LETTERS

The Federal Government's Role in Basic Research

Recent and widely publicized remarks by economist and Nobel laureate Milton Friedman must *not* be taken as the last word on the need for government support of certain types of scientific research.

If the nation's leaders had paid more attention to Friedman's economic views, we would not have gotten ourselves into the fix we are in today; however, if we follow his scientific advice we will find ourselves in even deeper trouble.

First, let me point out where Friedman's reported analysis (News and Comment, 3 Oct. 1980, p. 33) is correct: Excessive federal support of basic research relative to private support can and does inhibit academic freedom. For several decades, major and necessary federally funded defense, space, and physics research programs and major and unnecessary federal tax and regulatory policies have drastically reduced the proportion of private research funds relative to federal funds. Thus, the direction of such research has been channeled and prostituted in many instances.

This serious problem of the imbalance between federal and private research funding must be recognized and corrected. Otherwise, the freedom to pursue potentially fruitful lines of inquiry out of curiosity rather than because of politics or bureaucratic cost-benefit ratios will disappear.

On the other hand, Friedman's solution to this imbalance would be catastrophic to the future of the country, its economy, and freedom itself. To advocate the abolishment of the National Science Foundation (NSF), the National Institutes of Health (NIH), and federal support of higher education is like treating brain tumors with a guillotine.

The present difficulty with the government's role in basic research is that we have confused what the government's proper role should be. First of all, government should encourage private investment in basic and applied research through tax and regulatory reform.

Second, government should develop appropriate research partnerships with industry and academia such as those existing in agriculture and aeronautics.

Third, government should provide tailored encouragement and support for the private development and demonstration of new technologies where national needs demand more rapid development than current economic forces will allow.

Finally, government must fund those costly research and development programs, such as in nuclear fusion, space, defense, and global environment, which are obviously necessary but far beyond the risk-taking potential of the private sector under any foreseeable economic and regulatory conditions.

I probably would agree with Friedman if he advocated limiting the NSF to its former role of assisting basic scientific research and education and getting it out of applied research better done by others. I also probably would agree that the NIH should focus more on basic research that may lead to the prevention of disease rather than just ever more expensive means of treatment of disease.

In such change of emphasis, and in tax and regulatory reform to encourage more private-sector research, I could join in enthusiastic support.

Finally, I would hope that upon reflection, Friedman would admit that it is perfectly ethical to try to convince one's government or other funding source that scientific research which may benefit mankind should be funded by tax revenues, profits, or contributions, whichever appears most appropriate in a particular case.

Consider where we would be today if scientists had held back on such pseudo-ethical grounds in the areas of agriculture, energy, polio, DNA, air travel, communications, space, high-technology products, and our national defense, to name only a very few examples.

Our lives would be less rewarding than now, and freedom would have been lost.

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Teletext Systems

William J. Broad's article on teletext standards (News and Comment, 7 Nov. 1980, p. 611) attributes to one of us, H.M.S., the conclusion that the enthusiasm of some networks for closed captioning was probably motivated by a desire to "waste" potential communications capacity. In quite a different context, where we were emphasizing the need for systematic policies to ensure freedom and diversity in teletext services, we commented on possible motives. We did not then, nor did we ever, speculate that anyone's support for a closed captioning system grew out of anticompetitive motives. We merely speculated that a possible motive for the technical standards choice was to limit

competition. It is a long jump from speculating about a possible motive to selecting a probable motive. We did not make that jump.

The major point of the article is that CBS, in petitioning the Federal Communications Commission (FCC) to make rules on technical standards, really wanted to foul up or delay the development of teletext standards and, thus, teletext service in the United States. Yet such a conclusion is not supported either by the facts reported in the article or the facts as we know them.

First, the development of standards was already fouled up. Drawing the FCC in now could only clarify things and speed resolution of the issue. There are many routes open to delaying teletext standards; petitioning the FCC is probably not one of them. Second, CBS's technical experiments with teletext have been successful. If they wanted to slow down the development of standards they would not have paid for the experiments which proved the standards would work. (Or, if they did pay for them, they would not have released the results.)

Third, opposition to over-the-air teletext would probably promote the development of existing nonbroadcast alternatives using telephone lines and cable television. Thus, rather than protecting the networks from competition, delay of over-the-air teletext may be a major strategic error for any network, encouraging audience diversion to alternative videotex systems. . . .

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The article on Antiope broadcast teletext contains some errors. The statements "U.S. manufacturers, however, were in favor of the British system," and "If [a] free-market approach were adopted, many U.S. manufacturers maintain that Antiope would not make the grade" are as unjustified and unspecific as the impression that a "suitcase-sized" decoder is needed for Antiope. The prototype decoder was about the size of a briefcase, but it has already been designed downward to roughly the size of a package of cigarettes. Antiope decoders are now being inserted into television sets in France.

Contrary to another statement in the article, Antiope easily and inexpensively converts from a teletext (one-way) mode to viewdata (interactive), while the British system requires major reformatting.

Commercially, Antiope has been in operation in France for almost 4 years, supplying up-to-the-minute prices on the *Bourse* (stock market). Regional weather and traffic reports are also being offered.

As for the free-market philosophy, the Electronic Industries Association Teletext Task Force reached one consensus. It told the Federal Communications Commission: "The commission should determine which broadcast teletext system ought to prevail. The public interest would not be served by competing systems."

We should remember that once before, only 204 years ago, the French helped us revolutionize our way of life.

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I read with amazement the teletext article in the 7 November issue of *Science*, "Upstart television: Postponing a threat."

Putting aside errors and contradictory statements in the article, its tortured logic comes to this: the reader is to believe that CBS, in proposing a modified version of the French Antiope system as the U.S. standard for teletext, is attempting to kill or delay U.S. teletext development. Evidence of our supposed disingenuity is found in the fact that there are those who disagree with our position and who may fight our proposal.

Surely, this hypothesis—which has absolutely no known foundation anywhere—is worthy of consideration for first prize in the 1980 conspiracy theory competition. But let me thicken the plot.

The article alleges that CBS is attempting to head off teletext as a potential competitor of commercial television. On 13 November, CBS and two noncommercial television stations—KCET Los Angeles and WGBH-TV Boston—announced at a joint press conference that we would combine our efforts in a Los Angeles audience/program test of that same Antiope teletext system. Further, in response to a question, it was stated that CBS and KCET are jointly pressing for Washington action on the CBS petition. Perhaps the author would now have the reader believe that CBS has co-opted two of the best Public Broadcasting Service stations in our conspiratorial efforts.

A final note: I am disappointed that a prestigious magazine such as *Science* would give space to these unsupportable, untrue—and unscientific—meanderings.

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Environmental Quality

R. Jeffrey Smith recently reviewed a study of public opinion on the environment which I conducted at Resources for the Future (RFF) for the Council on Environmental Quality (News and Comment, 31 Oct. 1980, p. 512). The study involved a major national survey on environmental issues, which I designed, and which was conducted by Roper and Cantril in early 1980. Two of the conclusions he draws from the data in my study are misleading. As these concern issues which are certain to be debated during 1981, it is important to be as correct as possible about them.

Smith is incorrect when he states the survey "mirror[s] an increasing view that air pollution is no longer a serious problem." The survey results do indicate a moderate increase in those who are not concerned about air pollution (up from 10 to 15 percent in the mid-1970's to 23 percent in 1980). But the results for a question on the seriousness of air pollution show no such shift. When asked this question in 1980, only 8 percent said that air pollution was "not serious at all" (*1*), virtually the same level as in earlier surveys by Harris in 1975 and 1976 (*2*).

Smith also identifies a trend that "more and more people apparently agree with the charge that environmental problems are not as serious 'as some people would have us believe.' " His wording raises an image of a sizable backlash against environmental protection, an image that the data do not support. In 1980, 38 percent agreed with the statement "environmental problems are not as serious as some people would have us believe" (55 percent disagreed). This is a 6 percent increase from 1978 when the question was asked in an RFF telephone survey. (Then 32 percent agreed, and 62 percent disagreed.) However, since the item was asked of only a subset of respondents in 1980 (N = 736), this small difference barely achieves statistical significance. Moreover, despite the respondents' deep concern about inflation and energy problems, their answers to a variety of trade-off questions reveal no sign of an antienvironmental backlash.

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References

1. *Public Opinion on Environmental Issues*, (Council on Environmental Quality, Washington, D.C., 1980), p. 4.
2. Louis Harris and Associates, *A Second Survey of Public and Leadership Attitudes Toward Nuclear Power Development in the United States* (report for Ebasco Services, Inc., November 1976), p. 139.