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Understanding of Science

The AAAS is about to intensify its efforts to enhance the public's understanding of the scientific enterprise. With the help of a grant from the National Science Foundation, the AAAS is beginning a broad new program to include seminars for those who manage the mass media and for government officials, a new approach to science on television, a critical journal to examine science and the mass media, an experimental project to involve AAAS members in more collegial activities, and a modest research program on the sources and cures of public misunderstanding of science.

Vital to the success of the program is a recognition of the distinction between scientific *information* and an *understanding* of science. The temptation is to treat science as a cornucopia of facts and to seek to share this bounty with all who are not yet so blessed. The urge is to try to publicize the findings of every discipline by making scientists available to the public via the lecture circuit, television, radio, pulpits, and every other medium known to man.

Unfortunately, there are sharp limits to the amount of information average citizens, even educated or professional persons, can absorb. And, even if each of them could somehow miraculously memorize all of the facts that science established, it would not necessarily increase their understanding of the scientific enterprise.

To understand science, one must learn to appreciate the value, validity, and vitality of an empirical-logical approach to the world. One must be willing to limit ideological, religious, and political considerations to questions of "ought to?" excluding "what is?" and to allow the inner logic of the scientific procedure to unfold. These normative considerations must be applied to questions of how the fruits of science are to be shared and the areas science ought to focus on, but not to how it is to be conducted.

To understand science, one must acquire a taste, or at least a tolerance, for the beauty of mathematical models, of the structure of galaxies or crystals, of DNA. One must appreciate the process itself—data that fall into place after years of analysis, finding the missing element that completes a table, predicting an event on the basis of careful calculations and a flash of insight—as an end in itself.

One must understand that the scientist, while not a rainmaker who can deliver solutions to specific problems on short order, nevertheless addresses himself to relevant problems of the day—that, in ways difficult to specifically foresee and almost impossible to control, scientific efforts do "pay off" and are not just idle games. The public must learn that scientific findings are always tentative and may prove erroneous or obsolescent, but that their tentative guide is more valid and safe than any other approach to the world.

To advance this understanding, especially in the face of renewed hostility and suspicion of science—some of it limited to small counterculture groups, some widely shared by middle America—will require all the ingenuity that the AAAS board, staff, and Committee on the Public Understanding of Science can muster. Misconceptions, anxiety, and paranoia rarely retreat when merely bombarded with facts, and new appreciation is rarely cultivated by mere sharing of information. This is the task the AAAS has now undertaken and one in which all its members may wish to share, seeking effective means to broaden and deepen this appreciation of science and becoming involved in activities aimed at advancing public education. The future of science in America may well depend on this effort.—AMITAI ETZIONAL, *member, Committee on the Public Understanding of Science, and Director, Center for Policy Research, 475 Riverside Drive, New York 10027*