

Ten Years at Gladesville.

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[*Read before the Medical Section, 5 September, 1879.*]

VARIOUS causes have heretofore, much to my regret, prevented me taking part in these professional gatherings, and coming now as other than a listener I must ask you to regard this paper as an apologetic offering for past absence, and as embodying some experience gained in a peculiar professional position, which it is little less than my duty to lay before you.

I entered on the duties of Medical Superintendent of the Hospital for the Insane at Gladesville early in October, 1868. I ceased to hold that office on August 31st, 1879, so that my incumbency of office extended over nearly eleven years. Excluding the three closing months of the year 1868, in which, owing to the pressing duties of a new office and the absence of formal records, I was unable to tabulate results, and the first eight months of the current year, for which the statistical returns have not yet been prepared, there remains ten clear years, from January 1st, 1869, to December 31st, 1878, for which the returns are available. Some of these I purpose laying before you. I am anxious not to weary you with a mere array of figures, but desire to pick out some of the main facts and results, and to accompany these with brief statements on some few of the experiences I have gained. In conclusion I will, with your permission, make some remarks on epilepsy as seen in an institution for the insane, and upon general paralysis,—a disease which is most interesting in its symptoms and most fatal in its results, and which, so far as my experience goes, is not fully known to and certainly not so readily recognized in its earlier stages by the profession at large as would seem to be desirable.

As a preliminary, it is necessary that I should state certain facts which render the statistics I have collected much less valuable and complete than they might otherwise be, and which will explain the gaps and peculiarities in the figures I am able to lay before you. Under a system which has had some advantages and not a few drawbacks, Gladesville has been, for the whole space of time covered by the figures, the main receiving hospital for the insane of the whole Colony, and with the limited space at command it has been necessary to pass on or transfer to the other institutions at Parramatta, Newcastle, Cooma, Cook's River, and Callan Park, a number of cases mainly chosen as belonging to the more chronic, quiet, and incurable types of insanity. These cases disappear from the Gladesville registers, under the headings "transferred," or "not improved," and are not further traced.

For the last two years, 1877 and 1878, the statistics of the whole of the institutions for the insane have been collected on a general plan, and I trust I may be able on some future occasion to present

to you the statistics of insanity for the whole Colony, free from the lapses and imperfections which now invalidate those collected at a single institution.

							M.	F.	Total.
On December 31st, 1868, there were in the institution							428	236	664
							M.	F.	Total
During the ten years were ad-									
mitted for the first time ...							1,632	393	2,525
Re-admitted ...							310	243	553
Total under care ...							2,370	1,371	3,742
Discharged or removed—									
Recovered ...							690	463	1,153
Relieved ...							112	106	218
Transferred ...							904	380	1,284
Died ...							332	99	431
							2,038	1,048	3,086
Remaining in hospital on December 31st, 1878 ...							332	324	656
Average daily number resident for ten years ...							307	262	569

It will be seen that the number remaining on December 31st, 1878, was nearly the same as on the same date in 1868, and we are left, therefore, to deal with the admissions without difficulty. The percentage of recoveries on these admissions was for the ten years:—Males, 35·03; females, 41·69; total, 37·39. The percentage of cases relieved was:—For males, 5·76; females, 8·50; total, 7·08. So that a total percentage of 44·47, or shortly 45 per cent., so far recovered as to be discharged either to their work in the world or to the care of friends. This result, which does not compare unfavourably with those in similar institutions in Great Britain and Ireland, scarcely does justice to the officers at Gladesville, since, owing to overcrowding and the rapid transfer of patients, cases in which hope of cure still existed and finally took place were transferred, and so are lost to the statistics of the hospital which they would have served to render more favourable. Taking the returns from all the public institutions for the insane, I find that the recovered and relieved cases formed a percentage on the admissions in 1876 of 54·94, in 1877 of 52·67, and in 1878 of 44·82. When the delicate nature of the brain structure is considered, and when it is remembered that there has been no selection of cases, that insanity due to structural brain disease and to epilepsy, and that congenial imbeciles and idiots, and old people in their dotage have all been received, I think you will agree with me that the result is as favourable as could be expected, especially as the appliances and buildings are not of the best, and are always grossly overcrowded.

The deaths (as I have said) during the ten years numbered 431, 332 being males and 99 females, or a percentage on the average number resident of 7·50.

I would particularly direct your attention to the difference in the percentage among the males and females. The male deaths give a percentage of 10·78, the females of 3·71 only. I find on examining the returns from British and other asylums that the death rate is almost invariably less among the women, and this is to be mainly accounted for by the fact that apoplexy and paralysis, the destructive forms of brain disease, epilepsy, and general paralysis, which go largely to swell the death rate, are much less common among women than men. These percentages, I may say in passing, compare favourably with the death rate in English asylums, which for the last nineteen years averaged 10·25.

The following tables, drawn according to the form adopted by the Medico-Psychological Association, for asylum use, gives the causes of death in the 431 causes.

Total for 10 years 1869 to 1878 inclusive.

Causes of Death.	Male.	Female.	Total.
<i>Cerebral or Spinal Diseases.</i>			
Apoplexy and paralysis	32	9	41
Epilepsy and convulsions	38	8	46
General paresis	60	7	67
Maniacal and melancholic exhaustion or decay	27	16	43
Inflammation and other diseases of brain, softening, tumours, &c.	53	4	57
Cancer of brain.....	3	1	4
<i>Thoracic Disease.</i>			
Inflammation of lungs, bronchi and pleuræ	29	8	37
Pulmonary consumption	21	12	33
Disease of heart and blood-vessels	17	3	20
<i>Abdominal Disease.</i>			
Disease of liver.....	2	5	7
Pyæmia	1	0	1
Obstruction of bowels.....	1	0	1
Disease of spleen.....	1	0	1
Typhoid fever	1	0	1
Inflammation and ulceration of stomach, intestines, and peritoneum.....	4	0	4
Dysentery and diarrhœa	15	10	25
Inflammation of bladder and prostrate.....	1	1	2
Albuminuria	1	2	3
Cancer	2	4	6
Erysipelas	6	1	7
General debility and old age	11	9	20
Accident	1	0	1
Suicide	3	0	3
Carbuncle	1	0	1
Grand total for ten years.....	331	100	431

You will see that general paralysis heads the list with a total of 67 cases. Next comes inflammation and other coarse diseases of the brain, softening, tumours, &c., with 57 cases; then epilepsy and convulsions, 46; maniacal and melancholic exhaustion, 43; apoplexy and paralysis, 41; inflammation of lungs, 37; pulmonary consumption, 33; dysentery and diarrhoea, 25; diseases of the heart and blood-vessels, and general debility and old age, each 20. None of the other causes, among which are erysipelas, cancer, and disease of the liver, reach two figures. As might be expected, cerebral and spinal disease was the cause of death in upwards of three-fifths of the total number of cases, and thoracic disease is responsible for upwards of another fifth.

Pneumonia is a less common cause of death in the institutions for the insane in New South Wales than in those of the Mother Country, but it is very insidious and not unfrequently makes some headway before the patient is noticed to be ailing. It attacks as a rule the more demented cases, who make no complaint of pain, and who often have no cough, so that the symptom first noticed is loss of appetite. The thermometer is most useful in demented patients for the purpose of detecting the presence of serious disease, and where the temperature is high the chest should at once be examined.

Phthisis pulmonalis is as a rule a particularly lingering disease in an asylum. The insanity accompanying and sometimes caused by phthisis has occasionally been classified as a distinct form of the affection. It is as a rule characterized by delusions of suspicion and fear, the many aches and pains to which phthisical subjects are liable being attributed to poison, and the patients irritable and often violent in consequence.

The mental condition it might be imagined would aggravate and accelerate the physical disease, but such is not the case. Phthisis as seen in asylum practice is as a rule a decidedly chronic affection.

In three cases you will notice that death was due to suicide. In one the patient had been an inmate for seven years and had never displayed the slightest suicidal tendency. The case is interesting on this account, as showing that in insanity with defective reasoning power and weakened mental balance suicide may occur in any case where least expected. This patient often asked to be made an attendant, and I was never able to assign any reason for his act beyond a pang of disappointment because I appointed a new attendant, and neglected his imaginary claims. My experience has taught me to believe that a very large number of the insane, even among the more imbecile class, may at any moment and from trivial causes attempt their own lives.

In the second case a patient undid a complex bandage with which his arm was fastened to his side, and spite of a fractured clavicle committed suicide by hanging.

The third case was the most desperate case of self-destruction I ever remember to have seen or heard of. The patient, left alone for a few minutes, made a wound through the skin of the neck with the sharp edge of a stud, forced his forefinger into the wound and tore the blood-vessels of the neck until he caused hemorrhage which resulted in death; the whole injury was the work of five or six minutes. Both my colleague and myself were with him within six minutes of the time when he had been seen and spoken to by an attendant, and though we did everything possible to arrest hemorrhage he died in about half-an-hour. The condition of matters found at the *post mortem* examination noted by my colleague, Dr. T. M. Joseph, was as follows:—"The wound was situated $1\frac{1}{2}$ inch above the clavicle, $1\frac{1}{2}$ inch from the median line and directly over line of the carotid. It was irregular in shape, would admit the index finger, and extended from the surface directly down upon the carotid and along that vessel down to the clavicle. Only a limited examination was permitted. The vertebral artery arose from the carotid about $\frac{1}{2}$ -an-inch from the aortic arch. The carotid was absolutely and cleanly dissected from its sheath. No wound could be found in the vessel which was distended, and when cut across gas escaped from it, showing that it could not have been wounded. The internal jugular vein and pneumo-gastric nerve were apparently uninjured, and the great hemorrhage appeared to have come from the inferior thyroid artery, the most important branch of the axis."

The insensibility to pain exhibited in this case is not infrequent in states of great mental exaltation or distress. Shortly before I took charge of Gladesville a patient slit up his scrotum and removed a testicle by means of a scrap of glass. One patient was admitted under my care shortly after acting literally on the biblical command, "If thy right hand offend thee, cut it off," and choosing a by no means sharp instrument for the purpose; and I well remember one woman in a state of acute mental distress tearing out in one short night every scrap of a particularly abundant head of hair, and presenting herself in the morning somewhat calmer but absolutely bald; and this leads me to one remark as to treatment, which is, that the dose must be apportioned to the severity of the malady, and that it is through fear of full and sufficient doses of sedatives, given at the time that sedatives are most useful, that mental maladies often pass on to a confirmed stage. In melancholia, the form in which sedatives are best borne and most useful, I find it best to give full doses, and I consider 2 drachms of tincture of opium as a by no means extreme dose. I commence with $\frac{1}{2}$ a drachm, and I have given $\frac{1}{2}$ an ounce three times daily.

A question of considerable interest is the proportion of insane persons to the general population, and because a mistaken idea on this point is widely prevalent in this Colony, and because no persons have such abundant opportunities of correcting erroneous impressions as medical men, I think it advisable to place the figures before you. It is generally supposed that the number of insane persons here is unduly large. You will see that it is slightly below that in Great Britain and Ireland and in two of the Australian Colonies. On December 31st, 1877—and I take this date as the latest for which I have the figures complete—the proportion was as follows :—

In England	1 in 368	} Great Britain and Ireland, 1 in 355.
Scotland	...	...	1 „ 411
Ireland	...	...	1 „ 283
New South Wales	1 „ 362	} Australian Colonies, 1 in 356.
Tasmania	...	...	1 „ 317
Victoria	...	...	1 „ 313
South Australia	...	...	1 „ 491
Queensland	...	...	1 „ 487
Western Australia	1 „ 419	

So far as I have been able to learn, the proportion of insane persons to population is nearly the same in civilized communities all the world over. Wherever the statistics are accurately kept, the proportion appears to be 1 in from 350 to 400 of the general population.

South Australia, Queensland, and Western Australia, being comparatively young Colonies, have not yet obtained by accumulation their full proportion.

The proportion in New South Wales is now only very slowly increasing. In the year 1868 it was 1 in 379; in 1878 1 in 362. It has taken ten years to rise from a proportion of 2·63 to 2·76 per thousand. The rapid increase in the population, which in 1878 amounted to 35,000, and in the first six months of the present year to 18,000, brings an increase in the number of patients to the amount of about 90 or 100 annually, and for these accommodation, attendance, and maintenance have to be provided.

Epilepsy as seen in an institution for the insane is a disease of considerable interest and great frequency. It was found to exist on admission in 208 patients (143 males and 65 females) out of the total number, 3,078 (1,942 males and 1,136 females) admitted, and as will be seen was less common among the female than the male patients. In a number of the cases epilepsy was the cause of the insanity, but in others was only a concurrent disease or symptom. Besides the cases in which it existed on admission, it was developed in the progress of a number of cases, particularly of chronic brain

disease, after admission, and caused death in twenty of these. The following figures show the disposal of the 208 patients who suffered from it on admission.

	Male.	Female.	Total.
Recovered	24	11	35
Relieved	8	4	12
Transferred	75	35	110
Died	20	6	26
Remaining	16	9	25
	143	65	208

In stating that thirty-five recovered, I desire particularly to point out that the recovery was from the insanity and not from the epilepsy. The recoveries from epilepsy I can count upon my fingers; and in the majority of these the disease was of short standing and due to intemperance. In one case the disease, which had existed for some years, disappeared after an operation for phymosis; and in two cases of well-marked epilepsy of long duration occurring in children, the recovery was complete under the prolonged administration of bromide of potassium. There is a third case now in the hospital which promises to terminate in the same satisfactory way.

The subject of epilepsy, as it is seen in asylums, would of itself furnish a text for a lengthy paper, and as I desire to make these notes as practically useful as possible, I will only stop to give a few hints on treatment suggested by experience. If cure cannot be expected, relief is of importance; and I am inclined to think that every paroxysm spared the patient is a gain. Attention to diet does much to ward off and lessen the frequency of the fits. A farinaceous diet is frequently useful, and I often for many months together give minced meat to these patients with an excellent effect. Purgatives are almost always necessary; and sulphate of magnesia in doses of twenty grains to one drachm three times a day, with belladonna in from five to ten minim doses, is I think the best form. The bromide of potassium is most useful. It most assuredly diminishes the frequency without adding to the force of the fits, and in many cases renders patients who, on admission, suffered from frequent fits accompanied by maniacal excitement, extremely quiet and manageable. It not only reduces the number of the fits, but it subdues and often completely clears away the mental excitement accompanying them. It is a medicine, however, which it is useless to play with. It must be given steadily, persistently, and in large doses. I have found the *Cannabis indica* a very useful adjunct in this as in all other convulsive affections, and the formula which at this

time is most in use at Gladesville for epilepsy is $\frac{1}{2}$ -drachm doses each of bromide of potassium, tincture of cannabis, and sulphate of magnesia, an extremely nauseous compound, but one which an epileptic seldom or never refuses to take, as this class of patient as a rule take medicine with avidity. The recumbent position, and a dimly lighted room for a few hours, or even a day or two, after a fit, will often ward off an attack of mental excitement, and a dose of chloral hydrate is useful in the same direction.

One of the most interesting diseases seen in a hospital for the insane is general paralysis or paresis. The *paralysie générale des aliénés* of French writers, which has only been recognized as a distinct affection since the year 1839, when Dr. Rainy, of the United States, and Dr. W. F. Browne, then of the Crichton Institution at Dumfries, and now a retired Commissioner in Lunacy for Scotland, contemporaneously described it as possessing special features. In 1842, Dr. Bell, of the McLean Asylum at Boston, wrote of it as a new disease in America, and stated that his registers prior to that date contained no cases resembling it in their manifestations, though it has probably existed unrecognized in England. Dr. Browne, in a letter written to me about two years ago, states that it was at the time he first described it, a rare, if not a new form of mental affection in Scotland, and says, "I industriously sought for any proof of its existence in former records, and have been forced to regard it as an outcome of modern manners and modes of life." It is curious that it remains to this day a somewhat rare affection in Scotland, in Ireland (especially in the northern districts) and also in the United States; though it is far from being so in England, on the Continent of Europe, or as we shall presently see, in this Colony. The evidence as to its comparative rarity in Scotland, the north of Ireland and America, is indisputable. The late Dr. Robert Stewart, of the Belfast Asylum, never saw a case in that institution during a service of forty years, and his son, Dr. James Stewart, stated at a meeting of the Medico-psychological Association held in 1875, that his father, reading so much of the disease as it existed in England, and unable to recognize it, and feeling it a sort of unexpressed reproach that he was unable to diagnose it, went expressly to England, saw it in English Asylums, and returning home asserted positively that the disease did not exist in the institution over which he presided. In 1868, after seeing the disease in English and continental asylums, I made inquiries on the subject in the United States, and found that instances of it were rare. "I have not a single case," said the superintendent of a large asylum in the Eastern States, "and the last patient who suffered from it here was an Englishman." In 1875 I spent a day with Dr. Shurtcliffe, at the Stockton Asylum, California,

who, in answer to my inquiries, said, "I am not sure that I know general paralysis; come and see if you can find it in my wards." At this time I had no inconsiderable experience of the disease, and yet was unable to discover a case among 800 male patients, though the cases of partial paralysis, softening from brain disease, aphasia, &c., were all shown to me specially, and I had full opportunity of searching for myself. Theories have been started that certain races are less subject to this affection than others, and that persons of Celtic extraction are almost exempt. I am afraid that further experience will be fatal to such fancies. I have admitted to Gladesville, 52 general paralytics of English, 23 of Irish, 12 of Scotch, 4 of German, and 3 of French nationality, besides 12 New South Welshmen, 3 citizens of the United States, 2 Dutchmen, a West Indian, a Swede, and a Tasmanian. I have, however, never seen the disease in a Chinaman, an aboriginal Australian, or a South Sea Islander. An ingenious Irishman, Dr. Ashe, in an elaborate paper published about four years ago, attributes the disease entirely to beer and to the *coccus indicus* with which beer is adulterated, and attributes the comparative immunity of Irish and Scotchmen when at home to the fact that whisky is their usual potation. There is something perhaps to be said for this view, but the verdict must as yet be "not proven." The causes to which the cases admitted to Gladesville have been attributed are many and various, and include both physical and moral agencies. They afford no ground for dogmatizing, and some, such as intemperance and excessive sexual indulgence, though possible causes in some cases, were in others clearly symptoms. It is a curious fact with reference to intemperance in drink in this relation, that in two of the best marked cases now in Gladesville the patients are, and have been for years, absolute and persistent teetotalers. The complex cause which appears to me to have been most potent, should sum up in the two words *high pressure*—life under the stress of modern competition and hurry, the haste to get rich, the habit of over-work, the abominable practice of keeping up steam by stimulants. Put into a scientific formula, the cause of the disease may be described as "abusive functional activity of the brain" an unwise expenditure of brain power, with possibly some peculiar diathetic basis. During the past ten years 114 cases of general paralysis have been admitted to Gladesville, 101 being males and 13 females; and here let me parenthetically remark that it appears to be a peculiarity of the disease, wherever known, that it affects the male sex in a much greater proportion than the female. Of the total cases admitted 58 died, 5 remained at the close of 1878, and the remainder, 56 in number, were transferred to Parramatta. 16 of these died during the 1877-8 in that institution.

In addition to these numbers 15 other cases admitted prior to 1868 have died, making a total of 67 deaths in ten years. This

disease being therefore accountable for nearly $\frac{1}{2}$ of the total death-rate among the male, and about $\frac{1}{4}$ of the deaths among the female patients.

I am unable to point to a single instance of recovery, though in not a few instances there has been for a time such an arrest in the progress of the disease under treatment as to call forth strong hopes of a better result. In three or four instances the arrest and indeed the improvement was so marked that, yielding to the entreaties of friends whose unpractised eyes failed to see that the disease had not disappeared, I discharged the patients to their care, with a result which I anticipated,—their return in a longer or shorter period to hospital. In one case I was hopeful that recovery had really taken place, but the hope was not realized.

On searching the records of Psychological Medicine and comparing notes with other workers in the same field, I am unable to discover that anyone has been really more successful than myself. I am unaware of an instance of recovery in a well marked case of this peculiar affection. I am, however, far from believing that the disease is in its early stages completely and thoroughly intractable and incurable. The improvement which I have noticed in well marked cases under treatment renders it to my mind probable that the disease in its beginning is amenable to medical treatment, and it is with this feeling that I am particularly commending it to your attention. It is in private practice and not in special institutions that its beginnings are to be seen. Unfortunately the march of the disease is so insidious, there is such a strange mixture of sanity with mental aberration, some of the faculties remain so bright, are even brighter than aforesaid, the memory is in most instances so perfect, and the patient when at all on his guard is so capable of concealing his erratic fancies, that neither friends nor physician realize the extent of the mischief. In very many instances the physician is not consulted until the symptoms of insanity are all too patent, and the patient wrapped up in his roseate fancies, scorns the idea of illness and rejects all advice. And yet I think in many cases the disease might be recognized earlier than it is. Once being called on other business into a Court of Justice, I saw a poor fellow standing in the dock in whom I recognized almost at a glance the well-marked symptoms of general paralysis. He had stolen some article in the full belief of ownership; and not long since a man was sent to my care after degradation and punishment in the Public Service for actions committed whilst really insane. Both these cases had been under medical observation without any recognition of the disease in its early stages. I may here remark that general paralysis appears as a rule to attack persons between their 30th and 45th year, and that the cases occurring before or after these times are few. Among my cases at Gladesville, the youngest was 26, and the oldest 52, but

only five cases were under 30, and only one above 50. I will with your permission point out some of the early or premonitory symptoms, and then sketch briefly from my own experience those which characterize the three stages into which this affection in its procession is divided.

Among the premonitory symptoms are restlessness and unnatural excitement, a tendency to over-work, to over-drink and to strain to the utmost the physical and mental power ; with this there is an irritability of temper, an impatience of all control or advice, an exaggerated sense of personal importance, and a proneness to indulge in business speculations and ventures totally foreign to all former custom. The first stage of the disease is not unfrequently ushered in by an attack of acute mania of longer or shorter duration, but quite as frequently the progress is more gradual, delusions of a more or less grandiose character make their appearance, and there is a tendency to appropriate articles under a mistaken idea of ownership, or to rush into lavish expenditure from a belief in the possession of untold wealth. The delusions vary extremely, but they have one character in common — they are all extravagant and hyperbolic. The patient imagines himself wealthy ; he holds interviews with the Almighty, or with kings and persons in high position ; he speaks boastfully of his mental powers, and no undertaking is too great for his capabilities. He has a large idea of his physical perfections, and this often brings accident and trouble owing to attempts to escape in the face of all obstacles or of gymnastic feats worthy of Blondin or Leotard. The same idea, combined with an imaginary self-importance, prompts him, though a pigmy in stature, to engage in combat with fellow-patients, and to resent by blows any slight to his dignity. He describes his children as physically and mentally perfect, and though they number a dozen, will often wish for more. With this there is occasional incoherence, owing to over-rapidity of ideation rather than want of consecutive thought, and a marked restlessness and hurry. The following physical symptoms commence in this stage and increase in the second stage of the disease :—Tremor of the facial muscles, the tongue and hands, a marked peculiarity of speech which is not unlike—but to a practised ear can easily be distinguished from—the slur and clip of intoxication, a rapid pulse, some rise of temperature, an inequality of the pupils—one generally being much larger than the other, but not inactive—and emaciation. The second stage is characterized by extreme placidity, an unnatural contentment with every surrounding, a mental atmosphere of sunshine and rose colour : the delusions are grander than ever, but have a much less influence on conduct, there is evident intellectual failure, and a tendency to make flesh sometimes to a surprising degree. The paralytic symptoms increase, the gait becomes markedly affected and uncertain, and the speech very defective.

The third stage is one of dementia, mind and body alike succumbing to paralysis. There is increasing mental hebetude and gradual impairment of motive power, defective sphincters, bed sores, and then death.

In many, indeed in most cases, at some period of the disease, and generally the second stage, epileptiform fits make their appearance, and occurring at somewhat distant intervals leave a transient hemiplegia and an increase of mental weakness. Sometimes death takes place in one of these. The stages vary much in length, are sometimes indistinct, and in some cases are run through with great rapidity, but the average duration of the disease is from eighteen months to two years. Men die frequently from what may be called accidents or secondary illnesses in the course of the disease. In women, owing partly to urinary troubles being less marked, partly to the more skilful nursing which always obtains in the female division of a hospital for the insane, and partly to a greater freedom from the epileptiform attacks, the disease usually runs a longer course, and occasionally reaches into the fourth or even fifth year, but seldom or never beyond this.

I do not propose to enter at any length into the pathology of general paralysis. All recent investigation tends to show that it is primarily a disease of the grey matter of the brain. A chronic inflammation of the outer layer of the convolutions, particularly in the frontal and parietal regions, and that the pia mater covering these is always more or less affected.

The pathological appearances differ, as I need hardly state, in different stages of the disease, but in all they point to chronic inflammation, and those noted when death occurs in the latest stages are quite as corroborative of the inflammatory character of the affection as those seen when it is cut short in its career. Briefly stated, these are—thickening and increased density of the skull, thickening and discolouration of the dura mater, with evidences of a past meningitis, great opacity and thickening of the arachnoid over the upper and front aspects of the cerebrum, and in a much less degree over the occipital portions; thickening and œdema of the pia mater, which becomes coarse and tenacious, and in 80 per cent. of the cases is found to be strongly adherent to the grey matter in the frontal regions, from which indeed it is separated only with difficulty, and with the result of leaving a rough eroded surface, a wasting or atrophy of the frontal and parietal lobes with much œdematous effusion. On cutting into the grey matter it has a faded and shallow appearance, and is traversed by large, coarse, and prominent vessels. The large vessels are, as a rule, free from atheromatous or calcareous deposit, the ventricles are abnormally capacious and full of fluid, and the basal ganglia all more or less atrophied. Of the microscopical

changes I cannot speak from personal observation, but from the researches of Dr. Gray, of Utica, New York, and Dr. Batty Tuke, of Glasgow, the main changes appear to be shrinking and disorganization of the nerve cells and thickening of vascular walls, with increased development of the neuroglia or connective tissue, which goes on progressing at the expense of the nerve elements. The pathological appearances all point to the importance of hyperæmia in the origination of the series of changes in which the disease consists, but it is not improbable, as shown by the researches of German observers, that the nervous system—the brain cells—are the true fountain and source of the malady, and that the greater facility with which morbid changes in cerebral membranes, blood-vessels, and connective tissue can be made out has conduced to a magnification of their share in this and other brain diseases. With regard to treatment, iodide and bromide of potassium have appeared to me to be beneficial in some cases, and combined with digitalis might I think be extremely useful when the premonitory symptoms only have appeared. Bin-iodide of mercury and Calabar bean have been favourably reported of, and Dr. McLeod, of the Yarmouth Hospital, is enthusiastic in the praise of counter-irritation to the scalp by means of blisters, croton oil, &c.,—a means of treatment I have tried and found very serviceable in several forms of insanity with meningeal symptoms. The remedy in which I have most faith in the first stage of the disease (as serving to arrest its progress) is digitalis, of which I give full doses with iron, and I think I have seen some good from ergot in later stages. A copious and nutritive diet is most necessary. The excitement in the earlier stages is a great drain on vital power, and unless the patient is well fed and receives stimulants, of which the best form seems to be beer, he will sink in this stage from exhaustion. The quantity of food taken by some general paralytics, with benefit, is enormous. I mention the question of feeding especially, as I have found that some patients before admission have been kept on a very restricted diet.



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