

next. While it is still covered by the old cuticle it is said to be "pharate" or masked. If one could actually observe the "actual instar" it would show very striking changes in its form, as in an embryo, starting like a soft and folded leaf within a bud and assuming its proper form and appearance only at ecdysis when the old skin is shed. It is a little difficult to understand why the vague time point of apolysis along this continuous process of growth should be selected for separating the instars, which by definition have definitive forms.

But that is a detail. The book as a whole is a product of thought by the author and it demands thought from the reader; it is to be recommended on these grounds both to the advanced student and to the reflective investigator.

V. B. WIGGLESWORTH

MORPHOGENESIS FOR STUDENTS

Tissue Interactions during Organogenesis

By Etienne Wolff. (Documents on Biology, 1.) Pp. xiv + 225. (Gordon and Breach: New York and London, July 1970.) 175s, \$21.00 boards; 62s 6d, \$7.50 paper.

THIS is an interesting attempt by Etienne Wolff and a group of his past and present colleagues to bring a much needed comfort to the advanced undergraduate student. They have aimed to bridge the gap between textbook and the flood of original literature by a series of didactically written reviews by workers experienced in the subjects on which they write.

An opening survey of problems of determination by Wolff stresses the recent brilliant work on transdetermination in insects from Hadorn's laboratory. This, together with an account of the value of immunochemistry in studies of induction and cytodifferentiation (by Y. Croisille), gives a more general setting to the other seven reviews which all deal with the morphogenesis of avian organs. Those chosen are kidney (by Wolff), liver (le Douarin), skin (Sengel), neurocranium (Benoit and Schowing), lung and stomach (Dameron, Sigot, Marin). The emphasis is, in most cases, upon the *in vitro* analysis of tissue interactions which these workers have exploited so profitably.

The authors have succeeded admirably in presenting their material in a clear and simple way. The manner is excellent, but the matter, though important, is a little restricted. Even if bird material alone were considered for inclusion, the analysis of morphogenesis in limb and eye would have had worthwhile lessons to offer.

D. R. NEWTH

NEUROHYPOPHYSIAL HORMONES

Pharmacology of the Endocrine System and Related Drugs

The Neurohypophysis. (International Encyclopaedia of Pharmacology and Therapeutics, Vol. 1, Section 41.) Pp. viii + 486. (Pergamon Oxford, London and New York, May 1970.) 120s; \$16.

THIS excellent volume is a valuable addition to the ambitious series published by Pergamon Press, sections of which are gradually appearing.

When applied to the neurohypophysis, the title of the series is misleading. Encyclopaedia it may be; international—judging from the list of its contributors—it certainly is; but pharmacology is only part of its business. It is true that there are chapters on the chemistry of the neurohypophysial hormones, and on the relationship between structure and action, topics which might be termed pharmacological; it is true too that about one

third of the contributors work in departments of pharmacology. But the volume contains, in addition, full accounts of the comparative physiology, storage and release, biosynthesis and fate in the body of the hormones it treats. As would be expected, therapeutics is represented only by two short articles on clinical pharmacology at the end.

It must be difficult, in writing such a book, to know what to leave out. It would be impossible to include every reference and mention every possibility without greatly extending its compass. The contributors have managed to select wisely and to build their arguments round the important facts rather than attempting to include everything. The full lists of reviews at the end of each chapter direct the reader to more comprehensive accounts. As would be expected, there is some overlap now and then between chapters, but the editors, themselves distinguished workers in the field, have managed to produce a section which is well proportioned, all of whose parts fit reasonably well together.

One trouble about a book like this is that it is bound to be out of date by the time it is published. In rapidly expanding fields, large numbers of papers are written and important findings are reported almost weekly, while the slow businesses of writing, editing, printing and binding go remorselessly on. In one chapter, for instance, on a subject where progress is fast, out of some 250 references there are only five as recent as 1968, and one of these is cited as being "in press". The reader will not find here the latest developments. But he will find intelligently written accounts of the basic physiology and pharmacology of the subject.

This is not a book for the physician, but it will be of great value to every teacher or experimental worker in endocrinology who can afford it.

J. M. WALKER

THYROID ACTIVITY

The Thyroid and the Autonomic Nervous System

By David Leak. Pp. ix + 148. (Heinemann (Medical), London, July 1970.) 35s.

THE thyroid is currently a biochemist's gland, and there is something of a gap in knowledge between the synthesis, output and transport of its hormones to the cell receptors, and the final expressions of the gland's level of activity under normal or clinical conditions.

Dr Leak has made a careful and thoroughly critical review of the way—or of one of the ways—in which the thyroid hormones may produce their effects on body function. The evidence is difficult and often conflicting—not least, as he emphasizes, because of differences in response in the various species in which these problems have been studied, and doubts as to their relevance to the situation in man. In addition, it has often been assumed that the reduction of an effect by adrenergic blockage implies that the effect is mediated through the autonomic system, whereas the reduction may result simply from this system independently, causing changes which are additive to the effect examined; and Leak seems to make this assumption himself when discussing the ocular effects of thyroid overactivity.

It is unfortunate also that he refers to the levels of thyroid stimulating hormone as being usually increased in hyperthyroidism relying on a reference based on work in 1957 before the long acting thyroid stimulator was recognized. These points, and a curious predilection for treatment with D-thyroxine, are, however, minor limitations to a useful review which defines clearly the evidence for an increased sensitivity to, rather than production of, catecholamines in conditions of increased thyroid activity. Even if it does not solve all the problems, this book will help considerably in clearing the ground for their closer study.

E. ERIC POCHIN