and in many cases it has been found that chemical factors are responsible. The discovery of the controlling influence of the anterior lip of the primitive streak was an outstanding example. Not only is the earliest differentiation of tissues in the embryo due to this type of chemical influence, but later in development there is an intricate co-ordination between nearby tissues, and this again appears to have a chemical basis. A well-known example concerns the eye region, where a necessary stimulus for the formation of the lens and conjunctiva is given by the eyecup as this outgrowth from the brain approaches the skin. The co-ordinated growth of many tissues depends on factors of this type, the local equivalents of the way in which a hormone can control the differentiation and development of a remote tissue. But this type of chemical influence, and the ability to respond to it by the production of specialised cells, are not restricted to early embryonic development. In pathological processes, for instance, adult cells often reveal a normally unsuspected plasticity and undergo a wide variety of transformations. Here too, chemical influences are often found to be the controlling ones. The present volume, by Professor Lacroix of the Institute of Anatomy of the University of Louvain, explores the extent of operation of such "organiser phenomena," as they are called, in bone tissue.

Readers of this journal will recall something of Lacroix's work from a brief article entitled "Organisers and the growth of bone," which appeared in 1947. On that occasion he summarised some of the experimental work that he had previously published on the subject in French and Belgian journals, and directed attention to its bearing on the role of "organiser" substances in bone growth and differentiation. This article is still the best introduction to Lacroix's work for the reader of English, but in "L'Organisation des Os" he presents in much more detail the experimental work on which his ideas are based. The book makes no attempt to be a formal or complete account of bone structure and behaviour, but is the description of an individual worker's material, amplified by illustrations from and references to the publications of others. Its matter is well presented, and it is clearly illustrated with numerous diagrams, drawings and photomicrographs.

Lacroix's work is based partly on ordinary histological studies on growing bones and partly on the results of transplanting various constituents of bone—periosteum, cortical bone, epiphyseal cartilage and bone marrow—to other sites in the body, particularly to the subcapsular tissue of the kidney. His description of the behaviour of transplants from growing epiphyseal cartilage is of outstanding interest. Active proliferation of cartilage cells takes place, the transplant continues to increase in bulk and undergoes the usual sequence of events that make up endochondral ossification. Columns of enlarged cartilage cells are invaded by cells of the surrounding connective tissue, and cartilage matrix is eroded by phagocytic giant-cells, just as occurs in the normal situation. Bone formation takes place on the cartilage scaffolding in the usual way, and even when the cells of the transplant have been completely killed by alcoholic fixation the same invasion by connective tissue cells and eroding "chondroclasts" occurs. These results suggest that these parts, at least, of the process of endochondral ossification are normally initiated by some chemical substance present in "pre-ossifying" cartilage. As well, the cartilage transplants quickly become surrounded by a "collar" of bone, formed by the host connective tissue. This is another "organiser" effect, and Lacroix believes that a similar stimulus is responsible for the development of the collar of bone that, in normal development, surrounds the margin of the epiphyseal cartilage. Can any of these "organising" substances be extracted from bone, and identified more specifically? Lacroix believes that this is possible, citing the work of Levander on the production of ectopic bone by means of alcoholic extracts of bone and cartilage, and he describes similar confirmatory experiments of his own.

Recent years have witnessed a great deal of advance in our knowledge of the chemical control of bone, both in its normal growth and maintenance, and under pathological conditions. The most significant studies have concerned generalised extrinsic influences, such as those provided by the hormones of the pituitary, parathyroids and gonads. Lacroix's contributions to knowledge are important because of the light they shed on quite a different type of chemical influence—local in origin and operation, and co-ordinating the development, maintenance and repair of the diverse tissues making up the skeleton. —H. A. Sissons.

FRACTURES AND DISLOCATIONS IN GENERAL PRACTICE. By John P. Hosford, M.S., F.R.C.S., Surgeon to St Bartholomew's Hospital. Second edition, revised by W. D. Coltart, M.B., F.R.C.S., Assistant Orthopaedic Surgeon to St Bartholomew's Hospital. 8×6 in. Pp. x+290, with 87 figures. Index and Appendix. 1949. London: H. K. Lewis & Co. Ltd. Price 21/-.

The author of this book, primarily intended for general practitioners, points out in the preface to the first edition its role as a shorter text-book for students. This double objective is difficult of attainment and has not been altogether achieved in so far as a manual for practitioners is concerned. The first seven chapters are devoted to the definitions and general principles of treatment of fractures and would be excellent reading for students. The major portion of the book gives a clear account of the commoner fractures and dislocations, together with sensible and orthodox methods of treatment. Indications are

given of those conditions where open reduction or fixation of fractures may be required, without providing technical details which would be required by an expert only. The general practitioner, however, needs more than this. For example, even though he may not reduce a single fracture, it may be important for him to know the symptoms of avascular necrosis of the head after fractures of the femoral neck. No mention is made of this complication. Again, non-union of the ulnar styloid is common after Colles' fractures and often leads to persistent tenderness. The doctor who knows that this disability is nearly always temporary can reassure his patient. Except for these omissions the book is excellent, clearly expressed and very well produced with good line drawings and radiographs. It can be most strongly recommended as a shorter text-book for students.—V. H. ELLIS.

MAJOR ENDOCRINE DISORDERS. By S. Leonard SIMPSON, M.A., M.D., F.R.C.P., Physician, Willesden General Hospital, with charge of Diabetic and Endocrine clinics, Endocrinologist, Princess Louise Children's Unit of St Mary's Hospital, Consulting Physician and Endocrinologist, Soho and Samaritan Hospitals for Women, London. Second edition. 9×6 in. Pp. xxii+532, with 89 figures. Index. 1948. London: Oxford University Press. Price 42/—.

This, the second edition, has been brought up to date, much having been rewritten. It reflects very largely the considered opinions of the author, and so provides stimulating reading at the expense of balance in the attention given to various subjects. The reader will not, therefore, find it suitable as a reference for many endocrine conditions which are treated somewhat scantily, although there are many sections that he will find very profitable. This is by no means a reflection on the book, and in fact this is not intended to be a text-book or a complete book of reference. The discussion of conditions such as adipose gynandrisms, the recognition of which is largely due to the work of the author himself, is well done; but here again the discussion reflects very largely his own ideas, which are of interest to the specialist but may prove somewhat difficult for the student. The illustrations are good but still leave room for improvement and addition. These criticisms are minor ones in a book of great merit, which can be strongly recommended to anyone who has an interest in the subject of clinical endocrinology.—E. F. SCOWEN.

ARMY FOOT SURVEY. An Investigation of Foot Ailments in Canadian Soldiers. By Colonel R. I. HARRIS, M.C., R.C.A.M.C., and Major T. BEATH, R.C.A.M.C. 11×8 in. Volume I—Main Report. Pp. ii+143, with 36 figures. Volume II—Appendices, with 77 figures and many charts. 1947. Ottawa: National Research Council of Canada. Price \$1.00.

This survey is based on the examination of the feet of 3,619 recruits for the Canadian Armed Forces, both on enlistment and during their period of training. The examinations were carried out with great thoroughness, the clinical findings being correlated with radiological and footprint examinations. A standard radiological method was worked out which can be recommended for general adoption. The footprints were obtained by a new and ingenious method, using a rubber mat marked with five ridges of differing heights, which gives a clear visualisation of the amount of pressure falling on any area. The facts were recorded on punched cards, so that a valuable mass of information is readily available for further study.

It is unfortunate but perhaps inevitable that in a study of this sort the presentation of the facts elicited can be influenced so much by the personal bias of the investigators. For example, they were very conscious of Morton's thesis on atavistic conditions of the first metatarsal segment, and by the presentation of their observations they convincingly disprove certain of his tenets concerning the effect on function of such structural variations. On the other hand, except for passing mention in the summary, they have ignored the functional effect of a relative elevation of the first metatarsal head either as a primary abnormality or in consequence of supination of the forefoot. They noted abnormal weight-bearing on the pad of the great toe, a frequently associated valgus deformity at the ankle and the associated hallux rigidus, but they did not correlate these observations, and attributed the hallux rigidus to the secondary contracture of the plantar fascia. Perhaps the functional significance of the syndrome could still be unravelled by further analysis of their records. They rightly lay great stress on the association between postural valgus at the subtalar joint and equinus at the ankle caused by short calf muscles. This they regard as a new observation, though its importance has long been recognised here. They consider the structural weakness of the subtalar joint to be the primary defect and dismiss the short calf muscles as a secondary phenomenon. This is the reverse of the usual view of cause and effect, so that further study is clearly needed on this problem.

The authors bring out once again, and rightly stress, the fact that shape is a poor criterion of function. They show that such conditions as so-called flat foot and hallux valgus are not in themselves a bar to good function, and that the functional efficiency of feet with these characteristics depends upon their cause and upon such associated conditions as stiffness of the joints concerned. It is a pity that as many as possible of those examined while in training could not have been assessed again later. It was recognised during the