plasia, in which both resting cartilage and enchondral ossification are relatively normal, are distinguished from those in thanatophoric dwarfism and metaphyseal dysostosis, in which resting cartilage is normal and enchondral ossification is disrupted, and from those in achondrogenesis and metatropic dwarfism type II, in which resting cartilage is abnormal and the defect in enchondral ossification is apparently secondary to the defect in epiphyseal cartilage.

In the chapters on specific disorders the main emphasis is on the radiological appearances, including the changes with age and the radiological differential diagnosis. The radiographs are of excellent quality. The clinical features, including course and prognosis, are also described briefly. The genetics of each condition are also didactically given. Full references are listed for the radiological appearance and one or two key references for the clinical aspects.

C. O. CARTER

Gender Differences: Their Ontogeny and Significance. Edited by Christopher Ounsted and David C. Taylor. (Pp. x+273; figures and tables. £4.50.) Edinburgh and London: Churchill Livingstone. 1972.

This book opens with a quotation by C. D. Darlington: '... the difference between the two sexes, man and woman, is one of the most fundamental facts of life, physiologically, and socially, intellectually, and historically. It is a totally genetic one...' Nevertheless, only two chapters of this book are written by geneticists while the other nine are contributed by 11 psychologists and psychiatrists.

The first chapter, by C. O. Carter deals with sex linkage and sex limitation and thus hardly touches on the problem of sex differentiation. This is followed by a more exhaustive treatment of 'Errors of Sex Determination and Sex Chromosome Anomalies' by P. E. Polani, which makes it clear that the human Y chromosome is strongly male determining.

The other chapters seem to be centred round the mind, the body receiving only secondary treatment. Although there is a section on 'Embryological Development and Sexual Differentiation', by Corinne Hutt, which deals with many pertinent problems concerning the physical basis of sex differentiation, the treatment is altogether too general. For example, it is not sufficient

to state that, following the administration of exogenous androgens 'the female is masculinized to the extent that male genitalia develop' (p. 76); a more precise description of the degree of masculinization achieved in these circumstances is needed.

Some of the biological examples have been chosen unwisely. Thus, although sex chromatin studies on spontaneously aborted fetuses seemed at one time to suggest that these contained a marked excess of males, subsequent results of chromosome studies have cast serious doubts on the accuracy of the earlier reports. Again, a mass of data on environmental factors reputed to be affecting the sex ratio at birth are bedevilled by the fact that if there is any effect at all, this is very small, so that problems of sampling loom large. On the other hand, the development of a male newborn ensues in the vast majority of surviving zygotes containing a Y chromosome, and conversely, a zygote lacking a Y chromosome will develop into a female. The mechanism linking cause and effect is unlikely to be unravelled by studies of sex ratios, whatever their merits.

Birth weights, as studied by Margaret Ounsted, are clearly far more relevant, even though the weight at birth can no longer be accepted as a direct effect of the chromosome constitution. In the concluding chapter, Christopher Ounsted and David Taylor propose that sex differentiation may be due to differences in developmental rates. The authors are of the opinion that transcription in males proceeds at a *slower* pace than in females, notwithstanding the fact that male fetuses grow faster than female ones.

The topics raised in this book are of great general interest and also very complicated. In order to satisfy geneticists, however, they require an altogether more rigorous treatment than the one which has been adopted.

URSULA MITTWOCH

A Dictionary of Genetics. 2nd edition. By Robert C. King. (Pp. 337; illustrated. £2.25.) London, New York, and Toronto: Oxford University Press. 1972.

The first edition of this dictionary appeared in 1968 and was reviewed in this Journal in 1969 (6, 230). This second edition contains 700 new entries and the appendices, which include an historical survey and a list of relevant periodicals, are updated to 1971.