

pers, and stick insects/flyes, 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.

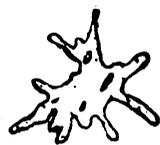
Carolyn Schofield
Memorial High School
Houston, Texas

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



CONNECTICUT VALLEY BIOLOGICAL SUPPLY CO., INC.

A SUPPLIER OF QUALITY BIOLOGICAL MATERIALS
SINCE 1946

Including...

- MICROSCOPES
- MODELS
- SKELETONS
- LIVING & PRESERVED SPECIMENS
- PREPARED MICROSCOPES SLIDES

— FAST DELIVERY GUARANTEED —

TOLL FREE 1-800-628-7748

1-800-282-7757 Massachusetts

P.O. BOX 326 • SOUTHAMPTON, MA 01073

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.

John W. Ferner
Thomas More College
Fort Mitchell, Kentucky

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, pterosaurs, 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



Where in the world

can you purchase a

SWIFT M952B Microscope for \$180.75?

(a 25% discount from Mfg. sugg. list of \$241.00)



Triarch regularly discounts all Swift and Bausch & Lomb microscope prices.

LET US KNOW YOUR NEEDS!



OTHER 25% discount specials:

B&L SSM-15 \$102.75
(15X stereo)	
B&L STZ-203 \$138.75
(50X-200X zoom, illum.)	
B&L N3S3M \$172.50
(40X, 100X, 400X, mirror)	
B&L T4F3L \$320.25
(100X, 400X, 1000X, illum.)	

FREE CATALOG AVAILABLE

**Triarch . . . Prepared
Microscope Slides**

P.O. Box 98 — Ripon, WI 54971
(414-748-5125)



how your breakfast eggs come to market, read *Poultry Production*. To learn why a sea gull can drink ocean water and survive, while a shipwrecked sailor cannot, read *Salt Glands*.

Ecological Chemistry will tell you why a blue jay rarely attacks a monarch butterfly. *Mimicry in Parasitic Birds* deals with the problems of social parasitism. And, in case you do not already know, *Pesticides and the Reproduction of Birds* will tell you how humans have seriously depleted populations of many predatory birds—inadvertently, of course.

Read a little here and a little there, and you are sure to pick up some gems of knowledge such as these:

Birds live in a world that is always in the present, mostly full of joy, with little memory of the past, and no real anticipation of what is to come." "The ritual nature of many of the visible cues used by birds—the fact that the responses are programmed—makes those birds vulnerable to exploitation by imposters." "... the skeleton of a frigate bird with a seven foot wing span weighed only four ounces, which was less than the weight of the feathers!" "... since T.H. Huxley generations of comparative anatomy students have even been taught to think of birds as 'glorified reptiles!'"

If you like to carry on a few experiments in flight in the privacy of your home, you will find detailed directions for converting a sheet of 8½ x 11 paper into a plane of such endurance flight that you might call it a "mystery glider." Good luck.

Philip Goldstein
9470 Poinciana Place
Ft. Lauderdale, Florida

Audiovisuals

. . . from p. 284

material is forthright, objective, non-judgmental, and sympathetic. Infor-

mation and ideas are presented in an interesting, understanding, and understandable way. Then why my lack of enthusiasm? I have reservations because the underlying assumption seems to be that if teenagers only have the facts they will make appropriate choices. There is no guidance regarding clarification of values, or, more important, the decision-making process. This serious drawback is the reason I must stress again the importance of a competent teacher using this program.

Half of the 50-page teacher's guide is a summary and script of the slide-cassette program. Review questions ask for recall of information from each of the three sections. The discussion questions are good and the suggested activities are excellent because they require exploration of emerging attitudes and values.

The program targets a white, middle-class population with a passing nod to the black middle-class. It is difficult to specify the most appropriate age group because the three parts vary considerably in sophistication. The program would certainly be useful at the high school level.

Betty Risley
University of Illinois
at the Medical Center
Chicago

THE MANY WORLDS OF NATURE: TREE BLOSSOMS

1980. Screenscope, Inc., (Suite 2000, 1022 Wilson Boulevard, Arlington, Virginia 22209). 16 mm color-sound film. 12 minutes. Purchase \$160.00.

This film points out that, while most people seldom think of trees as flowering plants, trees indeed do have flowers if we only take time to look. The film examines numerous trees in their natural habitats. The terms monoecious, dioecious, and perfect flower are defined, and appropriate trees are cited as ex-

amples. Also discussed are the role of flowers in the life cycles of trees, when to find trees in flower, and the life cycle of the pine.

This is a good, basic film with fine photography and clear narration. The film uses little botanical vocabulary, which may or may not be a problem depending on the intended audience.

Michael L. Harshaw
West Deptford High School
Westville, New Jersey

A RIVER, ITS FISH AND MAN 1979.
Educational Materials and Equipment Co., (46 Lafayette Avenue, New Rochelle, New York 10801). Sound/slide program. 24 minutes. Purchase \$73.50.

This program is an excellent pictorial essay on the interdependence between humans and the natural environment. From its opening discussion of the hydrologic cycle to the conclusion on how technological advances can be used to enhance previously degraded ecosystems, the developers successfully weave the thread of the continuity of life.

The hydrologic cycle is discussed in plain terms. Photographic and graphic examples illustrate the notion that the sun is the engine of the cycle and that we have a finite water supply. The transition from the physical to the biological cycle of the life history of the Atlantic salmon is flawless. Questions for discussion at the end of Part 1 relate to present-day problems and require some inference on the part of the student.

Part 2 shows the effects of unbridled technology on life systems. Dramatic shots of sources of air and water pollution lead to a discussion of human impacts on the Connecticut River in particular and all ecosystems in general. Citizen concern and participation are fundamental to the explanation of why and

(Continued on p. 290)