
This is a well organized, well written, and very useful book. As more and more mathematical approaches gain respectibility, via their effectiveness, in biology and medicine, workers in the field whose mathematics is weak, or even nonexistent, need somewhere to turn. ‘Pure’ mathematics books generally are not gentle enough in guiding the mature but mathematically unsophisticated reader through the basic reasons why things work as they do. Books in mathematical biology, on the other hand, usually start at much too advanced a level; they tend to be written for the already converted. This volume attempts to steer a middle path. It begins gently, it explains mathematical concepts in refreshingly concrete style, and it uses lots of examples and problems to demonstrate the point of it all. The coverage of topics is very broad, and from the mathematical viewpoint, satisfactory. The only major defect is the slighting of computer methods. Conceptually, they are so much easier than the mathematics they are used on, and they give even the neophyte such enormous power to solve real problems that it seems unfortunate to leave them out completely. Perhaps a subsequent volume in this series will deal equally usefully with computing. Overall, this book is recommended as effective therapy for ‘math-negatives’ of all ages.

P. Stewart, Providence, R.I.


The proceedings of this symposium, sponsored by the European Section of the International Study Group for Research in Cardiac Metabolism, review our state of knowledge on cardiac overload from a morphological, energetic, electrophysiological, physiological, biochemical and experimental point of view. The following topics are discussed: ultrastructure of skeletal muscle fiber (M. Fardeau), and heart muscle fiber in heart overloading (P. Y. Hatt), advances in muscle energetic (G. Marechal), myocardial energetics during acute and chronic cardiac loading (L. H. Opie), coronary blood flow and myocardial oxygen consumption in experimental cardiac hypertrophy (G. Marchetti), cardiac cell membrane permeability (E. Coraboeuf), the ionic shifts in heart overloading (R. Kaufmann), the role of mitochondria and sarcoplasmic reticulum in the calcium shifts in cardiac cells (E. Carafoii), recent findings on contractile proteins (S. V. Perry), composition of Troponin and properties of its constituents (W. Drabikowski), mechanical aspects of overloading of the heart (D. L. Brutsaert), RNA and genetic control in differentiated cells (I. Kruh and B. Das-tugje), protein synthesis in myocardium in overloading of the heart (R. H. Zak), skeletal muscular weakness (H. Monod), and cardiac contractile protein in heart hypertrophy or failure (B. Swynghedauw). Among the 48 free communications, some are concerned with comparative morphology (O. Poupa, Goteborg; K. Weller, Heidelberg; M.
Masson Pevet, Poitiers), new techniques in studies of cardiac metabolism (J. Moravec, Limeil Brévannes; K. Hearn, Longon; P. Jouannot, Limeil Bré-vannes; G. Steiger, Bochum), voltage clamp (C. Vassort, Orsay; E. Carmeliet, Leuven; J. Nargeot, Poitiers; A. Rougier, Lyon); study on cardiac performance in vivo (J. Besse, Bordeaux; P. Brun, Créteil) and a long and stimulating discussion on protein synthesis in experimental heart hypertrophy (K. Gibson and P. Harris, London; F. Meerson, Moscow; B. Kleitke, Berlin; S. Schreiber, New York; A. Bester, South Africa).

B. Swynghedauw, Limeil-Brévannes (France)


This monograph summarizes the author’s work at the Wilhelmina Gasthuis in Amsterdam, using electrical stimulation of the heart to study the mechanisms of tachyarrhythmias. The usual classification of tachycardias, effect of carotid massage, and physical findings are presented, along with an excellent review of the differential features between ventricular tachycardia (VT) and supraventricular tachycardia (SVT) with aberrant conduction. Chapter 2, ‘Theoretical considerations’, discusses initiation and termination of tachycardia, and the effect of induced premature beats. Regular tachycardias have been considered to arise from either a rapidly discharging focus, or from a re-entry, or reciprocal mechanism. The clinical association of atrial premature beats (APB) with SVT has been recognized, and recent studies have demonstrated that an APB occurring during a specific time of the relative refractory period of the A-V node may cause a re-entrant, or ‘echo’ beat, and initiate a bout of SVT. Likewise, an appropriately placed beat during SVT may block the re-entrant pathway, and terminate the arrhythmia.

The author’s work concerns the use of timed electrical stimuli via intracardiac electrodes to induce re-entry beats and to terminate tachycardias. Intracardiac electrograms are presented which demonstrate the exact mechanism of the arrhythmias in many of the patients, including those with atrial flutter, A-V junctional tachycardia, and of particular interest, pre-excitation syndrome. In collaboration with Dr. D. Durrer, Dr. Wellens has confirmed the presence of several anomalous A-V pathways in the various types of the pre-excitation syndrome. Using induction and termination of tachycardia by systematic stimulation of the atria and ventricles, he has confirmed the circus movement or re-entrant mechanism by way of the His bundle and anomalous pathway as the usual cause of the tachycardias which occur in these patients. The monograph is well written, clearly and abundantly illustrated, and is highly recommended for internists and cardiologists who are involved in the management of arrhythmias, and desire a review of recent thinking about their mechanism.

F. Reichel, Providence, R.I.

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Book Reviews

S. Oram: Clinical Heart Disease.
In his text entitled ‘Clinical heart disease’, Dr. Oram has achieved his primary goal; the production of a cardiology text which is a ‘comprehensive book with a strong bed-side bias’. In comparison with the two leading American texts on heart disease, this book is far less encyclopedic in nature. In contrast to numerous smaller works of a more synoptic variety, this text is far more complete. In other words, Dr. Oram has found the middle ground and in this sense will find a wide readership for his book.

Of necessity, any text which has so strong a personal bias is bound to have some shortcomings. This text is no exception. Several important areas are inadequately developed. The book fails to
use the most recent and popularized concepts regarding myocardial contractility. It goes little beyond a discussion of Starling’s curves in dealing with ventricular function. The more current concepts of contractility in terms of V-max and dp/dt are not developed. In other specific areas (1) there is a scant amount of attention paid to saphenous vein by-pass graft surgery for coronary artery disease; (2) the section dealing with coronary angiography makes no mention of the widely employed Sones technique. Lastly, there is no mention of ‘hemiblocks’ in the text. This omission makes one wonder about the actual date of preparation. The publication date is 1971, but in some regards the material is not vintage 1971.

Many of the X-rays are reversals. All of the X-ray pictures, however, are not reversals and one wonders why consistency was not sought in this area. The reversal-type X-ray is much less commonly found in American texts and might make this aspect of the book less desirable in the eyes of an American readership. The text has numerous, very clear and original line drawings. These illustrations are one of the major strengths of the text. In addition, there are summary sections entitled ‘Salient features’ in many chapters. These sections are most valuable and are evidence of a well-planned text. The author frequently resorts to listings in an attempt to summarize and simplify somewhat lengthy sections. This effort is commended.

In summary, this is a highly readable text prepared by an extremely knowledgeable and experienced clinical cardiologist. As such, it is an excellent book for the practicing clinician. It cannot replace the more encyclopedic text nor is it intended to. Easy readability coupled with valuable summary sections and lucid line drawings make this text a valuable addition to the clinician’s library. Physicians without a primary interest in cardiology will also find this text valuable because it is written in a style more consistent with sound clinical advice rather than dry textual prose.

A. S. Most, Providence, R.I.