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Silent Sputnik

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Source: BioScience, 58(1) : 3

Published By: American Institute of Biological Sciences

URL: https://doi.org/10.1641/B580101

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BioScience
Organisms from Molecules to the Environment
American Institute of Biological Sciences

Silent Sputnik

In the mid-1960s, America was awakened by the beeping of Sputnik, launched by the former Soviet Union. The nation was galvanized into action. Programs were established to attract students to scientific endeavors, and many scientists, engineers, technologists, and mathematicians—now of retirement age—were educated under the auspices of those Sputnik-generated programs. Investments in basic research soared, with widespread, intense support from the public. And the investments in science and in education paid high dividends: the United States reclaimed its technological leadership, and the economy thrived, for decades.

But complacency is not in order. Much has been written in recent years about the less than stellar performance of K–12 students in the United States in science and mathematics. Less attention has been paid to the impressive investments that countries around the world—notably Singapore, Japan, and European nations—have made in science, engineering, and technology research. These countries, including China and India, recognize the importance of investment in basic research for competitiveness in the global economy. In the United States, however, current research dollars are not sufficient to support our research scholars; indeed, in fiscal year 2006, the National Science Foundation's biology directorate could fund only 14 percent of the research applications it received. This lethal combination of policies presents a grim outlook for our young people's prospects in tomorrow's world, as well as for continued US leadership in innovation in science, engineering, and technology.

A glance at statistics from the Council on Competitiveness is disconcerting: the United States is 20th in the world in broadband Internet penetration, just after Luxembourg; and whereas Nintendo invested more than $140 million in research and development in 2002, the US federal government spent less than half that sum on research and innovation in education. With the amount of new technical information doubling every two years, students in college today will find that much of what they are taught will be outdated by the time they graduate. Moreover, according to former Secretary of Education Richard Riley, the top 10 jobs in demand in 2010 will not have existed in 2004. So not only are our students falling behind in science and technology, as measured by standard tests globally, but the training they are getting will be insufficient for survival in the global economy.

Today's Sputnik emits no sound, but it is just as ominous as the one launched a half-century ago. As a nation, we are lackadaisical about fundamental research and platitudinous about the need to "do something about our schools." Investment for basic and applied research in the physical sciences, environmental sciences, biological sciences, mathematics and computer sciences, and the social sciences has been essentially flat lined in the United States, with recent increases skewed toward the biomedical sciences. Even those increases are now leveling off. This is a short-sighted strategy, because scientific advances to improve the human condition come from all disciplines. There must be a national plan for balanced investment and regular funding increases for all areas of science, engineering, technology, and mathematics.

The recommendations of the Council on Competitiveness merit support—namely, build the base of scientists, engineers, and mathematicians; revitalize frontier and multidisciplinary research; and build the infrastructure for 21st-century innovation. This is a message we must all enunciate loudly and clearly to the new administration.

RITA COLWELL
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doi:10.1641/B580101
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