English Psychological Retrospect.

1. *Intra-cranial Syphilis and Insanity.*
2. *Résumé of Cases of Insanity with Syphilis, in Relation to the so-called "Varieties of Syphilitic Insanity."*
   Acute Forms of Insanity Intercurrent in Secondary Syphilis.
3. *The Distinctions between Syphilitic Disease of the Encephalon and General Paralysis.*

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The following is a short abstract of this series of papers, and consists mainly of quotations from the original text on the points of greater interest, omitting, for the sake of space, the various references to the literature of the subject. The large number of insane soldiers under his care has afforded Dr. Mickle a rich field for the study of syphilitic affections of the nervous system, and of the question of the causation of insanity by syphilis:—

I.—The first paper of the series deals with cases in which there were intra-cranial syphilis and insanity, and in several of which the former stood to the latter in the relation of cause to effect. The first and second of these cases are of special interest, owing to the very marked syphilitic disease of the cerebral arteries and arterioles present in each, and to the relation they bear to the differential diagnosis between general paralysis and the syphilitic diseases of the encephalon which simulate it.

The first case was that of a soldier, aged 41, whose mental derangement had come on insidiously several months before admission, an alteration of manner having been succeeded by very great defect of memory, incoherence in conversation, confusion of thought and failing comprehension, together with headache, nocturnal restlessness and hallucinations, and habits inclined to be destructive and degraded. With the exception of the cranial pain, these symptoms continued at the time of his admission, and were associated with some emotional facility, with physical signs simulating those of general paralysis to some extent, and with slight paralysis of the left lower extremity. There was external evidence, and later a history, of syphilis. Under specific treatment his mental condition improved very greatly, a certain degree of dementia alone remaining. The physical condition also improved, but there were several convulsive seizures, followed by

* These papers were published some time before the appearance in this country of Heubner's recent contribution on the same subject; and 1 and 2 before the discussion on Visceral Syphilis Path. Soc.

temporary spasm of the right side of the face. He remained in the improved condition, and, after a course of five and a half months, specific treatment was omitted, the patient having then been free from fits for four months. Four weeks later he was suddenly found to be confused and stupid, the articulation was impaired and mumbling, and there was incomplete left hemiplegia, especially of the face and upper extremity. The treatment was resumed, but epileptic seizures recurred now and then for the next few days; the patient was confused, impatient, and obstinate, and at last sank after a series of frightful epileptic convulsions, beginning on the right side.

Autopsy.—All the arteries at the base of the brain stood out like rather firm cords, their walls being much thickened. This thickening also involved the walls of the various branches of the main cerebral arteries, and was well seen in the vessels overlying the corpus callosum, and on the walls of the great longitudinal fissure. Besides this, there were circumscribed growths in the walls of several arteries, and at these points the coats were very greatly thickened and nodulated. One was found in the walls of the right middle cerebral artery, about an inch from its commencement, diminishing the calibre of the vessel internally, and projecting externally in the form of a pair of small flattened buds. In the interior of the vessel a dark clot was rather firmly adherent at this point. A similar nodulation was observed in several of the smaller branches of this artery. In the left middle cerebral artery a somewhat similar change existed just external to the anterior perforated space. But in this vessel the adventitious material affected the inner coats more than the outer, and formed a plate of whitish fibrous-like tissue encircling the interior of the vessel for the length of about half an inch, and lessening its calibre. The smooth internal lining membrane of the artery continued unbroken over the inner surface of the morbid material. The branches of this vessel also presented little nodules. Nodular or more flattened patches were found also in the upper part of the basilar artery; in both posterior cerebral, and both anterior cerebral arteries, especially in that of the right side. Where nodulated or bulbous, the vascular walls were firm, and had either a whitish or a yellowish-white colour. Some thickening and slight opacity and œdema of the soft meninges existed in the fronto-parietal region. Over the front border and under surface of the corpus callosum, at and near the genu, and extending to the convolutions on both sides, but especially on the right, an area of marked gummatous disease was found. It affected part of the median surface, and part of the orbital surface of the right frontal lobe. The anterior portion and median surface of the first frontal gyrus was the part mainly affected, also the front of the gyrus fornicatus, and, on the orbital surface, the gyrus rectus. The membranes covering this area were extremely thick, tough, and adherent to the cerebrum; whilst the grey cortical matter was mostly replaced by a firm yellowish exudation, which was closely adherent to the membranes on one side, and to the

medullary matter on the other. In fact the material was continued into the medullary matter, invading it irregularly, and producing an indurated yellow layer. The induration of the medullary substance was particularly marked in front of the base line of the lateral ventricle, and in the portions adjoining the median surface of the frontal lobe. All these changes were less decided, and occurred over a much smaller area in the corresponding portions of the left hemisphere, the areas of disease being continuous with each other over the corpus callosum. The right corpus striatum was atrophied and collapsed on part of its upper surface, the alteration commencing about a third of an inch from the inner border, and being situated mostly at the external aspect. On section, the whole thickness of the striate body was found to be diffluent in the portion underlying the change mentioned on its upper surface. The right temporo-sphenoidal lobe was softened, and became diffluent on pressure, except on its inferior surface and at its posterior termination. Here, also, were a few adhesions. The spleen weighed 9oz.; upon it were seen several starred cicatrices near the upper end, one at the lower end, and one on the anterior border. The cicatricial material penetrated into the parenchyma. On the upper surface of the right lobe of the liver were five depressed white cicatrices, and the cicatricial fibrous tissue extended from some of these to the depth of one and two inches into the glandular substance; while beneath the others were found firm yellow gummata. Syphilitic changes were found in the skin and right testis.

Under the microscope the gummatous infiltration showed products of declining action and decay. The walls of the minute arteries at this part were thickened, some of them greatly, were unduly opaque, exhibited a granular infiltration, and in parts an indistinct cellular proliferation in the inner coats. The external surface of some was pigmented. The brain substance, beneath the gummatous material, stained badly, and showed some colloid bodies; the walls of its arterioles were enormously thickened, and were in much the same condition as those just described. The vessels of the overlying meninges were thick-walled. In the left first frontal gyrus the vessels were thick-walled, some were shrunken in their sheaths, or were occluded. In the left ascending parietal convolution the vascular coats were thickened, the angles of the nerve-cells rounded, their nuclei indistinct, and some of the cells moderately granular. In the right temporo-sphenoidal gyri was fuscous degeneration of the large nerve-cells, and the vessels were altered much as described above, but, in addition, had bright (fatty-like) particles strewn throughout the adventitia. The growth in the right middle cerebral artery was mainly of fibrous tissue, with yellow opaque patches, small bright round molecules, numerous indistinct cells, molecular masses and granules. That of the exterior of the left middle cerebral artery was much the same.

In the above case severe syphilitic disease is found to affect the surface and the arteries of the brain. Affecting the cortical grey substance, both directly, and also indirectly through the medium of vascular disease, it gives rise more particularly to mental derangement and to convulsion; affecting the arteries, it increases the gravity and multiplicity of the symptoms, and undermines the nutrition of various encephalic districts. The former lesion assumed, in this case, the character of a local gummatous infiltration and encephalitis, invading and indurating the medullary substance, destroying the cortical grey matter, rendering the soft membranes at that part thick and tough, and binding them firmly to the subjacent sclerosed white substance. The second morbid change—the extensive thickening and gummatous nodulation of all the large arteries at the base of the brain, partially occluding some, and impairing the adaptive elasticity of all—no doubt disordered the cerebral circulation, and finally led, by the way of thrombosis, to local ramollissement of the cerebral substance. But not only were the vessels at the base thus affected, their branches also partook of the same change; nor did the thickening stop at the earlier arterial subdivisions, but extended to the arterioles, and was seen in the minute microscopic vessels of most of the sections made. Looking at these, no surprise could be felt at the mental deterioration which had occurred, and they suggested an auxiliary cause of the convulsive phenomena. This syphilitic arterial lesion is one of great interest, and was found in the next case also.

The importance of the syphilitic lesions of the arteries of the brain is now claiming more general recognition. Thrombosis, local softening of brain, and cerebral hemorrhage often follow in their train, and when the morbid change is extensive the termination is probably always fatal. The vessels at the base may be affected indirectly; a syphiloma or a gummatous infiltration pressing upon them, occluding them partially or completely, and leading to thrombosis, to softening, &c. But in the lesions now specially under consideration the arteries are affected directly and primarily by syphilitic disease, and not by the mere external pressure of syphilomata.

In some there are nodular masses, gummatous patches, embedded hard grains, or circumscribed local thickenings, in the walls of the larger cerebral arteries. Of this kind are cases detailed by Wilks, Hughlings Jackson, Lancereaux, Moxon, Broadbent, and Heubner. Frequently clots are adherent to the internal walls of the vessels at these points, usually softish, but sometimes so firm and large as to form tough, adherent cylinders obliterating the channel, as appears to have occurred in Bristowe's case.

In others there is found a general extreme thickening of the walls of all the arteries at the base of the brain, from infiltration and adventitious material, and this, in several cases at least, has been found to extend more or less throughout the subdivisions of the arterial trees to their most minute ramifications, and not only in the cerebral

substance, but in the meninges also. Examples of this are described by Clifford Allbutt and by Heubner. The surface of the basal vessels is more or less irregular in these cases.

Not unfrequently the marked nodulation of these more or less universally thickened basal vessels, or the presence of gummatous patches in their walls, gives rise to a combination of the two conditions above described. Of this nature are the instances given by Batty Tuke, by Buzzard, and my own two cases.

To whichever variety the vessels pertain, their conditions are totally distinct from atheroma on the one hand, and, on the other, from the hypertrophy found where the circulation of imperfectly depurated blood has produced habitual over-action, and consequent overgrowth of the arteriolar tubes. Neither the naked eye nor the microscopical appearances are those of the former—atheroma—and as for the latter change it is different in its appearance and distribution, and is associated with disease of the principal emunctory organs. It will be noticed that the arterial lesions partake of the diversity of appearances observed in every organ and tissue which is liable to syphilitic changes. Here, as elsewhere, the lesions may be diffused or circumscribed, and their concomitance with syphilitic deposit or growth in other organs, or with other evidence of syphilis in or about the brain, shows that they are originated by the venereal lues.

In the above case it was seen that the minute vessels of the meninges and of the cerebral convolutions had their walls considerably increased in thickness, though not in an entirely uniform manner. All the coats of the minute arteries seemed to be implicated. The nodules in the walls of some of the large arteries at the base bulged from the exterior like little flattened buds. But at the same point, in one, was also an annular fibrous-like material, lying in the inner coats, occluding the lumen, and covered by, at least, the bright smooth epithelial surface of the intima. On making sections it was slightly separable from the coats by teasing. But only so at the edge, where it was thin and in process of being bevelled off—the main portion of the adventitious material was intimately bound up with the coats of the vessel.

When widespread, the condition seems to be a chronic arteritis of syphilitic origin; when circumscribed, it often appears to partake of the nature of ordinary syphiloma.

The symptoms which arise from extensive syphilitic disease of the arteries of the brain are of great variety, and are usually complicated by the symptoms dependent upon the presence of other intra-cranial syphilitic lesions. Taking a number of cases, however, just as they occur, and with all their complexity, the order of relative frequency of the symptoms is as follows:—(1), convulsive symptoms of various kinds; (2 and 3), dementia and hemiplegia; (4), apoplectic symptoms—or coma, drowsiness, somnolence, especially in the latter periods; while a great variety of mental symptoms occur in the earlier

periods. Headache, aphasia, difficulty of articulation, palsies of cranial nerves are often found; and vomiting, blindness, and optic neuritis are not infrequent. In case 1 the arterial disease and its secondary effects were *complicated* by the presence of gummatous disease of the cerebral surface and of the soft meninges. In a group of cases presenting lesions of the latter kind (cortical and meningeal), the order of frequency (excluding the affection of the nerves at the base) is, headache and convulsive seizures of the nature of hemispasm; tremor; partial, incomplete, or transitory hemiplegia; contraction, or anæsthesia of a limb; mental symptoms: optic neuritis, &c. In case 1, *complicated* as it was in the manner just adverted to, the order of *succession* of the symptoms was—dementia, the earlier course of which was chequered by restlessness, destructiveness, and irritability; early headache; epileptiform attacks; transient hemiplegia; impairment of motor energy; recurring epileptiform seizures, with mental confusion; and a lethal attack of furious convulsions.

The principal lesions of the brain were on the *same side* as that on which the convulsions which proved fatal began, and it is pointed out that in other respects, also, the case affords no support to recent views, based upon experiment, as to the cerebral localisation of movements.

The above remarks apply, in part, to the *second* case in the paper, of which the following is a brief summary :—

A soldier, aged 33 years, who had contracted syphilis some years previously, was suddenly seized with difficulty of articulation and of deglutition, and incomplete dextral hemiplegia. This was followed by angry and confused excitement, by intellectual and moral deterioration, and by recurring temporary attacks of great dysphagia, with vaso-motor disturbance. Subsequently, there were dementia; incomplete right hemiplegia; speechlessness; dysphagia; drowsiness by day and sleeplessness by night; much moaning, with constant and increasing contraction of the limbs, especially of the cold and purplish right limbs.

Autopsy.—Calvarium thick and dense. All the arteries at the base of the brains were extremely thickened, and stood out like firm cords. They were slightly irregular on the exterior, but the thickening was uniform, and seemed to arise from new material, the naked eye appearance of which had become assimilated to that of the normal coats. There was a brownish-yellow gummous-like swelling, about one-third of an inch in length, on the left middle cerebral artery, immediately external to the substantia perforata. The walls were greatly thickened at this point, the calibre of the vessel lessened, and the coats readily separable from each other. The microscope showed the walls of the minute arteries in the third left frontal convolution to be considerably thickened, and some of the smaller ones were occluded. The adventitia of some was granular. The same increased thickness of the walls of the arteries was found in and about the left corpus

striatum, with a concentric appearance. A few collections of fine cells also were seen in the walls. The minute appearances of the middle cerebral artery were much as those described in the first case. The intra-ventricular aspect of the left corpus striatum was sunken and discoloured over a large area, and the greater part of the ganglion was replaced by a firm, tough, yellowish, gummatous mass. On the upper surface of the *liver* was a large, brownish-yellow gumma. The kidneys were healthy, and the heart fairly healthy.

The third case, although an instance of syphilitic disease of the meninges and brain-surface, was mainly interesting for the syphilitic cardiac disease which gave rise to excessive feebleness of the heart's action, of the circulation generally, and of the reparative powers, as well as to cardiac dyspnœa; and, finally, to death by cardiac failure. Mental impairment, especially loss of memory, and occasional emotional depression were the principal mental symptoms. The syphilitic disease of the heart in this case was more extensive than in any of the heart-cases quoted in the paper, and its clinical features bore a close resemblance to some of those recorded by the late Dr. John Morgan, of Dublin.

In the fourth case the patient had frequently been in hospital for syphilitic affections. Intense cranial pain was followed by restlessness, excitement, hallucinations of hearing and delusions. Nocturnal syphilitic pain continued, he became irrational and childish in demeanour and language, and showed great impairment of general mental power with apparent incipient general paralysis. After admission, were dementia, then some *bien-être;* simulation of general paralysis; symptomatic paralysis agitans; disturbed innervation of the heart; impairment of deglutition; extreme general motor paresis; inability to walk; incomplete left hemiplegia; impaired speech. Mental and physical recovery under specific treatment.

In the next case there were some severe cranial pains for a prolonged period, vertigo, convulsive seizures and transitory paralysis. Subsequently dementia; hemiplegia of some months duration; amaurosis from extreme double optic neuritis; impaired taste and smell; much (right) unilateral impairment of hearing; incomplete and partial (left) hemianæsthesia; recurring epileptiform attacks; intestinal torpor, and paroxysmal epigastric pain. Great improvement under specific treatment.

Passing by the rest of the cases, the following summary of all is given in the second paper.

Three clinical features are worthy of notice in these, and similar cases.

The first is the marked tendency to mental impairment or failure; the predominance of negative intellectual symptoms, often with weakness or loss of the moral sense and an inclination to a degraded state of feeling as evidenced by the habits of the patients. In some, early or intercurrent outbreaks of maniacal symptoms occurred; in a few there was causeless depression, or fear, or undue emotional facility.

The second broad clinical aspect of importance in the above cases is that almost invariably there were motor symptoms, either of the paralytic or of the convulsive type. In the former—the paralytic—type, motor failure was in the form of hemiplegia, or palsies of cranial nerves, or impairment of articulation, or motor paresis and incoordination of a wide-spread kind. The latter—the convulsive—type of symptom showed itself more particularly in epileptic attacks, hemispasm, tremors, or symptomatic paralysis agitans.

The third general feature is that sensory symptoms were frequent. Of these the most striking was intense nocturnal pain, especially cranial pain; while anæsthesia was far less frequent. Impairment of sight, blindness, or unilateral deafness, as well as hallucinations of the senses were occasionally found.

II.—The *second* paper is mainly occupied with the discussion of the so-called "varieties of syphilitic insanity."

Even where *intra-cranial* syphilis is found in the insane it is only by a close and accurate study of each case that it can be decided as to whether the constitutional syphilis is the cause of the mental symptoms; or modifies, without having in the first place originated them; or, on the other hand, is merely a chance accompaniment. When, therefore, cases differing extremely in their histories and clinical features are grouped together under the name of "Syphilitic insanity," and nosological varieties of this are described, it is fitting to inquire upon what bases the descriptions of these varieties really rest. That a patient may contract syphilis, and that insanity may occur some weeks, months, or years afterwards, surely tells us nothing as to the etiology of the mental affection. It is stated that syphilis may originate insanity at periods of its duration varying from a few weeks to many years; that in the early stages mental disorder may be induced by the anæmia and blood changes of syphilis; and, later on, by inflammations or congestions originated by syphilis; or, again, by syphilitic neoplasms either affecting or invading the brain from without, or developing within it. I cannot but think that many of the cases described as of the first and second of these kinds were in reality due to other causes than syphilis. Where no intra-cranial syphilitic processes are developed, the origin of insanity can rarely be attributable to syphilis with scientific accuracy. In a series of such insane and syphilitic patients, the clinical features and general course of the mental disorder seem to be the same as those in an equal number of their non-syphilitic fellow-patients, when the other circumstances and influences are alike. That there is good ground for this statement will be evident from an examination of the tabular summary, forming an appendix to this, the second, paper, and containing 26 instances in which insanity and syphilis co-existed, but in which there was no evidence of organic intra-cranial syphilitic lesions such as existed in the cases detailed in the first paper. In the tabulated cases now referred to, insanity, of course, occurred at a period subsequent to the

syphilitic infection. On examining the summary of these cases a great variety of symptomatological forms of mental disease are found supervening in syphilitic persons. There is no evidence of characteristic clinical features in them—nothing that marks them off from the ordinary run of cases—and the connection between their syphilis and their insanity seems, for the most part, to have been but a casual one. Therefore, when cases are described as examples of "Syphilitic insanity" in which the clinical features are the same as those in ordinary insanity, where at death no syphilitic lesions are found in or about the nervous centres, and where the only evidence suggestive of syphilis as a cause is an infection occurring previously to the onset of insanity or the appearance of syphilitic diseases, it is evident that some more stringent proof of a causal relationship must be exacted before such cases can be admitted into the category in question.

The so-called varieties of syphilitic insanity described by Drs. Wille, Stewart, and Clouston, are next noticed at some length. The first variety mentioned by the last of the writers just named is accepted as presenting symptoms which often arise from gross intracranial syphilitic disease. But the second variety meets with some criticism. It is that in which insanity of an acute maniacal or delirious form breaks out almost immediately, or not long, after primary syphilitic infection in a patient whose history is one of pre-existing disease of brain, or of previous attacks of insanity, or of hereditary neurosis. Nor is the third variety without objection; it is that in which "Syphilitic insanity follows distinct syphilitic epilepsy or apoplectiform attacks, and in this way partakes of the character of ordinary epileptic insanity." Of the several varieties referred to, only the first seems to maintain its place as a frequent and distinct form of disease. I think the occurrence of the second and third varieties to be far less frequent than has been asserted or implied in some quarters; that in the majority of the cases assigned to these varieties, syphilis was not the real cause of insanity; and that those in which it was are undeserving of being placed in the same pathological niche as the cases included under the first variety.

The paper closes with the consideration of cases in which acute forms of insanity have been attributed to the evolution of the secondary stage of syphilis. It seems that the frequency of these cases has been exaggerated, that upon closer examination many appear to have had no actual dependence upon syphilis. In some of the few real cases the blood-change produced by the specific virus probably acts much as a dram of spirits acts upon the hereditarily weak brain in producing a temporary mania a potu. That early mental disease *may* be produced is, moreover, rendered likely by the occasional occurrence, in the early secondary stage of syphilis, of other nervous symptoms such as headache, insomnia, anæsthesia, neuralgia, or hemiplegia and facial palsy. I have no clear undoubted cases to offer of acute mental disease caused by syphilis in its earlier secondary stage, although acute insanity

occurred at that period of the evolution of the specific malady in several patients under my care. In one or two of these the mental aberration had been attributed to the effects of syphilis by those who sent the patients here. Abstracts of several of these cases are given, and show that clear proof of their actual dependence upon syphilis is wanting, and that there is nothing special to distinguish them from acute attacks of insanity occurring in non-syphilitic persons who are under the same general influences.

III.—The *Third* paper is devoted to a detailed consideration of the differential diagnosis between syphilitic disease of the encephalon and general paralysis.

(1.) The form of general paralysis most frequently simulated by syphilitic disease of the encephalon, is that in which dementia is the leading symptom from the first, and these two affections are contrasted at length, firstly as relates to their mode of onset and the earlier symptoms, and secondly as regards the fully-developed affection. The mode of onset and the earlier symptoms of the two diseases are contrasted, after a description of the early symptoms of several instances of the dementia form of general paralysis, not unlike certain cases of brain-syphilis at the same period. Compare them with the mode of onset and earlier symptoms of the form of mental disorder from brain-syphilis which simulates general paralysis most frequently and closely. While there is much that is similar in the syphilitic cases, yet we may find in them an early hypochondria or temporary acute mania or delirium, and the mental symptoms are often *preceded* by marked motor or sensory disorders. Early paralysis of some of the cranial nerves with ocular troubles, early optic neuritis, or local anæsthesiæ, often characterise the syphilitic cases. Headache, nocturnal, deeply-seated, and increased by pressure or warmth, is usually a striking phenomenon, and is more urgent and persistent than is the prodromal headache observed in some cases of general paralysis. Convulsions and local spasms are more frequent in the first periods than in the corresponding periods of general paralysis. Early insomnia, common in some instances to both, is, as a rule, more severe in the syphilitic cases, and the same remark applies to rheumatoid pains in the extremities, and to the various neuralgiæ at the same period. Aphasia, too, occasionally occurs at the onset of the syphilitic malady in question, and so do grave apoplectiform seizures. A fitful appearance, changeableness, temporary character, and capricious association and succession of the several symptoms, and their frequent alternations, are features more evident in the syphilitic cases. Anæmia is frequent, and a sallow cachectic hue, not usual to general paralytics at this stage. The early or rapid decline of memory sometimes insisted upon is, however, common to both ; nor is there any very marked difference between the occasional early convulsive phenomena of the two diseases, which in both are commonly unilateral, and often without loss of consciousness, though possibly more often of this type in the syphilitic cases. The

impaired articulation and tremors of lips, face, and tongue may be absent or but imperfectly marked; but on the other hand, they may be imperfectly marked in the dementia form of general paralysis also. Early well-marked apoplectiform attacks, severe nocturnal cranial pain, paralysis of individual cranial nerves, local muscular contraction and rigidity, optic neuritis and vertigo, failure of special senses, and local anæsthesiæ, are the most important distinguishing features of (intra-cranial) syphilitic cases in the incipient stages; and these, when present, greatly facilitate the differential diagnosis between the particular class of cases of intra-cranial syphilis now under discussion, and general paralysis-dementia. On the other hand, the characteristic condition of the articulation, facial and labial muscles, tongue, velum and pharynx, when fully developed at this early stage, often suffice to establish the diagnosis of general paralysis. . . . . .

Referring next to the affections when fully developed, although the *mental* symptoms are often very similar, yet a few points of difference may usually be traced. For, *in the syphilitic cases*, as compared with the dementia form of general paralysis—

1. Hypochondriacal feeling and idea are more often noticed at the very first yielding gradually to dementia.

2. Prior to severe apoplectiform and other attacks, the loss of memory, confusion of thought, and tendency to fatuity are less marked, advanced, and fixed, than in general paralysis-dementia; there is more an obscuration than a destruction of mind.

3. Paroxysmal outbreaks of excitement in action and language are rather more frequent in the syphilitic cases.

4. The course of the mental affection is a more chequered and irregular one in syphilis, and is more frequently complicated by symptoms such as convulsions, spasms, paralyses, and sensorial disorders.

5. Insomnia and irritability of temper are more frequent and marked in the syphilitic cases, but to this there are exceptions on both sides.

The physical symptoms are then reviewed and differentiated in detail; particularly the various paretic, paralytic, convulsive and spasmodic affections; the ocular and electro-muscular conditions; the apoplectic and sensory symptoms. For these the original paper must be referred to.

(2.) The maniacal seizures of general paralysis are next distinguished from those sometimes accompanying encephalic syphilis.

But even the most typical symptomatological form of general paralysis, that with grandiose delirium, is occasionally simulated more or less by intra-cranial syphilis. For in the latter gaiety of feeling and exalted notions may be found, together with a tottering gait, impairment of speech and of writing, inability to dress, and a blurring of the lines of facial expression. These *syphilitic* cases with exaltation are distinguished from the general paralytic—

(1.) By the distinct history or symptoms of syphilis. (2.) By the preceding cranial pains, nocturnal and intense. (3.) The exaltation is

less marked and perhaps less associated with general maniacal restlessness and excitement. (4.) Sometimes by palsies of one or several cranial nerves, or hemiplegia, paraplegia, &c., having the character and course of *syphilitic* palsies, as previously described. (5.) By the greater frequency of optic neuritis, early amaurosis, deafness, local anæsthesiæ, vertigo, or local rigid contraction. (6.) The affection of articulation is often paralytic rather than spasmodic and paretic, and usually speech is not accompanied by marked facial or labial tremors. (7.) By cerebral or spinal meningitis, or pachymeningitis. (8.) By the variety of the motor and sensory symptoms, and sometimes by their capricious association or succession. . . . . (9.) By the effect of anti-syphilitic treatment.

(3.) Reference is made in the third place to the diagnosis between certain cases of syphilis and those cases of general paralysis in which, mingled with the ever-present and characteristic psychical weakness, the most prominent mental symptoms are those of a hypochondriacal or of a melancholic type.

Finally, the temperature, the condition of the pulse and heart, and the morbid anatomy are adverted to.

The Treatment of Habitual Drunkards.

At the meeting of the British Medical Association, at Manchester, Mr. G. W. Mould, M.R.C.S., read a paper on this subject in the psychological section in which he advocated the establishment of retreats where habitual drunkards might be placed under some control for stated periods. It was followed by a discussion, of which this is an abstract. This, together with the abstract of the succeeding four papers, read at the Section, are extracted from the "British Medical Journal."

Dr. Moore (Belfast) thought habitual drunkards should be committed to prison for an indefinite period, and not discharged until they were cured.—Mr. Parker (Liverpool) thought that reformatory institutions should supplement gaols, and that, after serving a period of imprisonment, drunkards should be sent to the institutions until cured. Until such steps were taken he thought no manifest improvement could be effected.—Several other speakers supported this opinion, and urged that such reformatory institutions might be made self-supporting.—Dr. Rogers (Rainhill) thought there was a great deal of hypocrisy running through the discussion. Was it right for the members of the Association, after enjoying the good things of this life, to advocate so coolly sending many poor people to prison? He thought the law as it stood was sufficient to put down drunkenness, if it were fully enforced, and thought it was unjust to punish the drunkards whilst the sellers of the drink were allowed to go free. In opposition to what one gentleman said, he thought the granting

of grocers' licenses a very beneficent measure.—Dr. BRADDON (Manchester), Dr. BEALES (Congleton), Dr. HARRINGTON TUKE (London), the PRESIDENT, and other members took part in the discussion.—Mr. MOULD (Cheadle) proposed, Dr. EASTWOOD (Darlington) seconded, and it was resolved: "That it is the opinion of the Psychological Section of the British Medical Association that legislative action is imperatively necessary for the treatment of habitual drunkards, and that this object would be best effected by the establishment of district institutions for their treatment."—Mr. PARKER (Liverpool) proposed, Dr. MOORE (Belfast) seconded, and it was resolved: "That it is the opinion of this meeting that the establishment of reformatory institutions for the confinement of drunken offenders during lengthened periods ought to be urged upon the Government."

A Case of General Paralysis at the age of Sixteen. By T. S. CLOUSTON, M.D. (Edinburgh).—General paralysis has hitherto been supposed not to occur before the age of twenty, and is seldom met with before twenty-five. J. M. was first seen on March 10th, 1876. He was then nineteen years of age. He was admitted as a patient into the Royal Edinburgh Asylum on September 22nd, 1876. His maternal grandfather had died of softening of the brain at sixty-three; a maternal uncle of the same disease at fifty; a half-brother (maternal) is paralytic. He was an illegitimate child, and, during her pregnancy, his mother suffered great emotional disturbance, and was almost barbarously treated by her father, being locked up in a room for months. He was a dull boy. There was no history of sexual excess or masturbation. His walk was first noticed to be slow and peculiar at the age of sixteen. This increased. His speech soon became affected. He could not do anything that required nicety of movement with his hands. He became forgetful, sluggish in his intellect, and his power of attention was almost lost. When first seen, the speech and walk of general paralysis were very marked. He had unequal pupils, and the mental condition was that of the disease in the second stage. He was very facile, but had no delusions of grandeur, and never had any. All his symptoms, mental and bodily, became gradually worse. He had a congestive attack, with convulsions, after which he was quite paralysed, speechless, and devoid of mind. He had large sloughing bed-sores before death, in spite of all precautions against them. His sensibility was almost abolished before death. After death the skull cap was found condensed, the dura mater adherent and slightly thickened. The convolutions were atrophied. There was much compensatory fluid. The pia mater was thickened, and adhered strongly to the convolutions over the anterior lobes, both over the apex and base of the brain; the anterior lobes of the two sides adhered to each other. The lining membranes of the ventricles were very much thickened and covered with large granulations. The spinal cord was also found to be atrophied and otherwise abnormal. On a microscopic examination, the coats of the vessels

were found thickened with, in many places, blood-colouring matter surrounding them. The whole of the outer layers of the convolutions of the anterior lobe of the cerebrum were filled with proliferated nuclei and masses of granular matter.

Pathological Illustration of the Localisation of the Motor Functions of the Brain By RINGROSE ATKINS, M.D. (Cork).—This paper contained the record of six cases illustrating the occurrence of localised cortical lesions in the non-motor and motor areas of the brain, accompanied with the negative and positive symptoms accordingly. The cases *en résumé* were as follows:—*Case* I. Glio-sarcomatous tumour growing from the left temporo-sphenoidal lobe; softening of the middle part of the three tiers of convolutions of this lobe; circumscribed hæmorrhage into softened tissue; no motor symptoms. *Case* II. Localised deposit of lymph attached to the dura mater over a portion of the postero-parietal lobule of the left hemisphere; superficial erosion of cortex; no motor symptoms.—*Case* III. Softening of the gyrus supramarginalis and portion of the occipital convolutions of the right hemisphere; no motor disturbance of the left side; lesion of the left hemisphere, causing motor disturbance at the right side (in motor area).—*Case* IV. Meningeal hæmorrhage; pressure on the left ascending frontal and ascending parietal convolutions, and on the edge of the inferior parietal lobule; right hemiplegia.—*Case* V. Adhesion of membranes to, and softening of the middle third of, the left ascending parietal and portion of the ascending frontal, with edges of gyrus supramarginalis and gyrus angularis; paralysis of the right hand and arm.—*Case* VI. Softening of the lower two-thirds of the left ascending parietal convolution; focus of softening in the centrum ovale of the same hemisphere; right hemiplegia. Brain charts and specimens were exhibited, showing the exact topography of the lesions in these cases.

Morbid Histology of the Spinal Chord in Five Cases of Insanity. By RINGROSE ATKINS, M.D. (Cork).—Dr. Atkins recorded the appearances observed by him in the spinal cords taken from the bodies of five persons dying insane.—CASE I. *General Melancholia following on previous Maniacal Excitement.* Male, aged 29. *Mental Symptoms:* Persistent depression and restlessness, delusions of persecution, and suicidal tendency. *Physical Conditions:* Gradual and progressive emaciation, general debility; finally tubercular disease of lungs and marasmus; death three years and nine months after first attack. *Summary of Histological Changes in Spinal Cord:* Moderate fibrosis of vessels; atrophy and degeneration of grey cornua, especially in upper dorsal regions; partial atrophy, and disappearance of nerve-fibres in external laminæ of white columns in all regions; overgrowth and molecular degeneration of connective tissue matrix (sclerotic); and, as a special condition, a central sclerosis displacing laterally the grey cornua confined to the upper dorsal and sacral

regions.—CASE II. *Senile Dementia.* Male, age 76. *Mental Symptoms:* Dulness; loss of memory; incoherence; with occasional excitement; and, finally, complete hebetude. *Physical Conditions:* Weakness of lower limbs, with a tendency to fall if not watched; loss of power over sphincters; emaciation; general lowering of sensibility; rapid formation of bed-sores; death from marasmus two months after admission. *Summary of Histological Changes*: Marked fibrosis of vessels; pigment atrophy of ganglion-cells; atrophy of nerve-fibres in white columns; overgrowth and degeneration of connective tissue; obliteration of central canal by proliferated nuclei; formation of great numbers of amyloid bodies in posterior and portion of postero-lateral columns throughout entire cord.—CASE III. *Secondary Dementia* (third attack of mental derangement). Male, age 24. *Mental Symptoms:* Deeply demented, stupid, dirty, destructive; occasionally irritable, and quite unconscious of his condition. *Physical Conditions:* Progressive emaciation; muscular weakness; loss of control over sphincters; dryness and roughness of skin; torpidity of circulation, diminished sensibility, and a tendency to the rapid formation of superficial sores. Death from general decay ten years after initial attack, three years from last admission. *Summary of Histological Changes:* Moderate fibrosis of vessels; partial degeneration of ganglion-cells of anterior cornua, and of nervous reticulum of posterior cornua; atrophy of nerve-fibres; overgrowth and molecular degeneration of external lamina of connective tissue; obliteration of central canal by proliferated nuclei; dilatation and erosion (especially in cervical region) of perivascular spaces (?) in vicinity of latter.—CASE IV. *Paretic Dementia.* Male, age 38. *Mental Symptoms:* Loss of memory, stupidity, partial incoherence, vivid visual hallucinations; progressive dementia; and, finally, complete mental fatuity. *Physical Conditions:* Unsteadiness and uncertainty of speech; trembling of facial muscles; difficulty in protruding tongue, with spasmodic movements and atrophy of organ; uncertainty and irregularity of gait; twitchings of muscles; irregularity of pupils; progressive paresis; finally, loss of motive power. Congestive attack; paralysis of right arm; bed-sores; diminution of sensation. Death six months after admission, fourteen months after initial symptoms. *Summary of Histological Changes:* Fibrosis of vessels, with vast nuclear proliferation on and in their walls; pigment-atrophy of ganglion-cells of hypoglossal, and, to a less extent, of vagi-glosso pharyngeal nuclei; similar condition of cells in anterior cornua, the dorsal region being especially affected; atrophy of nerve-fibres; coarseness and molecular degeneration of connective tissue, with nuclear proliferation throughout. Obliteration of central canal by similar proliferation; wide dilatation, and erosion of perivascular spaces in vicinity of latter, and, as a special condition, "pools" of yellow exudation in both grey and white structures throughout the entire cord, encroaching on and involving the ganglion-cells, together with spots of miliary sclerosis.

—Case v. *Paretic Dementia.* Male, age 38. *Mental Symptoms:* Dulness, loss of memory, incoherence, and delusions; progressive mental enfeeblement, with temporary partial improvement. Congestive attack; dementia gradually deepening; finally, almost complete fatuity. *Physical Conditions:* Unsteadiness and irregularity of gait; muscular tremors and weakness; slowness and indistinctness of speech; loss of tone of voice; great difficulty in protruding tongue; marked jerkiness and spasmodic movements of this organ; loss of control over sphincters; diminution of sensibility. Othæmatoma (left); formation of bed-sores; complete loss of motive power. Death from general decay four months after admission. *Summary of Histological Changes:* Fibrosis and dilatation of, with nuclear proliferation on, vessels, especially in medulla oblongata; pigment-atrophy of nuclei of hypoglossal, vagi, and glosso-pharyngeal nerves, and cells of anterior cornua in cervical and dorsal regions (lumbar, sacral, and coccygeal regions *grossly* softened); atrophy of nerve-fibres in white columns; molecular degeneration of connective tissue; completely degenerated patch at bottom of posterior fissure of medulla oblongata, at centre part of decussation of anterior pyramids, with copious formation of amyloid bodies in that situation; scattered obliteration of central canal; dilatation of perivascular spaces in its vicinity. Two spots of central sclerosis (lower cervical region) in posterior white columns, just behind the grey commissure, pressing on and displacing the left posterior cornu. Dr. Atkins remarked that these appearances seemed to indicate primary vascularisation with subsequent growth of connective tissue, followed by sequential atrophy and degeneration of the nerve elements. It was a point of interest to determine whether, if such appearances are pathological at all, the degenerative lesions were of that secondary nature described by Türck, Charcot, and Bouchard as following on primary cerebral disease, or whether they were either the result of an extension of the morbid process from the brain by continuity of tissue, or a simultaneous implication of the vascular system in both centres, followed *pari passu* with sequential changes in the two together. The absence in several of the cases of gross disease in the brain (the microscope in all revealing condition somewhat similar to those in the spinal cord), and of any muscular contractions such as are believed by Bouchard to depend on secondary degenerations, favour the latter view. The loss of the volitional and perceptive powers of the mind in connection with degenerative changes in the cord suggest the possibility of the possession by that centre of such functions as has been recently advanced by Hammond. There are also grounds for connecting the progressive emaciation, the muscular weakness, the loss of control over the sphincters, and the general marasmus with the conditions of the cord described. The occurrence of speech-defects in the paretic cases, with lesions of the bulbar nuclei, is also a point of interest. Very many more observations, however, must be made before the

absolute significance (if any) of such changes in the spinal cord can be correctly determined, and these few cases are recorded as a slight contribution to the subject. The paper was illustrated with microscopical sections, specimens, and drawings.

Hysteria and Insanity. By G. H. SAVAGE, M.D. (London).—The conditions implied in hysteria *plus* insanity are closely related, but difficult of separation and of the early diagnosis of such items as render them more amenable to treatment in asylums than in general practice. 1. E. F., aged 17, was admitted into Bethlem Hospital from a general hospital, where she had been under treatment for amenorrhœa and hysterical paraplegia following a disappointment in "an affair of the heart." The paralysis soon passed off, but new and formidable symtoms, in the shape of catalepsy, obscenity of action and expression, suicidal, homicidal, and general destructive tendencies, supervened, and rendered the patient actively maniacal for four months, at the expiration of which she became for a considerable period fairly intelligent and rational. Two paroxysms of maniacal excitement, however, soon followed, and as soon ceased. She has remained well for the last three years, but may at any time yield under physical or psychical causes, though the family history seems sufficiently free from ancestral taint. 2. A married woman, the mother of several children, and the subject of several miscarriages, had been in hospital for hysterical paraplegia associated with delusions and perverted sensations. On admission to the asylum her delusions were found to be of an emotional and suspicious kind, and her mental condition generally such as rendered her voluntarily helpless, unhappy, insanely religious, and highly exaggerative of her anomalous feelings and blunted sensibilities. Her belief in her own incapacity she could falsify at pleasure. When alone she could walk and perform such other physical acts as she believed herself incapable of when attentively watched. Her health was fairly good, but her weak and perverted will stamped her, in conjunction with her delusions and behaviour, as a hystero-maniacal patient. Hystero-epilepsy seems common enough in asylums, but it is a matter of doubt whether or not patients with a highly-developed faculty for deceit and imitation can perfect themselves in this distinct disease, of which the following cases are illustrative examples. 1. H. E., single, aged 27, a governess, with no known family failures, but having known neuralgia, amenorrhœa, and hysteria and various delusions, was depressed, religious, self-inflictive, and given to exaggeration and deceit. She ate and slept well, but remained unchanged until seven months after admission, when she had an attack of convulsions, which relaxed her sphincters, raised her temperature, and diminished her reflex sensibility. This was followed by marked depression and another fit, in which it was noticed that the patient kept admirable time in her spasms with a patient who played the piano. Treatment failed to do her any good, and at the end of a

year she was discharged "not improved." 2. E. F., aged 25, a dressmaker, was admitted with a history of catalepsy, noisy behaviour, and destructive demeanour. On admission she was sleepless, restless, excitable, irascible, and liable to paroxysms of maniacal fury. She had controllable convulsions, during which she could grasp objects, inflict injury on attendants, and destroy whatever came in her way. After the convulsions she became cataleptic, and maintained a statue-like attitude for hours together. She went on gradually improving, however, until some bad news upset her, and rendered her again for a short time slightly cataleptic. She is now doing well, and gives fair hopes of a permanent recovery. 3. G. G., aged 13, phthisically predisposed and with a history of chorea and neuralgia, attempted to strangle herself, and became noisy and insubordinate. Although suicidal, she was in terror of death, and feared that people would drown her or bury her alive. On the near approach of a man she assumed a cataleptic condition, ground her teeth for some time, and then quietly resumed her occupation. Her fits were neither marked by pallor nor lividity. She had a habit of reading a book upside down, and, if corrected, would go into a fit. She was eminently hysterical; but, under judicious care and moral influence, she was discharged "recovered." Hysterical insanity is sufficiently rare among men to entitle the following case to be added. William A., married, aged 34, well educated, sober and industrious, four weeks before his admission had been frightened, and thereby rendered sleepless, restless, and melancholy. He was predisposed to insanity, and in his younger days he suffered from scrofulous lesions. On admission he was suspicious, fidgety, and nervous. In a short time he became excited and gave himself up to immoderate laughter and absurd demeanour. All this passed off in a short time, and he made a rapid recovery. After his discharge he remained well for two months, and gave satisfaction to his employers. He, however, soon relapsed, and again became suspicious, jealous, delusional, and incoherent. He had hallucinations of sight and sound, slept badly, and refused his food. He was fed artificially, and during the process behaved in a passive and heedless manner. Soon afterwards he had a "rash," which was followed by a severe attack of erysipelas, from which in a short time he emerged in full possession of his mental faculties. His memory was perfect, and he could give a *résumé* of all that was done to him in his illness. This "lucid interval" did not last long; he again relapsed into his former apathy, and became more *distrait* than ever. If irritated, he laughed immoderately and behaved grotesquely. He could be roused at intervals to a consciousness of his condition, and to converse rationally with his wife. He remained still under treatment.

Fleming on the Motions of the Brain.

Mr. W. J. Fleming, Lecturer on Physiology at the Glasgow Royal Infirmary, has contributed to the "Glasgow Medical Journal," for

July, an interesting paper on the Motions of the Brain. He had access to two men, each of whom had had portions of their skull caps removed by accident, and he took cardiographic tracings of the pulsations and respiratory motion of the brain under different circumstances, when the patients were awake, when asleep, after meals, after taking stimulants, and after mental exertion. He reproduces the tracings. He shows clearly that though the actual bulk of the contents of the cranium cannot vary, yet that they may greatly differ in the relative amounts of the two fluids which are separated only by elastic and freely extensible membranes, viz., the cerebro-spinal fluid, and the blood contained in the vessels. When the volume of the latter is increased, part of the former passes down into the spinal canal, which is a yielding box. A tracing taken when the brain conditions are normal can scarcely be distinguished from one taken from the radial artery. Holding the breath, coughing, speaking, straining, all markedly affected the respiratory curves. Holding the breath had this effect:—"After the moment at which breathing was suspended, we have for three pulsations no perceptible effect; from this point the whole line shows a gradual elevation, corresponding to an increase of tension, and at the same time each pulsation becomes longer and stronger, and the dicrotic notch more marked, and generally doubled. A slight fall then takes place in the tension, probably owing to an effort of the thorax to inhale, immediately followed by a marked rise, culminating in what we may call a gigantic pulsation. The trace then gradually falls until breath was taken, when after two or three irregular pulsations, it returns to the normal." Compression of the femorals and jugulars was followed by great increase in the cerebral bulk, while posture markedly affected it: such positions as recumbency, elevation of arms, &c., caused great increase of blood in the brain. After food there was a marked increase in the cardiac brain-pulsations, and after some beer the pulsations and respiratory curves were found gradually to increase, showing a diminution in the whole bulk of the encephalon, due to the amount of blood drained off for the performance of digestion. During sleep the curves pointed to a condition of congestion rather than of anæmia of the brain. Anæsthesia removed the respiratory curves and increased the cardiac, while, during mental exertion, the volume of the brain was increased.