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Book Reviews

B. Raymond Fink, M.D., Editor

Treatment of Shock: Principles and Practice. EDITED BY W. SCHUMER AND L. M. NYHUS. Philadelphia, Lea and Febiger, 1974. Pages: 208. Price: $12.50.

The subject of shock is most difficult to present in a multi-authored monograph because the problems of shock and its therapy encompass so many diverse organ systems. The book defines a rationale for treating the abnormal microcirculation and metabolic state. Treatment of the underlying cause of the low circulatory flow would then follow. Unfortunately, this goal is poorly achieved in many sections and the cookbook-style presentation of therapy lends itself poorly to individualized therapeutic efforts.

Each chapter emphasizes the author's own work and experience, sometimes to the exclusion of pertinent recent literature. Two important contradictions are not resolved by the editors. First, depending on which chapter one reads, volume replacement with both crystalloid and colloid solution is advocated. Second, antibiotic therapy differs dramatically between two different chapters.

Acid–base balance is handled simplistically and does not discuss the newer concepts of hydrogen ion concentration *vis-à-vis* *p*H. Another problem with this chapter, as with several others, is that aside from the author's own references, none are beyond the late 1960's. The use of vasoconstrictors and dilators is minimally described, and far too much emphasis is placed on disseminated intravascular coagulopathy. Phenoxybenzamine, a drug still not approved by the Federal Drug Administration for use in man, is discussed in detail. Again, no recent references are presented.

Several other chapters contain errors of fact, interpretation, or lack of balanced discussion of very controversial topics. For example, the chapter on respiratory distress syndrome states, "General anesthesia produces hypoxemia that lasts for several days by failing to maintain tidal volume." This misrepresents Laver's original work completely.

"The Heart in Shock" is well organized, presenting pathophysiology and methods of recognizing the need for therapy. Rational and intelligent solutions to the treatment of myocardial depression are offered. Unfortunately, the author chose not to discuss dopamine, one of the drugs of choice for inotropic support in myocardial depression. Dopamine was in the late stages of investigation in 1972.

"Acute Renal Failure" is well handled until the discussion of therapy. Then the author focuses primarily on the use of massive doses of furosemide, a controversial practice at best.

The two chapters concerning the immune reponse to septic shock and antibiotic therapy in septic shock are most worthwhile to the clinician who is not familiar with these complex subjects. They are well written and offer specific and useful recommendations. However, inclusion of a one-page chapter entitled "Antibiotics and Hypovolemic Schock" following an excellent chapter on antibiotics suggests poor editing.

Finally, in the outline of therapy for the shock patient, specific suggestions are oversimplified, if not incorrect. Maintenance of cardiac output above normal is not stressed, whereas the use of furosemide, 100 mg every four hours, is prominently advocated. Too little therapy is suggested for relief of acute respiratory insufficiency before resorting to extracorporeal oxygenation. Numerous advances in respiratory therapy not mentioned in this text have rendered extracorporeal membrane oxygenation rarely needed.

In summary, except for the chapters on the "Heart in Shock," "The Immune Response," and "Antibiotic Therapy," there is little to recommend in this book. The presentation might be useful to medical students and house officers not familiar with the shock literature.

DAVID J. CULLEN, M.D.
Department of Anesthesia
Harvard Medical School at the
Massachusetts General Hospital
Boston, Massachusetts 02114

Hypothermia in Biology and in Medicine. BY V. POPOVIC AND P. POPOVIC. New York, Grune and Stratton, Inc., 1974. Pages: 305. Price: $22.50.

The authors offer this book as a reference source of the recent literature in hypothermia. Unfortunately, despite the generous bibliographies included in each chapter, the references are incomplete, lacking some historically classic papers in physiology and being deficient in the field of clinical application. On the other hand, because of the author's particular knowledge of the foreign literature, the references from non-English sources are generous and fairly representative. The authors are not clinicians and thus, admittedly, are less able to interpret applications of hypothermia to man in the clinical setting, so that as a reference book for clinicians, the text is incomplete. It does serve as a reasonable starting point for searching the literature.

HUBERT L. ROSOMOFF, M.D.
Department of Neurological Surgery
University of Miami School of Medicine
Miami, Florida 33152

Ultrasound and Ballistocardiography in Cardiovascular Research. BY J. BAAN. White Plains, New York, Albert J. Phiebig, Inc., 1974. Pages: 118. Price: $24.75.

This small volume represents the proceedings of a meeting of the Ballistocardiograph Research Society (American). These proceedings, along

with those of the European Society and the World Congresses, constitute a major source of information on ballistocardiography.

Since the ballistocardiogram (Bcg) is the oldest continuously studied noninvasive technique, it has much to offer. For example, the most complete set of instrumentation and recording standards existing has been laid down for the Bcg.

Unfortunately, the Bcg has been used and studied by almost everyone except modern cardiologists. The present volume emphasizes this problem, since only two of the 14 papers are related to direct clinical studies, much less to cardiology. This reflects the theoretical and technical difficulties which until recently beset the Bcg, and which have provided fascinating work for physicists and engineers.

Since the volume was intended to be mainly a collection of submitted papers, the resulting hodgepodge of subjects provides little continuity for the reader. Furthermore, the severe constraints imposed by the publishers render the papers too brief and sketchy.

Four noninvasive techniques of potential use to anesthesiologists were presented. Johnson described a new range-gated pulsed Doppler probe. At the moment, the signal is qualitative only, difficult to interpret, and has limited applications.

Smith compared two potential operating room monitoring techniques—the pneumocardiogram and the inverted, squared pre-ejection period [$1/PEP^2$]—against a list of 19 very strict criteria. Both measurements failed to satisfy the criteria, which may explain the lack of enthusiasm for their use. However, before any new cardiovascular monitor is accepted, it will have to fulfill a significant majority of these criteria.

Nyboer described an alternative to the commonly used ultralow-frequency Bcg bed. Although his bed has many problems not seen in the ULF systems, it could serve in the operating room and emergency ward, areas where ULF systems are almost impossible to use.

Harrison is working on one of the areas of need in ballistocardiography, a fully computerized reading and interpretation. It is possible that most physicians, including anesthesiologists, will not accept the Bcg until some type of automatic analysis is available, since the waveform appears to them too complex and difficult to interpret.

N. Ty Smith, M.D.
Department of Anesthesia
University of California, San Diego
San Diego, California 92103

Pain. Research and Treatment. Edited by B. L. Crue, Jr. New York, Academic Press, Inc., 1975. Pages: 417. Price: $26.000.

During the last decade there has been a great increase in interest in the problems of pain, ranging from consideration of basic physiologic mechanisms to the use of new techniques of treatment of the patient suffering from intractable pain. Psychological and behavioral manifestations have also come under more intense scrutiny. The study of pain has indeed been multidisciplinary. The City of Hope National Medical Center is one institution fortunate enough to have on its staff a number of physicians and scientists devoted to the clinical and laboratory investigation of pain, as well as an active pain clinic where physicians and paramedical personnel work together effectively to treat patients suffering from pain of different origins. This volume is a report of a symposium limited to members of the City of Hope.

The interests of the staff are many and varied and include neurophysiologic, neurochemical, morphologic, behavioral, and neurosurgical, as well as the management of pain patients within a well organized pain clinic. Therein lie both the strength and the weakness of this volume. Its strength is in the recognition that pain presents a unique condition in medicine because it involves consideration of many nervous system structures, pathways, and mechanisms ranging from the primary afferents to emotional reactions. It is further recognized that the study of pain should involve continuing interaction between the laboratory investigator and clinician. Such cooperation has already produced provocative results, obtained, for example, by means of new techniques such as transcutaneous and dorsal column stimulation and stereotaxic surgery for the relief of intractable pain.

However, the problems in regard to both mechanisms and treatment remain innumerable. Even those few the City of Hope Staff has chosen to study have not yet been investigated in detail. Many of the clinical procedures are preliminary in nature, and the relationship between the physiologic theories and results obtained from clinical observations are quite obscure. Nevertheless, despite the small number of patients and the meagerness of results, the presentation of findings of such a multidisciplinary group is worthwhile at the present time because of its heuristic value.

The authors are of the opinion that pain is not a primary sensation and argue against the concept of specificity. Their emphasis regarding the transmission of information due to noxious stimulation is on the role of spinal cord and trigeminal nucleus interneurons. The spinal cord dorsal horn is viewed as a "dynamic controller and computer" rather than a passive receiver and transmitter of information. In contrast to the "gate theory" of Melzack and Wall, Crue and his associates postulate that the "T" cells are normally active but are inhibited by the input from the periphery and perhaps by descending influences. (The latter, as well as the processing role of higher brain structures, are almost entirely neglected, however: a serious limitation in the view of this reviewer.) Disinhibition of the T cells due to lowering of the input impinging on them allows them to signal pain. This mechanism may be comparable to epileptogenesis. Despite the lack of evidence to support this theory, the authors feel that on this basis they