Using macrophotography, close-up photogrpahy and slow motion camera techniques, this program outlines the differences and similarities between the two members of the order Odonata, the dragonflies and damselflies. Discussed initially are the physiological similarities of these two insects, their food sources and the territoriality of the males. Male dragonflies fly to patrol their territory while damselfly males perch.

The video explores courtship and reproductive behaviors and explains how they are different. It also describes the egg-laying behavior of the different species of damselflies, including the unique behavior of the Emerald damselfly. Both adults of Emerald damselflies immerse themselves in water for up to 15 minutes (male still attached to the female) while the female lays her eggs in aquatic vegetation. In the spring, the eggs hatch into prolarvae which last for a few seconds before emerging as a nymph (naiad) which exists as a highly effective predator. Also indicated is the predatory effectiveness of the adults. The aquatic larvae live for one to three years in forms which are adapted to the environment. The film shows metamorphosis into adulthood, which occurs after the period as a naiad.

Offering an explanation of thermal regulation, in particular the increase in body temperature required to fly, the program discusses behavior necessary to decrease body temperature. The question of where adult dragonflies go at night is answered.

The complete life history of the order is illustrated in this program which can be adapted for use in most introductory biology courses as well as in zoology and entomology. It could be used in all grades from junior high through college.

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Book Reviews

CREATIONISM

FALLACIES OF CREATIONISM
by Willard Young. 1985. Detselig Enterprises Limited (P.O. Box G399 Calgary, Alberta, Canada T3A 2G3). 302 p. $19.50.

Willard Young does a fine job of exposing much of the nonsense that advocates of creationism are spreading across the continent. His main theme, which he develops very well, is that creationism is necessarily a religious product. He explains at considerable length why it is absurd to contemplate *scientific* creationism. At its base, "scientific" creationists have conducted no experiments, gathered no data, and have no real theoretical structure to present. At best, they carp about and criticize alleged shortcomings in evolutionary theory while producing nothing themselves. At worst, they retreat into Biblical references as their source for scientific knowledge! With creationists clamoring ever more loudly for "equal time" for scientific creationism, it is good to be reminded and convinced, if necessary, that there really is no such thing.

Young presents an excellent and timely analysis of the various creationist organizations and activities. His presentation about the tactics of these groups should be required reading for all biologists, especially for teachers of biology. There is a seductive pseudorationalism in some of the creationist's writing which along with their distortion of data, partial quotes and lifting things out of context makes for a heady brew for the unwary.

This book does a fine job of clearing up the brouhaha about the Second Law of Thermodynamics which creationists love to cite wrongly. It also brings one up-to-date on the arguments about the origin of life, the age of the earth, the nature of the fossil record and the origin and evolution of man. In all Young punctures the creationists' hot air balloon again and again.

Young's major conclusion, that ". . . as *science*, Creationism is a fraud," becomes abundantly clear throughout. I highly recommend this book for any readers who are helping themselves and others sort out the nonsense the creationist establishment is producing.

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ELEMENTARY SCIENCE

PRIMARY SCIENCE . . . TAKING THE PLUNGE
ed. by Wynne Harlen. 1st ed., 1985. Heinemann Education Books Ltd. (22 Bedford Square, London, WC1B3HH) 116 p. $15.00 softback.

This rather short book is intended for prospective and inservice teachers of the British school system, primary level. For the American educational system this can be interpreted as grades K-8. The book's uses are twofold. It would be an excellent supplement or resource in undergraduate or graduate elementary science methods courses, or it could be justifiably used as an assigned textbook for these same courses.

The text is exceedingly well written, interesting, and, most importantly, practical and functional. The eight chapters include topics such as making a start in teaching science, handling student questions, student record keeping, and helping students to raise questions, to observe, to plan investigations and to take into account their own ideas. Each chapter is practical and utilitarian and includes a summary and specific guidelines for implementation. Moreover, each chapter is based on the various authors' experiences and is soundly grounded on research into the teaching and learning of science.

Like all books, there are shortcomings, albeit, in this text's case the deficiencies are quite minor. For example, the addresses and institutions of the contributing authors are not provided. This oversight makes it difficult to communicate with an author if a reader were more interested in a particular topic. There are a few line drawings, but more illustrations would be helpful in clarifying certain ideas. This is not a criticism, but readers need to be apprised that this book was not written as a "methods" textbook. For example, there are no chapters on storing equipment, student evaluation, objectives, children's intellectual development, etc. Nor are the chapters sequenced in any particular order. In essence, the reader can choose a topic as it relates to their specific priority or concern. In this re-

viewer's estimation, that organizational framework is a plus.

Although written with a British audience in mind, the book is highly recommended for elementary and junior high school science methods instructors as a definite resource or an additional textbook for their classes. The book would be extremely helpful for beginning teachers and, especially, inservice teachers. To recommend the book for a teacher's professional library is overstepping this reviewer's parameters. Individual teachers must make that decision. Nevertheless, the book reads well and has a great deal of practical suggestions to offer American elementary and junior high school teachers of science.

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GENERAL BIOLOGY

CONTEMPORARY CLASSICS IN PLANT, ANIMAL, AND ENVIRONMENTAL SCIENCES

ed. by James T. Barret. 1st ed., 1986. Institute for Scientific Information Press (3501 Market St., Philadelphia, PA 19104). 371 p. $39.95 hardback.

This book is the fourth volume to appear in the series "Contemporary Classics in Science." It is primarily a compilation of all of the commentaries appearing in "This Week's Citation Classic" in *Current Contents/Agriculture, Biology, and Environmental Sciences 1979-1984*. The previous volumes are *Contemporary Classics in the Life Sciences* (two volumes) and *Contemporary Classics in Medicine*.

The purpose and selection of Citation Classics are explained in the foreword, preface and introduction of the book. In essence, authors of some of the most cited papers and books from *Science Citation Index* and *Social Science Citation Index* are asked to write autobiographical commentaries of approximately 500 words that explain the main emphasis of their work, its genesis, the main sequence of events that lead to the publication and reasons why the paper became a Citation Classic.

Many science teachers approach the "scientific method" as a very logical stepwise sequence of events—i.e., question, literature review, hypothesis, testing (controlled experiment), results and conclusions. This is certainly the impression one gets by examining any good scientific paper. However, the scientific paper omits many of the false starts, uncertainties, intuitive leaps, financial problems, and other aspects of human drama behind the scenes of modern science.

Although Contemporary Classics covers only success stories in science, I believe that it does provide the reader with a realistic perspective of the scientific enterprise by adding personal reminiscences by the Citation Classic authors of the actual course of events that took place leading to their outstanding work. These reminiscences often include serious criticisms by reviewers and/or rejection by major journals. Occasionally, the acceptance of a publication by a particular journal is somewhat of a compromise, as was the case for one Citation Classic author who wrote: "Like all good experimental scientists we carefully read 'the literature' after doing experiments that had stimulated our interest. Why not write it up? The editor of *Botanical Review* accepted our manuscript with a pleasing lack of fuss. (We had previously learned that reviews to the *Annual Review of Plant Physiology* are only by invitation.)"

I found the personal accounts in the Citation Classics to be extremely informative and interesting. In my opinion, this book can serve as an excellent resource for any teacher who attempts to help students gain insights into the nature of science.

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THE BIOLOGY COLORING BOOK

by Robert D. Griffen, illus. by Cinthea Vadala. 1986. Barnes & Noble Books, Division of Harper & Row (10 East 53d Street, NY 10022). 227 p. $9.95 softback.

The Biology Coloring Book is the latest addition to a growing library of similar coloring books dealing with broad areas of the life sciences. The book contains 111 detailed illustrations of basic structures and processes typically included in an introductory course in biology. The illustrations are skillfully and accurately drawn. Each drawing is closely coordinated with the explanatory text on the facing page, and instructions for coloring the illustrations are interspersed throughout the text. The drawings are intended to be colored in as the corresponding text is read. Scientific terms are in italics and defined as they are introduced. The author's style is clear and precise.

The book treats most of the topics covered in an introductory course in biology. The sequence of topics is the same as most high school and college textbooks with some minor deviations. The depth of the treatment is consistent with an advanced high school or introductory college level. This reviewer, however, has successfully used other books in the series as supplementary material in a tenth grade general biology class and believes that the book may be used to advantage at all levels from junior high to college.

Reading and coloring this book would be an invaluable study aid for those students taking an introductory course who are willing to spend the time using the book correctly, particularly if those students are strong visual learners. The book may be put to more effective use if specific pages are referred to in the lecture and assigned by the instructor as supplementary reading. Also, as an aid in reviewing for either the College Board Achievement Test or the Graduate Record Exam Advanced Test in Biology, this book would be excellent. The author suggests that some knowledge of biology may be gleaned from reading the book and coloring the illustrations independent of formal instruction.

The creators of this book, and others in the series, obviously spurn the notion that minds are passive receptacles for knowledge. The philosophy which spawned this and earlier books in the series is embodied in the Ancient Chinese proverb quoted on the back cover of the book; "I hear, and I forget; I see, and I remember: I do, and I understand." The book provides an incentive for students to study actively, with pencil in hand, rather than passively reading lecture notes or a textbook. If the hand is involved, there is a greater likelihood that the mind will also be engaged. The act of coloring the plate allows time for the mind to focus on and, perhaps further reflect upon, a single concept at a time. It is this time for reflection that allows the mind to make associations with previously learned concepts so that the new concept can be transferred from short-term to long-term memory.

As a student, I found that drawing diagrams in my notebook was an effective tool for learning concepts in biology. This coloring book, if used cor-

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