is not clear why the Laurence–Biedl syndrome should appear as a disease of the pituitary body). These chapters are followed by discussions on such clinical entities as diabetes, hypoglycaemia, obesity, and the wasting diseases. But much the largest part of the book —nearly 300 pages—is devoted to sexual differentiation and the gonadal dysgeneses, drawn largely on British and American sources. This is a well-planned and well-produced book.

ARNOLD SORSBY

Gene Activity in Early Development. By Eric H. Davidson. (Pp. xi+375; illustrated+tables. 116s. 6d.) New York and London: Academic Press. 1968.

Now that the basic principles of human genetics and cytogenetics are well established, the problem of how genes function during the development of the embryo will become of increasing importance. The present book is confined to early development up to the immediate post-gastrula period. It is perhaps hardly to be expected that Mendelian genes would feature prominently in an account of these stages. Indeed, most of the genes that are mentioned do not occupy specific positions on the chromosomes, neither do they segregate or mutate; in fact, they seem to be more or less synonymous with DNA. There is no mention, either, of the recent advances in cytogenetics. Illustrations of chromosomes are confined to those of *Ascaris*, drawn by Van Beneden in 1884, and to lampbrush chromosomes of oocytes.

Clearly, a synthesis between classical genetics and embryology has not yet been achieved, but those geneticists who are working towards this goal will find a considerable amount of important information in Dr. Davidson's book.

Though mainly concerned with biochemical embryology, it does not neglect the results of classical experimental embryology. There are four sections. The first one reviews experimental data on very early embryos, particularly with regard to DNA synthesis. Beginning with the premiss that cellular differentiation results from the activation of different genes in different cells, the author reviews the evidence that all the cells of an organism have the same 'genome' as the original cell of the zygote. This includes the early evidence by Driesch on the toti-potency of the products of cleavage, the findings of constancy of DNA in different cells of the body, the apparent equivalence of DNA sequences in different tissues as shown by DNA/DNA hybridization studies by McCarthy and Hoyer, and Gordon's successful results of implanting differentiated nuclei of *Xenopus* larvae into enucleated egg cells. There is no mention of the fact that the most common cell for obtaining human chromosomes is the lymphocyte, which is highly differentiated and does not normally undergo any more cell divisions.

The second section considers the cytoplasm as a possible source of differentiation. The assumption is that cytoplasmic molecules specify the pattern of gene activity in the embryo. The embryonic cytoplasm is laid down during oogenesis, and this is the topic of the third section of the book. It includes a detailed discussion of the biochemical findings on lampbrush chromosomes as well as a word of caution that the techniques used to measure cytoplasmic DNA are not always reliable. The last section deals with the different intervals of time that elapse between events in oogenesis and their possible effects on the embryo; in addition, there is some speculation on the operon concept as applied to higher organisms, the theory of which has since been further elaborated by Britten and Davidson.

By putting together a great deal of available data and posing many timely problems, this book is a welcome stepping-stone on the difficult route towards a new developmental genetics.

URSULA MITTWOCH