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SOCIETY, SCIENCE, AND THE SCIENTIFIC ENTERPRISE

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Introduction

Numerous developments in science and technology have moved man to the interfaces between science and government, science and religion, science and economics, and others. The necessity of functioning along these interfaces suggests that science education should include a commitment to the development of the scientific literacy necessary to understand the relationships between science and society. This objective parallels the statement by René Dubos:

> We must not ask where science and technology are taking us, but rather how we can manage science and technology so that they can take us where we want to go.

C.P. Snow, in his book, *Two Cultures: and A Second Look*, makes a strong case for the reality that a gulf exists between scientists and non-scientists. Also examined is the necessity for bridging this gulf in order to perpetuate Western culture. Current issues, such as the recombinant DNA debate, indicate that communication bridging the gap between scientists and non-scientists is occurring although it is perhaps too early to speak of a third culture.

It is difficult to treat interface issues in the traditional physics, chemistry, and biology courses in more than an incidental fashion. Students are often referred to various individuals and/or academic departments for the study of such topics. This procedure, although preferable to ignoring the interfaces, in reality does little to help the student integrate scientific developments with his world view. Little progress is made in the understanding of science and technology and their impact on individuals.

A Seminar

A seminar-type course can be effective in bringing about interdisciplinary understandings. While such courses are common in colleges, it is often difficult to include them in high schools. Such a seminar course can be implemented within a science course during a two or three week block. Students not electing to enroll in the course can work on other alternatives.

A text, entitled *Society, Science and the Scientific Enterprise,* was written for use in such a seminar course in the Sheldon Community High School. It contains 107 pages and is divided into five chapters:

1. Testing for Truth
2. The Scientific Community — Truthfulness
3. Technology — A Close Relative of Science
4. An Integrated Approach
5. A Relevant System of Values

Multiple choice questions from the Test on Understanding Science (TOUS) by W.W. Cooley and L.E. Klopfer and essay questions are included.

The text was used in conjunction with the books listed below. These books were chosen because of (a.) appropriateness of subject (b.) relative brevity (a high school student is usually involved in a myriad of activities and courses and realistically does not have the time to read voluminous books along with his texts (c.) low purchase cost. *The following books should be read prior to the beginning of the seminar course:*

1. J. Bronowski, *Science and Human Values* (New York, New York, Harper and Row, 1975).
2. John T. Edsall, *Scientific Freedom and Responsibility* (Washington, D.C., American Association for the Advancement of Science, 1975).
3. C.P. Snow, *The Two Cultures: and A Second Look* (Cambridge, U.K., Cambridge University Press, 1965).
4. Robert L. Heilbroner, *An Inquiry Into The Human Prospect* (New York, New York, W.W. Norton and Company, 1974.

Students should also have access to the 21 May, 1976 and 23 July, 1976 issues of the periodical *Science* which is published by the American Association for the Advancement of Science (AAAS), and *Nuclear Energy: 1975* which is published by the Iowa Energy Policy Council.

Summary

Society, Science, and the Scientific Enterprise is part of a Teacher Incentive Award administered by the Iowa Department of Public Instruction under Title III, ESEA. The Sheldon Community Schools shared in the support of the project.

The text is available to Iowa science teachers at cost. The text may be obtained by making a written request, accompanied by a $3.50 check for one copy of the text, handling, and postage, to Society and Science, Sheldon Community High School, Sheldon, Iowa 51201. Your check should be made payable to the Sheldon Community Schools. The text may be duplicated, one copy per student, by Iowa science teachers who desire to use it in their class work.