to were, in the one case, a man (J.S.) who died at the age of 75 after the disease had run its usual course; the other, (M.G.A.) a girl, who died aged 10 years; in the latter case, however, the General Paralysis was superadded to, and, the termination of, a pre-existing condition of imbecility. Both these cases showed the unmistakable physical signs of General Paralysis which were -

confirmed post-mortem. Mercier, in his text-book, describes the class and condition of people most liable to be affected by the disease thus:- " the disease is most common in middle life and in the male sex, and chiefly seems to affect vigorous, energetic, successful men who have lived active, busy lives in cities; who have indulged freely in eating, and drinking, and in sexuality and, in whom, an hereditary disposition to insanity is absent. In almost all cases of General Paralysis, we find that the patient has recently passed through a period of mental or other stress which has seemed to determine the onset of the disease. " ⁽¹⁾ Females compared to males are very seldom affected, being in about the proportion of one to five, but, where they are, it usually runs a much more chronic course than in males and, according to Kellogg, ⁽²⁾ the separate stages are less clearly demarcated.

Different cases differ very much in regard to the onset and prominence of certain of their symptoms, as for instance, in one case the mental symptoms may predominate, whilst in another, the physical features are more in evidence; and, further, Dr. Savage asserts that he "has seen several cases who, for years, have exhibited bodily symptoms, in every particular, coinciding with those found in asylums suffering from General Paralysis of the Insane, and yet, without the slightest

(1) Mercier- A Text-book of Insanity Pp. 164 & 165

(2) Kellogg- Text-book of Mental Diseases P. 663

evidence of insanity, even without any loss of memory or of self control; so that, in fact, the patient was sound in mind although a General Paralytic in body!" (1)

In passing on to the description of the Common or typical case of General Paralysis of the Insane, I quite recognise the fact that, owing to the above mentioned variations, it will be impossible to take any one case as a standard and describe that; what I propose doing, therefore, is to take that class of case which most closely resemble one another, and which came under my observation most frequently, and then recounting the sum of their signs and symptoms in order of occurrence.

The Common Type of General Paralytic.

The mode of onset may be ;

1. Very sudden, and make its appearance in the form of a maniacal outbreak, or a convulsion, or simply an attack of emotional excitement.
2. It may follow a very insidious course, so that it is very difficult, and frequently impossible, to say, with any degree of accuracy, when it actually did commence.

The second mode of onset is the more usual one and was the method adopted by the majority of my cases; in thirty eight of them the onset was insidious whilst, in the remaining twelve, it was sudden in character.

When the disease is ushered in by a sudden convulsion

(1) Savage "Insanity" P. 277

or seizure, there is, generally, some evidence of it left, such as muscular weakening and, in certain cases, there may be actual hemiplegia, as happened in one of the above mentioned twelve cases. Without there being an actual convulsion, the seizure may take the form of a sudden, and temporary loss of power, being represented by a sudden feeling of weakness in the extremities or, a temporary aphasia, followed by hesitation and tremor in speech. ⁽¹⁾ Dr. Savage quotes the case of a woman, who, was thus affected, eight years previous to her suspecting that any serious disease was approaching.

The first indication of the approach of General Paralysis, given by the insidious variety, may be

(1) Mental

(2) Physical

in character and, whichever one of these appears first, may manifest itself by means of (a) Subjective or

(b) Objective phenomena. Of the mental and physical signs- the mental are, in the majority of cases, the first to reveal themselves; whilst, of the subjective and objective, the subjective, in either case, are usually in the van: for the sake of convenience, however, I will deal with the physical phenomena first.

The Subjective Physical signs first complained of, may be a sense of unusual fatigue on comparatively slight exertion.⁽²⁾ is pointed out by Savage. This may precede the common symptoms of General Paralysis by a

(1) Savage - Insanity P. 286

(2) Brit. Med. Jour. 1890 Jan-July P. 778

year or more. Then again, in certain cases " severe headache is occasionally observed, deep-seated in character, and resembling a contusion. Neuralgiae may also affect the head, or the spine, or the limbs, and affect different parts in succession. Formication of the skin, undue corporeal buoyancy, or heaviness; sparks before the eyes; colour blindness; sensation of heat, or coldness of one or more limbs"; ⁽¹⁾ sudden, and unaccountable giddiness, or vomiting, for no apparent reason, may precede the appearance of the more definite signs of the disease and, unless General Paralysis is borne in mind as a possible cause, are apt to be passed over without due regard, or else attributed to something far less serious. In still other cases the first indication of the approach of the disease may be that, one or more of the special senses shows signs of change or deterioration- sight being the one most frequently involved and, according to Foville, in such cases, the patient may have complained of a gradually increasing dimness of vision for months or even years previous to the onset of any of the other signs or symptoms of General Paralysis, whilst, in others again, aural tinnitus, cracking sounds in the ears, impaired hearing or sudden transitory deafness may be the manner in which the special senses are involved. ⁽²⁾

Objective Physical signs. These signs do not usually appear until the disease has given evidence of

(1) Mickle- General Paralysis of the Insane P.8

(2) Mickle- " " " " " P.7

its approach by some other means, but, in certain cases, and especially to a close observer, these defects may be the first to draw one's attention to the fact that the patient is not quite as he should be. Such signs are represented by a slight hesitancy or halting in the patient's speech, or it is noticed that he does not perform the finer movements, required for delicate work, quite as capably as was his wont formerly. These signs are, however, as I have above mentioned, usually later in making their appearance.

Subjective Mental signs. Here we have to deal with the earliest sensations, mental in character, experienced by the patient, who may manifest signs of a hypochondriacal nature; (mental or physical) such as having uncomfortable feelings that he may be going out of his mind, statements to which effect may be volunteered to members of his family or his medical man. (1)

The Objective Mental Phenomena are, usually, the ones that announce to his relatives, or friends that there is something radically wrong, and prompt them to get medical advice regarding his condition, although, so insidious is the disease, and so gradual the change from normal to abnormal, that, these signs may be pronounced in character before they are recognised. The first mental change noticed by his friends may simply be, that he appears less obliging and considerate than formerly, and indifferent as to whether his conduct gives offence, whilst, following upon this, there are displays of

(1) Savage - "Insanity" P. 287

irritability, and loss of temper if he is opposed or contradicted, ^{and} he is very ready to take offence, frequently, without any apparent cause. He may, now also, suddenly, begin to manifest unwonted signs of energy and activity, indulging in long walks without any definite object etc, and his memory may show signs of impairment, commencing in the exhibition of occasional, and transitory loss of memory, or an absent-mindedness which is, an entirely new feature in, or, an exaggeration of, his hitherto normal mental condition. From this point, with slight modifications, of which one is especially noteworthy, namely, that mentioned by Dr. Lewis Bruce, ⁽¹⁾ where the patient, in the first stage, is often acutely ill, and in which, fibrile temperature, loss of body weight, restlessness, excitement and sleeplessness, are the outstanding symptoms, the typical course of the disease, in the Common type of my experience, proceeds as follows; as time goes on, he becomes more and more irritable and short-tempered on the slightest provocation; his memory becomes more affected, and he shows a loss of the power of concentration, and does not pay the same amount of attention to his business, and daily routine as was formerly the case. Associated with this mental deterioration, there may, also, be the subjective physical phenomena, of palpitation, neuralgia, headache, vertigo, formication and

(1) Brit. Med. Jour. 1901 Jan-June P. 1600

numbness of the extremities, with, in certain cases, the sensation of general hyperaesthesia to cold, all or any of which may manifest themselves now for the first time or, if previously present, are now more pronounced: on inquiry one frequently finds, also, that he is beginning to experience sleepless nights, but, if care is not taken to elicit this fact, it is apt to be missed as he pays little attention to it, regarding and referring to it as of no importance. ⁽¹⁾ In time, what was simply a display of irritability gives place to sudden, fleeting, and uncontrollable, fits of anger, during which, he may so far lose control of himself that, he may strike his wife or children, and, immediately after, ~~which~~ he may express the deepest regret for having done so, and, by this means, give an indication of the birth of an unstable, and emotional mental condition which keeps breaking out from time to time. His character is now undergoing a complete change, and, from being a steady, devoted father and husband, he may give way to intemperate habits, and immorality, and become violent, harsh, and inconsiderate towards his family and relatives; and he also displays a lack of interest in things which were, formerly, of the greatest interest to him; and events, which were once looked upon, by him, as being of the greatest importance for the success of his social and business affairs, are now regarded by

(1) Stearns- Mental Diseases P. 473

him with indifference, and as things about which he cannot be bothered. His interests, on the other hand, become occupied with matters, towards which he formerly was in no way inclined and which, frequently, are of a useless and unprofitable character. It is also usually about this period that the objective physical phenomena begin to manifest themselves; on a casual examination of his face there may not, at first, appear to be anything abnormal, but, perhaps, on a closer inspection being made, there seems to be something not quite natural in the expression of his eyes and this, on a ^{still} closer examination is found to be due to an inequality in the size of his pupils. Again, whilst his features are in repose, nothing unusual may be noticed but, as soon as he commences to speak, or, on being asked to protrude his tongue, which he may do in a somewhat jerky manner even at this stage of the disease, a fine tremor, caused by this slight muscular effort, may be demonstrated at the corners of the mouth; the tongue itself is in a state of fibrillary tremor also and, this fact, combined with a history of intemperance, is apt to lead to an error in diagnosis unless a more remote history be inquired into. The less observant can frequently detect now that he is unable to carry out correctly, the more delicate, and finer movements required in the performance of certain accomplishments. Drs. Savage and Maudsley lay great

stress upon the fact that, these failings may occur in the performance of those acts which have been learnt last by the patient, e.g. a good musician loses his touch for the finer shades of expression, or, the artist does not paint with such delicacy as was previously the case. To the same individual, his speech may now also show signs of impairment, and, although there is no actual omission of syllables, the words do not appear to be pronounced as sharply as they ought normally to be, and, his manner of speaking is often deliberate. There is now an exaggeration of his knee-jerks, and superficial reflexes, unless he belongs to the class of case having tabetic symptoms when his deep reflexes will be much diminished, or entirely absent,

The disease is now well advanced into the first stage and, from this point onwards to the second stage, there is a gradual exaggeration of all his physical symptoms, and, in addition there is an exaggeration of ideas. He begins to imagine himself possessed of great wealth, or that he is some exalted person, or have an exaggerated sense of his well-being, and his own prowess, and, with his supposed wealth, will speculate rashly or purchase valuable articles in duplicate, frequently distributing presents in a lavish manner to people who may be mere acquaintances and, with regard to whom such generosity is quite uncalled for. His moral sense is much depraved; he sexually indulges to excess

and shows an utter disregard for all the common rules of decency, exposing himself in public places; using abominable language in public, and, frequently, purloining anything that attracts his eye, the result being that he is arrested, and conducted before a magistrate charged with misbehaviour or theft. He becomes suspicious of everybody whom he need be least suspicious of, and these ^{suspicious} will very often take the form of delusions of infidelity against his wife. His physical symptoms are all now much more evident; there is a constant fibrillary tremor about the mouth, which, in many cases, he appears conscious of, as, when speaking, he will sometimes put his hand up to his moustaches and stroke them as if with the intention of steadying or hiding the movement. (1) His speech is now much slurred, and he fails to pronounce such words as "Biblical criticism," "Royal artillery" &c. correctly; he however, recognises his inability to do so and smiles good-naturedly at his mistakes. The abnormal mental stimulation also exhibits itself in his correspondence. Nothing actually wrong may be noticed with the formation of the individual letters but, here and there, words are left out, or not properly finished, giving one the impression that his mind is working at such a rate that he has not sufficient time to get all the words down on paper.

(1) Bevan Lewis- A Text-book of Mental Diseases

His papillary anomalies are now very evident and may be quite changed in character from that seen when previously examined. There may be inco-ordination in walking, although, at this period, locomotory defects are not usually well marked; in some instances, however, there may be a slight impairment indicated simply by a slight dragging in gait and tendency to walk and stand with his legs slightly apart. Although sexual desire and power may be exalted early on in the disease, impotence is the rule at this period. (1) (F.B.) one of my cases, was exceptional with regard to this as he has masturbated all along up to the present time, when he is well advanced into the 2nd stage. On the other hand, loss of genital power and desire has sometimes been noticed early on and even as a prodromic symptom. (2)

According to Dr. de Montyel, the genital disorders appear early and may enable one to foresee or predict General Paralysis some time before its invasion. In the opinion of this author they consist of alternating excitement and impotence; he considers persisting total impotence as an important diagnostic point when the general health is good. (3)

It has now taken the patient a varying period from a few months to about a year to get this far advanced and he now passes into the 2nd stage.

(1) Clouston - Mental Diseases P. 385

(2) Hack Tuke - Dictionary of Psychological Medicine
P. 521

(3) Jour. Ment. Sc. 1902 P. 175

2nd Stage. The transition, from the first to the second stage, may be gradual, and impossible to differentiate, and, if such be the case, there is a progressive dulling of his mental faculties, diminished sensibility, and his physical defects become more pronounced; or else there may be a distinct line of demarcation represented by an attack, frequently sudden in onset, of excitement, or more rarely, a "fit" resembling that of epilepsy, (either grand or petit mal), or apoplexy which may be followed by temporary paralysis, or aphasia; in the majority of my cases, the sudden, and acute excitability has been the rule. Where it is ushered in by a brain storm, his condition may vary from a state merely of great unrest, to an acute, violent, and unreasoning attack of mania. During his period of excitement he is in a state of great unrest, and is constantly on the move in an aimless kind of way, very closely resembling a man in a state of acute alcoholic mania. The patient has a greasy appearance of the skin, and a certain flabbiness of the face muscles. He is constantly on the move in an aimless fashion, picking up any light article that he may be passing, and always in a great hurry to be doing something, which may be, generally, suggested to his imagination by the different articles about him; suddenly, he may give way to fits of unreasoning, and uncalculating violence, which are, however, fleeting in character, and can be

readily turned into other channels by attracting his attention elsewhere. He is suspicious, and is apt to misinterpret the offer of assistance in the most ordinary matters, such as in the removal of his clothes. His eyes, in conjunction with the rest of his body, are in a state of restlessness, and he glances about him, and peers into all corners, in a shifty, and furtive fashion.

When dressed in his night shirt and put to bed he will, frequently, proceed to uncover himself; remove his shirt; roll everything up in a ball and wander about aimlessly with it in his arms; he may then deposit it in one corner of his room, only to pick it up again and remove it elsewhere in the course of a few minutes, and then, finally, he may climb on to the top of it, and sit there crowned with his chamber. He may remain thus seated in state for the space of a few moments, after which he proceeds to climb down from his throne and remove it to another place, or else, he may alter his intention, and roll himself all over the floor of his room. He then picks himself up and resumes his aimless wandering, muttering incoherently to himself the while. He may be troubled with aural, or visual hallucinations, and gives an indication of their presence by calling out and halloing to imaginary friends, or relatives, or shouting replies to fancied voices. The presence of hallucinations is not very common in

General Paralysis, and, when they do occur, the aural are usually found ⁱⁿ the majority of cases. In six of my cases, hallucinations were present; of these, two had both aural, and visual; one had visual alone, whilst the remaining three had aural alone. He is destructive in an aimless, unreasoning way, quite unlike the destructiveness of ordinary acute mania where it is done in a fury and with purpose; and he may be wet, and filthy dirty in his habits, covering himself and his room with his excreta. His knee jerks, and superficial reflexes are, generally, much exaggerated, and there is a general fibrillary tremor of his tongue, and the muscles of his face, particularly at the corners of his mouth, and, especially, when his tongue is protruded, or the muscles are brought into slight action. His pupils are generally small and equal, or only slightly different in size, but, owing to his restlessness, are frequently difficult to examine, - they may, however, be large and unequal. Sleep is out of the question for him, - he practically has not time for it, - as his brain appears to be in such a state of stimulation, that he must be constantly doing something in order to work off the superfluous energy. In a few days time, usually, his excitement wears off and he begins to sleep, for occasional odd hours in the first instance, and then, by degrees, for longer and longer periods until, ultimately, he shows signs of coming round. At the end of the attack, he is left in a physically weakened condition,

as is naturally to be expected, and mentally dulled; he is, however, allowed to get up, and is taken out, for exercise in the fresh air, by an attendant, until, in the course of a few weeks, he may be so far improved that he is able to do a certain amount of light work. He now commences to put on weight, which may be due, in a measure, to the fact that he has now an abnormally large appetite, and is a ravenous eater, and can, with difficulty, be satisfied; in consequence of this, a careful watch is frequently necessary, in order to protect the interests of other patients, as he will often steal their food, in order to replenish his own plate. His skin is greasy in appearance and he begins to assume the General Paralysis facies which render his face flabby, putty-like, and lacking in expression; the face muscles appear to have lost their tone, and there is an obliteration of the natural folds of the face.

At this stage of the disease, he may follow one of two courses, viz:- he may (1) have a remission, in which case his mental, and, usually to a less extent, his physical condition clears up to a wonderful extent, so that, from a more or less demented, weak individual, he is transformed by degrees into a fat, and almost rational being again; so much so that, in certain cases, he may be discharged, and able to carry on his employment for some considerable time; at the end of the period, however, it is found necessary to re-admit him to an asylum where he then passes through

the ordinary course of the disease to its fatal termination. (2) His condition may continue to gradually deteriorate in every way, in which case it is seen that his memory is very much worse, and he is becoming more demented; his power of concentration is still further on the wane; his delusions of grandeur, which are very fleeting in character, and are, often, of a nature suggestive of the occupation of the patient, are very much to the fore and are volunteered; he accepts any grand idea that may be suggested to him, and has a very exaggerated idea of his prowess and well-being. His power of judgment is much at fault and, in gauging the space of time, height and distance, the same exaggeration of ideas is maintained, so that, when asked a question in this connection, he will call a distance of 50 yards, a quarter of a mile etc. He now experiences great difficulty in pronouncing his labials, and linguals distinctly, so that his speech has, now, become very slurring, and, in addition, he repeats and leaves out syllables, and words, or else, may run them together. The pupillary anomalies are well marked, but their character may have, again, entirely altered from that noticed on a previous examination. His writing, also, has now become so far affected that, not only does he omit words, and word terminations but, the individual letters are badly, and unevenly formed. His face muscles are in a constant, and pronounced state of tremor; he protrudes his tongue in a very jerky

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manner, and will not keep it out long, but allows it to flop back again almost immediately; if asked to keep it protruded, he will close his teeth on it, as if, by that means, to maintain it in position, and control the marked fibrillary tremor. The tremor has now extended to other parts, and, on asking him to perform some act, a fine fibrillary tremor is discernible in the muscle called into requisition. The muscles are in a highly strung condition, and re-act, forcibly, to any slight stimulation e.g. if one catches ^{hold} of him, gently, by the other arm, when he is not on the quiver, one's hand will, frequently, be pressed spasmodically against his side. The knee jerks, and superficial reflexes are, usually, much exaggerated, but may sometimes be diminished, and ankle clonus, in many cases, can be elicited. He is, on the whole, clean and tidy with regard to his dress, and, in some cases, dislikes to see untidiness in others. His propensity for stealing articles is maintained, and this is often done when he is being watched, and without his waiting for a favourable opportunity, and, when accused of the theft, he will, most emphatically, declare that the articles belong to him; he will also collect pieces of rubbish, which he secretes and regards as priceless possessions. Any gaudy article, such as ribbons, string, brightly-coloured flowers etc., he will pick up, and pin to his coat, and may explain that they are Orders of exalted rank, and were presented to him by

such and such a monarch.

And so he progresses towards the end of the second stage, showing a gradual accentuation of his physical, and mental defects until, just before passing into the third and final stage, he presents, at first sight, the appearance of a man who has just had a bath, and is standing in a cold wind on the bank. He is in a state of general tremor, and can, with difficulty, walk or even stand. He is beginning to lose flesh again, and is much demented, being unable to concentrate his thoughts on anything, even for a short time, so that it is becoming impossible to get him to maintain a connected conversation, even extending over a few sentences. He is now untidy in his dress, and is always fumbling with his buttons; pulling them through wrong button-holes, and then undoing them again, until all the buttons are torn off. He can now only, with difficulty write at all and, when requested to sign an imaginary cheque for a large sum, the result of his effort is a shaky, incomplete, irregular scrawl which requires a considerable amount of imagination to make it at all resemble his name. His pupils, which are showing more distinct evidences of paralytic mydriasis, will now be found to re-act to light very slightly or most usually not at all, whilst their reaction to accommodation may also be very sluggish and there may be no secondary oscillation. The knee jerks are becoming diminished, but the plantar reflexes may be

increased. Whitlows may form on his fingers or abscesses, surrounded by a low type of inflammation, appear on his legs or arms, indicating the commencement of trophic change; a very peculiar thing, in connection with the occurrence of whitlows and abscesses, is that, if properly looked after and attended to, they will almost invariably heal up, and do so, frequently, in a short space of time, in spite of the fact that the patient's general condition is, to all intents and purposes, so feeble and unhealthy. In my series, 12 cases showed the formation of either whitlows, or abscesses, one of which, (S.G.), passed blood and pus in his motions four days before death. Another case, (H.S.), developed Herpes Zoster during the early part of the second stage. According to Dr. Savage, grinding of the teeth is of common occurrence during this period, and later on in the third stage. To such an extent may this be performed, that the teeth may wear away, or be broken off, by the constant friction and the force exerted. (1) His mental exaltation is much in evidence; he is exuberantly happy, and, on the approach of anyone, his face becomes contorted into a smile of welcome which is augmented by the extension of a very shaky right hand and arm, and the assumption of a hail-fellow-well-met air. He attempts to sing songs, but his efforts result in a medley of different tunes, and

(1) Savage- Text-book of Insanity Pp. 294 & 295

incoherent strings of words, which are delivered with a tremulous and slurring utterance, his face, the while, being lit up with a contented, and self-satisfied smile as though he were rendering them entirely to his own, and everybody else's satisfaction, and in a manner that might be envied by the greatest of vocalists.

On being asked how he is he will stutter, "a-a-a ra-ra-ra-ri" and will be full of his delusions of grandeur, saying that he is worth millions and trillions of pounds; that he is to be crowned to-morrow; that he has a motor car, etc. He may then, suddenly, become violent, and attack his attendant, but his attention can be readily attracted into other channels, and his display of anger may be converted into one of pleasure, by a mere suggestion. When a General Paralytic does become violent he is a very difficult man to handle, because, he has such an exalted idea of his own strength, and prowess, that, he will attack anyone furiously and blindly, no matter how big and strong, or what the number of his opponents may be. Towards the end of the second stage, Haematoma Auris may form, if the ear should get a knock, but, in my experience, it is a rare occurrence as it only happened in one of my cases.

Third Stage. The passage, from the second to the third stage, may be gradual and undefined, or, else, marked by a congestive attack, which frequently takes the form of a convulsion. In the former case, his general condition deteriorates, from day to day,

imperceptibly, until he presents the picture of a paralysed, demented, incoherent man, with his speech so slurring, and disjointed, that it is, frequently, impossible to make out what he is saying. His grandiose delusions are still maintained, although, they are not much in evidence, unless he is prompted, when he will tell you, to the best of his power, that he is feeling in perfect health, and that he could jump a river 20 yards wide, etc. He is perfectly happy and contented, and takes his food hungrily, but in spite of this latter fact, he is rapidly losing flesh and becoming emaciated. It is thus seen that, in each of the three stages, his bodily condition follows a definite line of action, viz:- In the first stage his bodily condition is well nourished, and healthy; in the second stage, he becomes obese, and flabby with unhealthy fat, whilst, in the third and last stage, he becomes much emaciated, and, at the very end, reduced almost to a skeleton. His common sensibility is very much dulled, and a pin can be pushed almost through his skin without his, apparently, feeling any discomfort. It is impossible to gauge the extent of his sense of sight, hearing, smell, etc, because he is so demented, that his answers are unreliable. His organic reflexes are becoming involved, and, on this account, he has to be fed with soft food, very cautiously, to prevent his choking. He is very liable to the fracture of bones, particularly the ribs, and this may be accounted for in two ways, (1) The bones have undergone trophic change to such an

extent, that they are rendered extremely brittle and, (2) according to Dr. Clouston, his reflexes have become so dulled, that the muscles fail to re-act sufficiently quickly when stimulated, the result being that, when a sudden strain is put on the chest, owing to the failure of the glottis to close immediately, his lungs are insufficiently inflated, and the ribs have not the requisite amount of support to withstand the pressure, with the result that they snap. The dulling of the reflex action is also accountable, I think, for the catheterisation that is required, from time to time, during the latter end of the disease; the urine collects in the bladder, but the filling of the viscus fails to set up the required stimulation for its emptying, and the muscles of the bladder, being in a weakened condition, allow of over distension and resulting inertia of that organ. The retention may also be due to spasmodic contraction of the Sphincter Urethrae or Chronic Cystitis and the resulting alkaline urine, "the Cystitis having a neuropathic origin not infrequent in changes within the cord and spinal nerves" (1) Retention, and incontinence may occur in the earliest period of the disease; it is however, only a transient condition. (2) He is, now, frequently, wet and dirty, the urine dribbling away from an over distended bladder,

(1) Bevan Lewis-A Text-book of Mental Diseases P.322

(2) " " " " " " " " " " " "

and his Sphincter Ani being beyond his control- and, on account of his lowered vitality, requires very close, and careful attention. He is also destructive, but tears up his clothing in a disinterested and mechanical sort of way. He, now, has the greatest difficulty in moving, and will sit by the fire with his head bent on his chest, and taking no interest whatever in his surroundings; he will answer questions incoherently, and stammer out his grandiose delusions if prompted. Finally, he has to be put to bed, where he lies, with legs drawn up, occupied with his exalted ideas, and restlessly, and without method, turning over and pulling at his bedclothes, as far as his paralysed condition will allow him, and, when having his bed made, will spasmodically grasp the clothes covering him, thus rendering that operation difficult.

The difficulty now is to prevent the formation of bed sores, as, so lowered is his vitality that, in a single night, a great black area may form where there has been the slightest pressure. His swallowing is now very difficult, and he has to be fed very carefully, and slowly, in order to prevent the food getting into his trachea.

The end may come gradually, or he may die in a convulsion, or a few days subsequent to a convulsion. In the case where the third stage is ushered by a congestive attack, the after course is much the same as stated above, except that it is precipitated

somewhat, and that this stage, never of very long duration, may be considerably shortened.

The Acute Type of General Paralysis.

The term "acute", here refers, more particularly, to the duration of the disease in certain cases, and is used in contra-distinction to the comparatively long period taken by the ordinary and more chronic forms, rather than as a description of the symptoms occurring in these cases. It may be noted, here, that the great majority of cases running an acute course present a very acute maniacal type of symptoms, and that the mental irregularities are more in evidence than the physical, until late in its course. In certain rare instances, depressed and melancholic General Paralytics run a very acute and rapid course, as for example, a case quoted by Dr. Savage, ⁽¹⁾ in which such a patient died six weeks after admission to Bethlem Asylum without showing any signs of acute mania. The acute type of case is of very short duration, - the patient generally dying within three, or six months, or even less, of the time at which the first reliable symptoms appear - and the shortening is, chiefly, at the expense of the second and third stages.

The onset, and first stage, may follow much the same course as that taken by the ordinary type of General Paralytic with, however, a much more rapid, and more acute sequence of the symptoms, the patient, at first, exhibiting the usual signs of increased irritability, loss of memory, and loss of the power of concentration.

(1) Savage - Text-book of Insanity P. 297

and passing on to a more pronounced manifestation of these defects, with a loss of moral control, and indifference with regard to the proper observance of the ordinary laws of society,

Frequently, however, the first manifestation of the disease is, that he suddenly becomes violent, and threatening, towards people for whom, normally, he would have the greatest affection, and provoked upon the most trivial pretext.

The second stage is ushered in by an attack of acute mania, closely resembling that seen in the ordinary type of General Paralysis, only, it is more intense in its every feature. He continually roams about his padded room and, having stripped of his night shirt, will tear it up into shreds if it is not sufficiently strong to withstand ^{himself} him. He picks about at the walls and padding of his cell, keeping up a constant, incoherent jabber to himself which is varied, occasionally, by his shouting to some imaginary friend, or relative, or whistling to his dog.

After a varying time, from a fortnight to a month, of this incessant restlessness, and activity, he may quieten down slightly, sufficiently, at any rate, to get him out into the fresh air; the maniacal attack has, however, left its mark, and his mental, and physical condition have deteriorated by the constant wear and tear of his over-stimulation, and, as a result, he looks

thin and haggard, and is a great deal more demented, and shows his physical defects much more plainly than previously. He is not quite so maniacal as formerly, but he is extremely restless, sleepless, emotional, and has exalted ideas. He shouts, swears, and uses abominable language, so that, unless carefully protected, he may be injured by an angry and resentful fellow-patient, who thinks these insults have been hurled at him. He is impulsively violent at times, and will frequently attack his attendant, or whoever else may be at hand, suddenly, and for no reason whatever. He is destructive, and dirty in his habits, - tearing up and destroying, in an unreasoning and aimless fashion, anything that is capable of being destroyed, whilst he himself and his room become covered with his excreta.

After this state of affairs has lasted a few weeks, he is left in a very weakened condition, his gait is very tottery, and he can with difficulty, stand without assistance. Ultimately, he is put to bed on the floor in a single room, as he is too noisy and restless to remain in the hospital with the other patients and, in his restlessness, he rolls about the floor, giving rise to abrasions, and the formation of sores which he will not give an opportunity to heal, as he is constantly picking at them and rendering them gaping and bleeding.

Finally, worn out by his ceaseless exertions and his unhealthy bodily condition, he is put to bed on a

water-bed, and the end now rapidly approaches; he becomes weaker and weaker, and dies in a moribund condition or, is released, by the intervention of convulsions, within a varying period up to about four months of the appearance of his maniacal symptoms.

A good example of the sudden onset and subsequent rapid progress of this type of the disease is the following case:- G.H. aged 41, married. six weeks before admission he, for the first time, gave evidence of the approach of the disease when he suddenly became very excited, noisy, and violent, and threatened to stab his wife; he talked incessantly but most incoherently.

On admission to Berrywood Asylum he showed a number of the physical, and mental signs of General Paralysis, viz:- his pupils were equal but very small; they both reacted to accommodation but not to light or skin stimulation. His knee jerks were brisk; the plantar and cremasteric reflexes were absent; there was marked fibrillary tremor of his tongue and his speech was much blurred; he was slightly ataxic in his gait. He had exalted ideas; his memory was defective; he was emotional and, most inopportunately, became sad in speech, and expression. He was in an acutely maniacal state, being very restless, sleepless, and constantly moving about his room, in a nude condition, and attempting to climb over his door. After the administration of sedatives, short periods of sleep were induced, but, during the first week, he had to be secluded for

44 hours. At the end of this time, he had to be removed to the hospital, and placed on a water-bed, and he required catheterisation. He rapidly sank, and died at the end of the following week or a fortnight after admission. The whole known duration of the disease was thus only two months. The condition of General Paralysis was confirmed post-mortem.

The Melancholic Type of General Paralysis.

This type of case is, in my experience, of comparatively rare occurrence, - being present in only two of the series, - but coincides with the proportion cited by Dr. Clouston viz, 3 to 4 per cent. The course of the disease, when assuming this character, is much the same as that followed by the Common type, but its duration is usually less, and in some rare instances is very short indeed. It is very important to bear this type of case in mind, as, when speaking or thinking of General Paralysis of the Insane, one is apt to associate the disease, exclusively, with that type where there is elation, self-satisfaction, and the expression of grandiose ideas; so that, when a General Paralytic patient, with symptoms of a melancholic character, presents himself, the gravity of his condition is apt to be overlooked.

The commencement of the disease may be manifested by signs of depression, and want of energy, as described by Hack Tuke in the following terms:- "The melancholic Type may be ushered in by emotional depression; he may be cast down, despondant, distressed about trifles, apathetic about important affairs, inattentive, neglectful, languid, lacking interest in life, relaxed in energy and full of vague fears; these patients may yet be irascible if roused or opposed" (1)

(1) Hack Tuke - Dictionary of Psychological

It then passes on to melancholia which may range, in intensity, from a condition of simple depression to one of the most intense fear, and misery. So closely may the mental symptoms of this disease simulate those of ordinary melancholia that, if the physical signs, which on this very account may not have proper attention paid to them, are not well marked, an error in diagnosis is a very simple matter. As a rule, however, there are certain distinctions in connection with his delusion which, combined with ^{the} physical signs of General Paralysis, at once makes the diagnosis clear,

The nature of his delusions may be exactly those of ordinary melancholia, but, usually, they may be distinguished by the fact that they assume greater proportions, and his morbid fancies are as much exaggerated, and he as abject in his misery, as are the grandiose ideas, and his feeling of happiness, and contentment, in the Common Type; as for instance, in ordinary melancholia, the patient may inform you that he cannot breathe because he has a ton weight on his body whilst, if he be a General Paralytic, he will say that he has a weight on his body equal to a million tons or the whole earth.

In the majority of melancholic General Paralytics, the delusions are hypochondriacal in character, and relate chiefly to his viscera which he may say are blocked up, or entirely missing; on this account, the patient will frequently refuse food,

under the impression that it cannot be swallowed, and that it would be useless making any attempt to do so. Suicide is not common amongst this class of case, but it is sometimes attempted, and, frequently, in the most determined manner.

Dr. Clouston associates the appearance of a dull melancholia, in General Paralysis, with some organic visceral disturbance and, in connection with this, says "Whenever I see a General Paralytic dull now, I always search for an organic visceral cause and usually find it,"⁽¹⁾ and further, "I find that nearly all the cases that had tubercular disease had been melancholic."⁽²⁾

Some cases do not continue melancholic all through, but may change from that to the excited, exalted type, and then proceed in the usual way.

On the other hand, melancholia may alternate with excitement, in which case, the condition is known as the Double, or Cyclic form of General Paralysis.

The following is an example of the mental state of melancholic General Paralysis frequently met with:-
R.E.L. aged 41. had delusions that he had no inside, that his limbs were all bone; and that he had no brain; he said that there was no use in his taking food, because his "swallow" blocked up every time. He

(1) Clouston - Mental Diseases P. 402

(2) " " " P. 400

talked about, and was interested in, nothing but his internal organs. He also stated that he had a "gadget" inside him, and, whenever he fell down, or did anything unusual, he would say that the "gaget" made him do it. He gradually deteriorated, and finally died without any alteration taking place in his melancholic condition. The diagnosis was confirmed post-mortem.

I now pass on to the more detailed description of the special features of the disease, and will first deal with the remissions, or periods of temporary recovery.

Remissions are one of the peculiarities of this disease, and, are of fairly frequent occurrence, in my experience, in the Common Type of General Paralysis, being noted in about one third of the cases. It must be remembered, however, that a number of the other cases were only admitted to the asylum, at that period of the disease, subsequent to the usual time for the appearance of remissions, and hence, the above proportion is, in all probability, less than what was actually the case. I might, perhaps, add, that at the present time, there are, at Berrywood Asylum, six patients in this state, some of whom have been thus for the last nine months and who, to a casual observer, appear perfectly healthy, sane and rational men.

When such remissions do occur, the patient may so far improve mentally, and physically, that his friends are led to suspect an error in diagnosis, and get his discharge from the Asylum, only, however, for the time being, as the inevitable relapse occurs and he is re-admitted in a much more deteriorated condition generally. This clearing up of symptoms usually occurs a short time after the acute maniacal attack ushering in the second stage, and according to Stearns, the temporary recovery is apt to be more complete where it has

(1) Stearns - Mental Diseases P. 508

been ushered in, or precipitated, by the occurrence of a fracture, erysipelas of the scalp, pneumonia, carbuncles, or some form of intercurrent disease.

A patient, entering into the remission period, — a varying space of time having elapsed after the maniacal outburst, — will, gradually, begin to show signs of improvement, either with regard to his mental, or physical condition, or both combined, which may go on to such an extent that he becomes changed from an excitable, boastful, irrational being, to a man who is, to all intents and purposes, quite sane: he now takes an intelligent interest in his surroundings; he is capable of maintaining a rational conversation, and talks intelligently on the subjects introduced; he remembers past and present events; enquires about relations, and friends, and understands the nature of the place in which he is confined; all his grandiose ideas have disappeared, and he will laugh at them when they are suggested to him, and, if interrogation on this subject is persisted in, he shows signs of annoyance; he is now tidy in his habits, and cheerfully, and capably assists in ward or any other work that is allotted to him.

The great majority of my cases showed the most marked improvement mentally, although their physical condition participated, also, to a certain extent and in one particularly, (A.D.), in whom, so much were his

physical defects in abeyance that his reflex pupillary anomalies cleared up, with the exception of his right pupil which remained sluggish in action to direct light stimulation alone. As Dr. Savage points out, however, these "remissions are rarely complete, one or other of the bodily, or mental symptoms persisting," and, in the opinion of the same authority, the pupillary abnormalities, and condition of the tendon reflexes, may pass off but the tremor of the lips, and tongue, if once fairly established, is rarely, if ever, abolished.

No definite statement can be made with regard to the duration of these remission periods except, perhaps, to say that it is unusual for them to be prolonged beyond the space of twelve months, although, the above mentioned patient, A.D., remained in this condition for fifteen months, and Dr. Savage mentions a case where it lasted for sixteen months. The termination of the remission is usually sudden, and manifests itself by increased irritability, a display of violence, a convulsion, or an acute maniacal outbreak, after which the patient quietens down, and it is then seen that he has been left in a much more unstable condition than was the case before the onset of his temporary recovery.

In certain rare instances there may be several of these periods of remission during the progress of the disease but, usually, - and certainly in the cases that I have seen, - there is only one in any single case. Where such a lapse from the even and progressive

Downward course of the disease occurs, the apparent recovery is seldom so complete that a close observer cannot distinguish certain slight evidences that the disease still exists, but which may convey nothing to the lay mind; such evidences are well described by Maudsley as follows:- "Watching closely, however, it may be noted that the person is not quite what he was before his illness; that his refinement of thought, and feeling is a little tarnished; that he has lost something of his wonted delicacy and reserve in conversation, and conduct; that he has a tamer manner of talk, and walk; that he is not equal to the same intellectual efforts as formerly, but is sooner fatigued mentally and bodily. ⁽¹⁾ After the remission, the symptoms both mental, and physical are seen to be more pronounced; the condition of the patient is more deteriorated generally, than was the case immediately previous to the temporary respite, and the course of the disease is usually hastened on to its fatal close.

Blood. It is pretty generally agreed, I think, that, in General Paralysis, there is a diminution in the haemoglobin and, according to Macpherson, in the number of the red blood corpuscles also. Investigations made by Dr. Lewis Bruce in 1901 showed that remissions, subsequent to acute erysipelas of the scalp, pneumonias, severe carbuncles etc, were preceded by a high and long hyperleucocytosis whilst, in the ordinary remission, the number of leucocytes at its commencement proved to

(1) Maudsley - Pathology of Mind P. 451

be greater than the normal; as the remission became more established, however, the number of leucocytes fell until, finally, they were no more abundant than in ordinary health. (1) The same writer states that, in the first stage of the disease, the percentage of polymorphoneuclear leucocytes present is between 70 and 80, but that they diminish as the disease progresses until, finally, they are reduced by about half; with this steady decrease of polymorphoneuclear cells, there is an increase in the number of lymphocytes.

He further states that an eosinophilia was invariably present, at some period of the disease, and that this eosinophilia was never found during remissions. (2)

(3)
Dr. Klippel, from investigations made by him upon the blood, confirms the fact that the number of leucocytes returns to normal during the remissions, after the pronounced leucocytosis occurring during the acute stage.

It is upon the induction of a false leucocytosis that Dr. Lewis Bruce builds the hope of being able to produce and prolong a remission period, and, perhaps, ultimately to effect a cure.

Speech is in some instances very early affected and, to the closely observant, may be the first sign

(1) Brit. Med. Jour. 1901 Jan-June Pp.1601 & 1602

(2) " " " 1903 Jan-June P. 1206

(3) Lancet 1903 Vol. 2 P. 1317

indicative of a weakening muscular power. Such a patient, as is pointed out by Maudsley,⁽¹⁾ will exhibit this slight muscular weakening by a brief halt before the pronunciation of words, beginning with consonants, and will then utter it correctly but, perhaps, slightly accentuated as though he, himself, entertains a certain degree of doubt as to his capability of saying the word clearly, and recognises that he must proceed with caution in order not to mispronounce it.

From this slight defect in articulation, his difficulty in the pronunciation of consonants, and especially of linguals, labials, and dentals, becomes gradually greater and more apparent so that, by the time he has reached the middle of the 2nd stage, he talks like a drunken man. His words are "mouthed" first and then uttered slowly, and in a drawling fashion whilst he, evidently, has a certain amount of difficulty in selecting the right one, owing to his defective memory, as he is observed to substitute a common word for the one he really requires, and will, occasionally, leave out syllables, or a whole word altogether; when asked to pronounce a test word, he quite recognises his inability to do so correctly, and will smile good-naturedly at his failure. Anything tending to excite him whilst he is speaking will cause an exaggeration of this failing, so that the individual words become so slurred that they are unrecognisable. Instead of

(1) Maudsley - Pathology of Mind P.440

this slurring form of speech, it may be staccato in character, in which case the words appear to be clipped off, and uttered shortly,

Accompanying this altered articulation is the muscular tremor at the corners of the mouth, and of the facial muscles, which becomes more pronounced, and less under control, during his articulatory efforts. As the paralysis advances, his speech becomes more and more difficult, and defective, until, his "attempts at speech issue in an inarticulate muttering of broken unintelligible jargon, in which here and there some word is recognised"⁽¹⁾ and, finally, his attempts at articulation resolve themselves into nothing more than a facial distortion.

The Writing of a General Paralytic is closely allied, in regard to its peculiarities, and the ~~sequence~~ sequence of them, to the defects met with in his speech, but they are not, usually, in evidence until some time after his articulation has shown signs of impairment although, according to Savage, "in a few cases there is great difficulty in writing, a dropping, or isolation of letters, or fatigue in writing, long before General Paralysis is suspected"⁽²⁾ and he lays stress upon the following fact, that some patients give up writing or alter their mode of holding the pen, for a year or

(1) Bevan Lewis - A Text-book of Mental Diseases P. 294

(2) Brit. Med. Jour. 1890 Jan-June P. 778

more before signs of General Paralysis are declared".⁽¹⁾

His mental condition may be the means of first drawing attention to his writing, as his train of thought is so rapid, and fleeting that, in writing a letter, he is unable to produce them in their entirety. on paper, the result of which is that his letters show an omission of words, or syllables, or dates or ends of words or, on the other hand, the words may be run together and there may be a repetition of them. The character of the individual letters may undergo very little alteration at this time, particularly if he is requested to write something, - a somewhat extraordinary circumstance at first sight considering the amount of muscular tremor that may be present, - but, this is mainly due to the fact that, he recognises that his hand is shaking, and so he grasps the pencil firmly, and is deliberate in the manner of forming the letters.

Towards the end of the first, and during the 2nd stages, he may be much given to writing letters, which are generally addressed to the King, or some titled person, and, those composed during the second stage, are disjointed and incoherent in substance; shaky, smudged, and untidy in appearance, with spasmodic stoppages in the middle of sentences; words and sentences are repeated and, here and there, omitted entirely or in part.

(1) Savage - Brit. Med. Jour. 1890 Jan-June P.778

In the course of time, his arms and hands become so involved that, it is, with the greatest difficulty, that, he can even hold a pencil, and, when he attempts to write, his hand, and arm shake to such a degree that he, himself, is able to recognise his inability to form anything resembling a word, or even letter that he may give up the effort in disgust.

Gait. The muscles brought into use during locomotion may, very early on in the first stage, manifest signs of impairment, and incapacity to fulfil their normal functions perfectly, as may often be indicated, by a statement, from the patient, to the effect that he becomes easily fatigued, or even by a momentary weakness, or sinking in one, or both limbs. As a rule, however, it is not until the other signs are pronounced that they become sufficiently involved to give any visible proof of their being affected.

The first thing to be noticed, perhaps, is that, although he may walk briskly, and evenly enough, he sways, and momentarily loses his balance, on turning quickly or else that, when standing, he keeps the feet a little distance apart. In the course of time, a dragging of one, or both feet, may be shown, in addition to the above mentioned defects and, as the condition becomes more pronounced, the gait becomes swaying, and unsteady in character; the feet are kept wide apart when standing, and walking; the steps are short, and there

is a want of elasticity, and spring, during the process of locomotion. The impairment in his gait is more readily demonstrated when he walks quickly, whilst the difficulty is increased when he ascends, or descends any steps; he also, now, exhibits a tendency to trip, and stumble, and is very liable to receive an injury through his falling down.

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I have also noticed a point mentioned by Sankey in connection with the manner in which he poises his h head whilst walking, namely, that he has the appearance of being under the impression that he must carefully, and accurately keep it in the centre of gravity, in order that he may not be over-balanced during this operation. Although this kind of gait, denoting an actual weakening of the muscles, is the one generally met with in General Paralysis it is not the only one, as, at times, his walk is distinctly ataxic or spastic in character.

In many instances, the disease is well advanced on its course before any defect in locomotion can be detected, because the failure of vigour and co-ordination in the larger muscles is so insidious; in connection with this fact Bevan Lewis says:- "the lower extremities remain unaffected to any appreciable extent for even two or three years after the onset of the attack. Locomotion is unrestricted, equilibration is good, gait steady and firm and no swaying is induced on closing

(1) Sankey - Lectures on Mental Diseases P.266

the eyes. In fact, in 50 per cent of the cases examined, the walk was brisk, and not devoid of spring, and no muscular enfeeblement was apparent; Towards the end of the 2nd stage, his legs have usually become so much involved that to walk 20 yards causes him a great effort, and, before very long, even this is impossible for him. Finally, he becomes so weak that he has to be put to bed on a water-bed, where he lies with his legs contracted, and flexed, so that the knees nearly touch the chin and the head and neck are often bent forward, and raised from the pillow for hours together, the patient gazing fatuously here and there, or in front of him." (1)

The State of the Eyes in General Paralysis. In studying the clinical features of General Paralysis from a series of cases, I have not selected special cases for that purpose, but, have collected the last 50 General Paralytics admitted to Berrywood Asylum and, from their notes, compiled partly by myself, and partly by a former Assistant Medical Officer, have gathered together any of the facts which appear^{ed} to me would be of service in the diagnosis of the disease. I find that a certain number of the earlier cases have not had full notes taken upon all the points of clinical importance and, in consequence of this, when dealing with these points, I am unable to utilise the full 50

(1) Hack Tuke - Dictionary of Psychological Medicine

cases. For the consideration of ^{the} phenomena occurring in connection with the eyes of the General Paralytic, I have 32 cases where ocular symptoms were noted and upon these 32 cases my observations are based.

The parts of the eye affected may be the Extrinsic Muscles: the Intrinsic Muscles or the Optic Nerve.

Extrinsic Muscles. Paresis of these muscles is of rare occurrence, in my experience, and, in only one case of the series, was there strabismus, which manifested itself during the latter part of the second stage, and which was unilateral, and internal in character, and of temporary duration; there was no single case in which ptosis was present. ⁽¹⁾ Mickle, ⁽²⁾ Hack Tuke and ⁽³⁾ Kellogg assert that paralysis of the Extrinsic Muscles is most frequently found, in those cases of General Paralysis with tabetic symptoms and is associated with tabetic gait, loss of knee jerks etc, whilst the following statement is made by Dr. Savage "Ptosis and external strabismus are rare as symptoms of General Paralysis, but are very common as early symptoms of a diseased process which ends in General Paralysis". ⁽⁴⁾

Intrinsic Muscles. The muscles chiefly involved in this group are those concerned in the manipulation

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- (1) Mickle - General Paralysis of the Insane P. 111
 - (2) Hack Tuke - Dictionary of Psychological Medicine P. 488
 - (3) Kellogg - Text-book of Mental Diseases P.668
 - (4) Savage - Brit. Med. Jour. 1890 Jan-June P.778

of the pupil, and, frequently, defects in them are the first apparent physical signs to indicate the presence of the disease.

The changes, undergone in the appearance, and behaviour of the pupils in different cases of General Paralysis and, in some instances, in the same individual, are very various so that having seen one General Paralytic with pupils presenting certain characters we cannot, with any degree of certainty, expect the next case, at a similar period of the disease, to manifest the same pupillary anomalies; in addition to this, one of the chief peculiarities, in the behaviour of the pupils, is that a case of General Paralysis may, when first examined, show well-marked abnormalities with regard to the size, or shape of the pupils whilst a few weeks, days, or even hours later the character of the pupils has completely changed.

The abnormalities met with in the pupils of a General Paralytic may be in relation to their size, shape, or behaviour under reflex stimulation and, these abnormalities may appear singly, or all combined in any individual case, and may manifest themselves in both, or in only one of the eyes.

The appearance of irregularities in the behaviour of the pupils is of great diagnostic value, as they appear, in some form or another, in almost every case of General Paralysis during some portion of its course, and it is stated by Mercier that, in 99 cases out of

100, when unresponsive pupils co-exist with any form of mental disorder, the case is one of General Paralysis. (1)

The Size of the pupils is extremely variable, and no definite rule can be laid down in this connection. In one case, they may both be unduly dilated; in another, they may both be abnormally contracted and, in certain instances, to such a degree that they are no bigger than the head of a pin; whilst, in a third case, one pupil may be dilated, and the other contracted. It is most usual to find the contracted pupils early on in the disease, or during the attack of acute excitement, or in those cases presenting tabetic symptoms. In some of the cases one finds the contracted pupils persisting right through the whole course of the disease, but, it is most usual to find contracted pupils, at the commencement, giving way to dilatation as the disease progresses so that one finds inequality, ^{also} or mydriasis of both pupils, when the other symptoms are becoming more pronounced.

In the great majority of cases one finds, at one period of the disease, an inequality in the size of the pupils, as is testified by Drs. Austin, W.R. Dawson and D.F. Rambant. Dr. Austin states that, in 100 cases of General Paralysis, he only found two where there was no inequality in the pupils, whilst Drs. Dawson and (2)

(1) Mercier - A Text-book of Insanity P. 174

(2) Blandford - Insanity and its Treatment P. 293

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 Rambaut say that, inequality was present, in 92.3 Per cent of the cases analysed. On the other hand, Drs. Soukhanoff, and Gamouchkine, more recent writers on the subject, did not find the proportion so high, as they state that about two-thirds of the total number of patients analysed (682 cases) had unequal pupils. (2)
 Care must be taken not to fall into an error of diagnosis when one meets with a patient presenting an inequality of his pupils, as this condition is found in other cerebral affections.

In my analysis of the 32 cases I find that, on admission, in five of them both pupils were equal and contracted, and that, one month afterwards, in one of these, the contracted state gave place to dilatation; in five cases, also, there was an equal dilatation, and, here again, one month after admission, in one of them, there was an alteration in the condition of the pupils, but, in this case, the order of things was reversed, as the dilatation was replaced by contraction; another of these latter five cases had been blind for the previous two years, owing to atrophy of the optic nerves; in three cases, the pupils were of medium size, and equal. In 19 of the cases the pupils were unequal, on admission, or became so a very short time subsequently; 13 of these showed the right pupil to be the larger, whilst, in the remaining 6, the left was larger than the right.

(1) Brit. Med. Jour. 1898 July-Dec P. 688

(2) Jour. of Ment. Sc. 1903 P. 179

Shape. In General Paralysis, one meets with patients having pupils, irregular in shape, and contour, and this may confine itself simply to the outline of the pupil, or completely alter its shape, as a whole.

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According to Hack Tuke, the pupil may assume two forms (a) it may be oval and have its long axis either vertical or horizontal or (b) it may be pyriform, when the small end is generally uppermost.

Reflex Stimulation. Of the different abnormalities manifested in the pupils of a General Paralytic, by far the most important one, from a diagnostic point of view, is the manner in which they behave under the influence of reflex stimulation. The earliest of these reflexes to disappear is, usually, that of dilatation of the pupils when the skin of the neck, for instance, is irritated. Normally, the pupils will dilate on stimulating any sensory surface, e.g. the skin, olfactory, or auditory organs but, there is an absence of dilatation, in General Paralysis, when these sensory nerve terminations are excited. This peculiarity is observable early on in the disease, and can be demonstrated in the first stage, or, as soon as any inequality of pupils, can be made out. (2)
Bevan Lewis, with regard to this, says "We usually find as an early sign a slight, perhaps scarcely appreciable inequality of the pupils, the sizes of which are, otherwise, not

(1) Hack Tuke - Dictionary of Psychological Medicine

(2) Bevan Lewis - A Text-book of Mental Diseases P. 305

abnormal This case is one of commencing reflex iridoplegia, and (if this be so) we shall, almost certainly, find associated with it, the loss of the sympathetic dilatation, which should occur on irritating the skin; for this is, of all other iridal paralyses, the earliest observed. There is, frequently, considerable difficulty in satisfying oneself as to the absence of this dilatation as, if the patient is restless, or the movement of the pupils is sluggish, it is very hard to be absolutely certain that no dilatation has taken place. Its presence was ascertained in 63.6 per cent of the cases analysed by Bevan Lewis, and he states that he has met with cases where it is unilateral; owing, however, to the above mentioned difficulties, the proportion ^{obtained by me} was slightly less. I found that, of the 32 cases analysed, the reflex dilatation was absent in 20 i.e. 62.5 per cent; in two others, the pupils were demonstrated to re-act normally, whilst, in the remaining 10, no definite conclusion could be arrived at.

The next in order of appearance, of the papillary signs, is the failure of re-action when stimulated by light. The first thing observed, generally, is that, one, or both, of the pupils, contracts sluggishly when exposed to the light and, when this delayed movement is unilateral, the more dilated pupil is usually found to be the offending one. From this condition, the pupils gradually become less responsive as the disease

progresses, until their sluggishness is very apparent, and, the normal oscillation, after contraction, is abolished, and then, finally, they fail to re-act at all to either consensual, or direct light stimulation. It is, also, pointed out by Bevan Lewis that, as the immobility of the pupils becomes more marked, and, indeed, even as an early indication of the commencing iridoplegia, on illuminating the eye with a strong beam of light, the pupil will, at first, contract slightly and then dilate beyond its previous degree, and remain thus, in spite of the fact that the illumination is persisted in. ⁽¹⁾ The loss of mobility to consensual light stimulation, almost invariably, follows the impairment to stimulation by ordinary direct light, whilst absence of re-action, to a strong direct beam of light, is the last one of the light reflexes to disappear.

In the earlier stages of the disease, the **Argyll-Robertson** pupil is the condition most often met with, but, as it progresses towards its termination, and the degenerative change extends, the power of accommodation may be involved, or lost also, owing to impairment of the ciliary muscles. ⁽²⁾ According to M. de Montgmel, who arrived at his conclusions, after making 680 satisfactory observations, accommodation is more often abnormal than normal in General Paralysis except in the early

(1) Bevan Lewis - A Text-book of Mental Diseases

Pp. 305 and 314

(2) Jour. Ment. Sc. 1903 P. 177

stages; he also observes that the re-action is nearly always equal on both sides but that, in a few rare instances, normal accommodation is to be found on one side with abolition on the other. Where the pupils are in an habitually contracted condition, it is, usually, found that they remain, more consistently, inactive to light stimulation, and during accommodation.

Ophthalmoscopic Signs. Atrophy of the Optic nerve is present in a certain proportion of the cases, and may precede all other symptoms of General Paralysis by a considerable length of time as happened in the only case occurring in my series, viz, that of (C.H.) who had become blind, through this cause, two years before admission. Choroiditis, iritis and some forms of retinitis are stated by Hack Tuke to be sometimes associated with General Paralysis, but I was unable to demonstrate any of these in my cases. In connection with the appearance of the discs in General Paralysis, Dr. Savage makes the following remarks " In the early stages of General Paralysis, whatever the variety, there is no constant change in the discs. Later, and more generally, changes begin to show themselves, in a certain number of cases, towards the end of the 2nd stage, and changes, associated with dimness of the outline of the disc, and with fulness of the vessels, become manifest."⁽¹⁾

(1) Savage - Text-book of Insanity P. 328

Special Senses . It is stated, by most authorities, that, the special senses are involved, at some period of the disease, but, more especially, towards the end. I was unable to, completely, satisfy myself on this point, because, only occasionally, were they affected early on in the disease, whilst, later, the patients became so demented that any statement made by them, when being tested, I considered as unreliable.

Dimness, and failing of vision, as has been previously pointed out, may occur even as an early sign, and colour blindness is, not infrequently, met with as is remarked by Bevan Lewis who found that colour anomalies were present in 23 per cent of the cases examined for these defects. Transitory, and sudden deafness may occur during the first stage, whilst a permanent, and increasing deafness may manifest itself as the morbid process advances. Voisin considered the loss of the power to distinguish pepper, by means of the olfactory nerve, as one of the earliest signs of General Paralysis, but I was unable to confirm this in the cases tested by me for such a defect. Taste is apt to become perverted towards the end, and the most unpalatable mixture is stated by the patient to be a delightful drink. Drs. Toulouse and Vaschide, in recent investigations on the subject of impaired sense

(1) Bevan Lewis - Trans. Ophthalmol. Soc. U.K. Vol. 3
1883 P. 204

(2) Jour. Ment. Sc. 1902 Pp. 572 and 573

of smell in General Paralysis of the Insane, found that, in 8 of the 28 analysed cases (females), there was absolute anosmia, and, also, that none of these anosmic individuals belonged to those ^{in the} early stages of the disease. Another interesting investigation was made by these same two writers in connection with the re-action to ammoniacal stimulation or, as it is termed, the "tactile olfactive sensibility" and, as a result of which, they found that this sensibility persisted although, in most cases, the patient could not detect the nature of the stimulus.

My own observations with regard to the special senses were made on six cases, all of whom were early in the 2nd stage of the disease; in five of them, I had every reason to believe that the statements given were in accordance with the sensations actually experienced by them; in the remaining one, however, the information received had to be discarded as unreliable. I found that hearing was defective in two of the cases, (H.G.H), and, (G.C.), in both of whom the left side was most involved. Taste, smell, and vision were all good, except in the case of H.G.H. who could not very readily distinguish the different test substances used. The tests used were, for smell, - pepper, brandy, oil of cloves and oil of peppermint; for taste, - sugar, salt, quinine, and for hearing - the ticking of my watch at varying distances, whilst for

vision, I used any object, situated at such a distance, that I could just distinctly distinguish ~~it~~ myself, (my own sight being corrected), and, also, the reading of print of different sizes and ^{at} varying distances.

Sense

Cutaneous and Muscular Discrimination. Dr. Bevan

Lewis came to ^{some} very definite, and interesting conclusions from a careful investigation of these special senses and, quoting from his book, I give the following state-
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ments:—"In General Paralysis where the Kinaesthetic centres are early, and, in the majority of cases, most seriously involved, the muscular sense is obviously defective and, the delicate appreciation by this channel often very seriously blunted. Whilst there was this failure of appreciation of weight there is little, or no impairment of cutaneous sensibility but, on the other hand, an acute tactual sense, and a fine discrimination for temperature, and painful impressions".

I was enabled to confirm these facts, in the main; with regard to the sensation for painful impressions, however, one case, (A.W.), showed a diminished sensibility; towards the end of the 2nd stage, it has been my experience that, this sensation is markedly diminished, so much so that a needle can be driven almost through the skin without causing apparent discomfort. -During the more pronounced stages of the disease, one, not infrequently, meets with cases exhibiting localised

(1) Bevan Lewis - A Text-book of Mental Diseases

anaesthetic patches, and, in certain cases, their presence may be first found out casually by finding a sore place where the patient may have injured himself. One of my cases, (G.C.), who was in the quiescent stage, whilst dusting about the stove in the ward, accidentally burnt himself on the arm, but was quite unaware of the fact until he was told of it by an attendant standing by. In the case of W.B., a touch could be felt and located accurately, but a longer interval, than normal, always intervened between the time of his being touched, and his notification of the fact, although I kept impressing upon him the necessity of speaking immediately he was conscious of it.

As regards the susceptibility of General Paralytics to the sensations of heat, and cold, I have, on several occasions, found them particularly hyperaesthetic to cold, which they have manifested early on in the disease and, more or less, during its whole course. Other asylum patients suffer from cold also but not, I think, to the same degree as the General Paralytic, who can, often, be seen shivering, and crouching as near the fire as he is permitted to get, with, perhaps, his coat thrown over his head as a further protection against it.

Whilst at Berrywood Asylum, I collected some statistics in relation to this particular point, in order to compare the effect of the cold upon General Paralytics, and other lunatics respectively. As a

result of this, I found that the approach of the cold weather very markedly affects the General Paralytic for the worse, and that, from a snap of cold weather, the commencement of a sudden, and rapid decline, ending in death, may very often be dated. There is a seasonal variation in the death-rate of all lunatics, but it is not nearly so marked as in the case of the General Paralytic. I found that the average death-rate of General Paralytics at Berrywood Asylum, extending over a period of 26 years, to be 21 per series of 26 months during the seven cold months, i.e. October to April inclusive whilst, during the remaining series of warm months, the average was only eleven. In the case of the other inmates I found that, during the same years, the average during the cold months was 179.7, whilst, during the warm months, it was 136, showing a much less difference in proportion, as compared with the General Paralytics.

Delusions. The outstanding features, in connection with the delusions of a General Paralytic, are that they are fleeting, variable, inconsistent, and absurd in their exaggeration. Any absurd exaggerated ideas, and any number of them that may be suggested are, at once, accepted by him, whether they bear any relation to one another, or not. The ordinary maniac, with grandiose delusions, may say that he is the King of England, or the Czar of Russia,

and will maintain this idea, at least, for a time. In the case of the General Paralytic, however, he is the King of England, Lord Roberts, the Emperor of Germany at one and the same time, or following one another in the course of a few minutes. In the earlier stages, the delusions are, frequently, prompted by his accustomed employment, as for instance, a soldier will say that he is a Field Marshal, or General, whilst a lawyer, or doctor may imagine himself at the head of his respective profession etc. Sankey considers that the delusions are usually suggested by surroundings of a commonplace kind, and quotes the case of a patient who was telling him that she was an angel, and that all the birds knew her, and came to her; on looking up he saw a sparrow seated on a branch close to the window, and this had evidently suggested the idea. ⁽¹⁾ The delusions usually persist, and can be elicited as long as he is able to give expression to them, and, even when he is so paralysed that he is unable to stand, he will inform you that he never felt better in his life, and that he could jump a wall 20 feet high. One patient at Berrywood, the day before he died, said that he was feeling very well indeed and that "to-morrow" he was going to give a dinner party to which we were all invited. With regard to the delusions of a General Paralytic, ⁽²⁾ also, as is pointed out by Wilks, the greatness of the

(1) Sankey - Lectures on Mental Diseases P. 262

(2) Wilks - Diseases of the Nervous System P. 204

man is, not merely, exhibited by his boast of great wealth, and exalted position, but, everything, around him, appears to him on a larger scale.

Kleptomania, or some offence against the law is, frequently, met with in this disease, and, on examining the past history of cases of General Paralytics admitted to an asylum, one will, often, find patients who have undergone a term of imprisonment for theft, or some form of misdemeanour. It is, I think, due to a morbid mental state closely associated with his ideas of grandeur, and, in purloining articles, it is not done so much with felonious intent as, that he regards everything as belonging to him to take, or leave as he pleases. This is indicated, pretty clearly, by the manner in which he commits the theft; he does not wait until a favourable opportunity presents itself, but will steal the articles in broad daylight, and with people close at hand. When taxed with the theft, he will, very probably, deny that he has stolen anything, or say that the article belongs to him, and, he will become very violent, if any attempt is made to take it away from him. Occasionally, the theft will be committed with great cunning, and neatness, as was shown by one of the General Paralytics at Berrywood who contrived to steal a key from an attendant without being detected, in the act. The theft of food is a, comparatively, common occurrence amongst them, but, in this case, he is prompted by a very natural desire to appease a voracious

appetite. With regard to the commission of theft, and other crimes by General Paralytics, I insert an ⁽¹⁾ article, written on the subject, by Dr. Sullivan. He says, " in nine years, among convicted prisoners certified as insane in the local prisons of England, and Wales, there were 274 cases, (261 males and 13 females), in which the form of mental disease was considered to be General Paralysis. Amongst these 261 males, homicide, and homicidal attempts constituted the crime in nine cases; suicidal attempts were met with in eight cases; sexual offences in 13 cases; assaults in 21 cases; crimes of acquisitiveness in 144 cases; threats in 8 cases, and other offences in 58 cases. Crimes of acquisitiveness were, notoriously, common in General Paralytics, their most typical form being petty larceny, fraud, forgery and embezzlement. Generally, the circumstances, and execution of the offence showed a characteristic silliness, though, occasionally, the General Paralytic did commit robbery, or fraud with an appearance of adequate motive, and premeditation. The most important point to be noted, was, that this tendency existed in the exalted, and optimistic variety of General Paralysis, and not in the depressed, and melancholic form. Paralytics are also very amenable, through their naivete, to criminal suggestion of others: Foville mentions two instances where Paralytics were used as tools to utter forgeries.

(1) Lancet - 1903 Vol. II P. 246

Appetite. In a great majority of the cases of ^{this} General Paralysis, appears to participate in the exaggeration peculiar to this disease; the cause assigned by Stearns, ⁽¹⁾ being that of irritation of the Vagus at, or in the vicinity of, its origin. It is a sign that may appear early in the first stage, and, the attention of his friends may be attracted, at that period, by his excess, and coarseness in eating and drinking, and his complaints of hunger.

In Asylums, it is a common complaint from General Paralytics, that they do not get sufficient to eat, and, they are, frequently, caught stealing the food from other patients in order to satisfy their own hunger. This craving for food generally persists to the end but, in spite of this fact, the patient, in the terminal stage, rapidly loses flesh, and becomes emaciated; this fact, however, is not so surprising when one sees the loose motions, composed of undigested food, frequently, being passed by him, and indicating what a small amount of nourishment is really assimilated. A voracious appetite, is not always the rule, however, as, in certain cases, and particularly in the melancholic type, the patient will refuse food entirely, and require to be fed artificially.

Fits. This word may be considered somewhat ambiguous, for the description of the exacerbations

(1) Stearns - Mental Diseases P. 501

occurring during the course of the disease, but, so varied are the characters assumed in these attacks that, it is used in its widest sense, and is the only term that I can think of which embraces everything. Their importance, as an aid to diagnosis, cannot be over estimated as, not only may they be the means of giving one a clue as to the condition, early on in the disease but, they are, frequently, of the utmost service in clearing up what was, formerly, a doubtful diagnosis. At Berrywood Asylum, when a patient was admitted who gave a history of being quite healthy up until middle life, and then, at that period, was seized with a convulsion, or an attack simulating a faint, and particularly if his pupils were contracted at the time of examination, commencing General Paralysis was, at once, suspected; the same fact is mentioned by Dr. Macpherson who says, "when a person has reached middle life, without previously having manifested any distinct nervous symptoms, and when, that person is, suddenly seized with an epileptiform attack, the presumption is strongly in favour of the case developing into General Paralysis" (1) These fits are extremely varied in character, and may become manifest at any period of the disease: this may be the first sign to attract the attention of the relatives, and the primary means of causing them to consider the advisability of their

(1) Macpherson - Mental Affections P. 246

seeking medical advice on the subject; or, they may occur when the disease is well established, and then, not infrequently, may be regarded as a crisis which marks the transition from one stage to another; or, lastly, and as is most usually the case, they may appear towards the end and, either usher in the last stage, or be the most prominent feature in the final closing scene.

I think that, if it were possible to closely watch every case, day and night, from start to finish, only in rare instances, would one be found in which a fit of some description was not present, at some period of its course; the fits, however, in certain cases, are so slight in outward manifestation, and may occur at such times as are impossible of observation, that they are missed, and go unrecorded.

Out of the 50 cases, on which notes, and observations were made by me, in 35, a definite fit of some description was recorded; in 5 others, the patients had reached the 2nd stage without having had a fit, or, rather, one sufficiently well marked to be observed; whilst, in the remaining 10 cases, the patients passed through their whole course without giving any indication of any such exacerbation. In some of the 10 cases just mentioned, however, it is quite possible that, fits did occur, but they may have been so slight, or taken place during the night, or at a time when free

from close observation, that notification of them was not possible.

I find that, 31.4 per cent of the recorded cases occurred during the first stage, and, in certain instances, at the very commencement of the disease; in 14.3 per cent of the cases the fits manifested themselves during the more pronounced period; whilst, in 54.3 per cent, it was not until within three months of the death of the patient that they appeared, a fact which shows how much more frequently they are met with towards the termination, as compared with any ^{other} period during the course of the disease.

For a more detailed description of the different kinds of fits, presenting themselves in General Paralysis, I have found the most convenient subdivision to be, (1) those fits accompanied by convulsions or twitchings.

(2) Those fits devoid of any such muscular spasms. The first group, ~~ore~~ those accompanied by muscular spasm are, in my experience, very much more frequent than the non-convulsive type as, of the 35 recorded cases, 27 had some degree of convulsive twitching, in three of which the first fit observed was devoid of spasm, and apoplectic in character, but the subsequent ones exhibited unilateral epileptoid movements; the remaining 8 were not accompanied by any muscular spasm.

Convulsive Group . The characters, presented by this group, may differ very widely, both with regard to the intensity of the fit, and also with regard to its extent. It may vary from a simple twitching monospasm, to a condition of severe, and general clonic muscular contractions, closely resembling an ordinary epileptic seizure, and, in some cases, is so violent that the patient is thrown out of bed by the violence of the spasms. On the other hand, so slight may the twitching be that it is confined to perhaps the corners of the mouth but the presence of the fit may be demonstrated by the sudden pallor of the patient followed by a transient loss of consciousness and a wide dilatation of the pupils.

The convulsive seizures vary also within wide limits with regard to the number of muscles involved and the onset and course taken by the spasms affecting them. The onset may resemble that seen in ordinary epilepsy in which there is first a general tonic spasm and then a more or less violent clonic contraction of all the muscles with, perhaps, deviation of the head and eyes to one side, and, it may be ushered in by a "cry" but this is rather an unusual occurrence. During the fits, also, there may be an evacuation from the bowels and bladder as in true epilepsy. In most cases, however, the fits are not so sudden in onset or so violent in character as those seen in true epilepsy,

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and, according to Dr. Newcombe, "respiration is usually far less interfered with, and tonic contraction neither so severe, or prolonged; the pupils become more unequal than before the attack; the face may be either pale or congested, usually the former; the pulse is rarely so irregular as in marked cases of epilepsy.

The fits, whilst being general, may, at the same time, be more violent on one side, as was demonstrated by T.W., in whom the upper extremities, and face were more involved than the lower where the twitchings were scarcely visible, and the left side was more affected than the right; or, instead of affecting all the muscles at once, the contractions may be spreading in character, and, starting at one point, widely extend to the other muscles, and then, gradually, die away, and cease everywhere, except at the starting point; (2)
As an example of this, I give the case of (W.F.), but here the convulsions were not general as they started in the right leg, and spread from there to the whole of the right side. Instead of being general, they may be unilateral, and this latter condition is usually the more common; Of the 27 cases having some form of convulsion during their course, nine of them were universally affected, whilst in 13 the convulsions

(1) West Riding Asylum Reports Vol. 5 P. 214

(2) Mickle - General Paralysis of the Insane P. 163

were unilateral; in one case, both the lower extremities were, alone, involved whilst, the remaining 3, had some form of muscular spasm before admission, but none whilst in the asylum. In those cases in which the convulsions were unilateral, the right side was, more frequently, affected than the left, as it was involved in nine of them, as compared with four on the left side. The convulsions may differ very widely, in character, and extent, in different cases, but each subsequent one usually follows the same course in any individual case, thus, should the right side, alone, be affected in the first attack, it generally happens that, the same side is involved, in any further convulsive seizure that may occur. In some instances, one meets with a case where, the convulsions are crossed, as for instance in the case of F.J.K., who had convulsions affecting the right side of his face, and the left arm. During the progress of the fit the patient may, or may not, lose consciousness, and the severity of the spasm does not necessarily determine this, as, there may be unconsciousness, with a slight convulsive attack, whilst, on the other hand, with severe epileptic seizures, the patient sometimes, "is the witness of his own attack, answers as well as he did before it, and assists in the treatment of his case!"⁽¹⁾

The convulsive seizures may occur singly, or in sets and, in the latter case, the patient may develop

(1) Mickle - General Paralysis of the Insane P.163

the status epilepticus; in one of my cases, the patient had 37 fits in a little over an hour, but, Mickle⁽¹⁾ records the case of one patient who, during one convulsive storm, had 245 epileptiform seizures.

The same writer also describes a Tetaniform Group, in which the patient is seen to have recurring tonic spasm of the body, or part of it, but, such a condition was not present, in any of my cases.

Non-convulsive Group. As has been shown previously, this group is not, nearly, so frequently met with as the one in which convulsions occur, being demonstrated in only 11, out of the 35 cases, recorded, and in 3 of these, the non-convulsive character of fit was, later on, succeeded by fits, in which convulsions were present. Another feature, in connection with this group, is that, as compared with the convulsive group, they manifest themselves in greater proportion during the early part of the disease; thus, of the 11 cases, in 6, (54.5 per cent) the first fit occurred early on in the first stage, whilst, in 4 of them, it happened within five weeks of the day of death, and, in the remaining one, during the 2nd stage.

According to Stearns, the class of patient most liable to this variety of fit is, that where head-ache, and vertigo have, previously, been complained of, and, also, where flushings of the face occur from time to

(1) Mickle - General Paralysis of the Insane P. 165

time.

The onset, of the fit, may be gradual, in which case the patient is perceived to be becoming duller, and duller until, gradually, and finally, he reaches a deeply comatose condition, from which he may not revive; when it takes this form, the period, between the onset, and the deeply comatose condition, may extend over several hours. On the other hand, the fit may come on suddenly, and without warning, and closely resemble the onset of ordinary apoplexy. In addition to these ^{two} ways, the fit may assume a middle course, and give warning of its approach by increased sleeplessness, restlessness, or excitement, or an aggravation of his ataxic, and parietic disorders. ⁽¹⁾

The characters, assumed by the individual fits, are very various, both with regard to intensity, and extent, and, the only manifestation of them, may be given by attacks of causeless, and bilious vomiting, or profuse diarrhoea, which may, or may not, be followed by some form of fit; ⁽²⁾ or, again, it may be represented by the patient becoming heavy, dull, and stupid, and remaining thus for a few hours; whilst in this dazed condition, he is incapable of mental, or bodily exertion, and, when spoken to, may not answer, or, if he does, it is at random, and without having apparently grasped what

(1) Mickle - General Paralysis of the Insane P.167

(2) Mercier - A Text-book of Insanity P. 177

has been said to him. In certain cases, whilst the patient is at work, he is, suddenly, seized with a temporary monoplegia, or even hemiplegia, during which the arm, or leg may be rendered powerless, and useless without any other constitutional disturbance whatever. The fit, again, may be more severe, and, in the main, very closely resemble that seen in ordinary apoplexy: the patient may be suddenly rendered unconscious, in which state, the face is seen to be flushed; the pupils dilated; breathing noisy, and there is, in some cases, deviation of the head, and eyes to one side: they are, however, preceded, and accompanied by a rise in temperature, and a rapid pulse.

Voisin, described an additional group in which the fits were hysterical in character; they are more commonly seen in women but, amongst my cases, was a man, (A.P.), whom I considered was affected in this way. He was, one day, found sitting out in the airing court, with his eyes shut, and, on being addressed, would not speak, although the eyelids were seen to flicker, as though he understood what was being said to him; he was leaning back on the seat, with his body kept almost rigid; the pupils were about medium in size, and equal, and the raising of the upper lid was resisted by him. He was put to bed, and remained much in this condition for about two days. During this time, he refused most of his food, but would take about one meal a day when fed

by hand. On the third day, he became ^{talkative} again, and was allowed up, when he commenced dancing about the court, and behaving in a very childish, and silly manner generally.

After Effects of Fits. After nearly every fit occurring in General Paralysis, no matter what its character, or extent may be, the patient is found to be left in a more deteriorated mental, and physical condition than was the case immediately preceding it, but, in rare instances, the patient may improve after it, as happened in the case of D.C., whose physical condition improved, and was maintained, for a period of three months after he was seized with convulsive twitchings.

The immediate result of a fit ^{is} _A that he is left in a more, or less confused, and lethargic, mental state and, "there is also a partially anaesthetic condition of the system, and the patient is insensitive to his surroundings; noises do not disturb him, and he often finds difficulty in swallowing food during several days succeeding an attack" ⁽¹⁾; I have also noticed that, after a fit, the patient ^{often} _A suffers from retention of urine, which has to be relieved by catheterisation. Physically, there are different degrees of temporary paralysis affecting the parts involved by the convulsions, and varying from a monoplegia to a complete hemiplegia: should the right side be affected, one

(1) Stearns - Mental Diseases P. 504

not infrequently, meets with temporary aphasia, in addition, whilst, cases of crossed paralysis are, at times, met with.

The Temperature is an important aid in the differential diagnosis, particularly if a fit should occur, at a time of the disease, when its true ~~value~~^{nature} is still a matter of uncertainty, because, at these times it generally assumes a definite character which enables one, at least, to distinguish the apoplectiform variety, from the ordinary true apoplectic seizure, where the temperature is either normal, or subnormal. It must be remembered however that, in Apoplexy due to basal haemorrhage, the temperature may be high, whilst, according to Dr. Mickle, ⁽¹⁾ in moderate apoplectiform attacks, occurring in General Paralysis, there is not invariably an increase of body heat. Although, in the majority of cases, a rise of temperature is met with. Early on, in General Paralysis, there is, usually, no deviation from the temperature found in health, although, it is pointed out by Dr. Savage that, even in the first stage, an elevation of temperature, varying from 100° F. in the morning to 102° F. at night, may be found; as the symptoms, however, become more pronounced, the temperature may show signs of a definite irregularity. On the approach of the acute maniacal attack, there is a warning rise in the temperature,

(1) Mickle - General Paralysis of the Insane P. 175

which, attains its maximum, during the attack, and lasts as long as the excitement continues; with its subsidence, there is, also, a fall in the temperature, which sometimes becomes normal again, and remains thus throughout that period, of the disease, corresponding to the general remission; not infrequently, however, there is a variation in the morning, and evening temperatures, the evening being from 1-2 degrees higher than that found in the morning, or else, there may be irregular rises of temperature, at intervals, for no apparent reason. Should the temperature rise suddenly, or higher than its usual limits, some inter-current condition ought to be looked for, as, in many instances, some accidental cause will account for it, such as pulmonary complication or, towards the end, the commencement of a bed sore. In the opinion of Drs. Macpherson, and Lewis Bruce,⁽¹⁾ the temperature takes on a recurrent character, subsequent to the maniacal outburst, and the latter describes how, from the careful observation of 6 cases, he found that, after the acute mania, there was a remission of temperature,^{for} two or three weeks, followed by a further rise, which might, or might not be accompanied by mental symptoms; after this another remission, lasting, perhaps, for several months, and then the occurrence of more frequent febrile attacks, with shorter periods

(1) Brit. Med. Jour. Jan-June 1901 Pp.1600 and 1601

of remission, manifesting themselves, at intervals, between this portion of the 2nd stage, and the commencement of the 3rd. Towards the end of the disease, the temperature tends to become irregular, and, at times, is very high but, on the other hand, it may be sub-normal, particularly, in that quiet class of case, where dementia, and paresis are pronounced.

A forewarning of the approach of a fit is, frequently, gained by, closely, watching the behaviour of the temperature which, first of all, tends to irregular increases, and then assumes a high elevation, which is almost always, maintained during the fit, and persists for a time after it, no matter whether it be of the epileptiform, or the apoplectiform variety. In dealing with the clinical features of this disease, Dr. Mickle has made a careful study of the various peculiarities to be noted in connection with the temperature, and, as regards its associations with the fits, he says, "The axillary temperature, during, and, immediately, after an apoplectiform attack, is high^{er} on the side of the body which alone, or principally, is paralysed (if there be paralysis). And that, after a unilateral epileptiform seizure, the axillary temperature is higher on the side in which convulsions, and paresis mainly appear⁽¹⁾" and further, that "the difference between the temperature of the axillae lasts, sometimes, for two, or three days

(1) Mickle - General Paralysis of the Insane P. 179

in the milder, and non-fatal apoplectic attacks." (1)

He also points out, that when one convulsion follows another, day after day, the temperature, at last, is often found to become sub-normal. Between the fits, the temperature may again return to normal, and remain so until the onset of another, but, not infrequently the rise of temperature, every night, is observed, and maintained. According to Mickle, in those cases where there is rapid progression, ~~an~~ an absolute, and relative, high evening temperature occurs. (2)

Urine. In the early stages of the disease, the urine does not deviate much from that found in health, being, generally, acid in reaction, although it may be neutral, or even alkaline, and ^{is} of the normal amber colour. The quantity passed is, perhaps, slightly in excess of that of the healthy individual, whilst, the specific gravity varies very widely, and may be anything from 1010 to 1035. It is stated by Drs. Church and Peterson (3) that, glycosuria is, sometimes, an early symptom, but I have not, yet, met with such a condition. The reaction of the urine tends towards alkalinity as the disease progresses, and, not infrequently, cystitis is found occurring towards the end, thus adding another

(1) Mickle - General Paralysis of the Insane P.179

(2) " " " " " " P. 175

(3) Church-Peterson Nervous and Mental Diseases P.814

anxiety
 to those already present. General Paralytics are
 wonderfully exempt from albuminuria, and, only in rare
 instances, is such a condition met with. As regards
 the variations in the normal constituents of the urine,
 Dr. John Merson ⁽¹⁾ found that, the amount of urea was, on
 the average, increased, and that the amount of chlorides
 was, considerably, diminished, as compared with that of
 average health. He further states that, the amount
 of uric acid is, in all probability, increased, while
 the amount of phosphoric acid is uniformly diminished,
 and that the deposit, of the earthy phosphates, is one
 of the most frequently met with. Dr. Savage agrees
 with certain of these statements, but not with them all;
 he says "In the majority of cases there was excess of
 phosphates; chlorides might be reduced in quantity;
 urea was abundant; uric acid was not in excess."⁽²⁾

The question of the variations in the amount of the
 sulphates, if any, has been investigated by Dr. John
 Turner, and, as a result, he came to the conclusion ~~that~~,
 in the early stages, that, the amount of the ^{two} forms of
 sulphates and their ratio to one another did not differ
 from that found in health; with regard to their
 behaviour, however, at a later stage, and during the
 different phases peculiar to the disease, he makes the

(1) West Riding Asylum Reports Vol. 4 Pp.83,85,89&90

(2) Savage - Insanity P. 337

following statements:- "In the more advanced stages, however, the output of combined sulphates was large, and their ratio to the pre-formed extremely high, indicating very excessive intestinal putrefactive processes. The ratio of combined to pre-formed sulphates is very high during the convulsive seizures; higher than at any time during intermediate periods. The high ratio drops, in the course of a day or so, as recovery takes place from the fit, until it occupies the usual level. Also, immediately, or at most, in the course of a day or two after the fit, there is a very large output of combined sulphates"⁽¹⁾ He also found that, during remissions, the total amount of combined sulphates excreted may be larger than before, although there is a very considerable drop in their ratio to the pre-formed.

Reflexes. The behaviour of the knee jerks, and superficial reflexes, is extremely variable, in the different cases, and at different periods of the disease; in some, they are all exaggerated on both sides; in others, they may be normal, or diminished, or absent, whilst, in certain of them the characters assumed, on one side of the body, may be quite different from those found on the other, and the deep reflexes may, in no way, resemble the superficial in their mode of behaviour. The most usual condition found is that, in the early

(1) Jour. Ment. Sc. 1895 Pp. 17 and 18

stages, the knee jerks are exaggerated, and that, as the disease progresses, this exaggeration, gradually, becomes less marked, and finally disappears, being replaced by a diminution and, ultimately, complete obliteration of them. In the form of General Paralysis closely allied to Tabes, the knee jerks are absent, or greatly diminished at the beginning, and, in my experience, continue thus throughout its course; Drs. Church, and Peterson however, affirm that, "often in Tabetic forms, when the knee jerks are at first lost, they become finally exaggerated"⁽¹⁾.

I find that of 38 cases, in which the reflexes have been noted, the examination was carried out during the 2nd stage in 29 of them, and in 9, during the 3rd stage; the observations, made on the 29 cases during the 2nd stage, show, that, in 17, there was exaggeration of the knee jerks, on both sides; in two they were normal, on both sides; in one there was diminution, on both sides, and that, in four, no reflex was obtainable, on either side; also, that two were exaggerated, on one side, and diminished on the other; one had exaggeration on one side, and abolition on the other; in one, the reflex was normal, on one side, diminished on the other, whilst, in one, also, there was absence of reflex on one side, with normal reaction on the opposite.

(1) Church-Peterson Nervous and Mental Diseases P.812

Of the 9 examined, during the 3rd stage 4 still showed an exaggeration of their knee jerks on both sides, but, in each of these cases, that stage had just been entered; in two, it was diminished on both sides, and, in three, it was absent.

With regard to the Plantar Reflexes, during the 2nd stage, 37.0 per cent showed exaggeration; 7.4 per cent were normal; in 33.3 per cent, there was diminution whilst, in 3.7 per cent, there was no reaction. In no instance were they exaggerated in the 3rd stage but, in 14.8 per cent they were normal, and, in 3.7 per cent, they were absent.

At times the reflexes alter in the most unaccountable way during the course of a single case, and the characters presented by them, at one time, may be completely changed by the onset of an exacerbation, as is well exemplified in the case of E.W. who, on admission, at the beginning of the 2nd stage, showed the Plantar Reflexes, and left knee jerk to be normal, but the ^{right} knee jerk absent; five months after admission, ¹ both the knee jerks were just obtainable. He then had a brain storm, after which the knee jerks could not be elicited; this was followed, shortly after, by a monospasm of the left hand, and, on testing the knee jerks when it had subsided, they were found to be much exaggerated, particularly on the left side.