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Priority Setting: Quixotic or Essential?

Floyd E. Bloom

In the inaugural issue of *Cerebrum*, a new scholarly forum of the Dana Foundation, physics Nobel laureate Leon Cooper looks with concern at the funding of the scientific research enterprise and the destructive stressors being imposed on it. Cooper sees a siege mentality at work among federal funders, producing excessive micromanagement, conservative decision-making, and a preference for short-term results over dealing with difficult problems demanding scientific attention.

Such views may seem incongruous when considered in light of the major budgetary boost Congress has just given the National Institutes of Health and other U.S. federal research units. However, although Congressman Vernon Ehlers' Interim Report to Congress proposes a new national science policy, it reveals many complexities that remain to be overcome before the long-term health of this enterprise is ensured. His analysis and recommendations were mandated by the previous congressional leadership and may therefore already be moot. The National Research Investment Act passed by the Senate has yet to be voted on by the House of Representatives. In fact, the Omnibus Appropriations budget passed by both houses and endorsed by both parties before the elections may have established obligations that will further threaten the discretionary funding available within the predicted revenue surplus. Executive and congressional dedication to investment in the scientific enterprise will undoubtedly face further stressors in the near future.

Last year, Asian economies were strong, and support for the U.S. scientific enterprise was severely threatened by balanced budgeting. Today's realities differ substantially. When the future looked rough for science, many pundits strongly advocated hard choices and trade-offs. Today, the supporters of science appear ready to succumb to complacency, believing that there will be enough for all to share. However, if long-term planning was a good idea when budgets were lean, why could it not be even more effective in guiding the new directions to be taken when more funds become available. Asking how best to allocate the funds provided by nations, states, and industrial and private funders of research and how the people needed to make it run should be trained requires raising the topic of priority setting, even if the final decision is to set no priorities.

Concerns over the Cold War helped motivate Congress to increase funding for science and technology four decades ago. Alvin Weinberg, then director of the Oak Ridge National Laboratory, pointed out the need "to formulate a scale of values which might help establish priorities among scientific fields whose only common characteristic is that they all deserve support from the government."* As recently as 1994, Congress asked the National Research Council to address "the criteria that should be used in judging the appropriate allocation of funds to research" along with where such work should be done (universities or national laboratories) and how to continue that allocation process objectively. The report of that study† called for "clearly articulated criteria" for budgetary allocations that are congruent with the views of the President and Congress. The shelves of Washington offices are stuffed with numerous other similar recommendations.

Why is there so much resistance to defining and accepting such criteria? The numerous pitfalls of priority setting start with the belief, rampant among academic researchers, that such exercises are wrong-headed and misleading. Innovation cannot be managed and creativity cannot be predicted any more than can epidemics, natural disasters, or revolutionary breakthroughs in technology such as the polymerase chain reaction or combinatorial chemistry. If it is impossible to predict the future directions of science, how can priorities for research be meaningful? Consider the irony of the consequent conclusion. Does it make sense to be scientific about everything in our universe except the future course of science? *Science* believes that a broadly based priority-setting exercise can guide and protect the long-term growth of the scientific enterprise. We will engage this view in future columns.

Adapted from a presentation to the Society for Biological Psychiatry, Toronto, Canada, in May 1998. **Minerva* 1, 159 (1963). †See F. Press, *Science* 270, 1448 (1995).

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