

Embryology

The Human Embryo. Documentations on kinetic anatomy. E. Blechschmidt. Schattauer, Stuttgart, Germany, 1963. xiv + 105 pp. Illus. Plates. \$33.75.

Blechschmidt's beautifully illustrated atlas of human embryology consists of 47 plates with 45 associated tables. It is an excellent supplement to the author's outstanding earlier work *The Stages of Human Development Before Birth*.

Plates 1 and 2 give a brief description of total reconstructions, shown in line drawings, of embryos from the presomite stage to 30 mm. The five embryos shown on Plate 1 are duplicates of illustrations of the Ludwig embryo Da 1 and four Carnegie Collection embryos originally drawn by James F. Didusch. Plates 3 through 47 are drawn in color from reconstructions made by Blechschmidt.

Seven embryos are used to cover the embryonic period: (i) 3 mm, plates 3 through 6; (ii) 3.4 mm, plates 7 through 10; (iii) 4.2 mm, plates 11 through 18; (iv) 6.3 mm, plates 19 through 22; (v) 10 mm, plates 23 through 31; (vi) 17.5 mm, plates 32 through 44; and (vii) 33 mm, plates 45 through 47. The sequence of growth patterns is well illustrated for the central and peripheral nervous systems, the pharyngeal pouches, the gastrointestinal tract and liver, and the cardiovascular and urinary systems. The growth of other systems, particularly the skeleto-muscular system, is illustrated in only the more advanced stages.

My first criticism of this atlas concerns the identification of structures on each plate. Opposite each plate is a table on which there is an outline sketch of the plate, with structures numbered and a key beneath the sketch. In the more complex reconstructions, identification of certain structures is difficult. The keys are mostly in Latin, with a few terms in German. The latter have sufficient English translations to be understood.

My second criticism is related to a statement made by Blechschmidt in the foreword: "The earlier hypothetical germinal layer theory is not used today because it does not provide a correct picture of recent findings." Although this statement is certainly partly true, the germinal layer theory is still

widely used in modern textbooks, and it is a very useful teaching aid. Although colors are used in the plates to give contrast between parts, use of the standard colors for the three germ layers would have made it easier for the average American reader to interpret the plates.

The text of *The Human Embryo* would be much more useful if the author had applied Streeter's "Developmental Horizons" to the embryonic stages, for this would allow the reader to associate each described embryo with publications on the embryos in the Carnegie Collection.

The Human Embryo is a valuable contribution, one that will be used extensively by students and teachers of embryology. Blechschmidt should be complimented for his extensive series of reconstructions and the really outstanding illustrations of these reconstructions.

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Chemistry

Boron, Metallo-Boron Compounds, and Boranes. Roy M. Adams, Ed. Interscience (Wiley), New York, 1964. xxiv + 765 pp. Illus. \$27.50.

The title of this edited volume is adequate to describe the contents, but leaves unanswered the question of why the rather few poorly related topics presented therein are gathered together. If, as Adams maintains in his preface, it is an effort to present a review of the chemistry of boron, the effect is seriously deficient. Although earlier notices by the publisher contained hints that this volume would be followed by later volumes, the Library of Congress Catalog Card contains no such promise, nor is there any indication in the preface that the field of boron chemistry is to be more completely surveyed by this editor. One can only assume that this is the complete offering, and a sparse one it is. Such important aspects of this field as the chemistry of organo-boron compounds (including the rapidly growing subject of hydroboration), the chemistry of boron-nitrogen compounds, and the chemistry of the boron halides are ignored or receive only cursory atten-

tion as impinging upon the chemistry of the various boron hydrides. As a result the book is most charitably described as a diverse and almost random collection of excellent monographs about boron.

Without exception the contributors have dealt with their selected topics in a comprehensive and scholarly fashion. The reviews of the literature in every chapter are impressive in scope and satisfactorily current. The first chapter, "The history and technology of the borax industry," by W. A. Gale, makes very pleasant and informative reading in the classic tradition of natural history. The final chapter, "Toxicology of boron compounds," by George J. Levinskas, is commendable and useful. The six chapters in between are all excellent entities but combine to make an unsatisfactory whole. The chapters are: "Heterogeneous equilibria in aqueous systems of inorganic borates," by W. A. Gale; "Inorganic boron-oxygen chemistry," by Nelson P. Nies and George W. Campbell; "Elemental boron," by A. E. Newkirk; "Refractory binary borides," by Ben Post; "The hydroboron ions (ionic boron hydrides)," by Roy M. Adams and A. R. Siedle; and "The boranes or boron hydrides," by Roy M. Adams.

As a review of the chemistry of boron the book is not worth the purchase price to the individual chemist. The publisher could possibly find a ready market for the individual chapters if they were offered as separately bound monographs at a modest price.

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New Books

Biological and Medical Sciences

Advances in Applied Microbiology. vol. 6. Wayne W. Umbreit, Ed. Academic Press, New York, 1964. 271 pp. Illus. \$10. Eight papers: "Global impacts of applied microbiology: An appraisal" by Carl-Göran Hedén and Mortimer P. Starr; "Microbial processes for preparation of radioactive compounds" by D. Perlman, Aris P. Bayan, and Nancy A. Giuffre; "Secondary factors in fermentation processes" by P. Margalith; "Nonmedical uses of antibiotics" by Herbert S. Goldberg; "Microbial aspects of water pollution control" by K. Wuhrmann; "Microbial formation and degradation of minerals" by Melvin P. Silverman and Henry L. Ehrlich; "Enzymes and their applications" by Irwin

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