radiographs and photomicrographs. In many instances cases from the authors' own personal experience are used to exemplify the general clinical features of a lesion or to illustrate a specific point. Under each disease entity a section is included on pathogenesis; and the theories, both discarded and current, on the origin of the lesion, are set down clearly and without prejudice. I found this particularly interesting. Each chapter has evidently been written after a thorough review of the relevant literature, and the authors have clearly been much influenced by the studies of Jaffe and Lichtenstein. They have added to this background a wide personal experience based on most of the tumours from the south-east region of France. The bibliographies at the end of each chapter are excellent in spite of an irritatingly large number of typographical errors. A table of contents is given at the end of the book but unfortunately not an index.

This book should competently fill the need, mentioned by Professor Michel Salmon in the preface, for a book in the French language which both synthesises the voluminous literature and at the same time includes a personal experience of benign bone tumours. For the English reader it is unlikely to replace the recent text-books of Jaffe, Lichtenstein and Dahlin.—Mary CATTO.

Radiographic Atlas of Skeletal Development of the Hand and Wrist. By William Walter GREULICH, Professor of Anatomy, Stanford University School of Medicine; and S. Idell PYLE, Research Associate, Departments of Anatomy, Western Reserve University and Stanford University Schools of Medicine. Second edition. 12×9½ in. Pp. xvi+256, with many figures, line drawings, charts and tables. 1959. Stanford, California: Stanford University Press. London: Oxford University Press. Price £6.

Atlas of Roentgenographic Measurement. By Lee B. LUSTED, M.D., Associate Professor of Radiology, University of Rochester School of Medicine and Dentistry; and Theodore E. KEATS, M.D., Professor of Radiology, University of Missouri School of Medicine. 11×7½ in. Pp. 176, with 119 figures. Index. 1959. Chicago: Year Book Publishers Inc. London: Interscience Publishers Ltd. Price £3, 8s.

It is a pleasure to welcome a second edition of Greulich and Pyle's Atlas. Since publication in 1950 the predecessor has become a standard work of reference and a really valuable diagnostic instrument in many departments of radiology, particularly in those with an orthopaedic bias. It has unfortunately been out of print for several years and, with the publication of this new edition, the opportunity has been taken to make improvements. The reproduction of the radiographs is much better and new line drawings of maturity indicators are excellent, but the most valuable new feature is the inclusion of the Bayley-Pinneau tables for predicting adult height from skeletal age. The book is larger and is altogether more beautifully produced. Inevitably there has been some increase in the cost.

Another volume of similar interest to radiologists is the recently published *Atlas of Roentgenographic Measurement*. The study of the normal by radiology has led to methods of measurement for almost every tissue system. The authors have appreciated the difficulty of locating many such reports in the literature, and this book is essentially a concise summary of the more valuable contributions. The radiographic techniques, the method of measurement and the source of the original material are described. Since the measurement of the clearly defined structures of the skeleton are more precise than those of other tissues it is not surprising that the space devoted to this section represents almost half the book. Of the many techniques described some are well known and are already in common use. Others deserve more attention and still others are of doubtful value. An outstanding omission is the work of Greulich and Pyle: the results of Todd, the originator of their methods, are alone quoted, although out-dated. Nevertheless, the idea of this book is good and it provides another useful instrument to have at one's elbow during the interpretation of radiographs of the skeleton. The next edition may be expected to be of even greater value.—R. O. MURRAY.

Determination of the Mineral Content of Human Finger Bones by Silver Analysis of Roentgenograms. By Pekka VIRTAMA. *Acta Anatomica*, Supplement 29. 10×7 in. Pp. 100, with 26 figures and 22 tables. 1957. Basle and New York: S. Karger. Price S. fr. 14.60.

This is Supplementum 29 of the *Acta Anatomica* and like most such supplements is something between an extended article and a contracted thesis. It is the report of yet another technical attempt to assess bone density from a clinically practicable radiograph, but, like every other exercise of this

kind, only the technique is presented and there are no results accruing from its application to diagnostic and pathological problems.

The method in outline is to radiograph the hand alongside a reference system of phantom bones and Perspex boxes containing various amounts of bone powder. After mechanised development the areas of the radiographic images of the phalanges are then measured with the aid of a photographic enlarger, and the image of each phalanx cut out. The photographic density of each bone is then arrived at by chemically estimating the amount of silver precipitated in the image. Phalanges of eighty-six necropsy subjects were so studied, and calibration of the radiographic method was achieved by ashing the bones radiographed and determining their mineral content; by regression analysis an equation was obtained.

The booklet is of some value, not so much for the technical method devised, for this will probably never be used for any important survey, but for the author's discussion on the variables of radiography and his tricks for stabilising them.—D. H. COLLINS.

La Spina Bifida. By O. BARUFFALDI and N. DIVANO, Assistenti della Clinica Ortopedica dell'Università di Genova. 9½ × 7 in. Pp. 148, with 58 figures, some coloured, and including 25 radiographs and 9 tables. 1959. Index. Padova: Cedam—Casa Editrice Dott. Antonio Milani. Price 3,000 lire.

In this monograph the authors present a very careful and detailed account of all the forms of spina bifida (including spina bifida anterior) and of cranium bifidum, and their complications; namely hydrocephalus, other deformities of the spine and deformities of the limbs. An enormous amount of research has been done into the literature on the subject, and the bibliography cites no fewer than 300 works, of which 100 have been published within the last ten years. The list is at the end of the book (occupying seventeen and a half pages), which makes it difficult to refer back from a reference to its place in the text.

After discussing embryology and etiology, without however shedding any new light on the latter, the authors give a classification of these congenital malformations which is both simple and practical. They divide them into two groups: 1) those with, and 2) those without involvement of the spinal cord or nerves. The varieties in each group are then described in detail and illustrated by excellent diagrams showing the three meningeal and the nerve tissues in different colours, thus making the pathological anatomy of the different types abundantly clear. There are also numerous well reproduced radiographs showing the bony defects and some very good pictures of histological preparations, several in colour, of sections of the spinal column and cord at the site of the lesions.

The importance of careful clinical examination of the infant within the first few hours of life is stressed and the appearances of the various types of spina bifida are minutely described, so that an accurate diagnosis can be made at once on which the decision whether to operate immediately (the first day of life being considered the most favourable time) depends. It is interesting to note the importance that the authors attach to the neurological findings, which many authorities here regard as too unreliable in the newborn infant. The association of hydrocephalus with myelomeningocele is described, and the Arnold-Chiari mechanism of its production is very convincingly illustrated by a series of drawings.

A chapter on the deformities of special orthopaedic interest enumerates the malformations that may be met with and gives their incidence. Their treatment differs in no way from that given in the absence of spina bifida, though the presence of the sensory changes should lead to extra care in the application of plaster or splints.

The authors state that the treatment of all types of spina bifida, except perhaps spina bifida occulta, is surgical. They give reasons for this and a detailed account of the best time to intervene and the scope of operation in each case. The results are tabulated in the last chapter, and the results from a number of other clinics are given.

This book is very well produced and has an adequate index. It gives a clear account of the present state of our knowledge about these congenital abnormalities. It is beautifully illustrated and will be very valuable to anyone seeking information on spina bifida, its complications and what associated deformities are likely to be encountered. To the paediatrician and neurosurgeon especially it should prove useful as it is they who deal with the early diagnosis and treatment. To the orthopaedic surgeon it will serve as a timely reminder to examine the whole patient when faced with any congenital deformity.—E. Henrietta JEBENS.