This is a very complete critical review of the subject extending to 323 pages and therefore incapable of proper abstraction.

It would appear that in the higher vertebrates nerve-cells damaged in their axis-cylinders can reform these for a considerable length if the mutilation has not produced too great damage. Such a conclusion however should be modified by certain observations, otherwise the statement may be discovered to be erroneous in several respects. Regeneration is much less adequate in cortical, cerebellar and association neurones than in anterior and posterior root neurones. This may be due to the fact that the medium in which these cells lie is less favourable to regeneration, but it may also be due to some quality in the cells themselves.

When a protoplasmic process of a nerve-cell is injured this injury may be followed by an appearance of extensive and durable regeneration which however actually remains slight in extent. This may be due to the fact that the injury has affected the centres where regeneration is normally poor and of short duration. Thus in the case of the posterior root ganglia regeneration of the fibres conducting towards the ganglion-cell from the periphery is good, while regeneration of the fibres conducting away from the cell towards the spinal cord is poor. This difference must be due to some other cause than the simple capacity of fibres to regenerate. There is no doubt that an important part is played in the process of regeneration by non-nervous tissue closely applied to the nerve-fibres, viz. the cells of Schwann and certain glial cells. Such cells cannot however act unless the central continuity of the fibres with the cell is intact and the basis of regeneration resides in the cell.

Modern methods of study reveal that in the process of regeneration certain factors of a physical nature—such as rays of various sorts in the spectrum and of a more complex biological order, such as hormones in general, insulin, liver products, haematoporphyrin cell toxins, the action of which seems not sufficiently understood and not yet investigated—are important.

Clinical factors are however still of great interest since it is important to know the exact conditions favourable to regeneration of peripheral nerves and whether they vary in different regions.
Clinicians cannot remain indifferent to the still disputed questions as to the factors which favour or disturb the path of new fibres, factors involving the central nerve-stump, the scar, and the peripheral nerve-stump, since they have important repercussions on treatment.

Many clinicians have used a piece of nerve already advanced in degeneration and fixed in an appropriate fluid to bridge gaps in injured nerve. The idea of this is that the degenerated nerve allows an easy passage to the regenerating fibres. However, the fixation of the piece of nerve may produce changes which have a considerable effect on the process of regeneration since the vital characteristics of the piece of nerve are destroyed or changed. It is possible that a fresh piece of degenerated nerve which has not been fixed may be useful.

One of the most important branches of the subject is the possibility of grafting nerves in human beings so that fibres of a cut nerve can traverse the course of another nerve.

R. G. G.

[26] A study of variations in the peripheral nerve-fibres at various ages and in different conditions (Contributo alla conoscenza della fibra nervosa periferica in rapporto alle modificazioni che essa presenta in varie eta ed in varie condizioni).—A. PALEARI. Riv. di pat. nerv. e ment., 1936, 45, 675.

The author has studied the changes in the peripheral nerve-fibres occurring as a result of senility, toxic states, circulatory disturbances, infective factors, etc., and also of histological manipulation in the course of investigation—which latter are sometimes regarded as pathological.

These causes, including the last, may be responsible for such changes in the axis-cylinder as poorly staining areas, variations in calibre, even when quite conspicuous, neurofibrillar dissociation, simple interruption, and slight degenerative processes. The latter condition may well be produced by the laceration of the fibres in preparing the specimen. Similarly irregularities and interruptions in the myelin sheath may be artificially produced.

The author found that in persons over 40 there was often present in the cells of Schwann a substance which behaved differently with different reagents and therefore gave the impression of a pathological change.

In the connective-tissues within the nerve, round it, and in its sheath considerable variations both of structure and nature of the cells occur under the relatively normal conditions which have been investigated.

R. G. G.


The permeability of the cell-surfaces for electrolytes was studied in vitro and in vivo by measuring the polarizability of the brain tissue. Agents that
produce swelling of the brain by increasing the state of hydration of the brain tissue (e.g. distilled water, alkali) increase the permeability, as shown by the decrease in polarizability. This is a reversible process, as indicated by the effect of some acids and of hypertonic salt solutions after previous swelling of the brain. These experiments support the view that pathological processes which call forth swelling of the brain produce an impairment of the cell-surfaces in that their density is lowered. The transitory increase in permeability of the cell-surfaces, which is, according to modern theories of excitation, an essential part of the excitation process, is thus facilitated, and the threshold of the cells for metabolic or other stimuli is lowered. This explains the mechanism by which swelling of the brain increases convulsive reactivity.

C. S. R.


Two postencephalitic Parkinsonian cases without tremor have been studied clinically and anatomically. The most pronounced changes were found in the substantia nigra. Minor changes were present in the pallidum. There was a status cribratus in circumscribed areas of the striatum and in the cortex. In the white matter of the brain and in the globus pallidus and in the spinal cord a slight degree of diffuse demyelinization was present.

R. G. G.


Fifteen cases of Huntington's and arteriosclerotic choreas were investigated. In eight of these, in addition to the usual neural structures involved in this disease, a dense gliosis was found in the white matter of the occipital lobe. Visual defects or hallucinations could not be demonstrated clinically. This type of gliosis was not observed in the white matter of the occipital lobes of normal individuals.

C. S. R.

SENSORIMOTOR NEUROLOGY


A woman's left prefrontal lobe had been partially destroyed by a tumour, and her right prefrontal lobe had to be amputated in order to uncover and excise the tumour. Later findings of possible significance are here given. As regards the general intelligence level, there was marked slowness and