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Science and Immediate Social Goals

A decade ago, science and technology were perceived as the means for achieving the principal national goals of the time, including better health, more affluence, improved defense, and adventurous space exploration. Since it was highly relevant, research was accorded prestige, funds, and considerable freedom. Society now is most concerned with a new set of problems, and science and technology no longer seem so central. Correspondingly, their prestige, funds, and freedom have been eroded. Of the three, the loss of freedom is the most damaging. When a scientist cannot work at what to him is most interesting and important, he is not effective. Loss of freedom has come in two ways. Some scientists have placed expediency above freedom and have chosen work for which they have little talent. More serious has been increasing pressure by the public and politicians through the control of federal funds to force scientists to work on "relevant" projects.

The public and the politicans in general are not sufficiently well informed to make good judgments as to the potential of science and technology in meeting societal needs. They seize on slogans as a substitute for thought. Because of some dramatic feats, there is excessive confidence in the power of technology. The typical response to the successful Apollo mission was, "If we can go to the moon, we can do anything." Subsequently, as the public contemplated such matters as the environment, it became impatient for instant change. Any performance short of the miraculous seemed to indicate lack of good will or an inappropriate set of priorities.

The public needs to understand that science and technology cannot be applied successfully to the fulfillment of every wish. In part this is because the "state of the art" is not sufficiently advanced. This is true of sociology and social problems. It also is true of medicine, where our desires for magical cures will always exceed what the wisest men can deliver. Even in the physical sciences, which give man enormous power for accomplishments, there are limitations. One that has not been emphasized sufficiently is the long period of time needed to harness effectively the technology to meet a social goal. This matter was discussed recently by Harvey Brooks, dean of the School of Applied Physics at Harvard University. He pointed out that there is ample evidence to show that it takes about 10 years to arrive at a technological goal having significant impact on society. He has listed a number of the major goals of 10 years ago in education and in lunar exploration, all of which were achieved. However, even before the goals were reached, the public was turning its attention toward new goals. As Brooks puts it, technology is being asked to shoot at moving targets. When such targets come and go within a period of a few months, there is an impossible mismatch with the long time span required for research to be converted into practical application.

Commenting on the need to achieve a reasonable balance between demands for relevance and the need to maintain a viable scientific enterprise, the National Goals Research Staff has said,* "To the extent that society insists that basic scientists do work that is more relevant to present social needs . . . scientists will be less able to work where nature appears willing to answer their questions. They may be required to work on relevant questions that perhaps cannot be answered at all at present, or can be answered only with uneconomic use of resources. Thus, excessive efforts to make science more productive in terms of immediate social goals may actually make it far less productive in the long run."—PHILIP H. ABELSON

* "Toward Balanced Growth: Quantity with Quality," report of the National Goals Research Staff (U.S. Government Printing Office, Washington, D.C., 4 July 1970).