

and no effective measure can be devised to reverse the process, so that our chance of reducing the incidence of cancer lies in removing the agent from the environment which causes it. Epidemiological studies spotlight some of these agents, and no doubt more could be identified if information was available.

Doll puts in a plea for a record-linkage system which, by covering the whole community, could provide the needed information to reveal other carcinogenic agents which then could be removed from man's environment. Doll's excellent book should be read by those, in government or industry, who have the power to act.

P. C. KOLLER

## LIVELY EMBRYOS

### Éléments d'Embryologie Causale

By J. Fautrez. (Collection d'Enseignement Biologique.) Pp. 302. (Paris: Gauthier-Villars, 1967.) 32 francs.

To many students of biology and medicine embryology means the growth and development of boredom. Microscope slides showing sections at different "levels" of particular "stages" of selected "types" are drawn, labelled and forgotten. A few plastic models and a pickled foetus or two may be thrown in for good measure, and then teacher and students alike pass with relief to something else.

Professor Fautrez gets right away from this atmosphere. He writes in a clear and lively style, and from start to finish his embryos live. He assumes that the reader knows some elementary general biology, including the rudiments of embryo anatomy, and sets out to introduce him to causal embryology. The overall plan of the book follows the conventional sequence, beginning with the gametes and fertilization, and ending with the development and co-ordination of the main organ systems. But always Fautrez asks why each embryonic structure should develop where and when it does, and how it is that the embryo is able to survive each phase of its development long enough to grow into the next.

Particularly attractive is his use of experimental evidence. The book is not intended to be an advanced treatise, and although sufficient experiments are quoted to keep the reader in touch with the excitements and frustrations of embryological research, the main argument is never swamped with experimental detail. On some topics the experimental evidence appears conclusive, but where there is uncertainty or conflict the rival theories are carefully explained. There is a nice mixture of examples from recent and older work and from a wide range of animal species. Obviously a book of this size cannot include all the experimental evidence that is relevant, and there must be an element of arbitrariness in the choice that is made; but Fautrez's aim has been to write a good book on embryology, not to administer divine justice to embryologists, and he has been admirably successful.

The deficiencies of the book are small compared with its merits. It is adequately illustrated with photographs and diagrams which, with one or two exceptions, are clear and informative; but it might have been helpful if the reader were referred to them in the text instead of being left to stumble on them by accident. The chapter on embryonic membranes is disappointing; it gives a poor idea of the intense activity of these remarkable structures and contains several misleading statements, for example that the cleidoic eggs of vertebrates are surrounded by an "impermeable" shell. There is also a curious omission from the chapters on gametogenesis of any mention of chiasmata formation and crossing-over; it is implied that the only important function of the second meiotic division is to halve the amount of DNA.

It is unfortunate that the language barrier will restrict the number of English-speaking students who can make use of this book. But it can be strongly recommended to students of all ages who either read French easily or who wish to improve painlessly both their biology and their French.

D. A. T. NEW

## KEEPING UP WITH PHYSIOLOGY

### Annual Review of Physiology

Vol. 29. Edited by Victor E. Hall in association with Arthur C. Giese and Ralph R. Sonnenschein. Pp. vii+652. (Palo Alto, California: Annual Reviews, Inc., 1967.) \$8.50.

THERE are a number of ways in which the physiologist can keep abreast of the ever increasing volume of literature which according to MEDLARS amounts to some 120,000 papers in medicine and allied sciences each year. The conventional abstracting and indexing services are useful for obtaining information about specific topics, but for a more general coverage recourse may be had to *Physiological Reviews*, which covers a small number of subjects in great depth, and the *Annual Review of Physiology*, which gives a broad coverage.

The twenty-ninth volume of the *Annual Review of Physiology* covers the literature up to May 1966 in a wide field of physiology. Information about the nervous system occupies about a third of the volume and covers growth and differentiation of nerve cells, electrophysiology of the cell, afferent mechanisms, higher functions, hearing, vision in *Limulus* and a welcome review of motor mechanisms. Cardiovascular, respiratory and endocrine physiology (adenohypophysis, reproduction, parathyroid and calcitonin) are well represented. For the general physiologist there is much of interest about transport through biological membranes, metabolism, and invertebrate excretory organs. Gastric physiologists will be happy with the review of gastric secretion, and a chapter on lymphatics and lymphoid tissue contains useful information about the thymus and antibody responses.

The ability of the physiologist with special interests to obtain a list of relevant literature without difficulty raises the question as to the type of reader this annual review is now designed to interest. For the specialist there is no alternative but to read the literature himself. The ideal readers would presumably be teachers of physiology who, devoting their interests to special topics, may have difficulty in keeping themselves generally informed. For such readers this annual review can only be of interest if clear ideas of the advances and problems are obtained. This need is met by a number of articles in which the authors have deliberately limited the scope of their review. The articles by Gaze on growth and differentiation, Bernstein on respiration, Guillemin on the adenohypophysis, Arnaud, Tenenhouse and Rasmussen on parathyroid, and Wolbarsht and Yeandle on visual processes in *Limulus* are particularly clear and critical. These reviewers have added interest to their articles by referring to the authors of important papers by names rather than by a series of reference numbers.

On the other hand, a number of authors introduce their reviews by apologizing for their inability to cover the entire accumulation of literature in their specific field. They certainly cover an enormous amount and the thorough way in which the literature has been collected and subdivided can only lead to admiration. Such reviews, while being useful, are a non-critical compilation of the literature. It is difficult for a reviewer to be critical of work in a subject allied to his own but outside his immediate interests.

The scope of the reviews has been of concern to the editors who saw the first flicker of the publication