In one of 16 cases of multiple sclerosis the fluid showed a positive result. The patient had been given sodium iodide, and the urine also showed lead.

Of 12 other cases of various conditions, in only one, a case of lead intoxication, were abundant crystals found in the cerebrospinal fluid. In this case there was 0.2 mg. of lead per litre of urine.

Taking all three studies into consideration, there is no adequate proof for, and ample evidence against, the theory that lead is an aetiological agent in cases of multiple sclerosis.

R. M. S.

SENSORIMOTOR NEUROLOGY


In this presentation an attempt has been made to show that 'central pain' and other subjective sensory disturbances occur not only in cases of pure thalamic lesions, but also in cases of peripheral, spinal cord, bulbar and cerebral lesions.

In the authors' case of lesion of a cranial nerve the subjective sensory disturbances consisted essentially of a burning sensation along the distribution of the trigeminal nerve. The neurofibroma compressing the nerve was undoubtedly the irritating factor for the production of that type of sensation.

In the four cases of lesions of the spinal cord, in addition to 'central pain' there were other subjective sensory disturbances such as burning, 'vibratory electric-like sensations' and distorted thermal sensations, e.g. cold being called hot. In most of the cases superficial sensation was impaired below the level of the lesion. The pain and temperature dysaesthesias were associated with impairment of those forms of sensation. Histological examination showed that the spinothalamic tracts were implicated. In the first case there was also slight involvement of the posterior columns in the region of the cervical enlargement. As in some of Holmes' cases, vibratory stimuli produced painful sensations. That a lesion of the posterior columns might produce 'central pain' is a remote but unlikely possibility.

The thalamus, lesions of which give the classic picture of 'central pain' and other forms of subjective sensory disturbances, was implicated in four cases. Superficial sensation (pain, touch and temperature) was impaired in most of these cases. This, best demonstrated in the first case, is of significance, as in most of the cases recorded in the literature there was more impairment of the deeper than of the superficial forms of sensibility. In the authors' first case a small vascular lesion was confined to the posterior part of the external nucleus of the thalamus along its inferolateral surface. In the other three cases the thalamic involvement was due to compression by neoplasm
and an aneurysm. In one case the left side of the pulvinar was invaded by the neoplasm. The involvement of the parietal portion of the cortex in three cases leaves open the question whether the subjective sensory disturbances may not have been of cortical origin.

Of greatest interest are two cases in which subjective sensory disturbances, consisting of spontaneous pains and 'feelings like electricity' associated with impairment of the superficial and deep modalities of sensation, were of cortical origin. In both of these cases there was destruction of the post-central and superior parietal convolutions and the thalamic nuclei were completely spared. From these two cases and the few previously recorded by Mills and others it can be concluded that the cerebral cortex is concerned not only with sensory discrimination, but also with appreciation of the more primitive types of sensation, disturbances of which are associated with some of the phenomena previously mentioned.

Davison and Schick consider that they have submitted data which tend to indicate that spontaneous pain and hyperpathia are associated in most cases with incomplete lesions of the spinothalamic tract or its components. Irritation or incomplete destruction of the spinothalamic sensory system may give any one or a group of the phenomena discussed in this presentation.

R. M. S.


In order to analyse the anatomical basis of intracranial pain the authors studied the observations of 33 intelligent patients during operation with local anaesthesia. Stated briefly, it was found that the dural sinuses are sensitive to pressure, traction, heat and electrical stimulation. The middle meningeal artery and its larger dural branches are also usually sensitive. Cerebral vessels are insensitive, except occasionally for a tributary vein just before it enters a dural sinus or a vessel low in the fissure of Sylvius. The skull, the dura itself, and save in the temporal and frontal lobe, the brain are quite insensitive to cutting or electrical stimulation. The only type of sensation which can be produced from within the cranial cavity is interpreted by the subject as pain or pressure. He usually calls it headache, sharp pain or pressing pain. Pain due to stimulation of the meningeal arteries is well localized to the region stimulated and is often sharp. Pain derived from the dural sinuses is usually referred to a point some distance from the site of stimulation.

The best evidence for the belief that post-traumatic headache is situated in the subdural space is provided by the fact that introduction of air into the subdural space over the hemispheres cures post-traumatic headache in a
high percentage of cases. Under normal circumstances the subdural space contains a small body of fluid quite separate from the cerebrospinal fluid and because of this fluid bed the small movements which occur between the brain and the skull when the head is moved quickly are made possible. The pathological basis of true post-traumatic meningeal headache consists in an intimate adhesion of the arachnoidea to the dura, which causes obliteration of the subdural space in a smaller or larger area. This does not mean dense adhesions such as those of a scar. The sensitive area which is likely to be affected by this adhesion is usually a meningeal artery in the dura or, less frequently, a dural sinus. The chronic pain is due to pressure or traction on one of those sensitive areas because of the rotation in position of the brain produced by the blow and maintained by the adhesion.

Effective therapy must provide for collapse of the ventricular system and the simultaneous introduction of air into the subdural space. As the head is oscillated, the brain, which is shrunken because of the collapse of the ventricles, pulls away from the overlying dural covering with considerable traction due to its own weight. This separation accounts for the cure which results from proper insufflation of air. Failure may occur when this reopening is incomplete, and adhesion continues to stimulate a sensitive area of dura.

R. M. S.

[51] Primary degeneration of the corpus callosum (Marchiafava's disease).—L. S. King and M. C. Meehan. Arch. of Neurol. and Psychiat., 1936, 36, 547.

First described in 1903 by Marchiafava and Bignami, primary degeneration of the corpus callosum has been reported in about 40 males—all Italians. It is characterized by demyelination of nerve-fibres, with relative retention of axiscylinders: the lesions occur invariably in the corpus callosum, but sometimes in other parts of the brain as well.

In the symptomatology psychic disorders are frequent and often are severe enough to require treatment in a mental hospital. The most constant somatic finding is convulsions of an apoplectiform or epileptiform type. Tremors, dysarthria, transitory hemiparesis, paresis of the legs and variable reflex changes have been observed in different patients. Sensory disturbances, except headaches, have not been reported. Autonomic disorder may be present in the form of impotence or incontinence. Bignami and Nazari emphasized the severe disorders of nutrition in the terminal stages.

The course is variable, from three to six years, and usually commences in middle age; remissions may occur and the early psychic symptoms are easily confused with those of alcoholic intoxication.

The pathological changes are distinctive. Nothing on the surface of the
brain gives any hint of the changes seen on section. When the cerebrum is cut the anterior portion of the corpus callosum is seen to be rather sharply divided into three laminae, of which the dorsal and ventral are normal in colour and consistency, while the middle is softer and pinkish or greyish in colour. This condition of the middle layer is sometimes present throughout the corpus callosum. In many cases, in the posterior parts of the corpus callosum the abnormal area disappears in the region of the midline, leaving symmetrical lesions on the two sides, extending backwards for varying distances. The abnormal area usually stops abruptly at or near the lateral margins of the corpus callosum. The soft, pinkish lamina ordinarily occupies about two-thirds of the dorsoventral extent of the corpus callosum.

As regards aetiology, whenever the clinical history has been obtained it has been noted that the patient was a heavy drinker, either of wine or of wine and distilled liquor.

R. M. S.

**Psychopathology**


A clinical review of the 4,688 known cases of suicide in New South Wales from 1913 to 1929 inclusive reveals that in the great majority of the cases the actual suicide was preceded by a period of insomnia. In some persons this symptom had lasted for many years, in others only a day or two. The causes of the insomnia were very varied, but in the main fell into five well-marked categories: (1) 'Idiopathic'—present for many years and without known causation. (2) Due to physical illnesses—the more prolonged and painful the illness, the graver the risk of suicide. The frequency of suicide after head injuries was surprising. Patients with phthisis, contrary to all medical impressions, comprised more than 1 per cent. The 50 puerperal women in the series point to the fact that on no account should insomnia during the puerperium be lightly treated. (3) A large group with psychological worries. (4) Those with mental disease were common: those with melancholia being much the most numerous. (5) Roughly, about one-third were alcoholics. The frequency of suicide among cases of delirium tremens was an unexpected discovery of the investigation.

The insomnia, therefore, can only be regarded as a symptom of some physical or psychological disease-process. Whatever its cause it led to rapid mental and physical exhaustion. Headaches were usual. Large numbers became desperate, regarded the strain as too great and sought self-destruction as the inevitable ending. The clinical material investigated emphasizes the axiom that it is imperative to treat not only the insomnia, but the patient as well.

C. S. R.