Physiology and Anatomy

LABORATORY ANATOMY OF THE FROG

by Raymond A. Underhill. 4th ed. 1980. William C. Brown Company (2460 Kerper Boulevard, Dubuque, Iowa 52001). 50 p. Price not given.

Devoted entirely to the anatomy of the genera *Rana* or *Xenopus*, the textbook appears to be intended for students in advanced high school biology, in a college lab course in which the frog is the primary dissection animal, or as a component in a comparative anatomy laboratory. Because of the depth and detail, it would also be a fine reference for those instructors using frogs as one of a number of dissection specimens.

Effective writing, easy reading, neat physical presentations, and good layout produce a book of fine quality. Considering the specific anatomy of the frog, the book contents are arranged in a logical manner.

This fourth edition contains essential material from earlier efforts, along with additional dissection directions and functions of various organs. Most of the drawings have been redone with arteries and veins now in color.

Though the author makes excellent use of various types of drawings, there is a definite need for additional photographs. The opportunity to compare similar drawings and photos which are both labeled is likely to facilitate learning. It would be helpful if the students were able to have double injected frogs for use with this book. It compares very favorably with, and in some cases surpasses in quality, most of the current offerings on the market.

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Related Fields

LEARNING FACTS AND ATTITUDES ABOUT HUMAN SEXUALITY

by Ned Van Tidow. 1979. J. Weston Walch, Publisher (Box 658, Portland, Maine 04104). 50 spirit masters, $16.75.

The national epidemic of teenage pregnancies and the high birth rate among women in their early teens demand that community agencies do more to help young men and women understand their sexuality and provide information so that they can make rational decisions about their sexual behavior. This set of spirit masters can help to inform and educate young people on these questions. They are designed to accompany or supplement an existing program on human sexuality, and each master provides a base for classroom discussions or library research.

The spirit master set provides a great deal of selection for teaching the topics of human sexuality. Some of them present knowledge about the anatomy and physiology of human reproduction—for example, menstruation, puberty, sexually transmitted diseases, and pregnancy. Others present activities that can help students to understand their own thoughts and values concerning sexual activities, the sex roles of males and females, and sexual life styles. The spirit masters could be used in a high school biology class or, perhaps, more appropriately, in a course on human sexuality or marriage and the family.

A teacher's guide accompanies the spirit masters. This is divided into three sections. The first gives background information to the teachers and offers suggestions for classroom activities. A second section is directed toward the student and also lists resources such as texts, films, and filmstrips that can be used in conjunction with the spirit masters. The last section of the guide offers notes and answers for each of the masters. Some of these notes provide almost no information for the teachers, but others are adequate. Generally, the information in the guide is helpful, but the scarcity of information for some of the masters will make their use by teachers with little experience in dealing with the sensitive aspects of human sexuality questionable.

The teacher who uses this set has many choices. S/he may choose to use only a few masters or many, depending upon the course objectives and the extent to which the more sensitive aspects of sexuality are discussed. There are masters that can supplement the teaching of the anatomy and physiology of human reproduction; however, some topics presented on other masters require teachers to hold nonthreatening discussions with teenagers on sensitive topics. Not all teachers can do this.

The teacher should preview the set before deciding to use it as a supplement to classroom work on human sexuality, and also to determine if community values will permit the use of all or only some of the masters.

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THE WILD DOGS IN LIFE AND LEGEND

by Maxwell Riddle, 1979. Howell Book House Inc. (230 Park Avenue, New York 10017). 299 p. $14.95.

Maxwell Riddle, a world-renown dog journalist and judge, presents a wealth of fact and lore about wild dogs. He covers wild Canids from the Wolves of North America to the Raccoon Dogs of Japan.

The book covers the following: what you should know about wild dogs, what a Canid is, the Wolf, Coyote, Fox, Jackals, Raccoon Dogs, the Dingo, Dhole, African Wild Dogs, animals that are neither Wolves nor Dogs (Folkland Islands Wolf, Aardwolf, Prairie Dog), Candid reproduction, the Alaskan Malamutes and Wolves.

The author presents a book that is well illustrated with many pictures of Wild Dogs. He uses nontechnical terms, making the book useful to the average reader, and includes approximately six pages of bibliography and a supplementary reading list.

The major thrust of this book is that the wild Canids of the world face extinction. They need our protection. The author discusses the biology of the species to give the reader a working knowledge of the lives of wild dogs, thereby creating an active sympathy for them. There is also a plea to have readers realize, as primitive people did, that Canids are in a very real sense our brothers. The book contains ranges, habitats, diets, sizes, social habits, and reproductive habits of the species of wild dogs.

This book offers interesting and informative reading about species of animals threatened by extinction unless they get our help.

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ANIMALS IN SCHOOLS VOLUME II TERRESTRIAL INVERTEBRATES

by L.C. Comber and M.E. Hogg. 1979. Heinemann Educational Books (4 Front Street, Exeter, New Hampshire 03833). 162 p. $9.50.

Because of their strong feelings concerning the "educational values of keeping animals in schools," two veteran teachers have produced a multi-grade level manual on how to capture, care for, and teach with common land invertebrates. Unhappily, because the animals discussed are English varieties and all but two of the many resources listed are also English, American teachers may not find this book as helpful as their overseas cousins.

Eight chapters cover the following: butterflies and moths, ants, bees and wasps/beetles/cockroaches, grasshop-

pers, and stick insects/flies, earwigs and aphids/spiders/woodlice and other cryptozoic animals/snails and slugs. All species detailed exhibit high success ratios in the classroom and are "easily obtainable." (Keep in mind this means "easily obtainable" in England. Of the 13 moths and butterflies cited in Chapter 1, only one is native to the United States.) Each chapter has background information concerning number of species, life cycles, mating rituals, and raising of young. Instructions are given on how to trap, identify, determine sex, and house the organisms. Many detailed drawings and some photographs are included to help in construction of cages. Tips on food preferences and daily care are also included. All techniques mentioned in the book have been field tested by the authors or under their supervision.

The book's most outstanding feature is its wealth of open-ended questions and ideas for study and experimentation found in every chapter. Any teacher could benefit from the innovative, inquiry-oriented suggestions offered in this informative though geographically limited handbook.

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FOUNDATIONS OF ANIMAL DEVELOPMENT

by A. F. Hopper and N. H. Hart. 1980. Oxford University Press (200 Madison Avenue, New York 10016). 624 p. $19.95.

This comprehensive college textbook is a well-written synthesis by experienced authors, blending the descriptive, biochemical, and experimental aspects of animal development. After a brief introduction, the authors review such concepts and principles as gametogenesis, fertilization, cleavage, gastrulation, tissue interactions, neurulations, and morphogenesis. The second portion of the book describes the development of organ systems with most emphasis on the cardiovascular, nervous, and urogenital systems.

The text has numerous headings and subheadings, and new terms are in italics. The illustrations are excellent line-drawings and are well labeled; features in some are shaded with pink for contrast. Good quality photomicrographs are used, mostly in the first portion of the book. There are no chapter summaries and no glossary, but there is an extensive index. References are listed at the end of each chapter. These are primarily to journal articles on original research and include many from the past ten years. The chapters on fertilization and gastrulation have more than twice as many references as the average chapter that has about twelve. The discussion of fertilization is quite extensive and comparatively advanced. The inclusion of a chapter on early human development is another useful feature of this textbook.

Foundations of Animal Development is a significant contribution to this rapidly changing field of study. It may allow more instructors to adopt only one book, rather than using a classic textbook along with readings or paperbacks on more contemporary approaches.

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BIRDS: READINGS FROM *SCIENTIFIC AMERICAN*

Introduction by Barry W. Wilson. 1980. W. H. Freeman and Company (660 Market Street, San Francisco 94104). 276 p. $17.95 hardback; $8.95 softback.

We are all quite familiar with the fine articles that have appeared in the *Scientific American* since the magazine was revised and revitalized some thirty years ago. We also know that many of these articles have been made available as individual offprints. Many teachers stock class sets of appropriate reprints to use as supplements to their textbooks at the proper moment.

More recently, the W. H. Freeman Company has been assembling articles of particular subject areas into collections to be printed as books. This one called *Birds* is the most recent compilation. It contains 25 of the more than 40 bird articles that have appeared in *Scientific American* since 1948. Obviously, then, the articles are not new. They range in age from *Bird Dynamics*, originally printed in April 1952, to *How Bird Eggs Breathe* from the February 1979 issue.

The subject matter is quite broad in scope. The book is divided into seven sections, each with a special introduction that surveys the subject area. Sections include: (1) Diversity of Birds (2 articles); (2) Flight (3 articles); (3) Migration and Navigation (3 articles); (4) Evolution (3 articles); (5) Behavior (6 articles); (6) Physiology and Song (6 articles); and (7) Birds and People (2 articles). There is also a bibliography followed by an alphabetical index.

Birds are most unusual animals. They are small, feathered specialists with wings and other adaptations that give them access to the sky, the sea, the land. They are only one of four life forms that developed the ability of true flight—insects, pterasaurs, birds, and bats. (Humans can fly too, but only when they get into one of their new-fangled flying machines.) It is probably safe to say that of all flying things, those closest to the heart of humans are the birds.

Bird behavior seems to be stereotyped in many ways, but modern research seems to show that even what we call their instinctive behavior may be partially learned. (See *How Insects Are Learned*.) Also, some birds, like crows and ravens, have learning powers equal to those of many mammals. (See *The Brain of Birds*.)

At any rate, though *Birds* is not a book to read at one sitting, it certainly merits a place of honor as a reference work. If you want to know how homing pigeons find their way home, read *The Mystery of Homing Pigeons*. To learn a little about