arachnoid surface of the membrane presented general rusty discoloration, most marked in the anterior fossæ. Marked general opacity of the arachnoid. In the middle and posterior fossæ on both sides there is a thin layer of semifluid blood. This clot is densest on the middle fossa on the right side. Corresponding with this, over the third or inferior temporo-sphenoidal convolution of the right cerebral hemisphere, there was a distinct dark clot attached to the arachnoid, which appeared ruptured at this point. There was a quantity of serous fluid in the form of bullæ in the meshes of the pia mater in the cerebral sulci. The membranes were easily removed from the surface of the brain. The vessels at the base and in the fissures of Sylvius were very atheromatous. The grey matter of the convolutions was soft and œdematous. The lateral ventricles were distended with fluid.

Microscopic Examination of Brain.

The brain-cells in all parts of the grey matter examined were clouded with fuscous granules, which almost always obscured the nucleus. The granules were observed in many instances to extend along the nerve fibre where it issued from the cell. From the irregular outline of the cells there was little room to doubt that the granular deposit was outside the cell wall. A large proportion of the cells had a shrunken and misshapen appearance. The outer layers of the grey matter of the convolutions contained numerous amyloid and hyaline bodies. The minute vessels in the grey matter were almost universally coated with granular matter.

On examining the pia mater in the vicinity of the clot, the minute vessels were found to present numerous twistings, and very well marked aneurismal dilatations. These miliary aneurisms, though most numerous near the clot, were found in all parts of the pia-mater, and frequently in the minute vessels penetrating the grey matter. The dilatations were of various extent, from a slight bulging, to a distinct round ball. In every instance their walls presented a granular aspect, specially marked at the points where the vessels entered, or issued from the dilatation. In many instances three, and in some cases four, vessels were seen opening into one aneurism which had formed at the point of branching. Some of the aneurisms were ruptured, but this may have been done during the examination (*see Plate*).

Fife and Kinross District Lunatic Asylum.—Clinical and Pathological Memoranda. By G. Hunter Mackenzie, M.B., Assistant Medical Officer.

1. *Case of Brain Tumour, with Epileptiform Convulsions.*

J. J., a deaf and dumb female patient, was admitted into the Fife and Kinross Asylum in Sept., 1866, labouring under congenital imbecility. During her residence in the asylum, the chief mental phenomena consisted of fits of irritability of temper; these were at times

so intense as to render her aggressive and dangerous. She was tall, muscular, and well-developed, and enjoyed good bodily health. Occasionally she suffered from headaches, which she indicated by putting her hand to her head in an expressive manner. There was no paralysis of any of the cerebral nerves, and the sense of smell seemed very acute.

The following are a few clinical notes of her fatal illness:—

On the 9th January, 1874, between 1 and 2 a.m., fits of an epileptiform nature suddenly set in, without any premonitory symptoms, unless one of her usual fits of irritability be reckoned as such. The first two or three were unobserved, but in the succeeding ones, which occurred every 10-15 minutes, it was noticed that the clonic spasms commenced in the flexor muscles of the left hand and forearm, and then extended to the whole left arm and side. They then became general—affecting the right hand and arm to a much less degree than the left, and the legs less than either of the arms. The legs often exhibited a mere convulsive twitching. The subcutaneous injection of a solution of sulphate of atropia failed to produce beneficial results. Counter-irritation to the nape of the neck was followed by a cessation of the fits, lasting about 12 hours, during which she lay tossing her head from side to side. The convulsions were again and again renewed, until the morning of the day of death (11th January), when they became entirely limited to the left arm. These localized convulsions occurred every 2-3 minutes, and consisted of slight clonic spasms commencing at the fingers, and extending in succession to the wrist and arm. They could be induced by touching the hand or arm, and ceased some hours before death. This took place on the 11th, at 9.30 p.m.

Autopsy.—Calvarium thick; membranes normal. On raising the two frontal cerebral lobes, a tumour, about the size of a small orange, was found springing from the cribriform plate of the ethmoid bone, and occupying the cavity between the two orbital roofs. Its dimensions were—antero-posteriorly 2 inches, transversely $1\frac{1}{2}$ inch, and it was 1 inch deep at its thickest (central portion). It extended backwards from the crista galli to the anterior edge of the optic commissure, and fully two-thirds of it were situated to the right of the mesial line. Its basilar attachment was firm and broad. The optic nerves appeared to be implicated; they could not, however, be satisfactorily made out without removing the tumour, which was undesirable.

Nature of the Tumour.—Its surface was nodulated, and consistence fibro-sarcomatous; and on section, it was seen to be whitish-grey in colour, with intersecting fibrous bands. Under the microscope (×150) bundles of fine fibres were noted, with masses of yellow granular material in the meshes—(× 350); it was observed to be composed of round cells, with granular contents, a large nucleus occupying more than half of the cell, and a bright, refracting, tri-partite nucleolus.

Fusiform cells of various sizes, each possessing a highly granular nucleus, and a number of fine nucleated fibre cells, were also present.

By the pressure of the tumour the marginal convolutions on both sides were atrophied—the atrophy being deeper on the left, while superficially it was greater on the right. There was no lesion of Broca's convolution. The brain was very hyperæmic, and the superficial veins were gorged to distension.

The only other important feature disclosed on autopsy was the great congestion of the lower lobe of both lungs, which sank in water.

2. *Case of Recurrent Mania successfully treated by the subcutaneous injection of Morphia.*

As the result at the Fife and Kinross Asylum of a somewhat prolonged trial of morphia in the treatment of mental disease by subcutaneous injection, only indifferent success has, in the majority of instances, been attained. In some cases of mania and melancholia, no appreciable benefit was derived from the administration of the drug; in others, amelioration of the patient's condition, but only of a temporary nature, followed. There is, however, at present in this asylum, a well-marked case of recurrent mania, in which the exhibition of morphia by subcutaneous injection at the commencement of, and during, the maniacal paroxysms has been followed by the most beneficial results. To this case I now venture to direct attention.

J. W., female, æt. 48, in excellent bodily condition, has attacks of recurrent mania every six to eight months, and lasting for as many weeks. During the attacks her character completely changes—instead of being quiet, industrious and agreeable, she becomes mischievous, vituperative, filthy and noisy. Various remedies had been previously tried to prevent, modify, or cut short the attack, but none had succeeded. The following notes show the result of the treatment by morphia:—

8th November, 1873.—An attack of recurrent mania, the premonitory symptoms of which have been present for some days, has now fairly set in. Half a grain of morphia acetate* was injected subcutaneously at evening visit.

15th November.—The acetate of morphia, in doses varying from two-thirds to one-and-a-half grain, has been regularly injected each evening. During the first two days, some amount of sickness, with bilious vomiting and loss of appetite, were present; these, however,

* The formula employed was as follows:—
Recipe—Morph. acetat. grs. xx.
Acid: acet: fort: ms. iii.
Aquam: destill: ad: drs. iv.
Strength—1 gr. in 12 minims. solve.

gradually disappeared, and on the last-mentioned day (15th) she was quiet and civil, and on the 18th was able to be removed from the refractory ward.

This case exhibited that periodicity so generally seen in cases of remittent and intermittent mania, and a recurrence of the malady took place on the 22nd June, 1874. The patient was immediately treated as on the previous occasion, with this difference, that the injection was given in the morning instead of in the evening, and then smaller doses were found to be sufficient. At the beginning she felt a little squeamish after each injection, but this gradually passed off, and on the 3rd July the medicine was stopped, the attack having completely subsided.

The relief to all concerned in the management of this patient, and who had seen her during her former maniacal attacks, was as acceptable as unexpected. It is intended that during each succeeding recurrence of the mania, the patient shall be treated in the way above described, and it will be interesting to observe, whether, should the attacks be again successfully combated, a radical cure may not eventually be effected.

I deem it proper to add, that the above mode of treatment was pursued in two other cases of recurrent mania, with the following results:—In a male patient, æt. 50, the attack was materially modified; in a female, æt. 45, the result was *nil.*

3. *Case of Acute Mania—probably Tubercular; Dementia; Recovery.*

The prognosis in this case was unfavourable for the following reasons: (1.) The strong hereditary tendencies to mental disease and phthisis pulmonalis; (2.) the consanguinity of marriage in grand-parents; (3.) the poor physical condition of the patient on admission; (4.) the unfavourable course of the malady during the greater part of its duration.

The history is as follows:—W.S., male, æt. 22, admitted on 30th October, 1873, suffering from acute mania of about a week's duration, supposed to have been induced by disappointment in love. Tubercular diathesis well pronounced, with a suspicion of the presence of phthisis pulmonalis. Weight, 9st. 9lbs.

The hereditary history shows, on the father's side, that the father himself is eccentric and silly; that an uncle suffered from recurrent melancholia, and died in an asylum, æt. 46; and that an aunt is silly and weak-minded. Two

uncles died of phthisis pulmonalis, æt. 24 and 40 respectively. On the mother's side, the grandfather was insane, and an uncle and aunt suffered from melancholia and dementia, and were both confined in asylums. Mother died of phthisis pulmonalis, æt. 35.

Paternal grandfather and maternal grandmother were cousins.

Patient is the eldest of a family of three; all are weakly, and very subject to colds.

The course of the case, and the method of treatment adopted, may be thus briefly summarised :—

During the acutely maniacal stage, which continued till the 21st November of the same year, he was treated with morphia, subcutaneously injected, along with extra and careful dieting and regulation of the bowels. The stomach-pump required to be frequently used.

Nov. 22nd.—Has been quieter for last two days: a state of dementia is now supervening. Hæmatoma forming on left ear. Commenced the use of cod-liver oil in drachm doses thrice daily. Feeding well.

May 5th, 1874.—The chief features manifested since last report have been those indicating profound dementia, with slight intercurrent maniacal attacks, when he became impulsive and aggressive. Harsh and almost bronchial breathing detected at right apex, for which iodine has been locally applied to chest. Cod-liver oil still being continued in half-ounce doses thrice daily. Tonics have frequently been administered.

June 15.—Symptoms of a probable recurrence of mania are now being presented; otherwise, no change.

July 10th.—The incipient maniacal attack gradually passed off, and patient during the last two weeks has been daily getting clearer in intellect. He is now talking and acting sensibly, and is able to engage at his ordinary work (a mason). Physical condition greatly improved. Thinks it is about three weeks since his admission to the asylum.

July 31st.—To-day discharged, having apparently completely recovered.

September 5th.—On inquiry of his friends, he is reported to be still keeping well, and industriously employed.

Remarks.—The hereditary history of this patient shows a race with the strongest possible tendency to two of the most inveterate constitutional diseases—insanity and phthisis pulmonalis, and deteriorated by the presence of a consanguineous marriage. The frequent curability of cases of mental disease where a hereditary taint is present has amply

demonstrated the fact that, in them, it is not the impossibility of a recovery that is to be feared, but the probability of a relapse. Curable, however, as the majority of these may be, it cannot be doubted that in a case like the present, with a constitution thoroughly *saturated* with insanity, the prospects of even a temporary recovery are anything but bright, more especially when the strong phthisical tendency of the patient is also taken into account. True, on admission, though the tubercular diathesis was extremely well marked, no physical signs of the actual existence of phthisis were detected; but it must be remembered that authorities agree in allowing that the latency of this disease among the insane extends to from one-fourth to one-third of the cases. To ward off lung disease was one of the main objects of treatment here. The case may not improperly be referred to the class of tubercular insanity, presenting as it does some of the leading features described by Dr. Clouston as belonging to this variety,—the tubercular tendency and diathesis, the almost contemporaneous development of the two sets of symptoms, a state of mania passing into dementia, and the frequency of those unprovoked, irritable, impulsive turns which Dr. Clouston fitly describes as "a mixture of sub-acute mania and dementia." The prominent feature of delusions of suspicion was absent. The consanguineous marriage tended to add to the unfavourable nature of the prognosis; for, in this case, not only was there an intermarriage of blood relatives, but of "relatives with similar vitiations of constitution."

During its progress the case presented several unfavourable features, as for instance, the supervention of dementia. This, unless when primary, is generally regarded as of bad prognosis. In reference to the hæmatoma auris, Bucknill and Tuke say: * "When present, and not due to violence, it adds to the unfavourable nature of the case, so far as it indicates that nutrition is below par. At any rate, the cases in which it occurs are generally incurable forms of insanity." In the present instance, its presence could not be attributed to violence.

Gloomy, however, as the case was, it still showed a few favourable points. Conspicuous among these were the sudden onset of the malady and the acuteness of the symptoms. We know that, *cæteris paribus*, the prognosis in mental disease is favourable in direct proportion to these.

* Psychological Medicine, 3rd edition, p. 133.

Here the insanity had only been of a few weeks' duration, and the attack was so acute as to require the patient to be brought by his friends to the asylum bound hand and foot. Another favourable feature in the case is the fact of the patient being an eldest child. I am not aware of attention ever having been directed to what at least has been the result of my somewhat limited experience and investigation in the matter—*that not only is insanity most prevalent amongst youngest children, but in them it is generally found in its worst and most incurable forms*, the converse being the case as regards the eldest members of families. In confirmation of this, I may state that enquiries into the majority of admissions to this asylum during the past year yield the following results:

(1) 48·7 per cent. were youngest children.
(2) 13·5 „ „ eldest „
(3) 25·0 „ „ nearer youngest than eldest child.
(4) 12·8 „ „ nearer eldest than youngest child.

It will thus be seen that about 50 per cent. of the ascertained admissions were youngest children, and a considerable proportion of the cases included under No. 3, as being nearer the youngest than the eldest child, were the youngest but one of families with 5-10 members. The numbers from which the above figures are taken were necessarily limited, and it will therefore be interesting to know if the observation of others, with wider fields for investigation, yield similar results. The question is not devoid of practical import, for if the accuracy of my percentages be confirmed by other and more extended research, the necessity of *especially* protecting the younger members of families from the influences conducing to insanity will be apparent. But, as before stated, not only have my inquiries shown that insanity is most rampant amongst youngest children, but also that in them the percentage of recovery is lowest. Of the admissions above referred to—

(1) 21·0 per cent. of youngest children have recovered.
(2) 50·0 „ eldest „ „
(3) 20·0 „ children nearer youngest than eldest have recovered
(4) 21·0 „ children nearer eldest than youngest have recovered

The majority of the unfavourable cases at present in this asylum are youngest children, and a woman who committed suicide while out on leave was a youngest child.

To the fact of W. S. being an eldest child, and to the greater natural tendency towards recovery from mental disease evinced by eldest children, I am inclined partially to attribute the favourable termination of the case.

On the occurrence of an Organized Fibrinous Substance formed during life in the veins of the Pia Mater and Brain, in those dying during the "typhoid" stage of Acute Insanity. By T. S. Clouston, M.D., F.R.C.P.E.

H. B. E., admitted in a typhoid state, after a short acute attack of maniacal excitement at home. She was almost comatose, only being roused to show the least signs of sensibility on one or two occasions during the two days she lived. Pulse 120, very weak; temp. 103·8°; face and neck dusky and flushed, apparently from vaso-motor paralysis of all the branches and capillaries of the external and internal carotid arteries. She died perfectly comatose.

At the *post-mortem* examination there were found in the veins, both smaller and larger, of the pia mater, small white pearly-looking bodies, that looked at first like limited white thickening of the venous coats, but were found to be masses of organized fibrinous material. In many places these were attached to thin strings of the usual *post-mortem* clot, and the difference between the two structures was very great. A microscopic examination showed this difference still better. Instead of the ordinary white blood corpuscles caught up in the meshes of innumerable fine fibres of white *post-mortem* blood clod, those masses consisted of bodies like the white blood corpuscles, but much larger, with distinct nuclei and neucleoli, and instead of the fine linear fibres there were fusiform cells cohering strongly, among which those bodies lay in regular parallel rows.

The whole of the brain was dusky and congested, and with a considerable amount of blood crystalline matter through it, when examined microscopically. The cells of the convolutions were very granular.

I have met with the same appearances since to a less degree in a general paralytic who died comatose in a congestive attack.

Is it possible that in those cases the vasor-motor paralysis and blood stasis that form so essential a feature in the typhoid condition of acute insanity and the congestive attacks of general paralysis, had gone on to a still further stage, when the white blood corpuscles began to adhere to the inside of the walls of the vessels, gradually accumulating and becoming organized into the masses I have described?