

The author does explain vocabulary as it is introduced; thus, this book could be used by interested guppy-raisers at the 4th-grade level and up with complete understanding. In a few cases, information seems to be randomly included in an illogical sequence, as, for example, on page 57, where sex differentiation is mentioned in the same paragraph with guppy preferences in natural and commercial food.

Another major drawback is that, while the book is offered in a "science" series and seems to be adequate for describing general guppy characteristics and life cycle, it includes no bibliography or resource material to encourage and enable the reader to find additional pertinent literature.

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Games and Simulations

THE DEAD RIVER, by E. Nelson Swinerton. 1973. Union Printing Co. Athens, Ohio. \$8.00 per game.

This simulation game attempts to teach students that "restoration and enhancement of our waters hinge on coordinated control and management. Each player becomes a member of a team of public or private officials. Together they must set up efficient programs to eliminate, reduce, or prevent pollution of an interstate waterway and improve its condition." There have been other games focusing entirely on our aquatic resources, and there are elements of river and lake restoration in a multitude of other games. This one stresses that no one individual or even a small group of individuals can handle a problem as complex as cleaning up a stream which flows through several municipalities. Cleanup requires the work of many agencies. That's a noble lesson to be learned, but this game is not likely to teach it.

The Dead River begins with a public hearing of the "Interstate Water Pollution Control Commission" which sets the stage for the problem. The hearing consists of six very densely written pages. The instructor's guide that accompanies the game suggests that the students read or role play the "hearings." In trying this game out with a group of students, I found that if we had role-played some of the characters at the hearing, perhaps they would not have fallen asleep. The most important piece of any game should be the instructor's guide, but, in this case, it appears to have been an afterthought.

After exercise I, the participants are told to stop and then there are no directions as to what the role of the moderator is to be. I assumed that

there is to be a discussion period, but there are no suggested questions. Students are then divided into teams representing the "Valley Recreational Development Association," the "State Eco-Action Agency," the "Tax Payers Association," regional industry, and a federal environmental policy agency. Each team is to select an objective from the five listed. These objectives define what activities the river should support after the expenditure of between 1 and 5 million dollars to clean it up. Each team is to consider how it might raise the money to reach the chosen objective. The players are supposed to be able to determine how many people are providing fiscal support from the group's profile statement, but the profile statement is quite sketchy. Another major flaw in the game is that players are told that they can raise money by taxing hotels, restaurants, and tourist business or by increasing charges to tourists and residents 15 percent, but they are not told the size of the population.

Later, the players are asked to make a cost profile analysis, the objective being to analyze cost vs. benefits. Both the graph and the instructions are ineffective. After this, the various agencies are to defend why they chose the original objective, and then the various agencies are to negotiate for agreement on one common objective. These negotiations can generate some spirited conversation. Finally, they are asked to discuss with other teams their contribution to the clean-up program and whether or not the other teams' fiscal support is adequate. These are two points in the game where some good vigorous discussion can be heard.

The game claims to be for people from age 14 to adults. I find it very difficult to believe that a 14-year-old would be interested in some of the concepts taught in this program, and I am sure that the reading assignments are far above the reading level of most 14-year-olds. Unless some of these very serious shortcomings are tended to, this game, like the river it describes, will soon be dead.

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Books Received

THE GREAT WHALES, by Faith McNulty. 2nd ed., 1974. Doubleday & Co., New York. 100 p. \$4.95 hardback.

CANCER IN CHILDHOOD, ed. by John O. Godden. 1973. Plenum Press, New York. 249 p. \$19.50 hardback.

BEYOND THE KNOWN UNIVERSE: FROM DWARF STARS TO QUASARS, by I. M. Levitt. 1974. Viking Press, New York. 131 p. \$10.00 hardback.

CELLS, ORGANS, AND ANIMALS, by J. A. Sharp. 1973. Blackwell

Scientific Publications, London. 126 p. \$7.50 softback.

ELEMENTS OF MARINE ECOLOGY, by R. V. Tait and R. S. DeSanto. 2nd ed., 1972. Butterworth & Co., London. 327 p. \$12.80 hardback.

THE COMEDY OF SURVIVAL: STUDIES IN LITERARY ECOLOGY, by Joseph W. Meeker. 1974. Charles Scribner's Sons, New York. 238 p. \$8.95 hardback.

PLANTS, ANIMALS AND MAN. Proceedings of the 28th annual meeting of the Soil Conservation Society of America. 1973. 272 p. \$5.00 softback.

COURS ET DOCUMENTS DE BIOLOGIE, vol. 7, by E. E. Baulieu. 1974. Gordon & Breach, New York. 150 p. \$16.25 hardback.

PATAGONIA: WINDSWEEP LAND OF THE SOUTH, by Roger Perry. 1974. Dodd, Mead & Company, Inc., New York. 127 p. \$4.95 hardback.

SYNTHETIC PRODUCTION AND UTILIZATION OF AMINO ACIDS, ed. by T. Kaneko, Y. Izumi, I. Chibata, and T. Itoh. 1974. John Wiley & Sons, Inc., New York. 312 p. \$22.50 hardback.

SCIENCE AND ANTI-SCIENCE, by Morris Goran. 1974. Ann Arbor Science Publishers, Inc., Ann Arbor, Mich. 139 p. \$10.00 hardback.

PLASTICS, by James and Lynn Hahn. 1974. Franklin Watts, Inc., New York. 65 p. \$3.45 hardback.

UNDERSEA BASE, by Mae Freeman. 1974. Franklin Watts, Inc., New York. 64 p. \$4.95 hardback.

HEAT AND TEMPERATURE, by Jeanne Bendick. 1974. Franklin Watts, Inc., New York. 72 p. \$4.33 hardback.

FLOWERS AND PLANTS: AN INTERNATIONAL LEXICON WITH BIOGRAPHICAL NOTES, by Robert Shostek. 1974. Quadrangle/The New York Times Book Co., New York. 349 p. \$9.95 hardback.

TRANSDUCERS FOR BIOMEDICAL MEASUREMENTS: PRINCIPLES AND APPLICATIONS, by Richard S. C. Cobbold. 1974. John Wiley & Sons, Inc., New York. 500 p. \$22.50 hardback.

REPTILES AND AMPHIBIANS OF THE WEST, by Vinson Brown. 1974. Naturegraph, Inc. 79 p. \$3.50 softback, \$6.50 hardback.

CILIA AND FLAGELLA, ed. by M. A. Sleigh. 1974. Academic Press, London. 511 p. \$26.00 hardback.

EPIGENETICS, by Søren Løvtrup. 1974. John Wiley & Sons, Inc., New York. 547 p. \$42.50 hardback.

A STUDENT'S ATLAS OF FLOWERING PLANTS: SOME DICOTYLEDONS OF EASTERN NORTH AMERICA, by Carroll E. Wood, Jr. 1974. Harper & Row Publishers, New York. 122 p. \$2.95 softback.

INDEX TO INSTRUCTIONAL MEDIA CATALOGS. 1974. R. R. Bowker Co., New York. 280 p. \$19.50 hardback.