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A Strategy for Science Education in the 1970's

The majority of recent committees on science education* have spelled out two basic themes: (i) the need to broaden university curricula to make science students more aware of the scientist's role in society, more responsive to society's needs, and more informed of the diverse options within a science career and (ii) the need to raise the scientific literacy of the public. These themes are related; action on the second will depend largely on accomplishing the first.

Today's public is more interested in solving social ills than in science and technology. At the same time, the increasing complexity and intrusiveness of science-based technology have increased the public's expectations of accountability and have sharpened its criticisms. Scientists now find it difficult to separate themselves from the institutional and political dimensions of their work. Those who sit on committees advocating curriculum reform have basically agreed on the desirability of broadening the curricula to produce scientists able and willing to work toward the goals of educating both themselves and the public about science and its role in society.

While agreeing that these goals are "critical," "imperative," or "essential," scientists are generally unaware of how to achieve them. What is required is a scientist who not only attains expertise in a field, but also has the capacity to view it in a social context. The traditional techniques of science education do not produce such a person, and there is little hope that adjustments within the existing courses by teachers heretofore uninterested in the problem will succeed.

An alternative approach is the development of a year-long, social-science-of-science program designed specifically for science undergraduates. This course would aim to orient students in the workaday world of science, acquaint them with the background and rationale of its organization, support, and rituals, and trace out the relation of basic research to technological development in specific instances that reveal the political and social dimensions of such developments. The state of being informed and aware of this broader perspective is the precondition for addressing the two needs stated at the beginning; the second half of the course would be devoted to these ends.

Aspects of this approach are well developed in several existing courses and programs across the country. Established courses in the history of science and the philosophy of science cover some of the area in depth, but they seldom address problems today's students will face. The sociological aspects of science are dealt with in a few sociology-of-science courses, but these emphasize the sociological concerns of science as a profession and generally do not attract science students. The development of a social-science-of-science course would provide a unified exploration of the social, political, and economic dimensions of science and the technologies it generates. Such a course cannot be solely within the purview of either the natural scientists or the social scientists.

Blue-ribbon science committees are asking for changes that can come only from a new and reciprocal working relationship with social scientists. A social-science-for-scientists program can effect a marked change in science education without a radical restructuring of the university. The only radical element will be the extent to which scientists will have to change their attitudes toward the role social science can play in helping them achieve their self-imposed goals.—DOROTHY ZINBERG, *Department of Sociology, Harvard University, Cambridge, Massachusetts 02138*

*For example: AAAS Committee on Science Education; Federation of American Scientists, Ad Hoc Committee Report on Science, Technology, and Education; and American Chemical Society, International Conference on Education in Chemistry.