

Have a Circulation" is delightful; he lets the reader in on the deliberations of "The Celestial Committee on Control of Mammalian Circulation." In discussing the interactions of adrenaline and noradrenaline with analogous drugs, he says "the field is so complicated that research pharmacologists will be kept happy arguing with each other for many years." He compares electrocardiography with bird watching and leaves out a discussion of the equilateral triangle of Einthoven remarking ". . . the time has come to forget this particular contribution, or at least not to ask the student to remember it. If he has to do so, there are other textbooks." It is hard for the reviewer to pick out especially outstanding chapters or sections; they are all good depending upon one's interests. The sections on "The Vascular Bed" and "The Regulations of the Circulation" are particularly appealing.

The book is well indexed, printed and produced. It accomplishes the purposes set out in the preface. The humor and style of writing make reading the text anything but a chore. Exception, however, is taken to the statement that it is only for the student—perhaps it depends upon the definition of a student. Few physicians could fail but to profit from a few hours' perusal of this book. It should be required reading for anesthesiologists.

JAMES E. ECKENHOFF, M.D.

**Physiology of Respiration.** BY JULIUS H. COMROE, JR., M.D., Director, Cardiovascular Research Institute, and Professor of Physiology, University of California Medical Center, San Francisco. Cloth. \$7.50. Pp. 245 with 111 illustrations. Year Book Medical Publishers, Inc., Chicago, 1965.

One of a new series of monographs on the major subdivisions of physiology, each limited to 250 pages, this volume is "intended for students of medicine—whether . . . in medical school, . . . residency training, or . . . the practice of medicine," to quote from the preface. Parts of the book are included, the author adds, "to show how physiological evidence is obtained, analyzed and evaluated; how conclusions are drawn; how hypotheses turn into concepts; how new concepts replace the previously accepted ones. . . ."

The inclusion of much experimental evidence, backed up by over 200 of the most relevant references, in effect transports the reader into the research laboratory to judge for himself. In no sense a revision of the author's widely circulated *The Lung*, the present volume is a comprehensive coverage of all the major phases of human respiratory physiology, both normal and to some extent

pathological. The topics covered include the general features of the mammalian respiratory system; the medullary respiratory centers; the peripheral and central respiratory chemoreceptors, including the recently described central hydrogen ion receptors apparently located near the ventral surface of the medulla and influenced both by composition of blood and cerebrospinal fluid; reflexes from the lungs and cardiovascular system (the Hering-Breuer reflex being only one among a dozen); reflexes from respiratory muscles, including the "gamma motor fibers" which modify the sensitivity of the muscle spindle proprioceptors; and the remarkable pulmonary surfactant, which lines the alveoli and prevents atelectasis in normal lungs. There are also discussions of respiratory mechanics, the pulmonary circulation, pulmonary gas exchange, transport of O<sub>2</sub> and CO<sub>2</sub>, the influence of pulmonary disease on respiration, and, finally, of artificial respiration and inhalation therapy. The excellent diagrams, tables, photographs of gross specimens, light and electron micrographs fit hand-in-glove with the text. Topics which have caused confusion in the past are given particular attention.

Though it reads like a "Who-Done-It," and is written so as to be understandable to all who have had some exposure to mammalian physiology, the *Physiology of Respiration* contains such a wealth of original material that it will challenge all who are concerned with respiration, be they medical student, internist or chest physician, thoracic surgeon, or indeed respiratory physiologist. For the practicing anesthesiologist it will have a special value, containing as it does a review of the latest in respiratory physiology, together with analysis of many situations specifically related to anesthesia.

JOHN F. PERKINS, JR., M.D.

**Acute Problems in Resuscitation and Hypothermia.** EDITED BY V. A. NEGOVSKI; Translated by Basil Haigh, M.A., M.B., B.Chir. \$15.00. Paper cover. Pp. 91. Consultants Bureau, New York, 1965.

This book contains the proceedings of a symposium held in Moscow on September 15–19, 1964, which dealt with the Application of Deep Hypothermia to Terminal States. The purpose was "to examine some of the most urgent problems in resuscitation practice and to discuss the use of hypothermia in the prevention and treatment of terminal states in experimental and clinical conditions." The subjects covered are: (I) current problems in resuscitation, e.g. criteria for changing from closed to open chest cardiac mas-

sage, optimal electrical impulses for defibrillation, determination of prognosis from EEG and clinical signs, and (II-IV) biological aspects and use of hypothermia in various experimental and clinical states.

This publication contains over 100 papers or opinions by almost as many authors. There is little discussion, and no references are cited. Only two papers contain tabular data, and these are summaries. Participants are often identified only by locality, *i.e.*, "Kremenchug," "Czechoslovakia" or "China," and some (particularly session Chairmen) are not identified at all. Many participants were "Candidates in Medical Science." The text is filled with sweeping statements made without any supporting data, and the presentation is correspondingly unconvincing. It is not made clear what pathological situations are being treated—apparently the criteria for inclusion in the studies reported is simply absence of palpable pulses and/or respiration. Thus the subjects of these studies include terminal carcinoma, myocardial infarction, drowning, hanging, freezing, trauma, sepsis, anesthetic overdose, anoxia, and hemorrhage, usually without any clear distinction between them either in terms of therapy or outcome. A further problem is that the translation contains a number of errors which render interpretation difficult. For example, "pulsating current" turns out to mean one or more d.c. pulses! And the statement (page 65) that "the period of safe interruption of the circulation . . . in normothermia [is] 45 minutes" clearly is meant to say something else. It is not clear how many of the deficiencies evident in this work were present initially and how many occurred during translation.

Several ideas emerge which are interesting. For example: (1) the incidence of ventricular fibrillation after condenser shock is very low if the voltage is high enough (up to 7,000 v. is used in obese patients, and 5,000 v. quite routinely) even without synchronization, while the Lown type defibrillator was found to produce ventricular fibrillation in a few cases, apparently because of improper current characteristics (page 91); and (2) paroxysmal tachycardia of both ventricular and supraventricular origin could be abolished by electrical stimulation, suggesting that neither arrhythmia was associated with an ectopic focus, but rather with circular excitation and "re-entry," (3) deep hypothermia (ca. 22° C.) of the brain was said to be achieved quickly (10 minutes) by external cooling of the head even in the absence of circulation—this then led to modest hypothermia in the remainder of the body. Cooling was maintained for 24-48 hours and was thought

to be of great benefit following cerebral hypoxia. Finally, (4) the concept of immediate resuscitation applied to *every* "clinical death" has resulted in the creation of a new medical specialty in the Soviet Union, one which does not yet exist in the United States.

HENRY L. PRICE, M.D.

**Clinical Testing of New Drugs.** EDITED BY ARTHUR D. HERRICK AND MCKEEN CATTELL, with 21 Contributors. Cloth. \$11.75. Pp. 362, with illustrations. Revere Publishing Company, Inc., New York City, 1965.

The development of new drugs in large numbers is a post-war phenomenon, which has contributed largely to improved health and greater longevity. The ethical and legal problems raised by testing new drugs are as important as the scientific features. In this book, information is provided on many aspects by a group of authors who represent both British and American opinions with industrial, clinical, statistical, governmental, and legal emphasis.

For the physician who may undertake a clinical trial of a new drug as well as for others who must evaluate and use the results, the authors have produced a critical guide. The first section describes some of the procedures and considerations before a drug is proposed for administration to human beings. The next section emphasizes the burdens of the investigator, not only in getting a study done, but also questions of conscience which must be foremost in one's mind in order to protect the subjects.

The inadequacies of empirical trial without control are stressed; features involved in adequate controls are described, and pertinent statistical features are explained. A number of chapters are sufficiently detailed to serve as a guide for setting up satisfactory studies. Both the mechanics of testing and the statistical considerations are described in language simple enough for an average physician to understand. Evaluation of results comprises another section, starting with an interesting chapter on "Placebomania." The last portion, written by chiefs of government agencies, elaborates and explains official policy.

For a highly technical subject, this book is remarkably easy to read. There are sample records as well as clear illustrations in chart and graph form. Because it is so closely related to the work of this specialty, this book should be read by all anesthesiologists.

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