

the Coriolis effect, and orienting thermal radiations more meaningful if he has had some work in physics. The book ends by letting the reader know that there is much yet to be learned about bird migration.

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COMPARATIVE ANATOMY AND EMBRYOLOGY, William W. Ballard, 618 pp., \$10.00, Ronald Press, New York, 1964.

The entry of another text which combines the traditionally separate courses of comparative vertebrate anatomy and vertebrate embryology is welcome. If the undergraduate biology major is to be at one and the same time a biologist, a chemist, a mathematician, and have a solid liberal arts background, it is necessary that there be much culling and consolidation of traditionally separate areas. The flood of new knowledge for which the curriculum has to make room makes culling and consolidation even more imperative. What areas are more suited to a merger than embryology and anatomy? Who can effectively teach one without the other?

Ballard's book is an excellent initial attempt at consolidation. Those with more experience in morphology than in embryology will probably opine that Ballard tends to be too embryological. Some will object to his use of newer terminology. Endocrinologists will object to his handling of their favorite material. But it is not an endocrinology, embryology, anatomy, or physiology textbook and no author is an expert in every area.

If you knew everything in this book you would know quite a lot. Perhaps Ballard includes too much, especially if your aim is to spare time for the inclusion of other things in the curriculum. The diagrams are adequate. A glossary would be helpful. I suspect there would be a few problems in adapting a laboratory to this text, especially if *Amblystoma* is not your favorite animal.

The trend in biology toward the merging of various areas in order to cope with expanding knowledge should please Albert Szent-Gyorgyi who recently has had a few words to say on Teaching and the Expanding Knowledge (*Science*—4 December, 1964). To quote Szent-Gyorgyi, "It is thought that such (sic) books are something the contents of which have to be crammed into our heads. I think the opposite is closer to the truth. Books are there to keep the knowledge in while we use our heads for something better. . . . Dead knowledge dulls the spirit, fills the stomach without nourishing the body. The mind is not a bottomless pit, and if

we put in one thing we might have to leave out another. By a more live teaching we can fill the soul and reserve the mind for the really important things. We may even spare time we need for expanding subjects."

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VERTEBRATE EMBRYOLOGY, Laboratory Manual, Richard M. Eakin, \$2.75, University of California Press, Berkeley and Los Angeles, 1964.

This laboratory manual is a comprehensive manual covering many aspects of embryology which include gametogenesis and the estrous cycle, early development of the starfish and the development of the frog larva, chick embryo and the pig embryo and fetus.

Discussion and illustrations of serial sections comprise most of the work with the embryos. Review questions at the end of each chapter are used to magnify the significance of the preceding laboratory exercises.

The manual is too comprehensive for a general high school class, but it or part of it could be effectively used in an advanced high school biology class if enough time and laboratory material are provided.

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GROWTH AND AGE, Lorus J. Milne, Margery Milne, 36 pp., Subscription \$4.00 yearly, D. C. Heath and Company, Boston 16, Massachusetts, 1964.

Another one of the BSCS paperback series. The Milnes have been quite helpful in BSCS activities, and in this pamphlet they attempt to describe some of the principles of growth and aging. However, in a short pamphlet, they have ranged the spectrum of all organisms to the point where some of the basic illustrations which might be cited have been lost in the great area which they cover. For instance, aging barely rates a few pages. Some of the amazing material from growth studies of a longitudinal nature are not taken up in any detail whatsoever. Such instances as cited above offer a great many project ideas for the imaginative young mind. Particularly in the growth studies of a longitudinal nature, careful records of a great many young people would be most advantageous for the research people in this work.

Although the topic of the pamphlet is a "red hot" one, the material presented simply does not come off as well as this reviewer would have wished, primarily because not enough detail was given on each illustrative example.