Anesthesiology
V 37, No 6, Dec 1972

The Anesthesiologist's Bookshelf

Edited by MEREL H. HARMEL

Progress in Respiration Research: Chronic Inflammation of the Bronchi. Volume 6. EDITED BY W. T. ULNER, Volume Editor, and H. HERZOG, Series Editor. Basel, S. Karger, 1971. $38.50.

This volume, covering a wide spectrum of work, contains the papers presented at the European Society of The Pathophysiology of Respiration in 1970. Of the 75 papers, only 19 are in English, the remainder being in French and German. The reports include clinical studies as well as research projects dealing with chronic inflammation of the bronchi.

While the various chapters constitute original contributions, the information presented is often confirmatory; for example, Prof. Arnott's paper reviews and summarizes known facts about mass movement of air within the respiratory tract.

The volume is divided into four sections, the first dealing with fundamental functional disturbances in chronic inflammation of the bronchial tree. Its coverage of chronic bronchitis and obstructive airway disease, airflow–volume abnormalities, and diffusion is extensive. The articles by Holma on the cleansing mechanism of the lung are delightful because of their clarity and beautiful illustrations. The rest of the book deals with functional aspects of chronic bronchitis, and then a series of papers in festive and free communication. Of particular interest is the report describing lung transplantation in a 23-year-old man with silicosis, by Versieck and colleagues. Rejection occurred after six months, with the patient surviving ten months.

This volume provides worthwhile information, adds to knowledge, evaluate studies made in North America, and extensively covers chronic bronchitis. It will have special appeal to the pulmonary subspecialist. To appreciate it fully, however, knowledge of French and German is essential.

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Experimental Brain Hypoxia. BY DANIEL BARTKO. Baltimore, University Park Press, 1971. $12.50.

Metabolism of the Nerve Tissue in Relation to Ion Movements In Vitro and In Situ. BY M. RUŠČÁK AND D. RUŠČÁKOVÁ. Baltimore, University Park Press, 1971. $11.50.

Monographs concentrating on the work of a single laboratory are unusual now that specialization so sharply limits their public. The successful ones generally contrive to blend a critical review with a reasoned account of the investigator's own studies and insights, often developed from a series of special lectures.

Of the two monographs under review, the one by Bartko comes closest to this ideal. The one by the Ruščáks misses it by a country mile. Bartko starts with the advantage that the pathophysiology of cerebral hypoxia is a vast subject, much in need of the thorough and unifying survey promised in this volume. Unfortunately, its claim to be the first comprehensive treatise on cerebral hypoxia represents a considerable exaggeration. Its introductory sections, consisting of judicious discussions of the causes and course of acute cerebral ischemia, the metabolic response of the brain, and the techniques that have been used to study experimental cerebral hypoxia, are the best. They are a valuable guide to East European work on these subjects up to 1965.

Most of the book describes the author's extensive research on dogs subjected to mechanical perfusion of the brain during pentobarbital anesthesia. Many of the conclusions are interesting, if not necessarily original. The increase in flow resistance across the brain during low-flow perfusion is interpreted as evidence of vascular spasm, an idea previously stated by Russian workers and diametrically opposed to the widely held view that cerebral hypoxia occasions cerebrovascular dilatation. Further evidence, particularly concerning regional differences in cerebral perfusion and more direct observation of the blood vessels, is needed to resolve this conflict. It should be added that the methodology of Dr. Bartko produces ischemia rather than simple hypoxia, and some of his findings are indicative of incipient cerebral edema. The physiologic measurements are buttressed with numerous biochemical measurements, relative both to the brain and to the body's response to the stress. Bartko finds that selective cerebral hypoxia is characterized by a three-phase response in renal hemodynamics and water-and-electrolyte excretion, respectively systemic, intrarenal, and hormonal in origin. A decrease in the albumin fraction together with an increase in the beta-globulin fraction of venous blood is interpreted as evidence of stasis in the systemic circulation, of damage to the blood vessels and tissue of the brain, or of an altered immunobiological condition of the organism. Unfortunately, the further studies essential to an informed choice between such diverse possibilities are not yet available.

There are but a few examples of the many interesting measurements gathered in this book, discussed in the context of other work from the free and more-free worlds. It is not likely to supersede older standard works such as Schadé and

McMenemy's "Selective Vulnerability of the Brain in Hypoxaemia," but one can welcome Bartko's presentation of data on a sector of the problem, and hope for an early successor to bring us abreast of more recent work.

The Ruščáks have undertaken a less grateful task. Radioisotopes, the ultracentrifuge, and other refined techniques have ushered in a new era of neurochemical investigation and contributed much to the study of the dynamics of cerebral metabolism and its subcellular integration, but strangely few echoes of this transformation occur in their book. It is a rather disparate collection of work from their laboratory in Bratislava, Czechoslovakia. Its main theme is the levels of metabolic intermediates in the brain, and the effects thereon of manipulations of the ionic environment, principally potassium. The title of the book must be a mistranslation, for the text contains almost nothing about the movement of ions.

Typical of these studies is one on the metabolism of the cerebral cortex a few weeks after acute application of local pressure. The injury leads to astrocytic hypertrophy and allows comparison of slices of "intact" cortex with slices of cortex with a relative predominance of "non-nerve cell." Differences in the levels of carbohydrate metabolites, free amino acids, and oxygen uptake can be compared. Some of these constituents are pursued in mitochrondrial preparations, stimulated with potassium. In another study this was done in the presence of EEG depression consequent on bilateral ligature of the carotid arteries. In a further example, application of filter paper soaked in KCl to the surface of the brain elicited changes in staining properties interpreted as a decrease in RNA. Students of cerebral metabolism should read this monograph, for it does include data not previously available in English and integrates them quite well with their contemporaneous literature. Though the neurochemistry it portrays was in its heyday only marginally on the anesthesiologist's horizon, it may yet provide standards against which to evaluate the state of cerebral metabolism during general anesthesia, a subject still in its infancy.

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The Editor-in-Chief and the Editors of Anesthesiology wish to thank the following consultants and referees for making available their expert knowledge in reviews of manuscripts during the past year:

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