

Letters

Research Funds:

Friends in the Senate

Abelson's editorial (30 Aug., p. 847) about the problems of funding the National Institutes of Health expressed concerns that I share. There is no doubt in my mind that the future health and welfare of our nation is dependent upon a strong program of basic as well as applied medical research. I am aware that long-range goals in research are extremely important, and that basic research frequently brings many unexpected and practical solutions to difficult problems. I have always supported my esteemed colleague, Senator Lister Hill, in his efforts to adequately fund programs for scientific research and the health needs of the country. In line with this I recently voted against the Smathers-Williams amendment which cut the President's budget by \$6 billion.

In the next Congress the help and guidance of Senator Hill will be sorely missed. Upon my reelection, I shall assume the burden of the chairmanship of the Senate Committee on Labor and Public Welfare, which has jurisdiction over all authorization legislation dealing with Health, Education, and Welfare. As chairman, I shall automatically sit with the Senate Appropriations Committee on all such legislation. The scientific community should know that I shall do my best to obtain the necessary funds for research. I shall support the restoration of funds for the orderly and steady growth of research, and shall work to create a favorable congressional as well as public attitude toward the growth of medical research.

WAYNE MORSE

*United States Senate,
Washington, D.C.*

As an avid, weekly reader of your fine journal, from time to time I come across articles and letters to the editor which seem to indicate that the Understanding Gap between the scientific community and the Congress continues

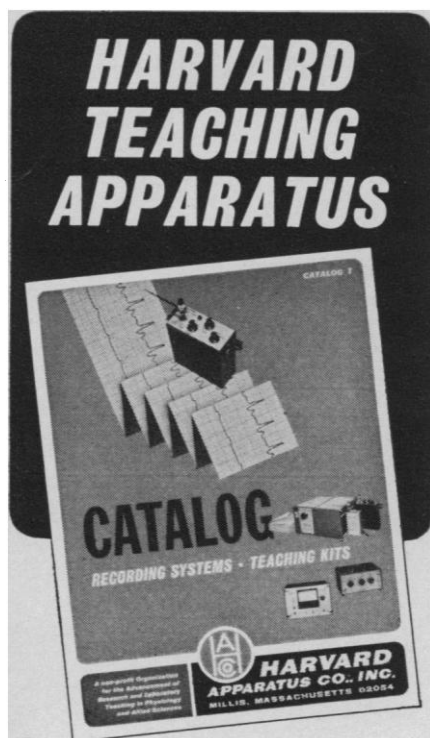
to exist. Thus, in the interest of equity and fairness, not to speak of "equal time," perhaps you will allow me to explain some of the problems we face on the issues of federal financing of research.

For some time, I have been warning members of the scientific community that unless some adequate means are developed so that the taxpayers and their elected representatives know what they are "buying" with their research dollars, a reaction would set in one day which would cause a severe cutback in funds allocated for research. Congress and the taxpayer have a right to expect that their research program has some strong overall direction and control. Now that it is evident there are not sufficient dollars to fund every research program regardless of merit or priority, our government-financed research program is left without any machinery or method of allocating available funds to the best advantage. Consequently, across-the-board cuts were almost inevitable. With so many other problems facing us today which require immediate attention and the expenditure of huge sums of money, it is a bit unrealistic to ask the taxpayer to continue to finance and support an annual \$17 billion or more R&D budget almost on "faith" alone. It was in anticipation of these developments that I have introduced legislation to establish a Joint Congressional Committee on Science and Technology. Unfortunately, with very few exceptions, my proposals have been received rather coolly by the scientific community. That cool reception has been reflected in Congress, and it is my belief that it has come about as a result of a misunderstanding as to what was really intended by the legislation. Perhaps this present situation will serve as an illustration of the need for the establishment of an appropriate organ of Congress to deal with overall objectives and direction of federally financed research. Considering the domestic fis-

cal crisis and the international monetary crisis which we are now experiencing, and unless there is a marked lessening of these pressures, it is quite possible that further cuts will be imposed by the Congress. We have in hand a congressional staff study indicating that rather than reducing federal expenditures by \$6 billion, as the Congress ordered the Administration to do, we have actually had an increase of around \$5 billion. Then, too, the recent annual report of the International Monetary Fund excoriated this country's spending policies and called upon U.S. officials to maintain adequate monetary restraint so as to end the continually worsening balance of payments deficit. This is, as I recall, the third year that the IMF has been highly critical of this government's inability to get a grip on this problem, which has increased in intensity rather than lessened, despite all of the temporary tourniquets applied by a naive or unrealistic Executive Branch.

I have always considered myself to be a friend of the scientific community, even though there have been times when this friendship was not a mutual admiration society, times when I have had to exercise the responsibility of my office and deal with the fiscal realities, rather than yield to the pressures of special interest groups. But it is in the spirit of this friendship that I proposed the Joint Committee. The catalyst, of course, was the almost unbelievable financial irresponsibility exhibited in the Mohole Project, which did inestimable damage to the cause of federally supported research, and it is my hope that such a Joint Committee could prevent a repetition of the Mohole debacle.

It is generally accepted, I believe, that the scientific community feels members of Congress are, on the whole, poorly informed on the complex questions of scientific research and technology. Letters to the editor of your periodical, as well as some articles, have given every indication that the scientific community is basically antagonistic to the Legislative Branch, except in those rare instances where a member has been adopted by the scientific community as sort of a mascot, for one reason or another. In any event, I believe it is about time to open up a dialogue (to use that tired wish-fulfillment phrase) between your community and ours, a dialogue which is at once honest, perhaps even bluntly



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so, but nevertheless constructive. There is now, in this country, too much fractionalization and dissension between groups of one sort or another. Perhaps we can be the first to call a halt to name-calling and petty bickering, and get on with the business of creating some kind of future for this country. In this spirit, then, let me be the first to open with an honest salvo and close with some tentative, but hopefully constructive, ideas.

As the ranking minority member of the Appropriations Subcommittee charged with funding the NSF and NASA, and as a member of the Senate Defense Appropriations Subcommittee, permit me to observe that the admitted lack of expertise on the part of a majority of members of Congress in areas relating to scientific achievements is, regrettably, matched only by the lack of appreciation on the part of many research scientists, engineers, and technical managers of congressional processes and problems. On occasions so rare that I can scarcely recall, have I ever received comments from those in the scientific community relative to how their operations might possibly be improved, where the waste is, where the duplication is, where the inefficiency lies, what the real difficulties and problems are and how they can help. Quite frequently, however, I receive mail from individuals asking for more and more funds from the federal treasury, and one theme is fairly dominant—cut some place else in the budget, but do not cut my research project. Gentlemen, we have only so much money to expend. We are limited, to a great degree, by revenue taken in by the Treasury if we are to make the financing of our national debt manageable. Within our admitted lack of expertise, coupled with an appalling lack of national goals or a system of priorities, I think we do a fair job of spreading out the federal dollar. We could do better, though, with some constructive help from the scientific community from an objective and realistic appraisal of the circumstances and of existing realities, and we could benefit from the establishment of some system, either a Joint Committee or something similar, which would view research on an overall basis, which would review national goals and aspirations and which might have an opportunity to make a stab at setting up some type of priority list, insofar as funding needs are concerned. I would think, also, that the country might well benefit if, paraphrasing both Don-

ald Hornig and the “now” generation, the scientific community would become “involved,” would drop the cloak of mystery, and take the time to explain, not just to us in the Congress, but to Mr. Taxpayer as well, just what it’s all about. This would be a tremendous contribution and definitely a forward, positive step in the national interest.

GORDON ALLOTT

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Reducing Hail: The U.S. Plan

In telescoping news of a research program on the suppression of hail into a single paragraph in the 6 September issue (p. 995), *Science* may have misled its readers concerning the research in this field currently being carried out under NSF sponsorship by the National Center for Atmospheric Research, the Environmental Science Services Administration, and Colorado State University.

It is true that the Russians have reported success in reducing hail damage to crops in certain areas by firing anti-aircraft shells containing silver iodide directly into hailstorms. But the implication that a similar program is now underway in the United States is misleading.

The American operational effort is likely to be quite different, and it is several years away. The most likely vehicle for getting the silver iodide into the clouds now appears to be lightweight rockets fired from aircraft. Before such an operational test can be carried out, however, additional research is required to answer questions concerning (i) the mechanics of Great Plains hailstorms and specifically the nature of the “hail accumulation zone” in such storms; (ii) radar techniques for identifying potential hailstorms and for timing the rocket firings; (iii) techniques for measuring the extent and intensity of hailfall from seeded and unseeded storms; and (iv) development and test of the rockets. It is on these subproblems that NCAR, ESSA, and CSU are engaged.

Meanwhile, a plan for a national program to proceed from research to tests of operational methods is now under consideration by the Interdepartmental Committee for Atmospheric Sciences, a subgroup of the Federal Council on Science and Technology. The details of such a plan will have to be discussed