The Anesthesiologist's Bookshelf

Edited by MEREL H. HARMEL

Cerebral Blood Flow. EDITED BY M. BROCK, C. FIESCHI, D. H. INGVAR, N. A. LASSEN AND K. SCHÜRMANN. New York, Springer-Verlag, 1969. Pp. 291, 113 figures. $14.50.

This volume is composed of the papers presented at the International Symposium on the Clinical Applications of Isotope Clearance Measurement of Cerebral Blood Flow, which was held in Mainz, West Germany, in April, 1969. The purpose of the conference was to focus attention on the relative simplicity and great usefulness of cerebral blood flow (CBF) studies in the management of patients with central nervous system disease. The 88 papers are grouped into seven chapters dealing with: Methodology; Regulation of CBF; Cerebrovascular Disease; Carotid Surgery; Tumors and Intracranial pressure; Trauma and Coma; and Anesthesia and Therapy. Each chapter is concluded by a short summary by the Chairman of that section of the Symposium.

The volume also includes overviews of the Conference by Dr. Seymour S. Kety and Dr. Niels A. Lassen. Dr. Kety's remarks give a succinct review of the present "state of the art" of CBF methodology and point up probable future developments. The section by Dr. Lassen is a very useful review of the clinical pertinence of CBF studies and their implication for the management of patients with various acute forms of brain disease.

The editors considered the rapid publication of these data their main objective and therefore made minimal changes in the manuscripts. Consequently, the quality of writing is inconsistent. Caution must also be exercised in interpreting some of these presentations, since many of the data were in a preliminary form and had not yet been submitted to critical editorial review. For the specialist already acquainted with the field, this volume is highly useful as a guide to current trends in cerebral circulatory research. It is less suitable for a wider audience; many of the papers presuppose familiarity with the subject.

The book has excellent illustrations and is printed on good paper with easily readable print. There is a good index, and the references at the conclusion of each paper will be useful to all who wish to become more familiar with the topic.

S. CRAIGHEAD ALEXANDER, M.D.
University of Connecticut
Hartford, Connecticut

Techniques in Clinical Physiology. EDITED BY F. W. BELLVILLE, M.D., AND C. S. WEAVER, PH.D. London, Collier-Macmillan, 1969. $2.00.

Measurement in anesthesiology has come a long way since 1848, when John Snow estimated the amount of chloroform present in blood "in different degrees of narcotism." Snow's procedure was simple but lacked precision. The reader of the beautiful and scholarly work that is the subject of this review is continually aware of the power and accuracy of the latest technique and also of the difficulty in bringing them to bear on the everyday management of patients. The objectives of Dr. Bellville and his associates are quantitative "clinical physiologic research and its clinical application," and this volume concentrates on the methods used or developed in pursuit of these aims in their laboratory. Primarily interested in the physiologic monitoring of acutely-ill patients with a minimum of risk, they have limited themselves to measurements made from outside the body, with the exception of those requiring arterial puncture. Within these declared aims and limitations, the treatise edited by Bellville and Weaver is a conspicuous success. The chapters are obviously written by men thoroughly familiar with the principles, practice and shortcomings of the procedures they discuss, and most are models of logical development and lucid presentation. Anyone who believes in clinical excellence through measurement stands to gain a great deal from studying this book.

L. P. Brooks leads off with an interesting summary, all in 50 pages, of fundamentals of applied electronics for medical workers, contrived with a minimum of mathematics and with the consideration of the operational amplifier, the transistor, noise, and patient safety. This is followed by a chapter on advanced methods of analyzing and monitoring the electrocardiographic signal, utilizing seven electrodes, analog to digital conversion, and an on-line computer. These, frankly, are research tools, and one gains the impression that their utility in anesthesiology is not yet clearly defined.

C. Whitcher contributes a chapter on measurement of blood pressure. His discussion of direct and indirect measurements is a timely restatement of established but too-often forgotten principles, and should be read by all clinical anesthesiologists, as well as research workers. Dr. Whitcher's emphasis is on indirect methods, and his article is the most exhaustive and most authoritative anesthesiologic critique now available on this important topic. Next comes a section on the evaluation of mechanical function of the heart, by N. T. Smith, clear and concise, yet quite comprehensive and with an expert appraisal of the advantages and limitations of the various techniques. However, the treatment of "myocardial contractile force" is sketchy and, in the light of recent work, already in need of rewriting. On the other hand, the discussion of cardiac output determination is quite outstanding and includes comparisons of the merits of specific instruments commercially avail-

able in America. This type of information is particularly useful to beginners but is regrettably scarce elsewhere in the book, especially in such fields as specific ion electrodes, where many readers are likely to appreciate guidance.

A short chapter on respiratory mechanics outlines practical points concerning intrapleural and esophageal pressures, and volume and flow measurements, and is followed by another giving a succinct discussion of methods for analyzing respiratory, anesthetic, and blood gases. Next, E. N. Cohen presents an excellent introductory survey of gas chromatography and M. Chenoweth supplies a delightful and masterly overview of spectrophotometric and fluorometric techniques. The section on laboratory radioisotope techniques is less satisfactory. Disproportionate space is given to the relatively rarely used neutron activation analysis while the consideration of Geiger-Mueller counters and scintillation sepectrometers is limited to a few paragraphs. Fortunately, the clinical use of radioisotopic techniques receives a separate chapter by A. L. deNardo and J. P. Kriss, distinguished by clarity and a wealth of practical knowledge. This is a valuable and reasonably complete survey of the relevant current techniques. A discussion of the processing of sensor outputs, including recording and display devices, concentrates on signal sampling and recording for subsequent presentation to a computer. C. A. Cole, Jr., has written an unusually thorough, original and helpful discussion of the principles of signal processing and recording, though with much stress on magnetic methods and rather less than adequate attention to oscilloscopes and X-Y plotters, workhorses with which investigators and readers must still become familiar.

The last fifth of the book is given over to a brilliant presentation of the fundamentals of computer science by H. H. Hara and J. L. Tschantz. Analog and hybrid computers are described and weighed against digital computers. The operations of analog computers are particularly clearly handled and the ease with which they can be used for physiologic studies is convincingly brought out. The section on digital computers concludes with examples of programs that have been developed by the department of anesthesia at Stanford University School of Medicine, including monitoring R-R intervals on the electrocardiogram, digital spectrum analysis of Korotkov sounds, and processing of vector electrocardiograms. To the reviewer this seems a somewhat meager return for the amount of work invested.

The annotated bibliographies at the end of all chapters will give an excellent start to those wishing to dig more deeply into these subjects. All in all, this text sets a new and authoritative standard in the literature of anesthesiologic bioengineering and instrumentation, yet its very success in marshaling advances in measurements in the seriously ill raises some doubts. In the United States, the last decade and a half has witnessed substantial support for efforts to improve measurement in anesthesiology, and the present volume constitutes a report on the results of those efforts. From this volume one gains the impression of tremendous industry on behalf of the very sick, but of almost marginal benefit to the unstudied majority of patients. This is perhaps inevitable, inasmuch as we are witnessing only the first fruits of these endeavors. Certainly a second crop of advances—and a second edition of this pioneering, stimulating book—is to be hoped for, where emphasis will also be given to the refinement of such mundane anesthesiologic measurements as neuromuscular transmission, temperature gradients, and the performances of flowmeters and vaporizers. None of the authors hints at the crisis in mensuration that looms in anesthesiology as in most other special fields. Technology has multiplied the variables open to measurement to such an extent and in so many ways that wise selection greatly taxes the scientific and economic judgment of the physician. A book on technique is not a book on the art of investigation, and may properly ignore the question, especially as so few professional readers seem aware of it. But the question *is* being raised by some others who hold the purse strings, and their answers may be not at all to the liking of the passionate measurers among us. The social consequences of what we do or fail to do are our responsibility, and we are going to be called to account.

B. Raymond Fink, M.D.
University of Washington
School of Medicine
Seattle, Washington

Arrows of Mercy. By Philip Smith. Toronto, Doubleday Canada, Limited; Garden City, New York, Doubleday and Company, Inc., 1969. Pp. 244. $5.95.

This book deals delightfully with the introduction of curare into medicine. It also illustrates the exhaustive investigations of its author, Philip Smith.

Richard C. Gill, explorer, self-styled "ethnobotanist" and author of "White Water and Black Magic" was aware of the need for updating the history of curare. Before the illness which caused his death, he considered undertaking it himself. After his death, his widow, Ruth C. Gill, was asked to write the story of the expeditions on which she had accompanied her husband. She declined, but promised to lend assistance to a professional writer interested in such a project.

Philip Smith, a Canadian writer on the staff of Week End Magazine, was impressed with the dearth of popular books about Canadian physicians responsible for advances in medicine. He was thinking especially of the introduction of curare into anesthesia by Harold Griffith. His first inclination was to write a biography of Dr. Griffith. Although the introduction of curare into anesthesia