On some of the features of General Paralysis of the Insane.

By William J. Gibb.

This paper is chiefly founded on clinical & pathological observations, made during a residence of Eleven months as assistant physician to the Glamorgan County Asylum. Ample material for the study of General Paralysis offered itself in that institution, and, with the exception of the first, the cases referred to were under my care during part of my stay in the Asylum.

Such a brief experience is, no doubt, insufficient to enable one to venture upon anything like dogmatic assertion of opinion with regard to many important debated points; such as the influence of various agencies in predisposing to or more directly exciting the disease; or again, the question of curability. Questions such as these demand the observation of years. Still the fact that some cases of considerable interest passed under review, encourages me in venturing on the subject.

The number of cases which shall be referred to is 17, all of them adult males. These do not include the whole of the cases

under treatment during these eleven months. Several of the others were in the advanced dementia of the disease, and I confess it was only shortly before leaving that I discovered, from the clinical records & otherwise, that they were general paralytics. They served to illustrate the frequent supervention of a dementia, difficult to distinguish in itself, from the secondary dementia of other forms of insanity.

During the period referred to, there was one female patient whose case presented symptoms leading to the suspicion of general paralysis, but I was unable to come to a decided opinion upon it. In this asylum, where the patients are drawn largely from a population containing many miners, furnacemen, labourers &c the proportion of general paralysis is, comparatively, somewhat low. During 1883 & 1884, out of 356 admissions there were 23 general paralytics, forming 6½ per cent; these were all males. In Somerset County Asylum, out of 2000 admissions, there were 8·27 per cent male and 1·9 per cent female general paralytics. (Journal of Mental Science. Jan.'65).

With regard to aetiology, several striking features present themselves in the cases under consideration. As to hereditary predisposition, out of eleven cases where

information was obtained, this was found to exist in seven. That is to say, the existence of hereditary predisposition to some form of insanity was found in 63½% of those cases where the history was available. This is a high proportion, when compared with that found in 49 cases reported at the West Riding Asylum, (referred to in Buckmill & Tuke's Manual, p. 69) in which the percentage was 16, though it is to be remarked that it is not stated in how many of these 49 cases the history was satisfactorily obtained.

Out of 10 cases, intemperance was a prominent feature in 4 instances.

With regard to the social condition, it is remarkable that only 3 out of 16 were single. This accords with Mickle's statement that there is an overwhelming majority of married general paralytics (G. P. of Insane, p. 95).

The average age on admission of the 17 cases is 38, somewhat lower than has been found in English asylums, (e.g. 42 in Devon, 41.7 in Yorkshire; (op. cit. p.p. 92–3).

The cases on which post mortem examinations were made, were all of considerable duration – the briefest being 15 months.–

Case 1. G. C. Schoolmaster. 39. Married
Admitted 5th Feb. 1880. Habits not stated. Alleged cause, anxiety about domestic matters. There exists evidence of hereditary predisposition: his uncle & cousin were formerly inmates of the same asylum. Duration, 6 months.

On admission he was loquacious, mentally excited, & full of delusions, eg. that he was a celebrated preacher & able to write sermons without study: that all diseases were due to "planetary causes": that he had had a "gathering" in his stomach for years, affecting "the inner coat:" & that he could cure all the patients by bathing their heads with cold water. He was fond of reciting poetry. For 3½ years he continued with little obvious mental or physical change. His temper was variable, but as a rule he was good natured, & delusions were always prominent. His bodily health then gave way: tremor of lips & hesitancy of speech became strongly marked; & he suffered from prolapsus ani & carbuncle on the neck. His mind grew rapidly weaker, retaining its expansive ideas. He became sleepless & talkative. A few weeks before death his strength declined rapidly, diarrhoea set in, bedsores formed, & coma supervened, lasting 2 days. Date of death 1 May '84. Duration of G. P. 4 years 9 months.

The post mortem shewed brain somewhat

shrunken: dura now adherent: pia much congested, but easily removed from all parts of the brain. Brain tissue oedematous throughout. Ventricular fluid slightly in excess. Ependyma of 4th ventricle granular. Weight of brain, 42½ oz: cerebellum & pons 7 oz.

Case 2. W.W. Plumber. Age 60. Steady. Said to have had an injury to head. Duration, 6 months. For several months previous to admission (he was admitted 27th Jan.y 1881), this man had been displaying inattention to his duties; has frequently gone about naked; his sleep was bad & his memory had become defective. On admission, his general physical condition was good. He was quiet, displayed much mental confusion, & had various delusions, one of these being that he has no wife. In 14 months he was so well as to be discharged 'relieved' on the request of his friends, and after 19 months was readmitted, 15 Oct. 1883. He had latterly been spoiling the work he was doing & one day turned off the water supply of Merthyr Tydfil. He was thievish, & had threatened to kill his wife & daughters. His gait was unsteady, pupils unequal, speech hesitating, tongue tremulous. He shewed great mental confusion, & impairment

of memory. Feeling of brain ever strongly marked. May 10, 84. Had a syncopal attack, with sudden paleness & faintness & loss of consciousness. In 2 Days he was much as before. June 17. Growing stout, flabby, & pot-bellied. Face heavy & expressionless. Mind vacant: takes little interest in anything: is quiet, good natured, deeply demented: seldom speaks, the act being accompanied with much quivering of the mouth, cheeks, & brows. The hair of the head & the left half of the moustache is disappearing. He walks with shaky, shuffling steps. Passes urine in bed. Nov. Occasionally he is paralyzed upon the left side for a day or two, but this passes off, leaving him rather weaker & shakier than before. The speech tremor is now extreme: his utterance is slow, slurred & interrupted. The pupils are equal & contracted. The knee jerk is greatly exaggerated. Patient says he is "very well" & "very strong." 22nd Has been sitting indoors for some days, being too feeble to totter about any longer. Legs oedematous & marked by bruises from frequent falling. Yesterday he had dysphagia; towards evening pulse became feeble & slow, temperature gradually declined, & he died today. P.M. examination was refused.

Remarks. The apparent improvement in this man's physical condition, as regarded nutrition,

occurring during his rapidly increasing dementia & fatuity, was remarkable; but that it was accompanied by no real improvement was plain, from the growing frequency of the paretic attacks, the decreasing power over the lower limbs, & the failure of nutrition in the hair follicles. The mode of death too, presenting itself in the form of, ultimately, somewhat rapid failure of vital power, without any apparent cause (apart from the chronic degenerative changes going on for years in the brain & cord) was, I think, somewhat unusual. Most general paralytics die either from some complication, or else linger on bedfast through a variable period of extreme exhaustion & Emaciation. This man was able to sit all day & walk slowly the day before he died, & so far from being emaciated was decidedly obese.

Case 3. J.W. Stoker. 35. Married. Temperate.
Admitted 30 July, 1883. Cause alleged to be overwork. For 6 weeks before admission he had been conducting himself in an erratic manner. Ordinarily a temperate drinker, he had indulged freely: he had taken another boy than his own down the pit to work: he shewed much restlessness & excitement, slept

poorly, & threatened his wife with murder.
When admitted grandiose delusions were elicited, eg was going to buy a carriage & pair. Sep. Has expansive delusions: imagines he is clever – can make "anything from a house to a steamship". Is good natured & happy. Has facial tremor & unequal pupils. Some temporary improvement soon after occurred in his mental & physical condition, but in March '84 there appeared considerable quivering of lips & some hesitancy of speech, & on the 12th he was seized with "some form of transient paralysis," & fell to the floor, but without losing consciousness. He recovered quickly. May 15. Usually a good sleeper he was restless during the night, & in the morning volunteered the information that he was going to start a circus, & make millions of money. He grew excited & resistive, swore loudly, tried to climb the railings, preferred groundless charges, & threatened to hang himself, cut his throat, & knock his brains out rather than remain. Next day he was as quiet & good tempered as usual. Nov. Bodily health failing. Skin has lost fresh colour, & mentally he is weaker. He is quiet & works a little. Says he is as well as ever. No expansive delusions. Patellar reflex normal. Left pupil slightly dilated.

Well marked speech defect & lip quivering.
The hand shakes greatly when he tries to write,
In the annexed specimen great unsteadiness
& unevenness are seen, letters are missed &
others interpolated.
Patient walks steadily
though clumsily, & has
perfect coordinative power over lower limbs.

Feb. 2. '85. There has been decided retrogression
for a few weeks. Patient has grown paler
& thinner, is inactive, & feebler in walking:
appetite poor. Expresses himself as usual,
saying he is "famous". Facial tremor increased.
Last night he cut his chin in bed with
a comb, with some intention evidently of suicide,
saying he would "let the doctors see" what
he could do.

Remarks. In this case there may be
remarked the sudden occurrence of maniacal
outbreaks, & of suicidal intention, illustrating
the utter unreliability of the general paralytic
even when apparently quiescent. The nature of
the self inflicted attack too, its childishness,
ineffectiveness, & the open boasting with which it
was accompanied, are quite characteristic of
such acts on the part of general paralytics.

Case 4. W.E. Plumber. 37. Married.

Admitted 14 Aug. '83. Had been very intemperate for many years. Formerly of good disposition he had become of late years ill tempered & disagreeable. His father had been in an asylum. For 6 weeks before admission he was dispirited, restless, could not settle to work, & used threatening language; eg. he threatened to boil his child, & attempted to throw it out of window. When admitted he was restless, full of delusions regarding property, rambled from one subject to another. His bodily health was weak, the muscles of mouth & tongue tremulous, pupils unequal. He slept very little. Dec. Fell & fractured rib. For a month thereafter his condition was critical, owing to constant restlessness & obstinacy. Gradually he became quieter, & the fracture repaired. April '84. Irritable & resistive, morose & sullen; at times violent & abusive. Nov. The same. General bodily health good. Pupils, L > R. Knee jerk exaggerated. Percussion on radial side of wrists produces Elbow jerk. Walks in a heavy, unsteady, lurching fashion. No ataxia. Patient considerably demented, & understands only the simplest questions. Spends his time talking to himself in a drawling tone, & uses foul language: there is no tremor of the mouth in speaking.

Remarks. It is worthy of notice that the physical improvement which occurred after the cessation of a period, evidently, of acute mania — probably in the first stage of the confirmed disease (Mickle's classification) — was accompanied by the disappearance of the characteristic tremor in the facial muscles & tongue & the delusions, leaving the mind, however, permanently & almost entirely destroyed. The motor symptoms referrible to the cord, however, appear to have become aggravated, leading one to infer that the lateral columns are probably affected, & most likely with Granular cell myelitis. One cannot, however, be too careful in forming an opinion in regard to such affections, for, that the usual symptoms of degenerative change in the cord may be present in cases where the cord is found to be unaltered in any special way, has been proved. In the Archiv für Psychiatrie und Nervenkrankheiten (1882, XIII Band, 1 Heft), Dr Zacher describes a case of progressive paralysis presenting the Symptoms of Spastic Spinal paralysis, with affection of the lateral columns. The special symptoms included rigidity & contractures of all the limbs, tremor, weakness, increased tendon reflex & superficial reflexes. Yet examination of the cord yielded the following results. (P. 162).. "Microscopically,

the whole course of the cord shewed a moderate thickening of vessels a very trifling general widening of the connective tissue" ..... "not so pronounced that thereby any important alteration of the nerve tissue could be produced. In especial, the lateral columns shewed no noteworthy changes."

Case 5. J. M. Latourer. Age 45. Social condition, unknown. Admitted 11 Jan. '84. Little known about his history. On admission he was well nourished. There was marked tremor of facial muscles, & stammering speech. As to mental condition he was facile, shewed impaired memory, Especially for recent events, was full of expansive delusions eg. that he had enough money to maintain him all his life; & that he had a ton of Knives & 150 breechloaders. July 84. Facial tremor much increased: great decline of muscular power in limbs: Emaciation: mind much confused. Patient is always "very well" Subjectively, & occupies himself wandering about collecting rubbish, or sitting listless & idle. Face dull & sad, & void of intelligence. Nov. After some temporary improvement he has become exceedingly helpless, & is unable to stand unaided. There is much tremor of the lips & cheeks in

speaking, of the tongue when protruded, & of the right arm & leg when Elevated. Slight tremor of left arm & leg. Right Knee jerk greatly increased; left slightly. Gait slow, slouching, unsteady; figure bent forwards. Patient is good natured, & utterly imbecile. 29th. Clonic spasms of left side of face & right limbs, slight degree of consciousness remaining. Subsequently motor power on right side much weakened. Pupils equal. Jan. 21. 85. Has been bedfast 6 weeks. Is obstinate, dirty, very feeble, speechless, & utterly fatuous. For several days there has been paralysis of deglutition, attempts to feed by tube being vain, as they produced dyspnoea & lividity. Death.

Post mortem. Emaciation. Cicatrices, considered syphilitic, on outer side of right leg. Slight atheroma of aorta. Pleurisy, recent and old: chronic pneumonia of left lower lobe: lungs oedematous. Abdominal viscera generally congested.

Calvarium dense & heavy: portion removed weighs 20 oz: diploe converted into dense bone, & inner table greatly hypertrophied. Dura adheres to skull, & is thickened. Pia mater thickened, tough, congested, oedematous, & at the vertex gelatinous & milky. On opening it 6 oz of serous fluid escape. With care the pia, everywhere adhering somewhat firmly, can yet be removed without tearing cortex, save over the

left occipital lobe and as far forward as the posterior border of ascending parietal convolution. Between convolutions there is much fluid. Brain very soft. Cerebral vessels much congested. Cortex throughout thin. Ventricular fluid considerably increased. Ependyma of 4th ventricle has 'ground glass appearance'. Brain weighs 49 oz: cerebellum & pons 6½.

Remarks. The condition of the calvarium was striking. Its weight may be compared with that ~~in~~ of a case mentioned in Blackmail & Tuke's Manual, p. 794, where the skull-cap was "very thick & heavy", & weighed 19½ oz.

A section of medulla is shewn, giving a view of the nature of the granulations in the 4th ventricle. They consist of connective tissue interspersed with round cells. The nerve fibres in the neighbourhood are in a state of fatty degeneration. The ganglion cells are, many of them, atrophied & pigmented. Along the course of some of the larger vessels are large numbers of small round cells (nuclei).

Case 6. J. S. Collier. Age 48. Married.

Admitted 24 Aug. 1882. Only a few notes could be obtained of this Case, & these are given chiefly to accompany specimens of brain which I happened to prepare. There had been violence, insomnia & excited delusions for several months before admission. Patient was simple & childish when received, had delusions relating to the possession of estates & money, & was irritable & peevish. Gait awkward & shuffling. July '84. Going down hill fast. Is much emaciated: very lazy & dirty: dementia deepening: well marked facial tremor: speech slow, hesitating, & tremulous: patient obstinate & resistive. Aug. Slight apoplectiform seizure. In a few days able to be out of bed; is emotional & depressed, saying he is going to die, & had better be put under ground at once. He is very shaky, but there is no paralysis. Dec^r. Bedfast; much wasted: has bedsores & oedema of feet. Utterly demented: obstinately resists all that is done for him: seldom speaks: passes evacuations in bed. Death on 10th.

Post mortem. Hypertrophy of both ventricles. Extensive atheroma of aorta, with incompetence of its valve: mitral also affected. Chronic pneumonia (right) with recent pleurisy, the lung weighing 82 oz & sinking in water, & its bronchi inflamed. Left lung adherent, congested & oedematous. Pia mater congested. "mucous membrane

irregularities of calibre, amounting occasionally to aneurysmal dilatation of parts of their course, + obliteration of other parts; with great numbers of nuclei, + haematoidin crystals in + around them. A few capillaries shew slight varicosity.

Brain tissue very soft & friable. Patches of atheroma on basal arteries. Right olfactory bulb atrophied. Cerebro spinal fluid increased, 3oz escaping on removing brain. Pia mater brittle, & strongly adherent to tops of convolutions at vertex, slightly so at occipital lobe, but easily removed at the base. Corpus callosum diffluent. The cerebral & cerebellar substance shews hyperaemia throughout. Brain weighs 38½oz, Cerebellum & pons 5½oz.

Microscopic appearances. (Unfortunately the pia mater has been removed.) The cortex is riddled with rounded gaps, & elongated clefts & looks very ragged. The condition might perhaps suggest that the cover glass has been squeezed, but that is not the case. Neuroglia is in parts somewhat coarse, open, & fibrous. Nerve cells are pigmented & atrophied. Some of the larger ones, presenting fuscous degeneration, shew the nucleus & nucleolus clearly, forming by their bright staining a marked contrast to the brown granular substance of the cell. Few cells having processes of any length are found.
Many of the rounded spaces or vacuoles are cross sections of dilated perivascular spaces, & some contain sections of shrunken & collapsed vessels occupying only a corner of the space. Others of them surround the remains of large nerve cells. In most of the clefts lie blood vessels, many of which are studded with numerous nuclei. Here & there are collections of pigment along the vessels, & also lying outside. Some of the larger vessels have thickened walls, ※

See opposite page

Case 7. J. J. Puddler. Age 38. Married. During past 6 years steady, previously intemperate. Duration, 12 months; had had 'fits' of some kind, & in a maniacal outburst attempted to kill his aunt, & jump out of window.
Admitted 1 March, 1884. Restless, incoherent, sleepless, full of lofty delusions; tremor & hesitant speech. — June. Quiet, imbecile, face vacant & stupid. Bodily health fairly good. Jan^{y} 85. Marked decline in physical condition. Has had a series of abscesses on toes, fingers, & face. Gait slow & shaky. Pupils, L > R. Knee & wrist reflexes are exaggerated. Patient is quiet & docile, and expresses himself as being "very well". Is very demented, & passes the time in idleness.

Case 8. W. H. J. Labourer. Age 38. Married. Habits unknown. Has a cousin who is insane. The duration is about 7 weeks, when he was observed to be growing rather stupid in doing his work: he refused to obey orders too, & wandered about idly. He was mentally confused; e.g. he believed Bootypool to be in Italy. He was kleptomaniacal, easily excited, & had visual illusions. Talked in a foolish absurd way about possessing money

and estates. Admitted 26 Dec. 1883, in good bodily condition, with, however, distinct tremor of the lips while speaking, & inequality of pupils.
May. Retrograding physically & mentally. Has lofty delusions. Says he is "all right."
Frequently sleepless. Nov. Was working for some weeks in garden. having considerably improved. But again he is unable to do anything on account of increased stupidity & inability to fix his attention for any length of time. Says he is "very strong", & that the whole place belongs to him. His speech is slow & imperfectly articulated, but without any tremor. The reflexes are normal; he walks steadily; the left pupil is slightly dilated.

Case 9. J. M. Producerman. Age 44. Widower.
In the history, nothing could be pointed to as of importance aetiologically. He had shewn symptoms suspicious of general paralysis for 2 years. There was a tendency to melancholia, & he had attempted to hang himself.
He was admitted in Sep. '82 and discharged much improved in April '83.
May '84. Readmitted. Had a 'fit' a month ago. Is very restless, sleepless, always getting out of bed when not watched. Mentally confused

and slightly elevated. Pupils, left > right.
June. Restless & fidgetty, taking off his clothes & constantly on the move. There is great speech hesitancy & tremor of face. He spends hours at night folding & unfolding his blankets, saying they are his coat, and makes up his clothes into bundles to go home. August. Skin has become muddy & brown. Mind is confused & almost vacant, & he rarely answers questions. He is continually picking his nose. He sleeps better now, & eats well. Sept. Had a congestive seizure, with paralysis of left side. Is now recovered, & walks about the grounds in a restless, aimless way, his face vacant & expressionless. 11 Oct. A series of epileptiform fits, 15 altogether, occurred, followed by stupor from which he emerged in a few days restless, & rather excited, stupid, resistive, difficult to feed, never uttering a word, often getting out of bed, tearing blankets & stuffing the pieces into his mouth. Pressure sores soon formed over the hips, emaciation being rapid, & death occurred on 6th Nov.
Post mortem. Aorta much thickened by atheroma, & its valves nodular & gritty. Gangrene of left lung, & broncho-pneumonia. Amyloid degeneration of spleen, liver, & kidneys. On opening the dura, which appears normal, 4 oz of cerebro-spinal fluid escape. Pia

congested, non adherent. Over anterior extremity of frontal lobes the congestion of the meninges is specially great, & they present a gelatinous appearance. The cortex at this part is also markedly hyperaemic. Basal arteries show traces of atheroma.

Microscopic appearances in cortex & medulla, parietal.

Specimen I. The stratification of the cortex is fairly well seen. Beneath the superficial pale layer is seen the outer stratum of small nerve cells in a condition of extreme degeneration. Many of the cells have disappeared entirely, while the remains of many are visible as small, misshapen, pigmented bodies, placed at one side of the spaces formerly occupied by the cells. Besides the gaps thus formed, others are seen consisting of cross sections of dilated vessels. The layer has thus a worm-eaten appearance. The neuroglia is open & coarse. The capillary network is, I venture to think, abnormally close, & probably there has been some new-formation of vessels. In the deeper layers of grey matter the degeneration is slighter: many of the cells retain their normal size & shape, with well developed processes; others are atrophied & pigmented. [redacted]

On many of the larger vessels, aneurysmal dilatations are developed, along with

constriction & obliteration of parts of their course: these usually contain quantities of haematoidin. The vascular sheaths shew proliferation of the nuclei, & accumulations of haematoidin crystals, & here & there crystals are deposited outside of the sheaths. Tortuosity, angular bending, & even kinking of vessels are frequent.

In Specimen II a collection of dark pigment is seen, evidently from an old extravasation: the vessels around are filled with plates of the same material.

Remarks. This case is typical of the mental & physical unrest common in general paralysis, & often continuing for long periods without amounting to violence. Conformably with this condition, the microscopic appearances shew that there has been an undue vascular supply. The wasting of the superficial layers of the cortex is striking.

Case 10. R. D. Labourer. Age 37. Single. Had been steady. Prodromal symptoms shewed themselves twelve months previous to admission: he became reserved, & often left his employment suddenly. 10 weeks ago the course of the disease was precipitated by the accidental drowning of a horse he had charge of: since then he has become quite childish.

Admitted 10 June 1884. Well nourished. Slight labial tremor & speech hesitancy. Manner and expression simple & childish. August. Failing physically. Has continued restless, walking round the garden for hours at a time talking to himself. Says he is quite happy: "this is heaven": "God & Christ are here": "we're all going to heaven". He keeps his hands folded as he walks, wears a devout expression & says he is preaching. Gait awkward: facial tremor & speech defect very marked. Pupils equal. Sept. 2. Apparently in his usual state this forenoon, he was seized at 9 pm. with severe epileptiform convulsions, & continued to have them in quick succession till 10 next morning, the total number being about 130. A turpentine enema was given, followed by subcutaneous & anal injections of chloral and potassium bromide, & by these means the fits were apparently controlled, as there were no more up till the 5th when, the sedatives having been omitted for about 12 hours, several convulsions occurred. The first dose was given while he was having fits: after that there occurred clonic spasms of left side of face & left limb for several hours, but the general seizures were at an end till the 5th. From the beginning of the attack until fatal termination he remained

unconscious, passing into profound coma. The pupils were dilated, reflex action abolished, & towards the close profuse sweating occurred, with pyrexia (103° F. on one occasion), irregular shallow breathing (up to 48), a feeble pulse of 150, hiccup, & clonic contractions of left side of face and left arm.

P.M. Atheroma of aorta. Lungs oedematous & congested. Soft meninges thickened & milky on the upper surface of hemispheres, & strip readily: they are much congested. The vessels appear normal. Brain firm. Some part of the basal ganglia markedly congested, especially caudate nuclei & corpora striata. Brain weighs 42 oz. Cerebellum & pons 6 oz.

Remarks. Nothing of importance aetiologically was found in this man's history. He had been steady, & there was no H.P. The case latterly was rather acute, & the convulsion which terminated life of unusual violence. There was little reason to doubt the useful effects of the treatment referred to in controlling the seizures for the time. As to the p.m. appearances, the absence of the usual adhesions of the pia, & the intense hyperaemia of meninges & basal ganglia, were noteworthy.

Case 11. D. H. Seaman. Age 36. Single.

Admitted 12 July 1854. Little known of past life, habits, or of the Duration of insanity. Had been going about in Cardiff with revolvers & knuckle dusters, threatening people. When admitted he wore a coat with the seams sewn up roughly with string "to make it strong, of course" & trouser pockets were stitched to the outer surface of these garments. He was excited & happy, with delusions as to property & strength: said he had shares in vessels & a suit of clothes worth £80, that he was "as strong as Goliath of Gath". He was good natured: fond of making such speeches as these- "This is as good as Heaven: belly full three times a day, & then I fills my pockets" - which he does copiously. His physical condition was below par. There was very slight lip tremor. He spoke slowly, with undue emphasis on every word, & frequent slight stammering interruptions. Left pupil slightly dilated. A Good sleeper. Sept. Cross & irritable, expresses his feelings of discomfort in exaggerated terms; e.g. being cramped for room in dining hall, he said the heat was "worse than hell-fire": protests he never closes an eye, but in reality sleeps well. Oct. Is happy & good natured again. The pupils are equal. There is no lip tremor. Speech unaltered. Knee jerk

normal. Writes letters occasionally. These are characterised by childish anxiety about trifles, & contain many exaggerated expressions, as e.g. in saying that £80 would not pay for a certain suit of clothes. Here & there a word is dropped (see lines marked x. on margin of letter), in spite of the evident care bestowed on the composition; for it is remarkable that he often notices the omission of a letter, & inserts it. The misspelling is probably due mostly to illiteracy. The writing shews some unsteadiness.

David Morgan, a G.P.

23rd of July 84. Glamorgan County.

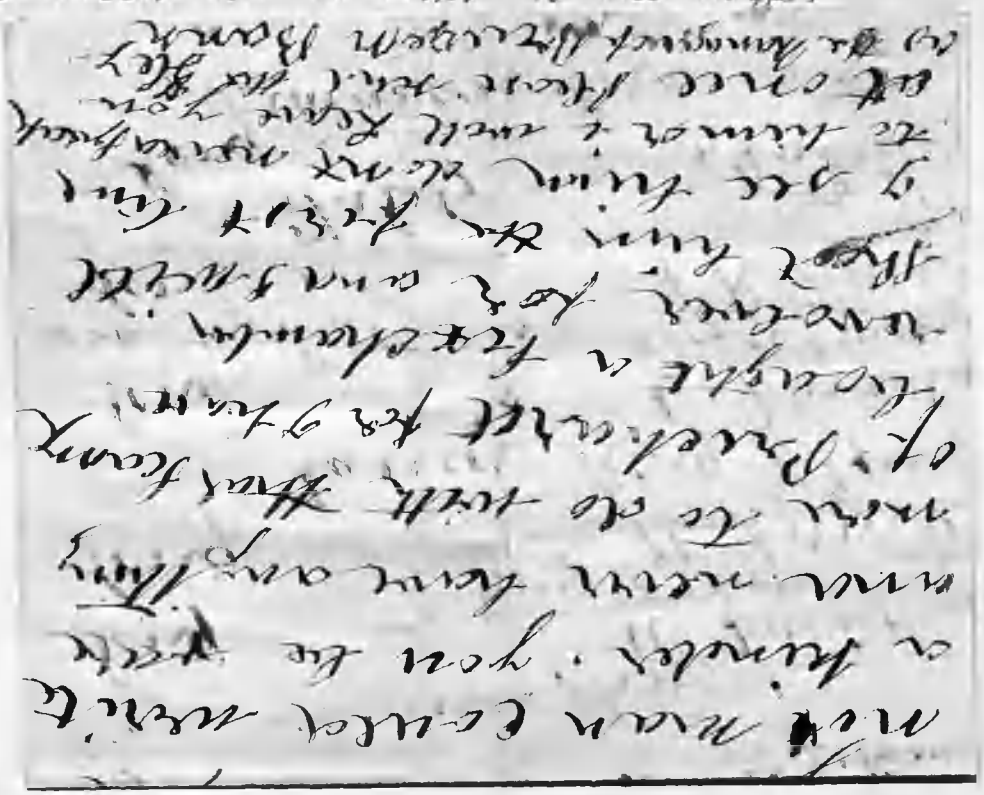
Dear Sir i now write You Anylum. these few lines saying that My Dear is out of her mind about My Clothes. 80 pounds would not pay for it if i' to lost it. Dear Sir my Clothes is up on the Upper floor No 2. 2 very large Trayes and heavy Chest weighting 480 dead-weight. Sir the little Brass Key belonging to my Chest is on the mantle peice and a pair of sclippers and on a chair a felt hat and a New of Oil skins in the Window one little Jar of ink and a little Jar of patent blaking a pen of the looking glas frame and a thick My of papers and book with a black lead pencil in it is on that table. Sir please have it took down stairs and put under lock and key so that no one can touch it the Oil skins must be right one the Chair if it is put in a Dry place they will stick together and be rotten in one month. Dear Sir please to answer on receipt of book and i will be very thankful to You for it. Sir i have been to the Cardiff Infirmary Hospital 2 days and a half and got out and lost 30 shillings of Clothes and been taken 260 miles out of Cardiff altogether and not one penny in pocket: a Gentleman new me and i never saw the man in my life and he new me and all the family, and he said i will you were i' am going myself and you will be took in, but God Almighty now where we shall get out. Sir is 200 men and 200 women

Case 12. W.K. Puddler. Age 36. Married.
Duration said to be 2 years, during which time he has had some sort of fits. A week ago he made a foolish attempt at suicide (as was believed) by walking into the river. He also tried to strangle his wife.
Admitted 12 July '84. Has an anxious expression, brows strongly knit, is dull & confused. Denies committing the acts mentioned. He has been 15 years married, & has had 9 children of whom 2 died from 'fits' & 1 was still born. For 18 years has been a deep drinker: his father also is drunken. Mother is an insane epileptic. Patient is in poor physical condition. Walks slowly but steadily. Tongue shaky when protruded. Coordinated movements of facial muscles, as in smiling & speaking, produce much quivering of mouth, nose, & forehead. Speech is slowly interrupted. Pupils, R > L. Right Knee jerk exaggerated. Dec. '84. He is quiet contented, useful. Says he is quite well. Slightly improved in physique. Sleeps well. Can read & write, but his writing is extremely shaky and irregular, as the specimen shews.

William Rutherford

Case 13. W. P. Butcher. Age 35. Married. Steady. Insanity said to be in the family. Duration, 8 weeks. The symptoms of alteration include taking a fancy to betting, a thing he never formerly indulged in: neglects his family: giving orders for a party to which he invited a number of people, being at the time destitute: laziness. For his neglect of his children he suffered imprisonment. He is stated to have received a great shock on hearing of the drowning of a sister-in-law. Admitted 9 Aug. 84. Quiet, civil, fond of talking. Said he had £280 & was going to support his wife by betting. Bodily health good. No speech defect: no tremor. Knee reflex normal. Great inequality of pupil, R > L, both acting well to light. Complains of pain in crown of head. Sept. Variable & facile: flies into passion when crossed. Sample of style of talk:- "I have over £5000 a year, besides £2700 in the bank. I'll make £1000 out of these cattle from New York." "I haven't tasted food for a week". Often gives invitations to sup with him "at the Black Bear," or offers of a few millions. Nov. No change. Always some fresh scheme. Now he is going to have an Opera house built in the grounds, again he is going to give an entertainment for which he has written a

programme, signing himself King of Denmark. This is here appended. On the other side of the sheet is a letter to his wife.



He tells with great earnestness a story of how Sir Wm Gull removed his brain to examine into the cause of his headache: a statement of the supposed transaction is here annexed in his own writing, signed with his usual nom de plume.

Statement by Wm Parker, G.P. Nov, 1884

Remarks. The diagnosis here rested on the mental symptoms — the striking alteration from steady industry to idleness; recklessness, & the passionate outbursts

programme, signing himself King of Denmark. This is here appended. On the other side of the sheet is a letter to his wife.

Programme

Quick Marsh		Band
Song	County Dance	King Denmark
Song		J Rees
Quick Mark		Band
Song	Quadrille	King of Denmark
Song		M O Davies
Soy		A Rey Mond
Song	Shoulder	King
Song		A Davis
Song		King of Denmark
Song		W Davies
Song	Lancer	King of Denmark
Song		G Davies
Song my	Pretty Jane	King of Denmark
Song		J R Harry
	Waltz	
Song		J Davies
	Cotyon Cord	

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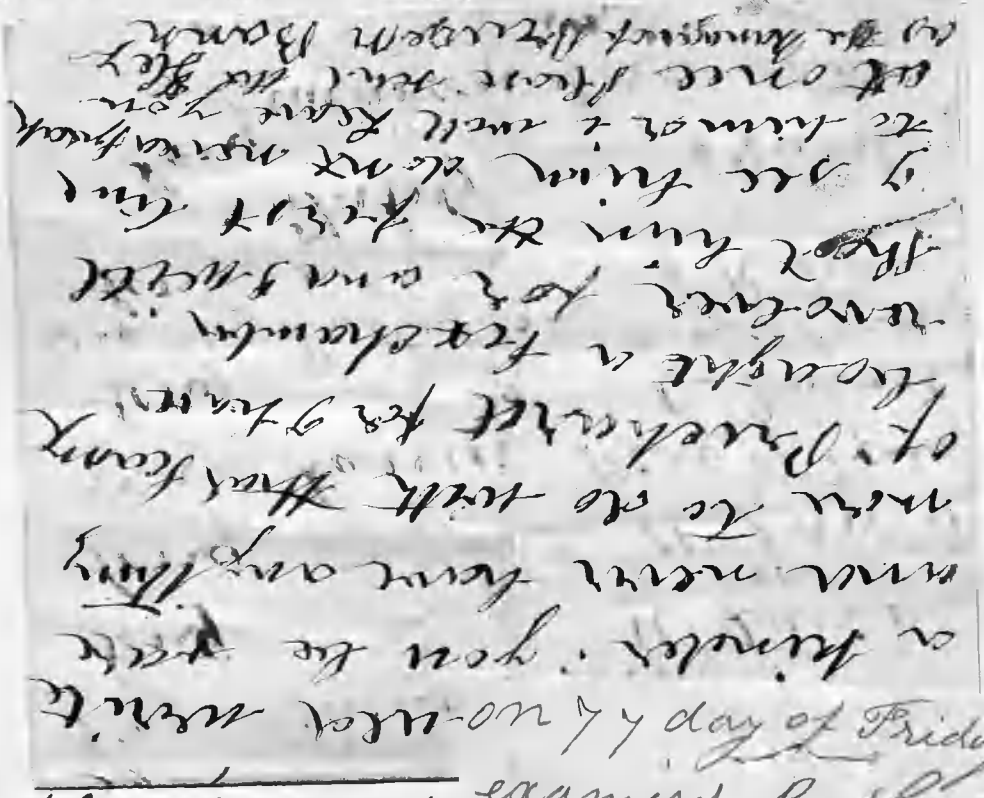
programme, signing himself King of Denmark. This is here appended. On the other side of the sheet is a letter to his wife.



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Remarks. The
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from steady industry
idleness; recklessness,
the passionate outbur

examined By Sir Wm Gull
of London he taken
he said he must open
the head before he
could do me any
good and the brain
was taken and
it was a certain
cure for me
Sign.
3 day of November
1884
King of Denmark

provoked by trifles; and the expansive delusions. In view of the fact that there was no speech defect, the value of characteristic manifestations of general paralysis in the writing is all the greater. Here in addition to the evidence of the entertainment of delusions – chiefly exalted – one finds proof of mental confusion produced, as it seems to me, by the special effort required in thinking & writing together. Thus he ~~calls~~ writes the date (in the second specimen) "77 day of Fridays March 77: but when asked afterwards, he said the date was the 7th of Nov. 1884 which was correct. He was also unable to detect the mistakes he had made, when asked to read his letters over.

Case 14. L. B. Signalman. Age 27. Married. Duration from 9 months to a year. For 10 years was hard wrought as signalman, often being on duty 14 hours per day. Has been intemperate. Contracted syphilis some years ago. The earliest symptoms – headache and slight weakness of memory – appeared in Aug. 83. In Dec. there occurred convulsions affecting hands & mouth, followed by mental dulness, & amnesia. He recovered in a few days, & worked as a

ticket collector – being thought unfit for signalling until 6 days ago, when he was obliged to give up work on account of severe headache, and 4 days after he had a convulsive seizure similar to the first, lasting 24 hours, followed by excitement, incoherent speech, & delusions.

When admitted, 23d Aug. '84, he was very confused; full of delusions; said his wife was no longer his, & had been untrue to him; & that people were trying to get money from him. He was cross & irritable. Physical condition good: on trunk an eruption of small red papules & pustules, with a few patches of copper psoriasis; arms & forehead also affected with psoriasis. Pulse 84. Viscera of chest & abdomen normal. Tongue foul. Pupils widely dilated, equal, respond to light. Considerable speech hesitancy, & slight facial tremor. Gait slow & unsteady, with slight lurching to the right, & awkwardness in turning. Knee jerk normal. Grasp of hands equal & strong. If left alone he stands, dazed & stupid, in one position for a long time. During the first month he greatly improved. He became quite bright & cheerful, was of great service, wrote sensible letters, saying he knew he had been deranged in mind, & that he was feeling better, though still not quite well. His conversation was rational, & he lost his delusions.

He was fond of reading the papers, & shewed an intelligent understanding of what he read. His physical condition improved, & the rash somewhat faded. The pupils contracted to a normal diameter, & facial tremor disappeared. 10grs. Potassii Iodidum given thrice daily. On Oct. 2nd there occurred an epileptiform attack, followed by stupidity & loss of memory: his face was dazed, and he spoke slowly & with hesitation. There was a return of facial tremor. The pupils were unequal, R > L. Right patellar reflex was slightly increased. He could not tell the day of the week, and when his wife visited him he had forgotten it by next day. Nov. 30 Paretic attack, affecting right half of face, & left limbs, with clonic spasm of affected limbs, continual grinding of the teeth, and great mental obfuscation. Within 24 hours he was much the same as before the seizure mentally, slight weakness of the limbs remaining. Dec. Quiet, devoid of interest in anything going on about him. He speaks slowly, and with interruptions between the syllables: expresses himself as feeling "a little better", & says his "memory is not what it used to be". Is neither exalted nor depressed. 20 Jan. 85. A week ago had another paretic attack. The legs were unable to support his weight, apparently rather from want of coordination

power than actual weakness, as he could resist passive movement of them strongly. There was also a degree of tonic spasm (flexure) of the legs. Patient was much more stupid than usual, appeared not to comprehend what was said, maintaining a fixed stupid look. There was frequent grinding of teeth. While recovering he was restless & interfering, constantly getting out of bed, & trying to climb up to the window. He is now only slightly more stupid than he was before this seizure. Feb 1. Complete left hemiplegia, with left labio-oral spasm. (I did not see him after this.)

Remarks. This case illustrates the deceptive nature of the temporary improvements common in general paralysis, and the serious & abiding deterioration of the mind following upon paralytic seizures. The disease appeared to be running a rapid course, with evident implication of the cord.

Case 15. R.B. Labourer. Age 33. Married. Was steady & industrious, & had good bodily health. Hereditary predisposition to insanity probably exists, as his mother's brother died in an asylum. Parents in good health. Patient has 2 children. The duration is 19 months. There was a period

of alteration lasting several weeks, during which patient was unsettled, did foolish, aimless things, eg. leaving his work for no proper reason; putting dirty pots on the table. Then followed a maniacal outbreak: he was much excited, sang & prayed loudly, accused his wife of adultery, & said he was being robbed & starved. He was imprisoned for his violence, & in gaol asked a razor to cut his throat, & tried to hang himself with a cord. He was in another asylum for 18 months before admission on 21 Oct. '84. At this date he was well nourished. The pupils equal, widely dilated. Superficial reflexes of chest, back, abdomen, & thighs strikingly exaggerated, as also knee jerk. Considerable hesitancy of speech, & imperfect formation of consonant sounds, especially labials & palatals. Great tremor of lips & cheeks. Gait slow & steady. He was good natured, and said that he was quite happy, felt as well as ever, & noticed nothing the matter with his speaking.

Dec. Displays the same disposition; occasionally shewing emotion when his home & family are spoken of, & easily moved to tears. Does a little work. The pupils are now unequal, L > R. Facial tremor & speech defects increased. There is some tremor of the limbs, & when writing his hand becomes very shaky: See specimen next page.

He now walks somewhat unsteadily. Has always feeling of well being, save when home is brought up. Delusions are not prominent, but he is very demented.

Reuben Burgess

Case 16. F. M. C. Ship carpenter. Age 29. Married. Had been steady, & somewhat parsimonious. His mother is melancholic. During the last 3 or 4 months the whole tenor of his conduct has altered. He grew suspicious of his wife, & was put in prison for assaulting her. He went about ordering large quantities of groceries, saddles &c "to give the tradesmen all a chance", & got cards printed stating himself to be a timber merchant. He hired cabs & drove about, with no money to pay them. He has been sleeping very little of late.

Admitted 28 Nov. 84. Mind seemed altogether occupied with his expansive delusions regarding money, property, & his own excellencies. There was ~~little~~ no excitement, but he rattled on in a matter-of-fact way. "I have about 1000 tons of gold & diamonds, & I'm going to send a million pounds to her majesty tomorrow, and raise all the officers' pay. I never tell a lie: I think I am the best man

alive." "Visions of saints come to me every night." These are examples of the style of talk he was continually repeating. He blamed his wife for immorality. Said he had "a seminal disease", & that he had abused himself for years: nothing could be gathered from the history or from his further conduct in the asylum confirmatory of this statement. He was in poor condition, with thin, pale face, & dull serious expression. Pupils unequal, R slightly > L. Gait steady: no ataxia. No muscular tremor. Knee jerk entirely abolished. Pulse 80. Chest & abdomen normal. Dec 15: Very restless, constantly talking about money, property, & his virtues: is meddlesome, destructive, sleeps little & eats hugely. He has 3 iii. Cod Oil per day, & a little wine with his food. While his chest was being examined at night, in the usual routine way customary in such restless cases, fracture of the 6th left rib was discovered. It turned out that this had been caused by a blow from an epileptic, with whom he had interfered. Patient requires the constant care of an attendant to keep him in bed. He tears up the bedding, & seizes every chance to try to get up, & when taken to task about anything is most fluent & ingenious in excusing himself. Jan. 85. Trachea

repaired. Patient sleeps well now; apparently loses ground physically. His handwriting shows his inability to confine his attention to any one thing for more than a few seconds. When asked plainly to write his name, he begins scrawling such initial letters as K.C.G. which he says is his title; in the affixed specimen the first part, illegible, stands for another title; then come the words Francis Michael (misspelt), the first two of his name; but without writing his surname he adds some scribbling, which he says means master of the mint, another title. ※ Patellar tendon reflex still, as it has been since admission, abolished. He walks quite steadily when he can be persuaded to make a proper attempt, & can balance with eyes closed. He talks in almost unceasingly in a slow, drawling, monotonous way, making all sorts of demands for food, money and ordering his neighbours about. He is constantly on the watch to do mischief to the furniture or his clothes, & soon tears up a suit.

※ The writing is uneven, shaky, & the letters badly formed.

Remarks. Here is an example of the mania of general paralysis continuing for an unusually long time, simulating in fact chronic mania. The diagnosis is not however difficult, from the occurrence of characteristic prodromal symptoms &

delusions, & the prominent exaltation & egoism, with pupillary inequality & the peculiarities of the writing. In Mickle Gen. Paralysis, p. 82, it is stated that "tendon reflex can usually, if not always, be elicited throughout the course of general paralysis; once only have I found it wanting." In this case there was no tendon reflex during the whole period that I had patient under observation (3 months) & the test was made every other day during that time. In another case (No 17. f. S.) the same condition was found. (See p. 39.)
In the Archiv für Psychiatrie und Nervenkrankheiten (1882, Bd. VII. Heft 3. p. 779). Westphal gives it as his opinion that disease of the posterior column exists frequently in general paralytics who show no ataxic symptoms, but in whom there is loss of the knee phenomenon: and he believes this is owing to the shorter duration of such cases than of cases of uncomplicated tabes dorsalis. "One finds," he says, "therefore, the atrophy in these cases always less developed (the loss of nerve tubes not nearly so great), & likewise the posterior roots far less affected than in the former," i.e. ordinary tabic cases.

Case 17. J. S. Commercial traveller. Age 42. Married. Had been in comfortable circumstances. The first thing which attracted attention as being peculiar, was some hesitation in his speech, a halting between the syllables of words. This was 4 years ago. He gradually exhibited a failure in memory; became foolish, unreliable, & inattentive to business, & lost his situation. Some time ago he became maniacal, outrageous, & assaulted his wife.

His friends consider that "business reverses" were the cause of his illness.

Early in the course of the disease, when he had been shewing weakness of memory, it was noticed that his writing was deteriorating. The following are specimens of his caligraphy belonging to successive periods. The first shews his writing in health, the others during the early periods of general paralysis.

No I.

No 3.

John Steed

No 2.

Lloyd Jas Bargoed Cardiff
Lloyd Robt Draper Oswestry
Lock Wm & Son N. St Barnstable
Lee Wm High St Swansea

No 4.

13 Brook St
Cardiff
30 Dec 18

They are numbered chronologically. As they are merely names & addresses they do not show errors in composition, but serve to illustrate gradual failure of coordinative power over the movements of the hand. The last specimen, shewing his handwriting in 1881 (the year after the first appearance of symptoms), exhibits considerable unsteadiness, evidently the result of fine tremor of hand.

On admission, Aug. 21, 1884 he was very much emaciated. Skin dry & parchment like. He was unable to stand alone, owing to extreme defect of coordinative power in the legs. When lying, could raise his legs with a fair amount of strength, considering their wasted condition. Attempts to walk were made much in the style of an ordinary ataxic person, with legs spread widely apart & the eyes fixed anxiously on the ground before him, the feet being lifted to an unusual height, & jerked down hurriedly with force. The knee reflexes abolished. Common sensation exceedingly defective. Patient was deeply demented, & had a silly, good-natured expression, always smiling when noticed. There was marked incoordination of the muscles concerned in speech, in fact there was so much hesitance, tremor, & interruption that speech was almost unintelligible. Several

weeks after I left the asylum death occurred. I have received the following notes of the P.M.

"Autopsy 8 hours after death. Bedsores on sacrum & trochanters. Extreme rigidity in flexion of knees & hip joints. Spinal dura presents nothing abnormal: the soft membranes somewhat injected at lower end of cord. Cord firm: central grey pinkish. Pacchy meningitis haemorrhagica Chronica over left convexity of brain. Haemorrhage under soft membranes over left half of pons, medulla, & upper end of cord. Weight of calvarium, 15½ oz. Soft membranes gelatinous & opaque, especially over convexity, nowhere adherent, unduly easily separable owing to increase of Subpial fluid. Brain soft & sodden. Cortex atrophied in fronto parietal region, & presents in the mass of it three apparent layers a pinkish tinge. Central white had a brownish tint."

I have also received sections of the cervical & dorsal cord, and find that they present the following microscopic appearances.

Cervical cord. Anterior column sclerosed: pia mater adherent. Tissue between nerve tubules more or less fibrous, & in some parts cord-like. The process of sclerosis is most advanced near the outer part, & near the junction with the pia there are round & spindle cells & corpora amylacea. Collection of haematoidin are

observable in the pia, & a haemorrhage of recent date in the membrane opposite one of the lateral columns. The whole circumference of the cord shews a clear zone of sclerosis, narrowest posteriorly, & sharply defined by being slightly affected by the staining fluid. Lateral columns sclerosed: ground tissue in form of an open network: the nerve tubules are wide apart, & many seem to have disappeared. In the posterior column the process is more advanced. The fibrous network is coarser, & the disappearance of nerve fibres more striking. Traces of haemorrhage are seen here & there. The posterior nerve roots shew striking degeneration of fibres; here & there are small collections of pigment granules. The blood vessels shew striking changes. Many of them are collapsed, empty, wrinkled & irregular, & fibrous. Others are thickwalled, & containing a few blood corpuscles. Many occupy greatly dilated perivascular spaces: pigment is not uncommonly found in the latter. The pia of the lateral & posterior columns shows proliferation of Epithelium (leptomeningitis). Near the posterior nerve roots this is excessive. The central canal is occluded by proliferation of its Epithelium. The large cells of the anterior cornu & the lateral group are atrophied, some showing a tendency to rounding off of contour. The processes are very short. Many

of the cells shew fuscous degeneration. From the posterior cornu cells have entirely disappeared.

Dorsal Cord. Pia less affected. There is advanced sclerosis, with considerable distortion of the central parts of the cord by fibrous tissue. Though the Epithelium of the central canal is hyperplasic, its lumen is here preserved. The degeneration of vessels is striking, for in many parts there are wide spaces evidently caused by their disappearance. Some vessels shew thickening, with proliferation of nuclei. There remain few multipolar nerve cells, & these are atrophic & pigmented. The fibrous transformation of the neuroglia is most advanced in the posterior columns. Here the tissue presents the form of a coarse fibrous network, with occasional denser aggregations of connective tissue, forming bands. There are numerous nuclei [redacted] scattered through the section.

Remarks. As to diagnosis, I confess it was some time before the idea of general paralysis occured to me, for the history was at first very imperfectly obtained. But when some of the details of the earlier periods of the disease were got, & these considered along with the characteristic quivering & twitching of the mouth, there was no doubt left that the case was more than one of ordinary secondary dementia complicated with tabes.

Since taking leave of the patient, other facts obtained from his friends & embodied in the foregoing history, ~~&~~ together with the characteristics of the writing, & the discovery post-mortem of such lesions as chronic haemorrhagic pachymeningitis, subpial haemorrhages, & atrophy affecting especially the fronto-parietal region, combine to render the diagnosis complete.

It is stated in Mickle's General Paralysis, p. 82, that in locomotor ataxy "the degree of disorderly & unsafe locomotion" bears in general a much higher comparative ratio to "the actual failure of muscular power", than in general paralysis. In the foregoing case the statement does not hold good.

Apropos of affections of the cord in G. P., an interesting case is recorded in the Archiv, XI Band, 3 Heft, 1881, (p. 786) by Prof. F. Schultze, presenting symptoms of lateral sclerosis — rigidity & contraction of muscles of limbs, with tremors, weakness, & atrophy, — in which the degeneration was found, after hardening, "in the pyramidal tracts in the dorsal region." "Neither in the cervical portion, nor in the lumbar region any evident change of colour: also no abnormality to be found microscopically in glycerine preparations of the cervical, while in the loin portion of the pyramidal tract a feeble transparency (aufhellung) shews itself." The writer concludes

"It can therefore have nothing to do with a secondary disease of the long motor paths of the spinal cord, but with a primary degeneration of the lateral columns of the dorsal portion, & indeed almost exclusively this, as the degeneration of the posterior columns is ~~speed~~ very trifling." In the comparatively fresh state, there had been observed some slight yellow discolouration, limited to the lateral section of the posterior columns, in the upper dorsal region. Schultze agrees with Westphal, that "in general paralysis an independent disease of the lateral columns occurs, which has nothing to do with the proper secondary degeneration."

In conclusion, a few remarks are ventured upon the relations of this disease to other psychological affections. Firstly, it will be well to notice the diversity of its synonyms:-

General paralysis of the insane. (Paralysie générales des alienes. Allgemeine Paralysie der Geisteskranken).
Progressive general paresis. (Paralysie générale progressive, or incomplete. Allgemeine progressive Paralysie & Allgemeine progressive Gehirnlähmung.)
Folie paralytique. Paralytische Geisteskrankheit.
Paralytischer Blödsinn.
Dementia paralytica. (Démence paralytique)

Dementia paralysans.
Périencéphalite chronique diffuse.
Machnite " "
Mencipite " "
Polyparesie.

These express to some extent the importance attached by different observers to the more striking mental & physical changes. Probably the first synonym is the best, as it is comprehensive, & as definite as present knowledge admits of.

Symptomatological Classification

It is not possible to refer general paralysis to any single one of the classifications, founded upon the symptomatology. If e.g. mental diseases be grouped, as we find in Bucknill & Tuke's Manual (p. 54) in these divisions, viz (1) Idiocy, Imbecility, & Cretinism. 2 Dementia. (3) Delusional Insanity. 4 Emotional. 5 Mania, it is evident that the form of mental alienation in question, cannot be said to belong exclusively to any one of them, being variously characterised by mental excitement, emotional exaltation, strongly marked delusions, & final dementia. Westphal indeed remarks that "the idea of general paralysis is nothing but a complex of symptoms fanciful defined." (Quoted in the Archiv, 1881 p. 433.) So also Schuele, "the term general paralysis is a clinical collective name, just as puerperal fever once was." (Ziemssen's Cyclopaedia, Vol. XII, p. 856.) The difficulty is as great

Psychological Clapificat=

when we consider the psychological changes produced. Alike the moral sensibility, & the intellectual power, are affected & deranged. Aetiologically, general paralysis has to be considered either as an 'idiopathic' affection, (See Morel & Skae's Classification, Bucknill & Tuke, pp 46 & 47), or else it must be viewed as the morbid resultant of a complexity of causes.

Causes

Pathology

With regard to its morbid anatomy, when we remember that the lesions of the nervous system are invariably very extensive; that observers are greatly at variance in interpreting these lesions, & as yet, by no means agreed, as to whether any one somatic change, peculiar to the disease, has been demonstrated, it is evident, that anything beyond an approximate definition, on the basis of the pathology, cannot be formed. Mickle states his belief that general paralysis is "primarily & principally a disease of the cerebral cortex." (Op. cit. p. 164). Yet later observations seem to shew, that changes in the cord are, probably, frequently primary, as in the case referred to on pp. 43 and 44.

William J. Gibb. M.D.

For the sections accompanying Cases 5 & 17, and for the specimens of writing & some facts in the history & post mortem examination of the latter case, I am indebted to Dr. R. J. Stewart of the Glamorgan Co. Asylum. W.J.G.