

BOOK REVIEWS

text where the physiological background for it is provided. The space they occupy could be used to expand the treatment of the chemistry of solutions and thermodynamics. Similarly, the treatment of bioenergetics and oxidation depends too much on the concomitant study of the biochemical applications of those topics.

It is to be regretted that a real textbook need is so poorly fulfilled and unfortunate that these miscellanea are presented with the pretentious and misleading title of *Textbook of Biophysical Chemistry*.

PHYSIOLOGY OF THE CIRCULATION IN HUMAN LIMBS IN HEALTH AND DISEASE. By John T. Shepherd, M.D., M.Ch., D.Sc., Mayo Foundation Graduate School, University of Minnesota and the Mayo Clinic, Rochester, \$12.00. pp. 416, 179 illus., W. B. Saunders Co., Philadelphia, and London, 1963.

The work herein presented is a precise and stimulating survey of intricate and detailed experiments performed on the limbs of human beings in the laboratories of physiologists, largely British, who have drawn their inspiration from Sir Thomas Lewis. Great reverence is paid to Lewis, even to the extent of omitting, as he did, the role of emotion and psyche in vascular reactions.

This text is for the experienced investigator and not for the trusting neophyte who might not be aware of the unstated assumptions nor be able to evaluate those so frequently made. Each experiment on a human arm or leg is carried out and conclusions drawn from the resulting data with complete disregard for the man as a whole.

Changes in blood flow in the arm or leg are compared to its mate as a control through the cardiac output, ventilation, and changes in $p\text{CO}_2$ or $p\text{H}$ are never measured or taken into consideration. For instance in a discussion of changes in blood flow in the forearm following sympathectomy, the author states that body heating produces "no effect," whereas the opposite extremity with intact sympathetic nerves, shows the marked increase in blood flow. However, body heating increases cardiac output and therefore if the blood flow in the sympathectomized arm stays constant, this forearm must be receiving a decreased proportion of the total circulation; a relative vasoconstriction rather than "no effect."

Another major criticism concerns the definition of the word, "Physiological." Data obtained from an experiment in which the subject sits with his feet alternately in a pail of cold and then hot water, has his forearm in a plethysmograph with an occluding cuff at the wrist, with one indwelling catheter in a deep vein and another in a superficial vein of that forearm, and still another catheter in the brachial artery, are of interest more as an experimental tour de force than as observations on physiologic phenomena.

Again dealing with presumptions, on page 23, I noted the

following sentence: "Since the oxygen saturation of the blood draining the forearm muscles was unchanged, the muscle blood flow presumably was unaltered." This is quite a presumption and open to serious doubt as to its validity. Nevertheless, on page 27, after detailing experiments based on this unproved presumption, the author continues, "From these experiments it can be concluded that the vessels of the forearm skin are supplied with both vasoconstrictor and vasodilator nerves, and that the vessels in forearm muscle are supplied with vasoconstrictor nerves." The author may be correct but this reviewer has serious doubts that he has proved his point.

The text is well written, succinct, and each chapter is complete unto itself. A very excellent feature incorporates each illustration with the relevant text. No thumbing about need be done.

The text is recommended to the investigator as a source of technical information and methods.

BIOCHEMICAL FRONTIERS IN MEDICINE. Edited by Harris Busch, M.D., Ph.D., with Oscar Bodansky, M.D., Emmanuel Farber, M.D., Ph.D., William L. Nyhan, M.D., Ph.D., and Robert E. Parks, Jr., M.D., Ph.D. \$12.50, 350 pp., Little Brown and Company, Boston, Massachusetts, 1963.

This book is a collection of eight chapters on various aspects of the biochemical processes associated with inherited disease, cancer and cancer chemotherapy, and the mechanisms of action of penicillin. Also included are chapters discussing several aspects of biochemical technics in clinical diagnosis and the biochemistry of certain morphological events in tissue pathophysiology. As can be surmised from the list of renowned contributors, each chapter is lucidly presented and is supported by an excellent but not exhaustive bibliography containing most of the pertinent major publications. The chapter on the genetically determined disorders of carbohydrate metabolism by W. L. Nyhan is certainly relevant to students of diabetes and is exceptionally clear in its presentation. Diabetes mellitus, itself, is not discussed.

The book has several minor deficiencies. One, shared by all similar monographs, is the unfortunately ephemeral nature of any biochemical publication in this explosive field. A second is that it is neither a definitive treatise on the various subjects nor is it a simple casual narrative to be read at leisure but falls approximately midway between these two extremes. One specific objection of this reviewer is the arbitrary and even erroneous classification of genetically transmitted diseases in the introductory chapter (e.g., galactosuria is certainly *not* an abnormality in a blood protein).

In conclusion, the book belongs on the shelf of any physician interested in understanding the biochemical basis of diseased processes, and it should also serve as excellent reference reading for both undergraduate and postgraduate medical teaching.