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Public Understanding of Science

President Johnson recently asked his policymakers for "imagination and innovation" in developing plans for the second phase of the Great Society. He requested that the annual budget reviews be turned into a study of *program needs* rather than a mere estimate of budgetary dollar totals.

Budgets can suggest very interesting questions about program needs. The National Science Foundation, in its current budget, allots $400,000 to furthering public understanding of science. Examination shows that this item has increased only slightly since it first appeared in the budget in 1959. Meanwhile, the total budget for the Foundation, which includes funds for basic research, for graduate fellowships, and for improving science curricula, amounts to about $430 million, an increase of some 600 percent over 1959.

These figures raise two questions. Do they indicate that the need for popular communication about science has *not* increased with the growth in scientific knowledge and its widespread applications? Or, instead, do the figures reveal a gap in federal thinking and planning in this sphere?

On the question of whether the public need has increased, one can cite some obvious facts. Scientific knowledge is doubling roughly every 10 years, and, concurrently, the time between discovery and application is decreasing. This rapid advance is not only continually reordering the known facts of physical reality but is giving birth to new problems—such as improper use of pesticides, the threats of automation, the question of smoking and health, the choice of new science curricula for the schools, and the danger of automobile-exhaust pollutants.

Individual laymen have no one, except perhaps the more responsible representatives of the mass media, to whom to turn for the holistic point of view that the citizen needs. Add to this situation the fact that the high-school- or college-educated citizen of today, aged 40, scarcely heard of or imagined during his years in school any of the scientific-social problems he faces as an adult.

These facts, and the NSF budget figures cited, point to a gap in national thinking and planning. There is remarkably little formal assumption of responsibility by government agencies for informing and educating the public about problems, and solutions, to which scientific research gives rise.

In considering the above statement, one must make a clear distinction between publicity and public information, on the one hand, and public education on the other. The support of one's own program is justifiable and must be a legitimate prerogative of any agency or organization. At the same time, the responsibility for public education is a horse of another color. There is a crying need for programs set up with the sole purpose of providing basic education in the facts behind public issues involving science, as seen from an overall point of view.

The National Science Foundation should respond to President Johnson's request for imagination and innovation by accepting substantial responsibility for the basic science education of the adult public. In accepting such responsibility, NSF should propose a greatly expanded version of its present public-understanding-of-science program. Just as the nation plows back a certain percentage of the gross national product to basic research, so it should invest a certain percentage of the R & D budget in public understanding of science, to help society contend with some of the social problems that the applications of R & D cause.

—E. G. SHERBURNE, JR.