Book Reviews

Analysis of Development. Benjamin H. Willier, Paul A. Weiss, and Victor Hamburger, Eds. Saunders, Philadelphia–London, 1955. xii + 735 pp. Illus. $15.

Between 1933 and 1940 a group of embryologists constantly sat on the sands of Cape Cod discussing the mysteries of morphogenesis and the interpretation of experiments old and new. In the fullness of time, their excogitations led to the volume now before us—a wholly admirable treatment of the broad field of experimental morphology and developmental physiology and biochemistry. It is essentially a statement of the present position in a region where events are moving very rapidly.

Perhaps the chief contribution is the discussion of dependent differentiation (induction) in amphibians (Holtfreter and Hamburger), and it is interesting to see that the advance of the subject has obliged a return to the stricter biochemical conceptions of an earlier phase. Unfortunately, the purely mesodermal inductor of Toivonen was too late for inclusion.

Although space does not permit even the mention of all the contributors, it may be said that this paper is preceded by excellent articles on nucleus and cytoplasm (Fankhauser, Stern, Tyler), colloidal organization and submicroscopic morphology (Schmitt), and a stimulating sketch of the history of experimental embryology (Oppenheimer).

There follow contributions on differentiation mechanisms in other kinds of animals (Rudnick, Watterson, Bodenstein) and on the differentiation of particular organs in vertebrates (for example, Weiss, Twitty, Yntema, Rawles).

Next comes a throughtful account of energy exchange and enzyme development during embryogenesis by Boell, who gives the best summary for many years of the vexed question of the sources of energy used by embryos during their ontogenies. The interesting study of the genesis of immunological properties (Tyler) prompts the suggestion that it might have been worth while to organize at least some of the material of the book in a framework less orthodox than that actually employed—for instance, to group together under one head all phenomena concerned with the experimental disaggregation and aggregation of living cells, tissues, and germ-layers, their mutual compatibilities and interactions. Finally, we have the ontogeny of endocrine correlation (Willier) and size-determination (Berrill), and the book ends with papers on regeneration and teratology.

The volume seems remarkably free from misprints, although editorial control over the texts and conventions shows some imperfections. Although most of the illustrations are exceptionally clear and good (for example, in the papers of Schour on teeth and Etkin on metamorphosis), one regrets that such valuable contributions as those of Bodenstein on insects and Twitty on eyes have no pictures at all. But for the most part this volume has done all that teamwork can do and will be accepted throughout the world as an outstanding justification of what can be done just by sitting on the sand.

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University Physics. Francis Weston Sears and Mark W. Zemansky. Addison-Wesley, Cambridge, Mass., complete ed. (ed. 2, based on Sears' 3-vol. work, *Principles of Physics,* with supplementary problems), 1955. viii + 1031 pp. Illus. + plates. $8.50.

This is the king-size Sears and Zemansky, 17 percent longer than its 1949 predecessor, and greatly modified in appearance and content. Not only does it come in the red jacket characteristic of "king-size," but a side-by-side comparison of the new book with the old one leaves the favorable impression that the authors have done a thorough revision, keeping in mind the fact that the book is primarily for instruction. They have been careful to rearrange ideas for better impact on the student, and the general attractiveness and teachableness of the book are enhanced by improved draftsmanship of countless figures. There is a liveliness about the new figures that is impressive and gives the book a completely new look.

Many parts are rewritten or recast, and there has been no slavish holding to old pages. Where the calculus is used, much care has been exercised in making the ideas behind this approach still clearer to the student. One major change occurs in the introduction of completely new problems for each chapter. However, the old problems have been retained in an appendix. Answers to all odd-numbered problems of both sets are given. This appendix alone contributes the greatest change in length of the book, accounting for approximately half of the 154 pages added. The largest other changes occur in electricity (30 new pages) and in optics (21 new pages). Many of the ray diagrams for optical systems are now produced in white against black, a device used many years ago but not often used in recent textbooks.

Some 18 new topics and extensions of treatment are enumerated by the authors as additions to subject matter. Many of these are just as "classical" as other materials already included; a few are newer. It is interesting to note, for example, that the engineering problem of architectural acoustics has given place to the treatment of musical scales! The effect of these additions, and of the book as a whole, is to make a complete and encyclopedic volume. Every author of a textbook must decide how closely to make his book like tomorrow's newspaper or next month's magazine. Sears and Zemansky have written a solid textbook, not a newspaper; but, because the emphasis is steadily upon principles and their application, the budding engineer and scientist should acquire from the study of this textbook an ability to read next month's magazine with understanding. In a world that needs technically trained persons, those who master the contents of this book should find strong positions.

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Pathology of the Dog and Cat. The genitourinary system with clinical considerations. Frank Bloom. American Veterinary Publications, Evanston, Ill., 1954. xv + 463 pp. Illus. $12. ($12.50 outside U.S.A.)

This book presents a very thorough coverage of the special pathology of the genitourinary system of the dog and cat. As with most first editions, there are obvious faults, but they are far overshadowed by the wealth of information provided, its presentation and organization, and the excellent illustrations.

The contents are presented in three sections or chapters; the urinary system, the male genital system, and the female genital system including the mammary gland. Fundamentally there is a brief