from the standpoint of the physician and rheumatologist rather than the orthopaedic surgeon, and covering, as it does, so many topics and disciplines within a short space only a brief discussion of each can be given.

A short introductory chapter deals with symptoms and possible associated signs such as skin laxity, herniae, and mitral valve prolapse, and also includes methods of measurement. Chapter 2 notes the difficulty of assessment and describes a scoring system, as well as illustrating the routine orthopaedic examination of joints in some detail. Chapters 3 and 4 deal respectively with chemistry and biomechanics, including structure of collagen and elastin. Clinical aspects, management, and some case histories are described in chapters 5, 6, and 7. Chapter 8 is devoted to 'hypermobility in art and sport' and the final chapter deals with a variety of inherited syndromes in which hypermobility of joints is a feature, with a thumbnail sketch of each.

This well produced little book is predominantly an anecdotal approach to the subject, covering a very wide field in a relatively few pages.

RUTH WYNNE-DAVIES

Soft Tissue Ossification

By J M Connor. (Pp xiii + 146; figures + tables. £27.50, DM 110.) Berlin, New York: Springer Verlag. 1983.

The reason why soft tissues, such as muscle, may sometimes ossify is unknown, and descriptions of ectopic ossification most often occupy obscure corners in large orthopaedic texts. Yet fixation of joints with bars of bone can be disastrous, especially when added to other injuries or when recurrent and progressive.

Dr Connor now brings the subject out into the open in a very readable monograph. It would be reasonable to ask why he has done so; answers are to be found in Dr Victor McKusick's foreword and in the author's own work. The central disorder dealt with in this book, which led to Dr Connor's interest in ectopic ossification, is the excessively rare but disabling disease of fibrodysplasia ossificans progressiva (often still known as myositis ossificans progressiva), which progressively fixes its victims into increasing rigidity from infancy. In this apparently heritable disorder of connective tissue, characteristic skeletal abnormalities combine with ectopic ossification in major muscles to immobilise the spine, chest, and large joints. From the clinical problems posed by this distressing condition Dr Connor expanded his interest into other causes of ectopic ossification, and this book is the result.

The book is well written, well illustrated, and comprehensive. Ossification associated with major injury, tumours, fibrodysplasia ossificans progressiva, neurological, and other conditions are dealt with in order, and the last two sections are concerned with experimental ectopic bone formation and the factors thought to regulate osteogenesis. Each chapter can be consulted separately with advantage and interest.

This is a book for the specialist. It comes at an opportune time to remind us of the many causes of ectopic ossification and the clinical problems which follow.

At least this book is a source of information not readily obtainable elsewhere; at best it is a direct challenge to those who think they understand cell biology and osteogenesis to find out why bone forms outside the skeleton and how to prevent it.

ROGER SMITH

Early Mammalian Development: Parthenogenetic Studies

Developmental and Cell Biology Series No 14. By M H Kaufman. (Pp xi + 276; figures + tables. £32.50.) Cambridge, London: Cambridge University Press. 1983.

Dr Kaufman is an undisputed authority in the field of mammalian parthenogenesis and it is appropriate, therefore, that he has been given the opportunity in this volume to assemble and evaluate critically the accumulated information available to date. The monograph forms one of a series dealing with developmental and cell biology in which short critical accounts of a particular area are required. The work answers well to that description. It is clear and well written and should be of great value to the mammalian embryologist and developmental biologist. The author also expresses the hope that, with the technical developments which have taken place in the field over recent years, parthenogenones and parthenogenetically derived material might also be used by researchers in genetics, mutagenesis, and carcinogenesis. The availability of haploid and homozygous diploid cell lines could be of immense value in such studies.

A historical introduction tells us that studies in mammalian parthenogenesis date back to the 1930s with major bursts of further advance taking place at approximately 10 year intervals until the present time. Enormous gaps, however, remain in the knowledge.

The opening chapter provides the non-specialist reader with valuable terminology (for readers on

both sides of the Atlantic), and describes the various pathways of development found in parthenogenesis. Spontaneous activation of oocytes and experimental induction, both *in vivo* and *in vitro*, are reviewed. The recent experimental use of the LT/Sv strain of mouse, in which a high incidence of spontaneous parthenogenetic development occurs within the ovaries of adult females which often leads to ovarian teratoma formation, is of particular interest. Chapter 2 deals principally with methodology, providing detail on activation, both *in vivo* and *in vitro*, by handling alone, by physical stimulation, by enzymatic treatment, heat shock, alcohol, anaesthesia, and so on. Chapter 3 details what is known concerning the biochemical and morphological aspects of embryonic development following activation. In chapter 4, the influence of ploidy on the timing of preimplantation development is considered, haploids showing slightly slower development during cleavage than that found in diploid parthenogenones or in fertilised embryos. Chapters 5 and 6 examine the development of haploid and diploid activated embryos, respectively, and the extent of normal development achieved. Suggestions are made for the possible use of parthenogenetically derived haploid cell lines in mutation study and in providing

animal models for some of the human genetic diseases.

The failure of parthenogenones to develop beyond the early post-implantation stage raises important questions about the action of sperm in normal development, and this is considered in chapter 7. The chapter also includes sections on X chromosome activity in parthenogenetic mouse embryos and on hydatidiform moles in man.

The work carried out, principally by the author and his colleagues, on the cytogenetics of ethanol activated mouse eggs is of particular interest to the reviewer. Such treatment is seen to induce aneuploidy in the resulting embryos, whether activation takes place *in vitro* or *in vivo*. The clinical significance for man is clear, since exposure of the human oocyte to alcohol at the time of ovulation might also lead to the production of aneuploidy among conceptuses.

In conclusion, the book provides a useful summary chapter of results and future potential. It is perhaps not a book destined for a wide audience, but it will certainly form an invaluable text for the specialist or for anyone anticipating the use of parthenogenetically derived cell lines in the pursuit of their research.

ANN C CHANDLEY