

of growth or development. This new edition is justified by the rapid increase in understanding of the structure, chemistry and metabolism of the various components of connective tissue.

Each disease is described with an authority based on the author's wide personal experience and on an exhaustive survey of the literature. There are no less than 632 references to Marfan's syndrome alone and these include papers published in the same year as the publication of this edition.

Such a concentration of information does not make easy or light reading but as a work of reference this new edition continues the high standard of its predecessors and should be available to all orthopaedic surgeons and trainees.—John CHALMERS.

The Structure and Function of Muscle. Edited by Geoffrey H. BOURNE, Yerkes Regional Primate Research Center, Emory University, Atlanta, Georgia, with eleven other contributors. Second edition. Volume I—Structure—Part 1. 23.5×16 cm. Pp. xix+576, with many figures and some tables. Index. 1972. New York and London: Academic Press. Price £15.20.

When the first edition of this work appeared in three volumes in 1960, it provided for the first time a comprehensive treatise on various aspects of muscle structure and function. Since that time there have been a number of monographs which have concentrated on one or other aspect of the subject, and there have also been published the proceedings of a number of international congresses on neuromuscular disorders, which have contained a fair amount of basic research. However, if this new edition, which has now grown to four volumes, can bring together all the advances in the intervening years, it will be a welcome addition to the literature in this field.

Volume I is the first of two volumes devoted to the structure of muscle.

A number of sections, such as the interesting and well-illustrated chapter on the anatomy of muscles and their relation to movement and posture (Lockhart), and the contribution on the histochemistry of developing skeletal and cardiac muscle (Beckett and Bourne) have come through practically unchanged from the earlier editions. Margaret Murray, who included much of her pioneering work on skeletal muscle in culture in the first edition, has brought this section right up to date, and H. E. Huxley has done the same for his chapter on the molecular basis of contraction. Both these chapters provide excellent reviews of the topics and are magnificently illustrated.

A new chapter on the development of striated muscle is contributed by Fischman and contains a series of excellent electron micrographs. A separate new chapter by Goldspink covers in detail the post-embryonic growth and differentiation of striated muscle and includes a discussion on factors influencing muscle growth. A further three chapters are devoted to the structure of muscle in some of the more lowly members of the animal kingdom, such as nematodes with their peculiarly obliquely striated muscle, crustaceans and arthropods.

For the practising orthopaedic surgeon the remaining chapter on how muscles are used in the body (Monod) may well have the most practical application and should provide a useful source of reference for all those engaged in any aspect of neuromuscular investigations.

Future volumes will deal further with structure (Volume II), physiology and biochemistry (Volume III) and pharmacology and disease (Volume IV).—Victor DUBOWITZ.

Biological Mineralization. Edited by Isadore ZIPKIN, School of Dentistry, University of California, San Francisco, California. With forty-eight other contributors. 23.5×16 cm. Pp. xv+899, with many figures and some tables. Index. 1973. New York, London, Sydney, Toronto: John Wiley & Sons. Price £22.50.

Dr Zipkin has collected together several expert authors from many countries to write about biological mineralisation. After a rather fanciful introduction by the Neumans on the role of apatite in the origin of life, the book settles down to more routine sections on composition of mineralised tissues, analytical methods, role of Sr, Mn, Cu, Zn, Ca, P, Mg and F in bone biochemistry, calcification in mammalian and non-mammalian systems, and finally physiological and clinical aspects.

A key chapter on mechanisms of calcification by Urist presents views which are very interesting but have been debated by others. It is particularly sad that the long gestation necessary to produce a volume of this size has prevented a detailed account of interesting recent developments in calcification, e.g., the discovery by Anderson, Bonnucci, etc., of extracellular membrane bound vesicles that calcify in cartilage and bone, or even on collagen especially from newer work on cross linkages and chemical typing that are all "in the news". Lipids being present in large amounts in vesicles may have a significant role in calcification but as described it has only a suggested role.