Other subjects treated in the film include the purpose of the rams' mating conflicts, the effects of civilization on bighorn survival, and general environmental awareness. All of the stated themes of the films are more than adequately developed.

The many awards won by this film are justified by the outstanding photography, especially the slow motion sequences of rams in combat. The music was also very good. Though the commentary was not in the creative John Muir tradition, it inspired in a subtle way the "environmental ethic." After seeing this film, environmental sinners may be redeemed from a life of littering roadsides with beer bottles and hanging stuffed bighorn heads in their living rooms.

This film is an artistic success, but as with many other environmental films, there is a lack of basic educational content. The list of terms in the film guide is quite elementary with words like horn, antler, range, timberline, and dominance. More emphasis should be placed on biological language and concept development. The narration might artfully include concepts of mammalogy, such as estrus, gestation, parturition, ruminant, ungulate, or rodent. Student reviewers indicated that they learned little from this film. That indictment might be leveled at many other outstanding biology films.

The film guide includes a bibliography on the bighorn sheep and a list of conservation organizations that support legislation protecting the bighorn.

In summary, this is an outstanding film. But to become a great educational film, it should incorporate more "nuts and bolts" biology.

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BIOLOGY AND BEHAVIOR

1979. Harper and Row College Media, Harper and Row Publishers, Inc. (10 East 53rd Street, New York, 10022). 16mm color-sound film. 21 minutes. Purchase $425; rental $42.50.

Authorship of this film is credited to Howard Rachlin of the Department of Psychology at the State University of New York at Stonybrook. The film examines the genetic and experiential components of how organisms come to do what they do. Environmental factors influencing behavior are contrasted with instinctive factors and related to the complexities of learning.

A limited number of examples are used to demonstrate these relationships, but those that are shown are the classic ones such as light-sensitive responses in plants, caterpillars, and cockroaches; and imprinting in ducklings. Classical and instrumental conditioning are demonstrated in the learned behavior of captive wolves exposed to poisoned meat from sheep and in the training of sea lions and domestic animals to perform tasks which vary from their normal behavior.

Certain patterns in human learning and behavior are shown to be analagous to those demonstrated with other animals. Learning, for example, is thought to be easier when it is in harmony with some aspect of behavior that is instinctive. Behavior that departs markedly from what is instinctive requires a more complex conditioning effort.

I recommend this film. It should be useful for students at the introductory level in psychology and as an aid for courses in biology, learning, experimental psychology, and physiological psychology.

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SCIENCE, TECHNOLOGY, AND MODERN MAN

1976. Educational Dimensions Group (Box 126, Stamford, Connecticut 06904). Two color-sound filmstrips. 17 minutes each. Purchase $60.

This program, which appears to be designed for high school students, is of high quality technically, but falls short in its content and pedagogy. First, the program is myopic in its perspective. Who or what is "modern man?" Is "modern man" the same as "Western man?" If so, then 75% of the world's population has been overlooked in this program. The bias that technology is "good" for humankind with a minor caveat at the end about pollution and the dangers of technology is tantamount to saying that the evidence about inappropriate technologies is nothing to be concerned about. In my view, the contributions of Western civilization to millions in the developing nations have often been disastrous.

Second, the program is sexist to an extent almost unbelievable in the 1980s. The frequent use of terms such as "man" and "mankind" seems to imply that women are not part of civilization. The photograph of a woman weaving adds to this impression.

Third, the teacher's guide is poorly written in some places. For example, "with machines, humanity solved the age old (sic) problems that have confronted him for ages."

Fourth, the implication that scientific and technological processes are always a result of genius is sadly mistaken. Many scientific discoveries of major importance have been accidental or a by-product of some other research endeavor.

In summary, this program has missed the point for today's students. It might have been received favorably in the 1950s and 60s, but it is not suitable for the 1980s.

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THE CHROMOSOMAL BASIS OF HEREDITY

1979. Sponsored by the March of Dimes Birth Defects Foundation. Distributed by Milner-Fenwick, Inc. (2125 Greenspring Drive, Timonium, Maryland 21093). 16mm color-sound film. 15 minutes. Purchase $150; rental $25-$40.

This film, though it has its virtues, is basically misnamed. The chromosomal basis of inheritance is involved only in an occasional mention that the distributions of chromosomes and genes in meiosis and mitosis are similar. The major thrust of the film seems to be toward the concept that meiosis produces genetic diversity, while mitosis produces genetic constancy.

Both types of chromosome distribution patterns are treated largely on the conceptual rather than the detail level. An outline of early human development, with some allusions to differentiation and growth, is followed by a slightly more detailed discussion of gamete formation and gametic variety. Finally, the application of these concepts to Mendel's experiment with tall and dwarf peas is sketchily presented.

The artwork is clear, to the point, and, in places, humorous. But one feels that the misnaming is merely a symptom of a deeper problem: absence of the clear definition of one or a few ideas that should be the axis of any segment of teaching effort. Thus it is difficult to suggest just where in a high school biology course this film could be used to best advantage. If used before a detailed presentation of the subject of the film, the students may be left with too many unintegrated, broad concepts. If used after a detailed discussion, the film, though perhaps aiding the students' ability to integrate ideas, may prove repetitious.

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