These symptoms are strong hyperæsthesia and hyperalgesia of the skin and deep structures (muscles, tendons and bones), and more or less marked spontaneous, paresthetic disturbances. The disorders of cutaneous sensitivity are always present on both sides of the body, but are strongest on the contralateral side; those of deep sensitivity are sometimes contralateral only, sometimes bilateral, but then strongest also on the contralateral side. When present in the limbs, they are most pronounced distally.

This sensory zone lies on both sides of the sulcus centralis of Rolando, comprising the gyrus postcentralis, parietalis inferior, and precentralis. The frontal boundary is the sulcus areatus, the occipital boundary is the fissure of Sylvius and the upper end of the first temporal sulcus. The sensory zone is divided into a leg, arm, and face area. Between the leg and arm areas probably lies a narrow area, where the sensitivity of the trunk is represented.

The importance of these experiments will be at once obvious to the neurologist, confirming as they do the contentions of not a few workers whose opinions have been rather submerged by the arguments of those who have confined their experimental investigations to the use of the stimulating electrode.

S. A. K. W.

**NEUROPATHOLOGY.**


The inexactitude of our knowledge as to the precise localization of the lesion in tetanus is mentioned and the importance of changes in the reticular network within nerve-cells in toxic states is discussed. The experiments were carried out on adult guinea pigs and it was found that the chief incidence of neurofibrillar reticular chances occurred in the Purkinje cells and in those of the cerebellar nuclei. The significance of these findings in relation to symptoms is not discussed.

R. G. Gordon.


After a brief review of the literature, Nicholson records the results of a carefully-controlled study of nerve-cell changes following ligation of axons. Common white rats were used, and the axon reactions were studied under the experimental procedures of ligation and of tearing the axons. The hypoglossal nerve and its nuclear cells were chosen for observation because of their easy accessibility and bilateral unities.

The changes in the structural elements of the motor nerve cells were found to differ under the two dissimilar modes of injury. Reaction of nerve
cells to axon injury of a mild nature, such as ligation, is characterized by two general phases of degeneration and regeneration, the former beginning within twenty-four hours and progressing gradually up to the fifteenth day after injury, the latter beginning at the sixteenth day and progressing gradually up to the forty-fourth day after maintained injury. Thus the reparative stage is twice as long as that of degeneration. In both stages all the nerve-cell elements are involved with the exception of the nucleolus; the Nissl substance is both depleted and replaced, first in the vicinity of the nucleus, thence spreading peripherally. Reaction to injury of a more severe nature (tearing of axons) is shown by degenerative changes, which are more accentuated. Marked shrinkage of the cytoplasm is present throughout, the nucleus becomes distorted, the nuclear wall completely fragmented, and death of the cell occurs by the thirty-fifth day.

R. M. S.


Bulbocapnin is the alkaloid obtained from the plant Corydalis. Its peculiar action on the motor system has already been investigated by Peters and others, and the author here records the results of his experiments with it in pigeons, dogs and apes.

In the case of pigeons poverty of volitional movement ensued, coupled with increased tonus of legs and wings and with marked accentuation of the involuntary wing-reflexes and of tonic wing-reactions. The power of flying was unimpaired. The dogs showed fatigue, dilated pupils, poverty of movement, and the development of a general attitude of body and limbs in flexion. Stiffness of the limbs was also noted, while the tonic labyrinthine reflexes were much in evidence. Three out of nine animals developed a typical rhythmical tremor at rest. The injection of 0.01 grm. per kilo of body weight in apes produced dilatation of the pupil, sialorrhea, fatigue, akinese, a flexion attitude of the trunk and limbs; with 0.025 grm. rhythmical tremor developed.

The interest of these experiments lies largely in the production by the alkaloid of a symptom-complex not unlike that associated clinically with impairment of function of the extrapyramidal motor system. In one way the appearances resemble those of Parkinsonism, in others those of the decerebrate animal.

S. A. K. W.

[49] The pathological anatomy of subacute combined degeneration of the spinal cord (Contributo alla conoscenza dell’anatomia patologica della degenerazione subacuta combinata del midollo spinale).—Bertrand and Ferraro. Il Cervello, 1924, iii, 1 (reprint).

The authors describe at some length the pathological appearances of a typical case of the disease. The blood picture is given as follows: reds, 2,004,000; whites, 11,200; haemoglobin, 85 per cent.; no nucleated reds found. Lumbar puncture: albumin, 45 cgrm. (method of Sicard); 3 cells per
cubic millimetre. There is no mention of the HCl of stomach. In liver and
in stomach were found definite traces of a scattered atypical basocellular
epithelioma; similar traces were found in the chain of ganglia accompanying
the splenic vessels on the upper border of the pancreas, and in those of the
aorta and iliac vessels. No allusion is made to the ductless glands.

No obvious changes were seen in brain or cerebellum, beyond minor
alterations attributable to senility (some fibromyelocinic plaques, etc.). In
the cord the characteristic lesions of the disease were abundantly present and
are fully detailed. Curiously enough, the authors seem to assign the use of
the term 'combined' to the pathological combination of two processes in the
disease, a primary process, 'presumably toxic,' and a secondary degeneration.
Differing views of the pathogenesis of the affection are briefly discussed; in
their own case they are inclined to link the presence of tumour growths with a
blood dyscrasia which is responsible both for the anaemia and the spinal
alterations. General cachexia, the changes in the blood, perhaps toxic and
irritating products of the tumours, perhaps digestive disorders and intestinal
autointoxications, have all contributed their quota to the end result.

S. A. K. W.

[50] Two cases of paraplegia due to Pott's disease, with a report upon the morbid
anatomy (Deux cas de paralgies potiques avec examen de pieces
anatomiques du mecanisme de la paralgie).—ETIENNE SORREL
and MME. SORREL-DEJEERNE. Revue neurol., 1924, xli, 401.

In these two cases the vertebral column after examination was cut in longitudinal
section, and the views thus obtained of the spinal cord and its membranes
in situ provide direct evidence of the mechanism of compression.

In the first case there was a gross curvature in the lower dorsal region,
and the bodies of the sixth, seventh and eighth vertebrae were completely
disorganised and fused into one mass. The deformity, however, had nothing
to do with the compression of the spinal cord, which was effected by a large
extradural abscess surrounding the theca, and extending laterally so as to
form a mediastinal abscess. When the abscess was separated from the theca,
the surface of the latter appeared glistening and healthy. The paraplegia,
therefore, was due to simple compression of the spinal cord by the abscess.

In the second case the main cause of compression appeared to be a true
pachymeningitis. At the eighth thoracic level the tuberculous process had
infiltrated through the posterior common ligament and invaded the dura
mater. At a lower level a fragment of necrotic bone from one of the diseased
vertebrae was forced backwards beneath the posterior common ligament so as
partially to encroach upon the lumen of the vertebral canal, but the transverse
lesion was placed on clinical grounds above this at the segmental level of the
pachymeningitic compression.

The authors review the anatomical details of other cases, and conclude
that whereas in the majority of cases the spinal lesion in Pott's disease is due
to compression by abscess, there is a smaller group in which the cause is a
tuberculous pachymeningitis. They further adduce evidence to support the
view that these two pathological processes are represented by distinct clinical
phemonena. The compression due to abscess as a rule develops suddenly, and at a relatively early stage in the history of the spinal malady. The prognosis is good, the majority of cases making a fair recovery with adequate treatment (rest and extension). In the other group the history is one of slow compression, and the symptoms often develop late in the course of the spinal disease. The compression being due to cicatricial constriction, the prognosis is poor.

This paper is illustrated by excellent photographs beautifully reproduced, and for this reason alone is well worth consulting in the original.

C. P. S.


Pigeons fed upon decorticated rice previously dry-heated for an hour at 120° F. develop polynseuritis. Pigeons fed upon cooked potatoes remain free from symptoms (over a period of 140 days). A diet consisting of equal quantities of decorticated rice and cooked potatoes produces polynseuritis after a delay. Administration of a diet consisting of equal quantities of decorticated rice and cheese does not give rise to any symptoms of disease, but when the proportion of cheese is reduced to 10 per cent. of the total diet, the pigeons develop a typical polynseuritis. A diet of cheese alone (after heating for one hour at 145° F.), also produces polynseuritis.

Histological examination shows that (1) in well-marked cases of polynseuritis the degenerative changes are found throughout the peripheral nervous system up to the nerve roots; (2) in early cases of polynseuritis the degenerative changes are limited to the peripheral nerves; (3) even in severe cases there are no pathological changes in the central nervous system excepting such appearances in the motor cells as may be considered secondary to the peripheral disease.

C. P. S.


In the human subject the intravenous injection of 80 per cent. saline solution may condition a transient rise of cerebrospinal fluid pressure, quickly followed by a fall of pressure which persists for a considerable period. In patients suffering from early general paralysis similar results may also be obtained, but when the disease is fully established hypertonic saline solution causes either a slight fall of pressure persisting for a short period, or no appreciable alteration. In advanced cases of general paralysis attempts to increase the penetration of arsenie by this method of treatment seem foredoomed to failure, probably because the inflammatory reaction in the cortex and membranes of the brain impedes to a great extent the rapid absorption of cerebrospinal fluid.

In conclusion the authors remark that the work of Weed would appear to place on a still firmer scientific basis the time-honoured custom of giving the insane patient a weekly dose of salts, since it now emerges that not only is
his loaded colon relieved, but the condition of increased cerebrospinal fluid pressure as well, which they have shown to be not infrequently present.

David Matthew.

SENSORIMOTOR NEUROLOGY.


Brock and Wechsler refer to the difficulty of fitting cases of involuntary movement into established syndromes, and illustrate the coexistence of numerous types of involuntary movement in the same individual by a report of four cases: (1) an instance of so-called double athetosis presenting choreiform, athetoid and dystonic movements together with postural disturbance (a fragment of decerebrate rigidity); (2) a combination of choreiform, Parkinsonian, and tic-like movements following epidemic encephalitis, engrafted on which is a hysterical astasia-abasia; (3) an instance of a choreo-dystonic type of movement confined to the musculature of the right foot; (4) a remarkable dyskinetic syndrome following epidemic encephalitis, belonging to the dystonia group, segmental in nature and limited to the head and neck musculature. The retracted head, opisthotonic back, pronated hand and equinus foot form an exquisite example of decerebrate rigidity. In fact, the clinical picture is one of recurring waves of partial decerebration. A study of these cases has convinced the authors that phenomena showing the pattern of decerebrate rigidity may be found in patients exhibiting involuntary movements and extrapyramidal syndromes, and that there is no justification for Walshe’s dogmatic limitation of the phenomena of decerebrate rigidity to cases showing interference with the function of the pyramidal system.

R. M. S.


Professor Rossi bases his paper on the investigation of some 152 cases of the disease occurring in Northern Sardinia in epidemic form, which reached its acme in 1920. On the whole, he has found that the so-called late manifestations of the affection develop at variable intervals after the acute stages without the interim disappearance of all signs of trouble. Mental disorders, disturbance of sleep, varieties of Parkinsonism, sympathetic impairment, are specifically referred to and illustrated. Unusual interest attaches to Rossi’s cases of obesity, polyuria, and infantilism following the disease. Analogous cases have been seen in this country and in America. Cerebellar manifestations have also been noted by him.

S. A. K. W.