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SCIENCE

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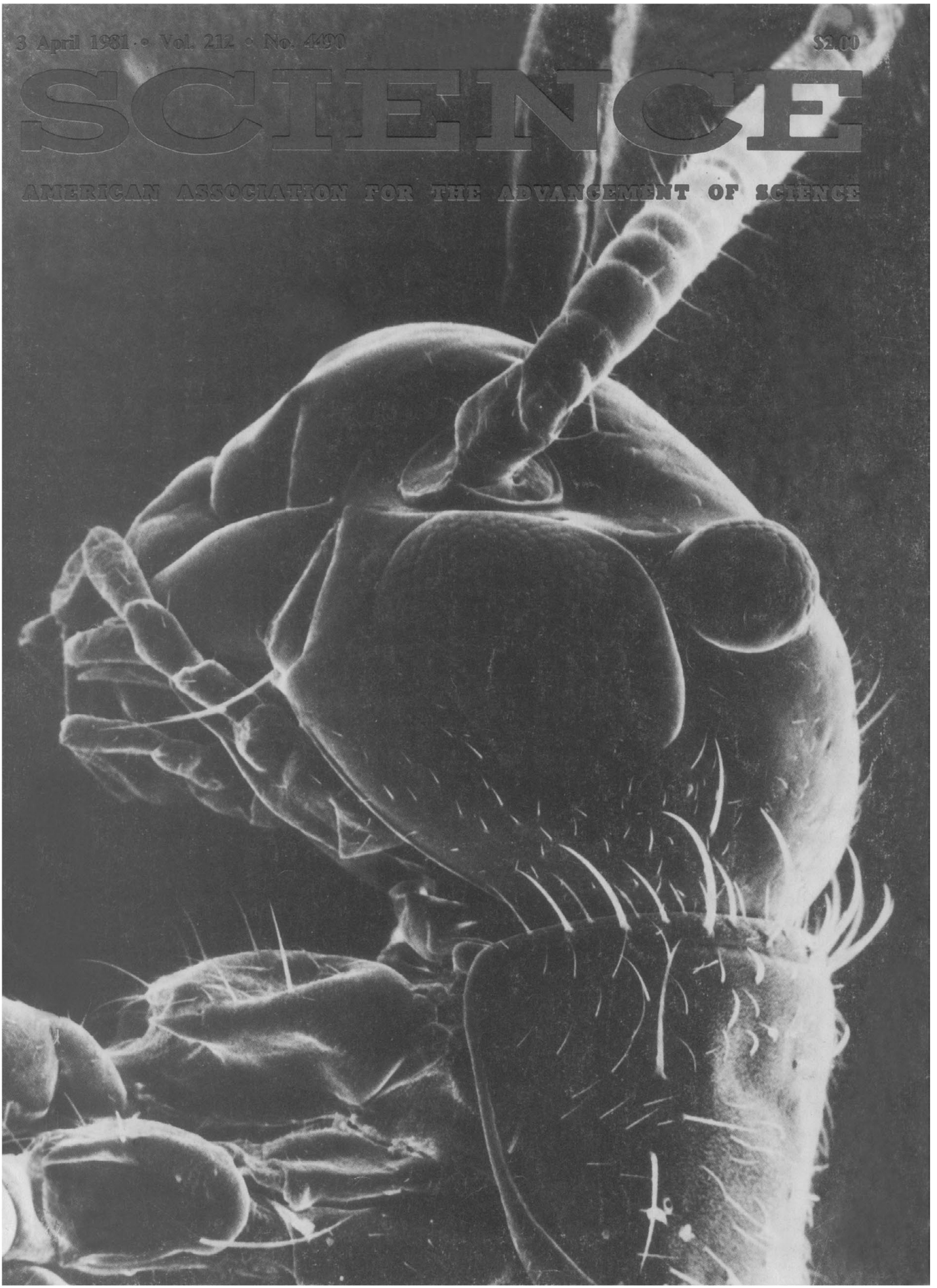

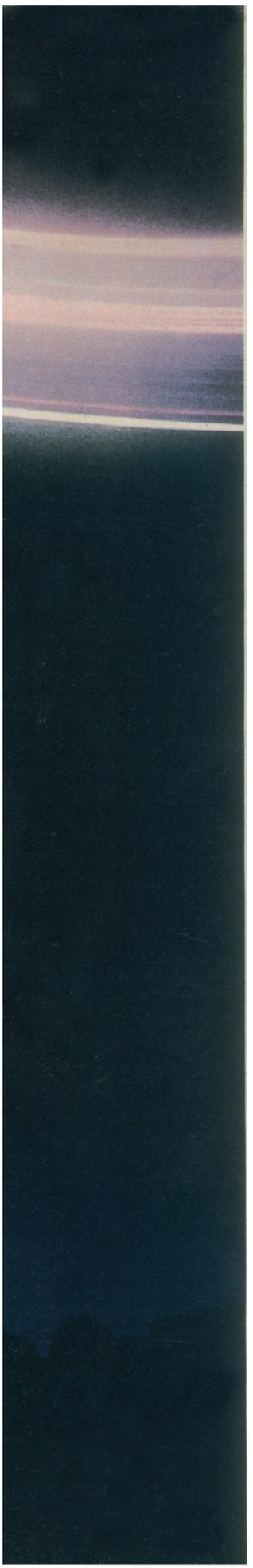

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COVER

Head of a 14-day-old cricket with a normal multifaceted compound eye and a smaller, extra compound eye above it. The cricket was treated during the egg stage with a coal liquefaction fuel. A trace impurity in commercial samples of the chemical acridine produces extra eyes, antennae, and heads in crickets. Some synthetic fuels derived from coal also produce this effect (about ×110). See page 51. [E. G. O'Neill, Oak Ridge National Laboratory, Oak Ridge, Tennessee]

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National Science Foundation's Other Mission

Science education has long been the "poor cousin" of the research component at the National Science Foundation (NSF). But in addition to its goal of supporting scientific research, the foundation has another major mission: a statutory obligation to initiate and support "science education programs at all levels."

On 10 March 1981, the Office of Management and Budget proposed that the science education mission of NSF be totally eliminated. This would mean the loss of some 25 programs, which include:

- All of the graduate and postgraduate fellowships. The $9.9 million left in the directorate will be used only to meet existing fellowship commitments.
- All of the science education research activities, including efforts to learn more about how science and mathematics are learned. Recent breakthroughs involving processes of reasoning and mental development cannot be pursued.
- All development of new materials, methods, and curricula in science, including important efforts to link the microcomputer and video disk for science instruction.
- All faculty improvement programs, including all fellowships, the very efficient precollege teacher development programs, and the foundation's best and least expensive method of updating college science faculty: the Chautauqua-type Short Courses program.
- All programs aimed at bringing minorities, women, and handicapped persons into scientific careers.
- All undergraduate institutional support programs, including Comprehensive Assistance to Undergraduate Science Education (CAUSE), Local Course Improvement (LOCI), and Instructional Scientific Equipment (ISEP). These three programs are especially important to the 4-year colleges that produce Ph.D. candidates for universities.
- All student programs, including undergraduate research participation and the student science training program. These programs have served to identify and encourage prospective scientists early in their careers.
- All of the informal science programs designed for the public and for children, including support for science museums and popular television programs such as Nova and 3-2-1 Contact.

The cuts will start in 1981, with a severe reduction from the $81 million that had been approved to $65 million. In 1982 the reduction will be from the $112 million proposed by the foundation to the $9.9-million phase-out level.

A recent NSF–Department of Education study, *Science and Engineering Education for the 1980's and Beyond*, identifies the elements of a national crisis in science and engineering education. Shortages of qualified mathematics and science teachers in secondary schools have become critical. Population changes and population mobility over the next 10 years will make these shortages even more acute in some parts of the country. It is already difficult to find engineering faculty at the postsecondary level, and this problem will soon become worse.

The science content at the secondary school level is mismatched to the practical needs of most students, and appropriate alternatives do not exist. Schools and colleges have not been able to keep up with the revolution in technology, so that laboratories are hopelessly obsolescent. Erosion of teacher support systems and resources for science and mathematics teaching has led to lowered student achievement in these fields at the very time when such knowledge is essential to those who work and live in our technological society.

The scientific research community must not permit its ties to science education to be cut, and possibly lose the support science education has always generously given to research. All of us in science must prevent the destruction of the pipeline that supplies our future scientific talent.

—BILL G. ALDRIDGE, *Executive Director, National Science Teachers Association, 1742 Connecticut Avenue, NW, Washington, D.C. 20009*