physiology of bone that are lively issues at present, and the book should be in the hands of everyone who has any interest in the structure and behaviour of bone in normal or abnormal circumstances. As one might expect, observations based upon the newer research techniques employing radioactive substances, electron microscopy and advanced biochemical methods came in for much discussion; and, as with all new techniques, an onlooker must be permitted to wonder how much the data obtained from these methods will be modified when the techniques themselves are better understood and their own errors better appreciated. Reports of isotope studies and of autoradiography predominate in the papers on micro-anatomical subjects and on the metabolism of normal bone. The papers with direct clinical interest are largely concerned with vitamin D and with pathological disorders. In a group of wholly admirable and very condensed papers it is invidious to pick out those of individuals, but orthopaedic surgeons will be particularly interested in Rutishauser's account of altered intra-osseous vascularity in Paget's disease, Sudeck's atrophy and osteoarthritis of the hip. One might also pick out for special comment a paper by Lisco on "Bone as a Critical Organ for the Deposition of Radioactive Materials," and a discussion of calcium loss after fractures. The illustrations, mostly photomicrographs and electron photomicrographs, are beautiful. The book is of handy size and, for what it contains, inexpensive.—D. LI. GRIFFITHS.

LIVING BONE IN HEALTH AND DISEASE. By Irvin STEIN, A.B., M.D., F.A.C.S., F.I.C.S., Assistant Professor of Orthopaedic Surgery, University of Pennsylvania; Raymond O. STEIN, A.B., M.D., F.I.C.S., Associate in Orthopaedics, Hahnemann Medical School, Affiliate; and Martin L. BELLER, A.B., M.D., Instructor in Orthopaedics, Hahnemann Medical School, Affiliate. 10½ × 7½ in. Pp. xii + 510, with 387 figures. Index. 1955. London: Pitman Medical Publishing Co. Ltd. Price £5, 10s.

The present volume, written by three practising orthopaedic surgeons from Philadelphia, is intended for orthopaedic surgeons, physicians, radiologists and others who deal with the clinical problems of skeletal disease. The authors' aim has been to provide a general account of bone diseases and to incorporate in it recent advances in basic sciences, particularly with regard to the relationship between bone structure and metabolism. This aim, with its implied interest in the biochemical aspects of skeletal disease, and their correlation with pathology, radiology and clinical medicine and surgery, and its emphasis on a "dynamic" concept of bone behaviour, is most laudable, and it is true that no other text-book has so far adequately described the important and spectacular advances concerning the metabolism of bone tissue which have been made in recent years. In the opinion of the present reviewer, however, the work does not succeed in this task. Errors in fact, sometimes concerning important subjects, are numerous, and debatable matters are not infrequently presented as established or as not requiring verification by further work. Thus in discussing the "biochemical treatment" of Paget's disease—a very uncertain topic—such procedures as the control of calcium, phosphorus and vitamin D intake, and the administration of oestrogenic and androgenic hormones and of magnesium salts are recommended but no evidence is advanced to establish their value.

Presentation and arrangement are not always clear. In the account of rickets, it is not until the ninth page—after an introductory section, historical notes, and accounts of pathogenesis and pathology—that we learn that the dietary form of rickets is caused by vitamin D deficiency, or that there are a number of non-dietary forms such as those secondary to renal disease. One particular weakness of the book relates to the choice of illustrations. These consist almost entirely of clinical radiographs, with very little material to aid their evaluation in terms of underlying structural changes. Again, to take the section on Paget's disease, while this contains more than ninety clinical radiographs, it has only four photomicrographs—and three of these are non-contributory. The basic histological "entities" of metabolic bone disease—such as osteoid tissue, osteitis fibrosa, and the thinned cortex and slender trabeculae of osteoporosis—are all conspicuous by their absence. In the sections describing various hereditary bone diseases, the genetic mechanisms concerned are poorly described. To turn to another topic, the section of the book on bone tumours is pitifully inadequate.

In contrast, some aspects of the subject are treated admirably. The nomenclature used is accurate, and sections on differential diagnosis are informative and relevant. For any condition, historical notes accurately outline the development of knowledge and also record any historical or literary allusions to the subject under discussion. A wealth of interesting and often unfamiliar material is included in these historical contributions. These better sections of the book no doubt relate to subjects where the interest and experience of the authors has been greatest. Indeed, both the successes and the shortcomings of the work can well be understood if it is regarded as a sort of personal scrap-book in which a wealth of largely unselected personal observations and comments have been collected. Such material can be the basis of admirable bedside teaching, but it lacks the balance necessary for an authoritative text-book.—H. A. SISSONS.