

SCIENCE

The cover art is a composite image. The upper portion shows a deep blue sky with several Earth-like planets, some showing cloud patterns, and a small satellite or space station. The lower portion is a red-tinted microscopic view of plant cells, showing cell walls and large central vacuoles.

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20 May 1977, Volume 196, No. 4292

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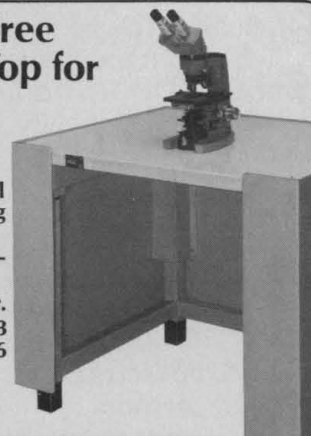
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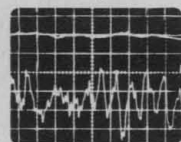
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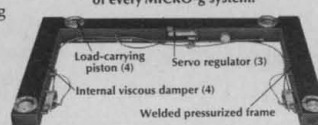
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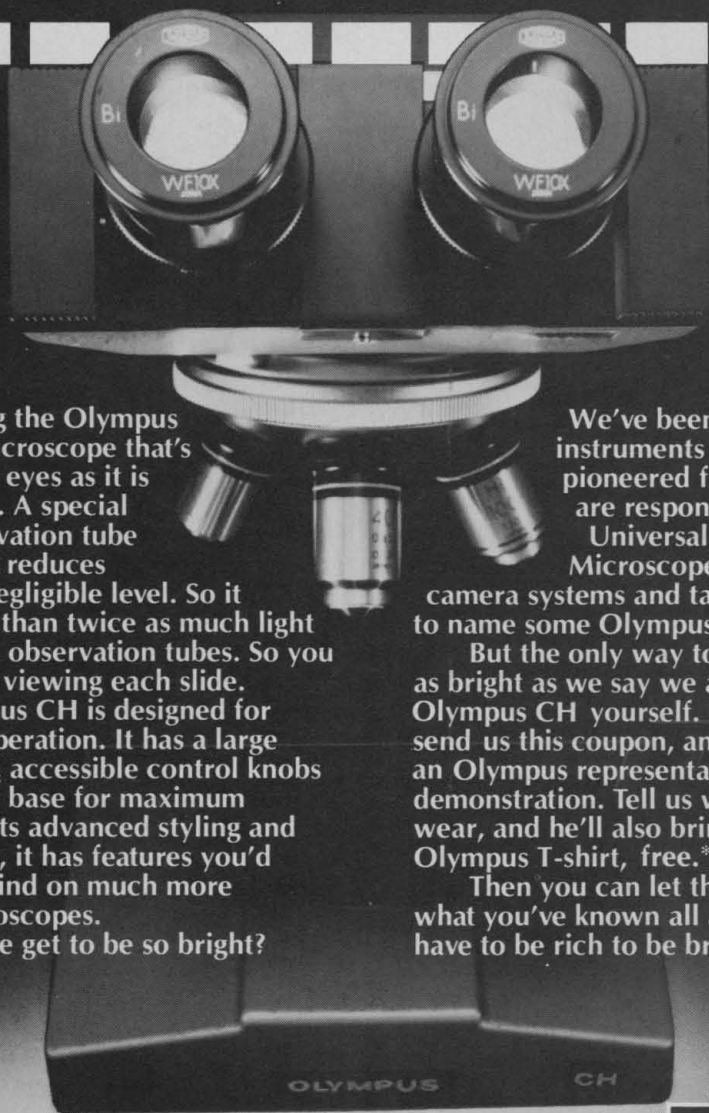


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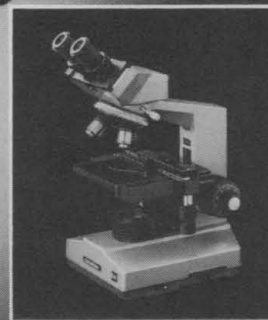


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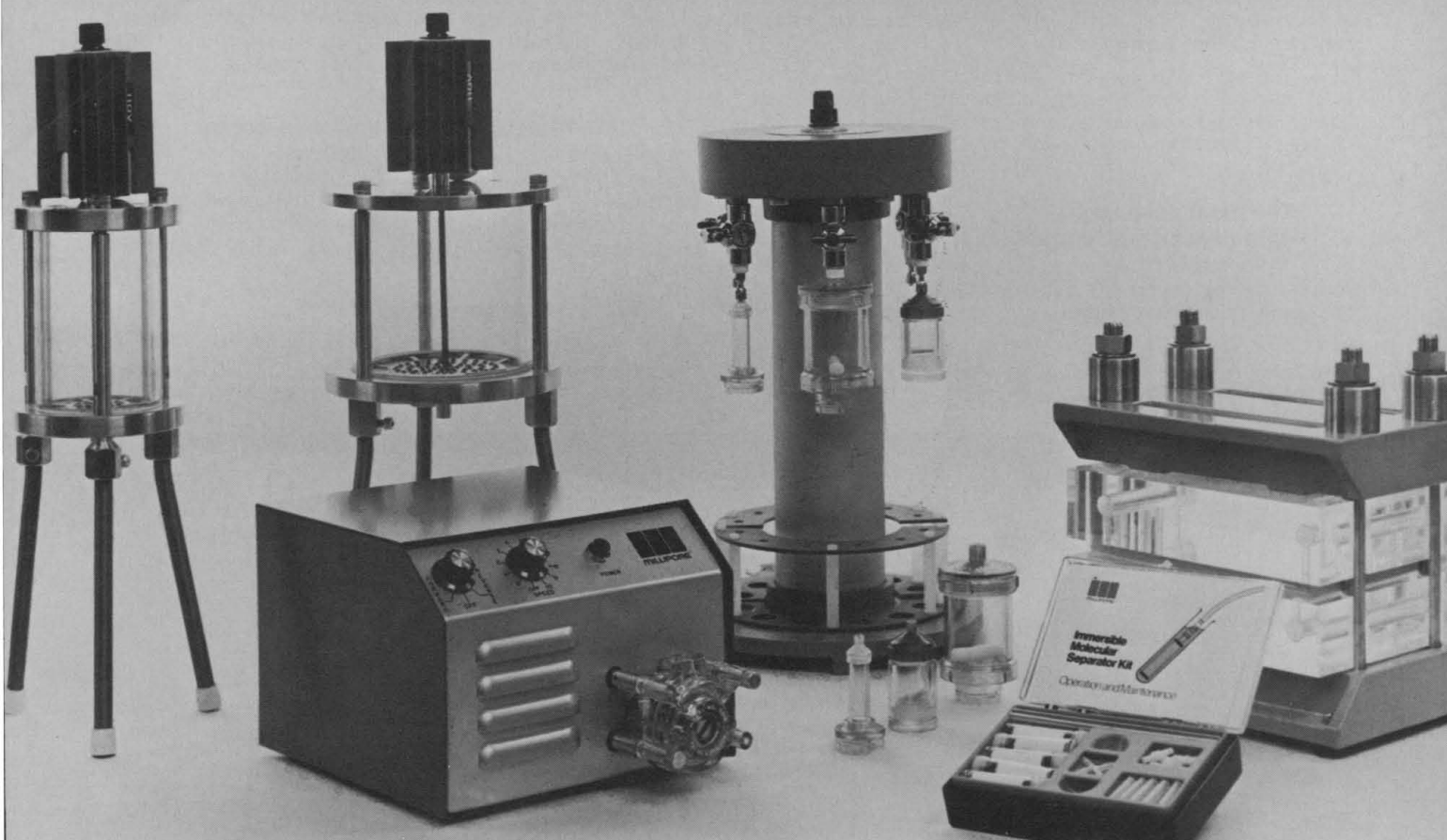
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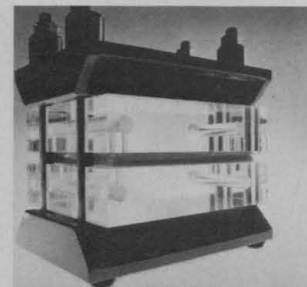
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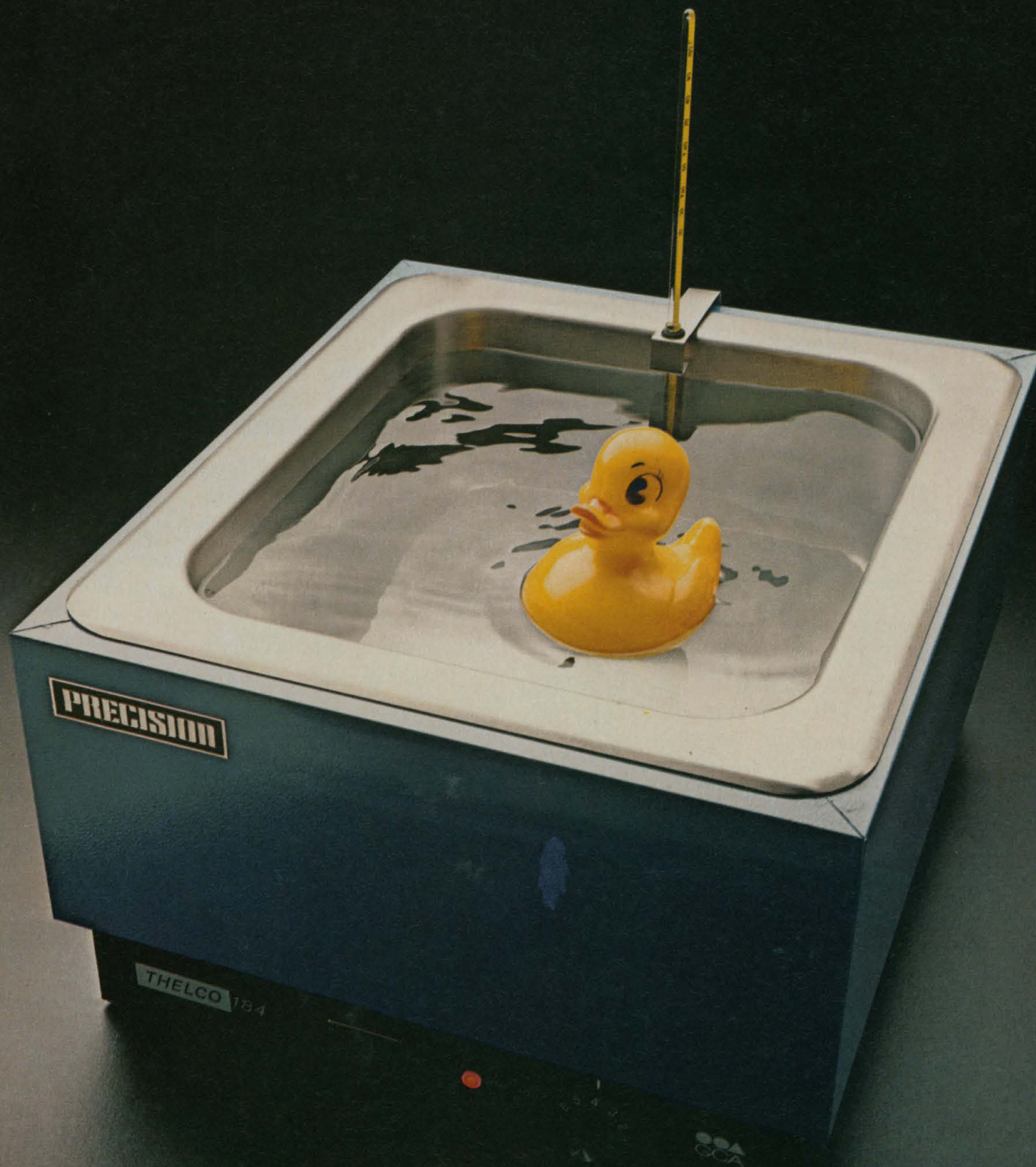
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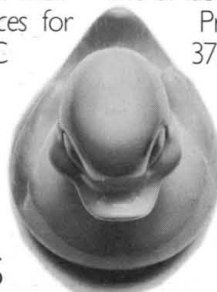
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LETTERS

Scientific Rivalries:

A Sign of Vitality?

In a recent letter (15 Apr., p. 258), Marion E. Smith takes Thomas H. Maugh to task for "... bringing out the personality conflicts between some individuals in basic protein research" in his article on multiple sclerosis (Research News, 11 Mar., p. 969) and goes on to suggest that "... remarks pointing out antagonisms and controversies in the field do nothing to illuminate the problem ... the publication of such unattractive sidelights can only add to the bad press the scientific community is already receiving." I think in the long run science is far more harmed than helped, particularly with respect to its relations with the public, by attempts to conceal or minimize disputes and controversies within its fields. Students, the public, and even scientists themselves seem to find great comfort in the myth that practitioners of science are intelligent, rational, objective, open-minded, unselfishly humble, and cooperative. However, with the exception of the first trait, scientists as a group seem to have no more of these qualities than other groups of normal people (1). Efforts to foster a myth of universal scientific tolerance of ideas and a lack of personal rivalry and fights among scientists will tend only to hinder the public's understanding of how science is done. Science is a means of systematically (empirically) challenging conceptions of reality, and it is inevitable that those whose conceptions are challenged will become personally involved in controversy. Given the enthusiasm, commitment, and dedication that the practice of science demands, the existence of fights and rivalries can be taken as a sign of vitality in a field. Even if scientists employed more "strong inference" methods (2), that is, pitting opposing conceptions against each other in the same experiment, I suspect the net effect would be merely to make the fights a bit less ad hominem. Science's bad press will grow worse as long as the public continues to believe that scientific "truth" is found scattered about the landscape like so many Easter eggs and is merely picked up by cooperative, truth-seeking scientists. Scientific progress results from the constant competition of ideas, with the best ideas (and scientists) emerging as successful. Scientists should not only air their differences and rivalries in public but should also take positive steps to educate the public about the meaning of those rivalries, one

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of which is that, despite being conducted by fallible and disputatious humans, the process of science yields an ever-unfolding increase in understanding.

FRANK J. STECH

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2. J. Platt, *The Step to Man* (Wiley, New York, 1970).

Jensen's AAAS Fellowship

I regret the controversy occasioned by the election of Arthur Jensen as a fellow of the AAAS. The nomination of fellows in Section J (Psychology Section) does not "operate in mysterious, random ways" as implied by Philip M. Boffey in the 11 March issue of *Science* (News and Comment, p. 965). In addition to the procedures for nomination indicated in the *Science* article, our section committee reviews the roster of section members each year to identify potential candidates. Jensen's nomination was evaluated in accordance with our regular procedures.

Jensen's career as a research scholar goes well beyond the work which has aroused debate. Members of our section would not, I feel sure, support racist interpretations of his work, nor, I dare say, would Jensen himself. But to allow the threat of controversy to supersede consideration of scientific merit would be ignoble of the AAAS and of our section.

We trust that members who question Jensen's election will review, and read, his total list of publications to judge for themselves whether his election was appropriate.

W. J. McKEACHIE*

Department of Psychology,
University of Michigan,
Ann Arbor 48105

*Immediate Past Chairman, Section J, AAAS.

Arthur Jensen's election as a AAAS fellow is an insult and an affront to the minority members of the AAAS because it represents a carte blanche endorsement of his philosophies by the AAAS.

At the council meeting where the action took place, William Wallace of Harvard University sought unsuccessfully to read a brief statement—not "make a speech," as Boffey reports—on behalf of minority scientists. A press conference

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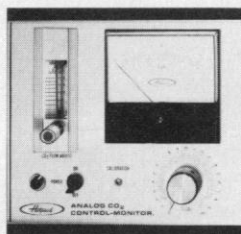
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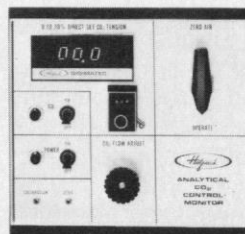
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held immediately after the proceedings was called by minority scientists of the AAAS, not by Wallace alone. Many of us were unable to attend the press conference because of inflexible travel arrangements. We did, however, jointly compose the statement which was read. This statement reflects not only the thinking of Wallace, but of many other minority scientists.

Boffey also incorrectly reports that "there was a vote on whether to remove Jensen's name from the list and refer it

back to the Committee on Fellows for further consideration." The proposal that was actually voted upon and which passed by one vote was one which *tabled* a proposal to send Jensen's name back to the committee. The council therefore never voted on sending Jensen's name back to the committee.

What is most significant is that the council not only disregarded the position of its many minority members concerning the issue, but it refused to let a representative be heard. Minority scien-

tists must therefore seriously question whether the AAAS respects or deserves our membership. Many of us think not.

SAUNDRA YANCY-MCGUIRE
*Department of Chemistry,
Cornell University,
Ithaca, New York 14853*

Naming Arthur Jensen as a fellow of the AAAS will have long-lasting effects upon minority and potential scientists. Jensen's work appears to suffer from a failure to give adequate recognition to the role of the environment, especially the nutritive factor, in determining the development of young humans during intrauterine life as well as during early childhood.

While it is fruitless to expect scientists to work without mistakes, they should design their experiments efficiently, taking full advantage of pertinent information available. Further, scientists should be sensitive to the necessity for adequate controls in their experimental designs.

That Jensen's work has been made the basis of a nomination of such honor makes one wonder about the quality of the nominating committee, to say nothing of the section and the discipline Jensen represents.

It is understandable that the AAAS was unable to prevent the nomination. However, it should take a serious look at the disciplines included in the AAAS, and where the kind of license observable in Jensen's activities flourishes, the discipline should not be considered a science.

The image of the AAAS now is not one which could be presented favorably to minority students in science. Technical training, with emphasis on the applied fields, may well become the outlet of choice for brilliant young blacks in the rest of the 1970's and the 1980's. This is some improvement over earlier circumstances, but a tremendous loss of potential will necessarily follow this reminder that the battle of minorities to survive, develop, and contribute in this country is far from won.

MARGARET S. COLLINS
*Department of Interdisciplinary
Science, University of the District of
Columbia, Washington, D.C. 20001, and
Department of Zoology,
Howard University,
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When the election of Arthur Jensen as a fellow of the AAAS was announced, there was a feeling among a number of my colleagues at Brooklyn College that a

(Continued on page 912)

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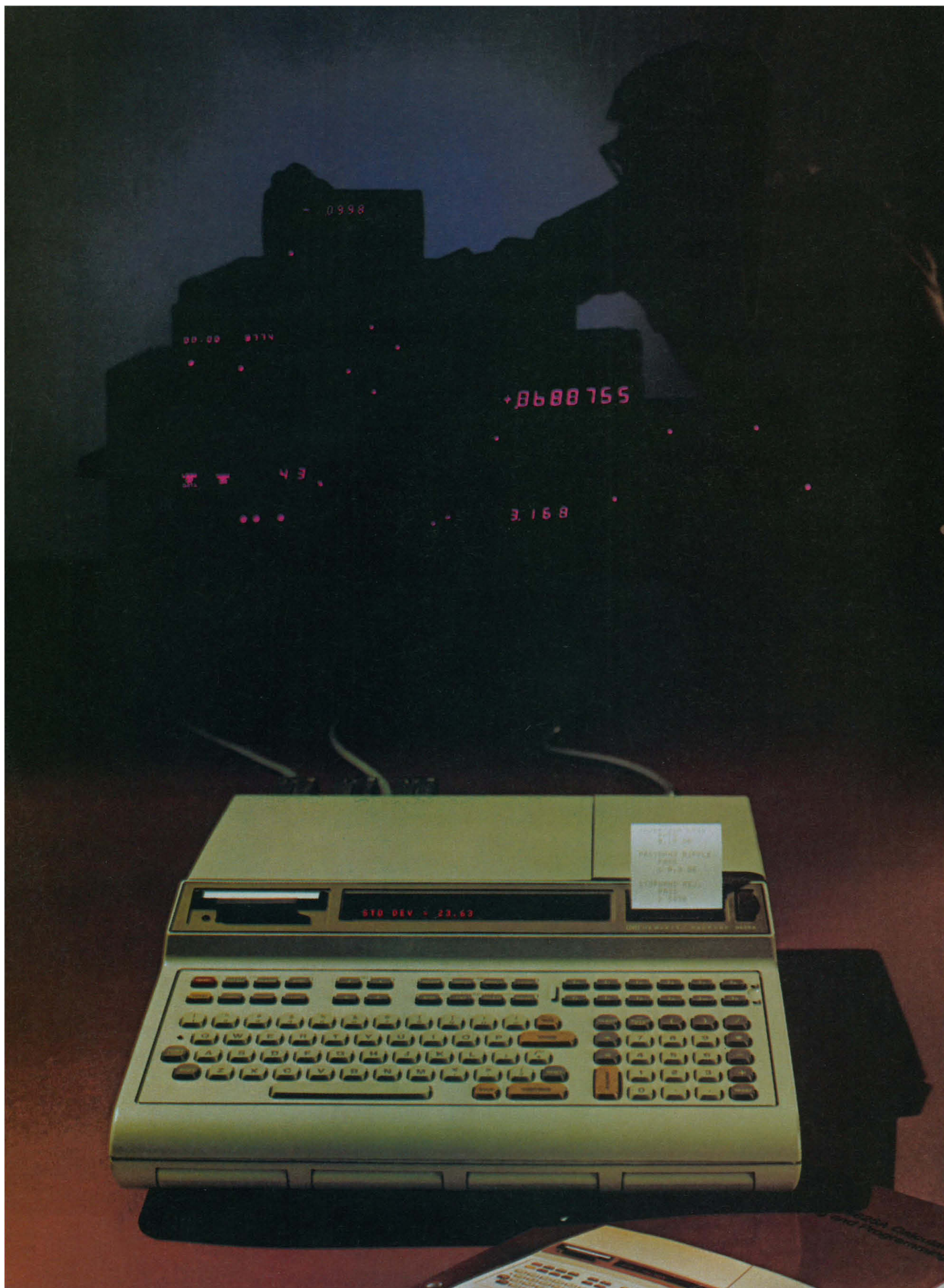
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Science and Technology Strategy for the LDC's

More than 2 years after the U.N. decision to convoke a World Conference on Science and Technology for Development in 1979, and less than 2 years before it actually takes place, our understanding of the links between science and technology and the development needs of the Third World is still very slim.

In the advanced countries the position seems to prevail that fostering science and technology for development amounts to establishing modern scientific institutions in less developed countries (LDC's) and massively transferring modern technology to them, preferably through private channels. On the other hand, many spokesmen for the underdeveloped world understand science and technology for development as abolishing all international barriers that hinder their access to the fruits of scientific and technological progress. It is highly doubtful that either of these two extreme positions offers a solution to the problems of LDC's. Scientific institutes, massive transfers, and tearing down the barriers to the flow of knowledge will hardly do the trick because the capacity of the poor world to absorb and to use scientific knowledge and technical know-how in a meaningful way is very weak.

What the underdeveloped countries need first and foremost is the buildup of their internal scientific and technological capacity. The achievement of such an objective will depend more on a long-term integrated international and domestic effort than on piecemeal initiatives guided by ideological preferences or by magic thinking. This rather simple proposition seems to be forgotten by many, if not most, diplomats, scientists, and international bureaucrats participating in the preparatory stages of the U.N. Conference on Science and Technology. At least this is the impression one has after the most recent meeting of the U.N. Committee on Science and Technology for Development (New York, February 1977).

One of the major obstacles to the advancement of science and technology in the underdeveloped world originates from the divorce between local R & D activities and the educational and productive systems and from the lack of general scientific and technological culture. Consequently, whatever knowledge is produced domestically is used neither to improve the quality of education nor for productive purposes. Moreover, the supply of internally produced scientific knowledge and technical know-how does not automatically create a demand, because the little demand that exists is historically directed to the outside world.

Thus, the advancement of science and technology in the poor countries will depend more on establishing permanent and strong links between the R & D system, education, and the economy than on the volume of imported knowledge and an increased allocation of human and financial resources for research institutions. In the absence of domestic demand for their output, a corollary to the absence of scientific culture, modern scientific institutes set up in the LDC's with help from outside wither away or become sources for brain drain. On the other hand, dependence on massive imports of technology through traditional channels leads to the emergence of advanced technology enclaves that perpetuate themselves in the context of general technological backwardness.

Unfortunately, while scientific communities in the advanced countries know very little about the nature of underdevelopment, the links of most diplomats and bureaucrats from the poor world with their own societies are very often incidental. Given that scientific and technological policy for the development of the LDC's must be put in the framework of the overall development policy and must build bridges between R & D and the educational and productive systems, the U.N. Conference on Science and Technology for Development, manned mostly by scientists from the North and diplomats from the South, will be facing the most serious handicaps.

—MIGUEL S. WIONCZEK, *El Colegio de México, Mexico 7, D.F.*

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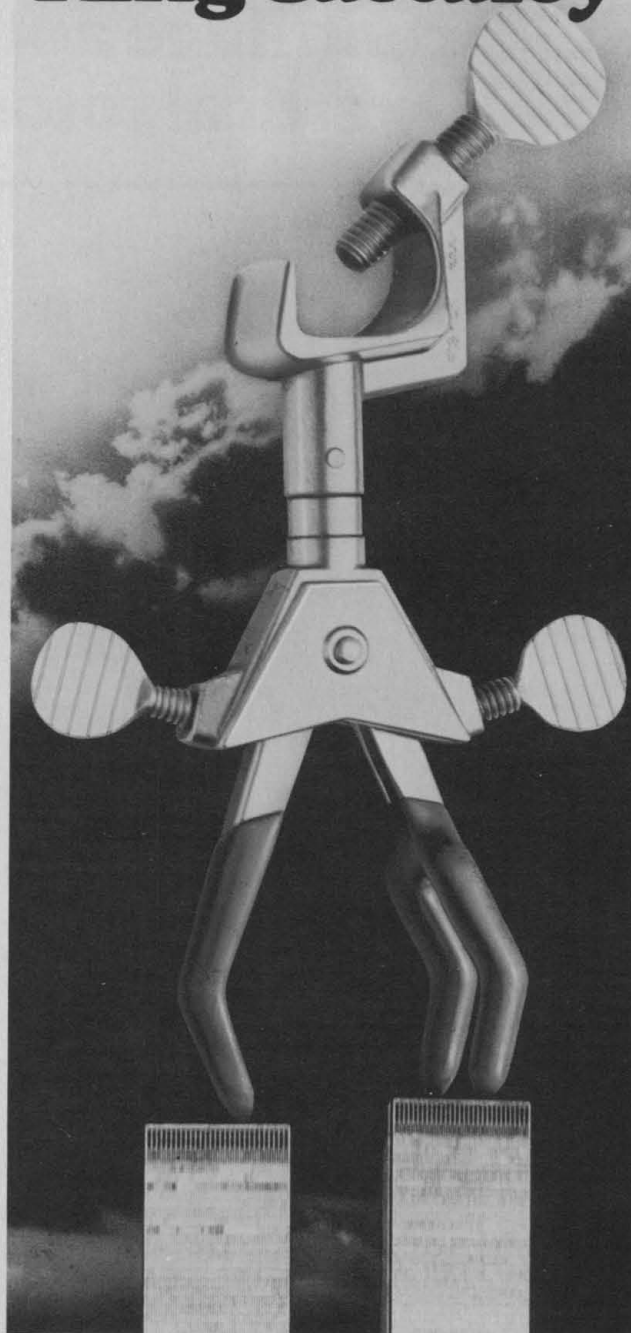
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LETTERS

(Continued from page 832)

reasoned response should be made by professional educators. At the same time, there was concern among some that a statement opposing Jensen's election would be an infringement of his academic freedom and First Amendment rights. Because of this concern, it was felt that the passage of a resolution in the name of the entire faculty would be an unfair imposition of majority rule. The outcome was the following statement, signed by 34 members of the faculty.

We, the undersigned members of the faculty of the School of Education of Brooklyn College, CUNY, deplore the recent action of the American Association for the Advancement of Science in conferring the honor of fellowship upon Arthur R. Jensen. Although we vigorously support Dr. Jensen's academic freedom to conduct research according to his lights and to publish his findings, we consider it inappropriate to honor him for his work. Despite extensive and competent criticism of both the methodology employed and the static genetic conception of intelligence inherent in his study, his findings relating to racial differences in IQ have had and may well continue to have serious social consequences. Whether or not it is the intent of the Association, the honor bestowed upon Dr. Jensen cannot fail to lend support and credence to those findings.

EMILY R. KENNEDY

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Civil Defense and Nuclear Blackmail

Several points in Jay Orear's letter "Nuclear arsenals" (26 Mar., p. 1284) are puzzling. He considers the hypothetical situation in which the Soviet Union evacuates its cities according to civil defense procedures so that the United States could inflict less than 4 percent (estimated) losses to the Soviet population. If the United States were then presented with a nuclear blackmail threat unless it acceded to Soviet demands, it would have to either give in or risk the loss of almost half its population. We would prefer a situation in which our President cannot be confronted with such a choice, a situation obtainable through modest U.S. civil defense measures (1).

Orear implies that it would be safe to choose the second alternative because the Soviet Union would in no case risk the loss of its industrial installations, much of its fuel, and its transportation

system. He says that, in his opinion, this destruction would inflict long-term, irreparable damage on the Soviet Union. His view is in sharp contrast with that of Lenin: "The primary factor of all humanity is the laboring man. If he survives, we can save everything and restore everything . . . but we shall perish if we are not able to save him." This is what the Soviets seem to believe; it is repeated in their speeches, their papers, and their civil defense handbooks.

As for the destruction of Soviet industrial installations and its transportation and distribution systems, current Soviet civil defense preparations include storing at least a year's reserve of grains in underground bunkers away from target areas and constructing blast shelters for workers in critical industries. These preparations, among others, are being made through annual expenditures that are at least ten times greater than funds being spent on civil defense in the United States. The idea of the Soviet Union being "bombed into the Stone Age" is an error which can have dangerous consequences.

Even if, after a war, the Soviet Union did need outside help, it seems clear that, if the United States were destroyed, the Soviets could force other nations to provide for their own surviving population. The population of the Soviet Union is now only about 7 percent of the world's population, so the help surely *could* be provided.

Finally, the estimate that U.S. missiles could inflict a Soviet population loss of between 2.75 and 4.5 percent was calculated on the assumption that the missiles would be aimed at the evacuated population, not at industrial installations and other equipment. The population loss would be much smaller if the U.S. missiles were aimed at Soviet industry, which is, in fact, being decentralized. Second, would not a world in which the United States has another choice besides the two alternatives stated in the first paragraph—between surrender or the death of almost one of every two people—be better than the one we may be facing without civil defense?

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CARSTEN M. HAALAND

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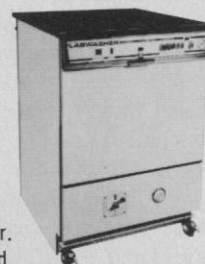
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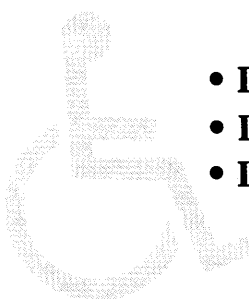
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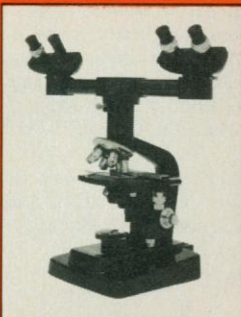
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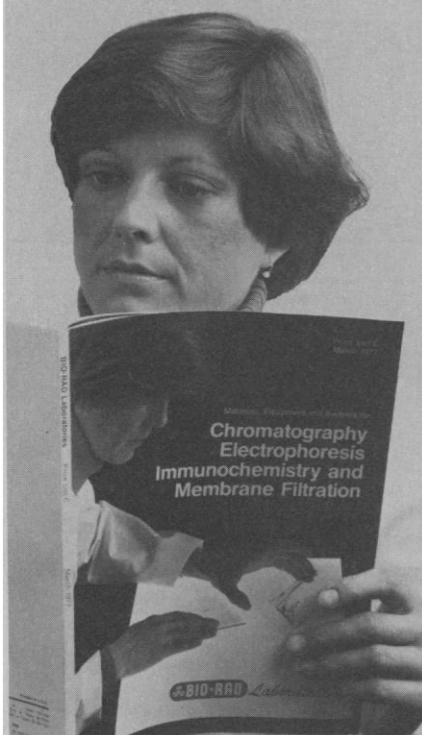
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