PH. D. PHYSIOLOGY

STEWART GARDNER BAXTER

THE RÔLE OF THE SYMPATHETIC NERVOUS SYSTEM IN THE SECRETORY PROCESSES OF THE DIGESTIVE GLANDS.

The rôle of the sympathetic nervous system with particular reference to the secretory processes of the gastric and pancreatic glands was investigated.

A review of the literature concerned showed inadequate and conflicting data.

Long continued rhythmic stimulation of the splanchnic nerves was found to produce an alkaline mucus secretion having characteristic properties. Epinephrin injected repeatedly gave similar results. Cocain sensitized these secretory fibres contained in the sympathetic. Atropin had no effect on the mucus secretion. Special experiments showed that this mucus secretion came chiefly from the pylorus and body of the stomach. Degenerative section of the splanchnic nerves caused a "paralytic secretion of mucus". The paralytic secretion was inhibited by ergotamin.

The mucus secretion obtained by weak vagus stimulation is not regarded as due to the presence of sympathetic fibres contained in the vagus.

Chronic experiments in cats with gastric fistulae and oesophagotomies revealed the fact that the sympathetic nervous system does not play an important rôle in the first or nervous phase of gastric secretion.

Experiments on the pancreatic gland in the rabbit showed that the sympathetic nervous system is not concerned in producing the effects of hypo- and hyperglycaemia on the pancreatic secretion. These effects are mediated through the parasympathetic nervous system.

Histo-physiological investigation of the pancreatic gland in the cat indicated that the sympathetic and parasympathetic nervous systems can discharge the granular content of the cells in the complete or almost complete absence of fluid secretion and can therefore be regarded as true "trophic nerves" of the pancreatic gland.

Histo-physiological investigation of the gastric glands, while as yet yielding no very definite conclusions, indicates the importance of continuing this type of investigation in order to determine the innervation of the different elements of the gastric mucosa.

PH. D. CHEMISTRY

RAYMOND BOYER

THE ACTION OF SULFURIC ACID ON CYCLOPROPANE KETONES.

The action of sulfuric acid on benzoylcyclopropane, methyl 3-phenyl-2-benzoylcyclopropane-1, 1-dicarboxylate, methyl 1, 3-diphenyl-2-benzoylcyclopropane-1-carboxylate, 1-nitro-2-(p-chlorobenzoyl)-3-phenylcyclopropane, 1-phenyl-1-nitro-2-benzoylcyclopropane, 1, 2-dibenzoyl-3-phenylcyclopropane, ethyl cyclopropane-1, 1-cyanocarboxylate, 1, 3-diphenyl-2-benzoyl-1-cyanocyclopropane, and diphenylcyclopropyl carbinol was investigated and found to correspond to the action of hydrogen bromide. In some cases the cyclopropane ring was opened giving rise to open chain compounds which were identified; in other cases the ring was unattacked but groups in the side chains were hydrolysed, and finally some were unaffected by the reagent until the conditions were made so drastic that complete decomposition took place. As a result of this work a mechanism has been devised which satisfactorily explains all the examples of ring opening hitherto considered as exceptions.

PH. D. GEOLOGY

F. R. BURTON

GEOLOGY OF THE DISTRICT ABOUT LAKE AYLMER, EASTERN TOWNSHIPS; PROVINCE OF QUEBEC.

(*A report on a detailed investigation of a typical part of this section of the Appalachian region.*)

The area examined lies between latitudes 45°45′ and 45°50′, and longitudes 71°15′ and 71°30′, comprising approximately 145 square miles. The country is of moderate relief, is well suited to agriculture, and sustains a considerable farming community.

The rock formations are from about upper Cambrian to upper Devonian and include, among others, rocks of the copper-bearing volcanics of the Eastern Townships, rocks of the Serpentine series, and Devonian granites. Fossils in a limestone bed are sufficiently well preserved to identify the horizon as Helderberg.

No evidence was found of the orogenic period described in many parts of the Appalachian region at the close of the Ordovician (Taconic Revolution), but an early Ordovician movement is indicated. The Devonian sedimentary formations are intensely folded and deformed, and the oldest rocks of the area are overthrust upon them by a fault which is named the "Weedon thrust".
