

book of interest. Only time will tell how progressive an impact this book itself will have on the philosophy of science.

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Physiology and Anatomy

ANIMAL PHYSIOLOGY: ADAPTATION AND ENVIRONMENT

by Knut Schmidt-Nielsen. 2nd ed., 1978. Cambridge University Press (30 East 57th Street, New York 10022). 560 p. \$18.95.

The usual topics of food getting, digestion, respiration, transport, locomotion, excretion and response in animals are discussed in this textbook of animal physiology. However, though the topics are familiar, the approach is novel. Most physiology texts are adequate presentations of the processes of life, but this text relates the life processes to the stresses imposed by the environment and shows how animals respond to these changes.

The author's use of simplified language, crisp style, comparative descriptions of animal structure and function plus liberal use of graphics heightens interest and brings into sharp focus the relationship between structure and function as related to environmental stress.

Intended as an elementary textbook, the information is presented in a manner that requires a minimal background in biology. However, more specialized and advanced materials are included for the inquiring student.

Although directed toward the beginner, the author's frequent use of formula requiring a fundamental understanding of chemistry and physics, may tend to thwart rather than foster the interest of students searching for a field of study.

The text is excellent for first-level courses at the university, college, and junior college and would be ideal as a source book for advanced secondary students.

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Related Fields

THE SCIENTIFIC IMAGINATION

by Gerald Holton. 1978. Cambridge University Press (32 East 57th Street, New York 10022). 382 p. \$27.50 hardback; \$7.95 softback.

This is a scholarly book and certainly not directed toward the casual reader. It

is basically a sequel to the author's previous book *Thematic Origins of Scientific Thought: Kepler to Einstein*. The style of the book tends to be somewhat ponderous, and each chapter is copiously annotated. Indeed, fully 15% of the total pages are devoted to notes.

The first of the book's three sections is devoted to the premise that a scientist often develops a presupposition that comprises a primary guideline in his/her work. Several general themes are discussed and then a detailed case study of the Millikan-Ehrenhaft controversy as to the magnitude of electronic charge is presented.

The second part, entitled "Studies in Recent Science," provides an excellent case study of Fermi and his research group. At this point, the book's title and the succeeding chapters appear to part ways. What is presented next is a discussion of a governmental report published to determine the plausibility of forming predictors of the validity and state of scientific research in the United States. The final chapter of this section deals with the psychology of the scientist, his/her sensitivity towards society, and society's view of scientific work.

The third section deals with the public understanding of science. The first chapter is a critique of Lewis Mumford's writings on science, technology, and society. Next follows a discussion of Frank Manuel's Isaac Newton, Ronald Clark's biography of Einstein, and finally a short discussion of the Project Physics Curriculum.

Judging from the book's title, I expected and eagerly looked forward to an in-depth analysis and discussion of scientific imagination, i.e., creativity, but in this respect was disappointed. However, for the professional in the areas of philosophy and history of science, the work provides both interesting and provocative reading.

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METHODS FOR EVALUATING PLANT FUNGICIDES, NEMATOCIDES, AND BACTERICIDES

by Eldon I. Zehr, ed. 1978. The American Phytopathological Society (3340 Pilot Knob Road, St. Paul, Minnesota 55121). 147 p. \$14.

This attractively bound book consists of a collection of forty-six papers written by plant pathologists and nematologists from the United States and abroad. These papers are arranged into four major sections: Preliminary considera-

tions, Laboratory and greenhouse procedures, Field test procedures, and Nematicide test procedures. A literature cited section and/or a bibliography is contained in all but seven of the papers. There is also a potentially valuable index.

The book is intended as a reference for those investigating new chemicals as plant disease and nematode control agents. I found it to be much more than that. This is a valuable book for the student of experimental design. Many of the procedures can be adapted to a variety of biological experiments. I was particularly impressed with the paper on "The use of statistics in planning, data analysis, and interpretation of fungicide and nematocide (*sic*) tests." It is most clearly and beautifully presented, complete with a useful flowchart of decisions and operational aspects of experimentation. Although this is a multi-author volume, the papers are uniformly well written in a thorough, clear, and straightforward manner.

I am not a plant pathologist nor a nematologist, yet I find this an excellent book and recommend it highly.

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Social and Ethical Issues

ON THE FIFTH DAY: ANIMAL RIGHTS AND HUMAN ETHICS

by Richard Knowles Morris and Michael W. Fox (eds.). 1978. Acropolis Books, Ltd. (2400 - 17th Street, N.W., Washington, D.C. 20009). 240 p. \$12.50.

This collection of essays by scientists, philosophers, and theologians explores the relationships between human beings and other animals. The Humane Society of the United States sponsored this book as another means of broadcasting the need for a reduction in animal suffering. It is an effort to reach students, educators, and theologians and engage them actively in the prevention of cruelty to animals.

These essays try to find answers to the following kinds of questions: Why be humane to animals? Is the mark of civilized person humane attitudes? Do animals have rights? Are people spiritually and psychologically affected by cruelty to animals? How can greater compassion for humans and other animals be fostered? What do history, philosophy, religion, and ecology tell us in searching for new ethics toward other living things?