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The ever expanding, shifting and dissolving boundaries of physiology render the selection of the topics to be reviewed increasingly difficult. In this Annual Review, an attempt has been made to focus attention on some topics of current interest.

Renal physiology highlights four topics:

(i) mechanism of glomerular filtration and determinants of glomerular filtration rate, (ii) advances in the electrophysiology of the nephron, (iii) Renal tubular chloride transport and the mode of action of some diuretics and (iv) advances in renal tubular biochemistry.

The topics covered in "Hypothalamic hormones" include extrahypothalamic distribution, biosynthesis and degradation and neurotransmitter control of the hypophysiotrophic hormones and physiological aspects of a newly discovered hypophysiotrophic hormone—'The growth hormone release-inhibiting hormone, Somatostatin'. The review on higher functions of the nervous system concentrates on cognitive and elaborative mecharisms, electrophysiological correlates of attention, perceptual mechanisms, the motor elaboration systems, higher levels of integration, learning and plasticity. Increasing evidence for the existence of neurotrophic (non-impulse) mechanisms, especially in nerve-muscle cell relations, has been presented. 'Gating in Sodium Channels of nerve' summarizes some of the major new observations on gating mechanisms involved in the excitability of nerves. Neurotransmitter receptors in the brain have been successfully identified for most of the known neurotransmitters, utilising typical biochemical protocols. The role of the pyramidal tract neurons and other pre-central cells in modifying the pyramidal command movement performance by a feedback mechanism is reviewed.

Models of steroid hormone action, currently most in vogue, are critically examined, with special emphasis on the mechanism of action of estrogens. Recent biochemical work on the developmental processes in the preimplantation mammalian embryo related to the nature of control mechanisms, the role of the transport mechanisms and the effects of metabolic pools and compartmentalization are presented. 'Mass transport across cell membranes' reviews the effects of antidiuretic hormone on nonelectrolyte permeation, Na^+ transport and water flows in hormone sensitive epithelia. Regulation of insulin and glucagon secretion by substrates, neural and hormonal influences modulating the islets functions and the molecular interrelationship of hormone secretion are discussed.

Overall cardiovascular regulation reviews some important cardiovascular homeostatic reflex mechanisms with emphasis on the efferent pathways, as also the basic concepts on the superimposed remote control systems, both neuronal and hormonal. Failure of the body suffering from shock to restore the homeostatic equilibrium has been attributed to the inadequacy of the central nervous servocontrol system in hypovolemic and other types of shock. The review on platelets summarizes some of the recently developed concepts and data relating to the reaction of the platelet with its microenvironment.

In the study on excitation-contraction coupling, attention has been focussed on the question of how depolarization of the T system induces the release of Ca^{2+} from the sarcoplasmic reticulum. Biochemical adaptations deal with endurance exercise in muscles and the physiological consequences of these adaptations.

Mechanisms of heat production in mammalian cells with emphasis on their control mechanisms at cellular level are considered under cellular thermogenesis.

M. SIRSI.

ANNOUNCEMENTS

Symposium on General and Comparative Endocrinology

A Symposium on General and Comparative Endocrinology, sponsored by the Universities of Delhi and Karnataka and other Institutions interested in Endocrinology and Diabetes, will be held in Delhi from October 25–30, 1976.

Further information can be obtained from the convener, Prof. B. I. Sunderaraj, Department of Zoology, University of Delhi, Delhi 110 007.

Diabetic Association of India, Bombay

Dr. R. V. Sathe Endowment Award of Rs. 500/– will be awarded annually (January 1977) to a Post-Graduate below the age of 35 years, who has contributed to the knowledge of Diabetes in India.

Further details can be had from: Dr. A. S. Godbole, Hon. Secretary, Diabetic Association of India, 127, Mahatma Gandhi Road, Bombay 400 023.

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