

LEO LYON SPECTOR

THE ELASTIC FIBRES OF THE HEART MUSCLE
IN VARIOUS AGE PERIODS AND IN DISEASE.

The distribution of the elastic tissue in the three layers of a normal adult heart is described, indicating variations in quality and quantity. The main function of the elastic tissue is to prevent overdistension. This conclusion is arrived at from histological observations and supported by physical laws. Unfortunately, no attention has ever been paid to the elastic elements of valves in considering their function. These are so distributed as to leave little room to doubt that they help in maintaining the valves in a semi-closed position. This causes an even flow of blood and renders haemodynamic effects more efficient. Elastic tissue increases with age and it is possible to judge the age period to which a normal heart belongs. The variety of views concerning the histogenesis of elastic fibres is only exceeded by the number of investigators. By presenting a histo-dynamic mechanism, it is felt that the observed age period and disease changes will receive a "causal explanation".

ISADORE MAX TARLOV

THE STRUCTURAL AND FUNCTIONAL RELATIONSHIPS
OF THE CEREBROSPINAL NERVE ROOTS.

This investigation consists of a survey of the literature dealing with the various aspects of cerebrospinal nerve root histology together with observations on this subject. The olfactory nerve has been shown to resemble the other true cerebrospinal nerves in containing a central, glial and a peripheral, non-glial portion. The hypothesis of Rio-Hortega concerning the role of oligodendrocytes in the elaboration of myelin is favored by the encounter of myelin along the central segment of the olfactory nerve alone, in the region of distribution of oligodendrocytes.

The study of the site and nature of the junction between central and peripheral portions on the various cerebrospinal nerve roots led to the formation of microscopic criteria for the differentiation of sensory from motor roots. As a result, a certain degree of functional root localization has been established in the nervous intermedius of Wrisberg, the glossopharyngeal nerve and the vagus spinal-accessory complex.

JAMES HOWDEN WHYTE

THE RELATION OF STOMATAL OPENING
TO TEMPERATURE AND OTHER FACTORS.

This work began as a further study of the effect of temperature on stomatal movement as commenced by Scarth and Brown.

As temperature effects cannot be studied alone, the other environmental factors were taken into account, especially turgidity of leaf and factors governing night opening of stomata and the most important result of the investigation concerns the latter.

The following results were obtained:—Stomata open in the dark when there is a lack of oxygen in the leaf. This applies to wilted leaves as well as turgid ones. The rate of opening increases with temperature and this seems to be due largely to the indirect effect of temperature on respiration. Shortage of oxygen creates a more alkaline reaction in the guard cells and it is suggested that, as in photic opening, it is the pH change which induces the hydrolysis of starch in the guard cells.

NORMAN L. WILSON

THE PETROLOGY OF MOUNT JOHNSON, QUEBEC.

The igneous rocks forming Mount Johnson are of four principal types, and it is very probable that they are the remnant of a neck or plug, although it is doubted if the neck ever had an eruptive phase.

The close relationships of all the rocks show them to be differentiates of a single magma, but the evidence afforded by the mountain is not sufficient to prove whether the rock types were injected in a single period, or whether they were emplaced by multiple intrusion. The trend of differentiation is shown in a differentiation diagram.

One of the four rocks, an essexite with a rather high content of ferromagnesian minerals and a porphyritic structure, which has never before been fully described, has been given the name *monnoirite*. Several new chemical analyses have been made of the rocks of Mount Johnson.