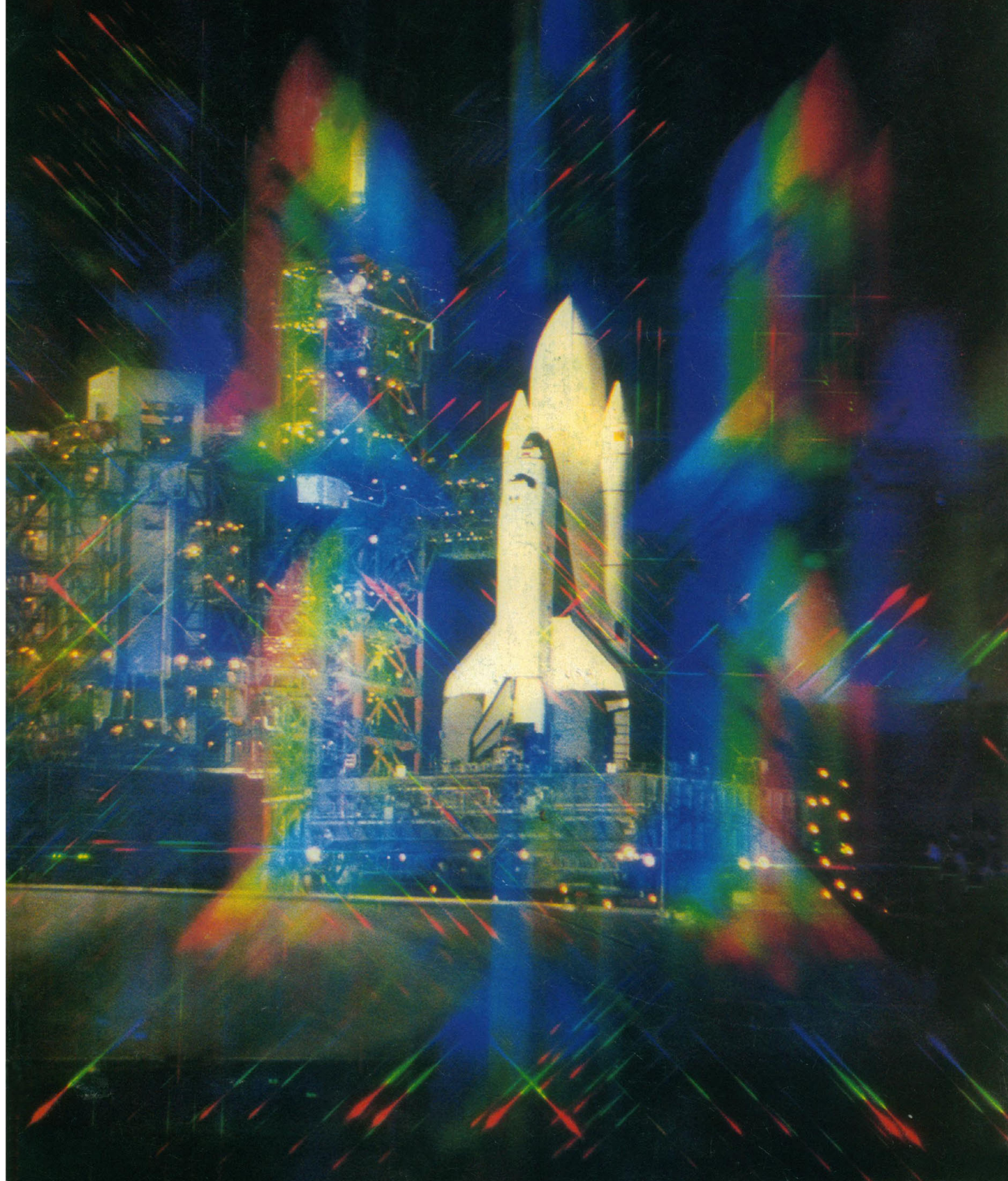


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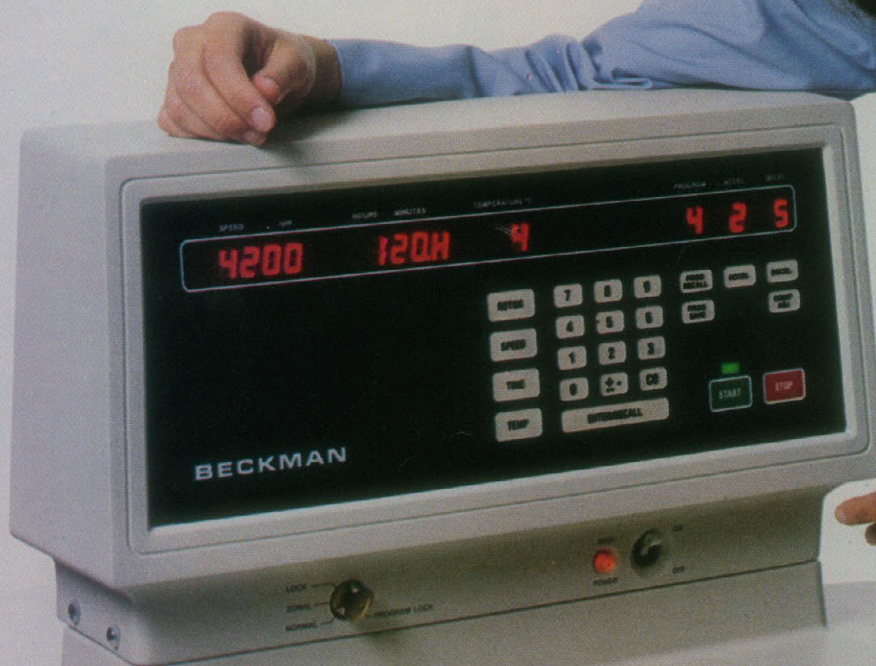
The microprocessor makes centrifugation virtually automatic. Just program into the memory the operating conditions of the runs you do most often. You can repeat a program at will by pressing just two controls. Or you can use the touch/tone keyboard to manually select run conditions.

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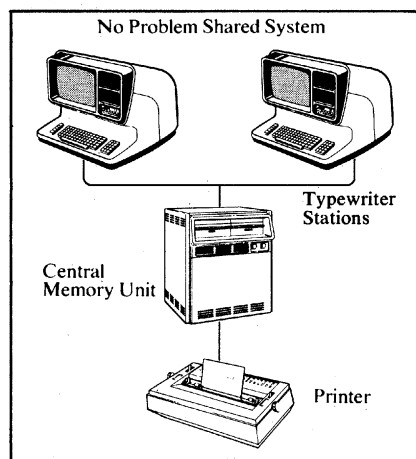


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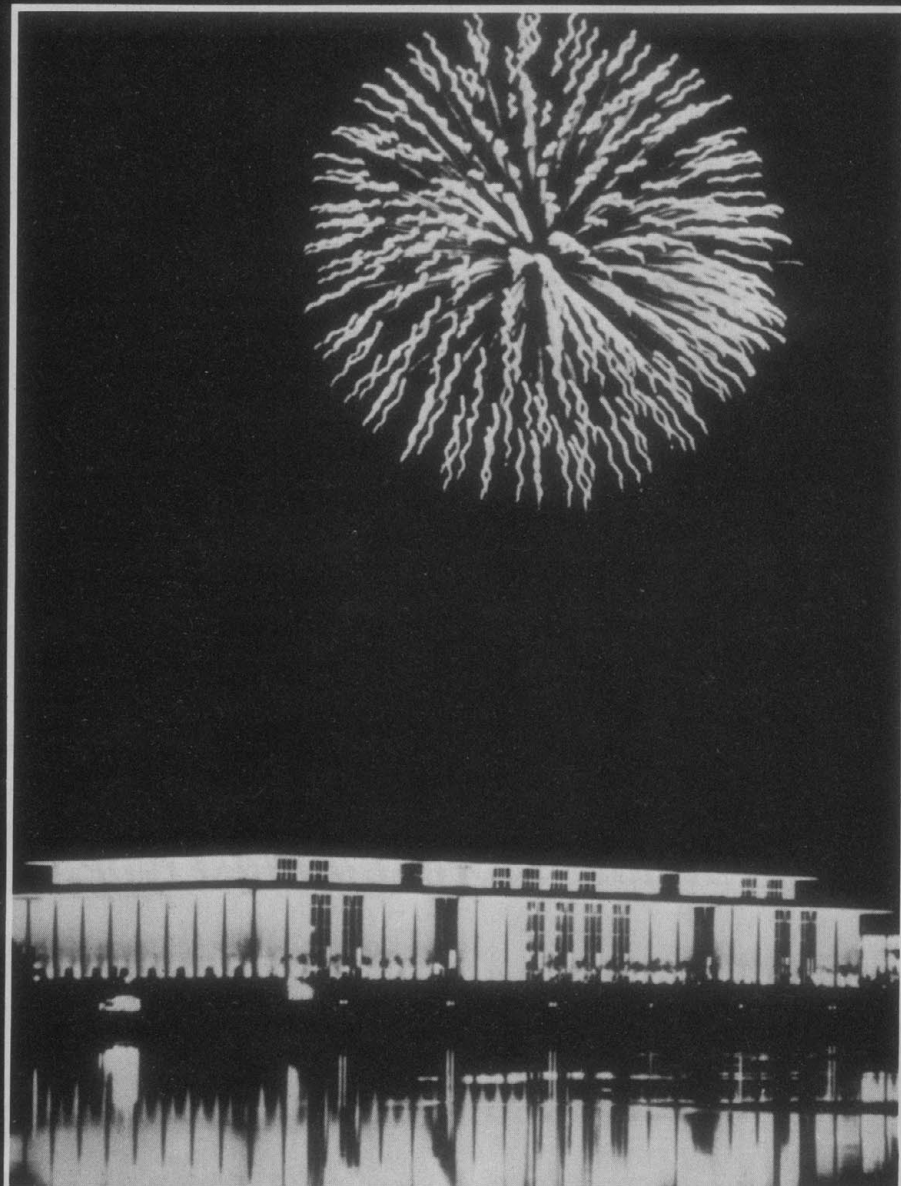
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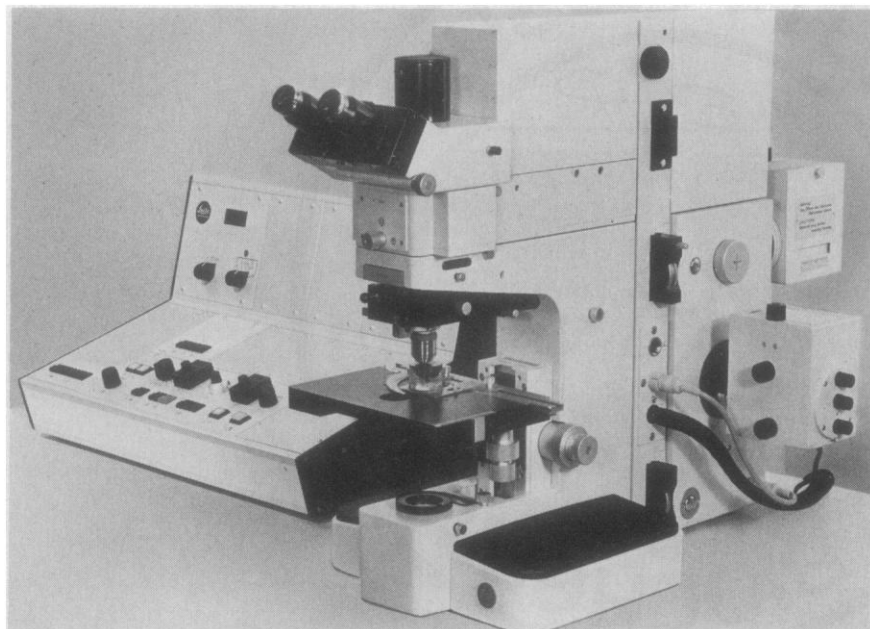


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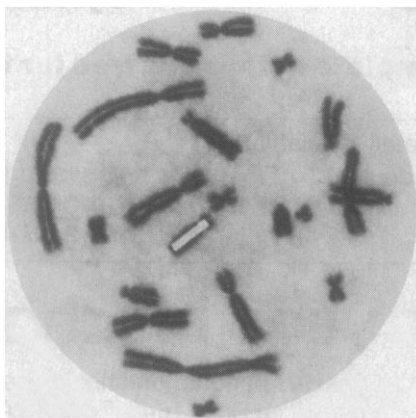
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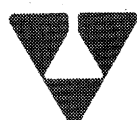
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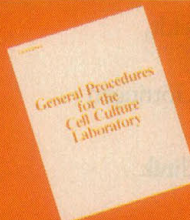
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preferably for studies of biochemical, histological, neurophysiological, neuropathological, psychopharmacological, psychiatric or psychosomatic nature. The studies should be carried out in close cooperation with a psychiatric clinic, a university or an equivalent scientific institution. As far as possible, the papers should give information about recent advances in knowledge that would be helpful in promoting treatment and would open up new paths of progress. The papers may be written in German, French or English and should be submitted to the chairman of the Committee, Professor Dr. P. Kielholz, Basle, Switzerland. Besides hitherto unpublished studies, papers published in the past two years in a German or international professional journal may also be submitted. Deadline for submission to the Committee is 30th September 1982. To help the Committee to come to a speedy decision, it is requested that a maximum of three publications in four copies including an abstract covering the content of each paper be submitted. Prizes will be awarded on the 30th June 1983. If, in the opinion of the Committee, no papers of sufficient merit are submitted, it reserves the right to make no award. Prizes and their amount will be awarded according to the merits of the study in question. Subject to the Committee's decision, each prize can be divided between two papers.

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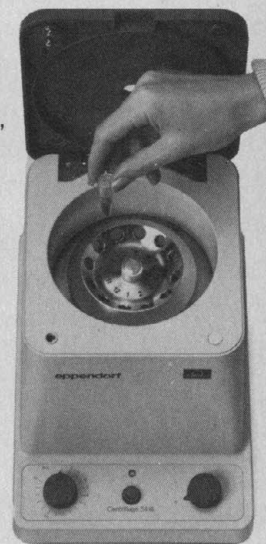
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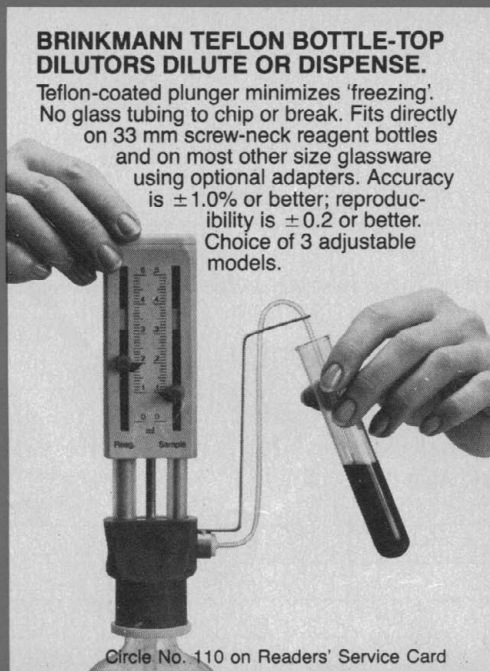
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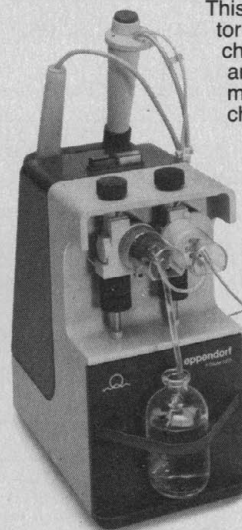
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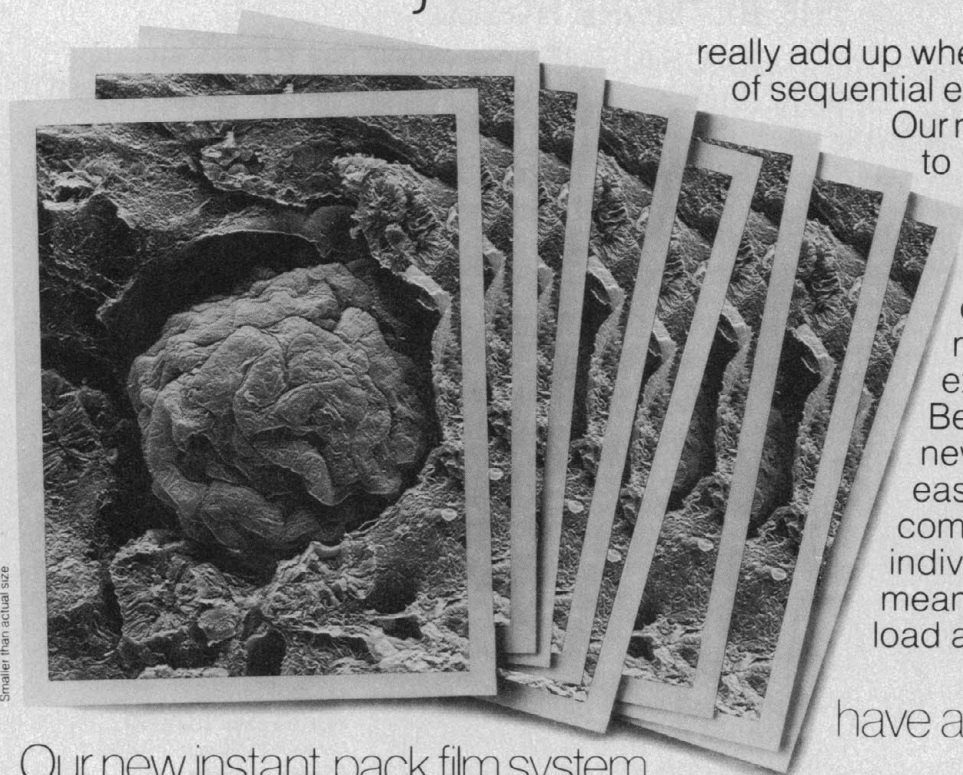
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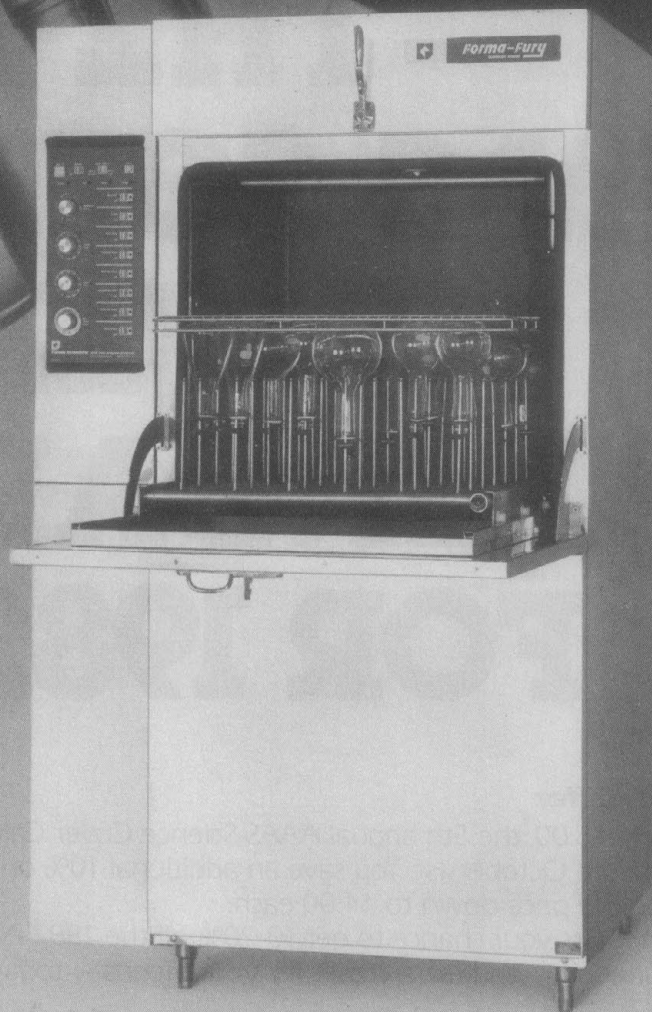
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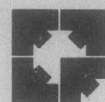


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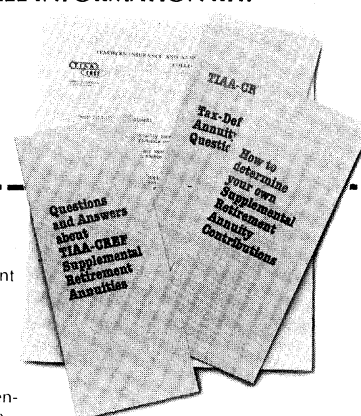
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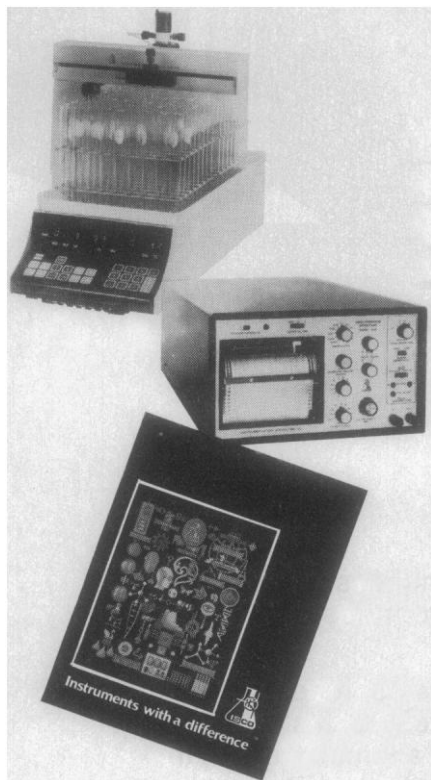
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proceeding on schedule with the assistance and approval of the Department of Agriculture.

In a more general vein, nutrition research has indeed been moved as part of the overall reorganization of the Department of Agriculture. It will now be more closely integrated with agricultural research, thus assuring nutrition a central place in the Department's programs.

JEAN MAYER

Tufts University,
Medford, Massachusetts 02155

Malathion Safety Record

Jean L. Marx's article "Malathion threat debunked" (Research News, 31 July, p. 526) does not mention the massive and successful aerial spraying of south Florida in 1956 to eradicate the Mediterranean fruit fly—a highly sophisticated operation with protective measures for beehives, fish farms, auto painters, and so forth that should be a model for the California program.

There has been no indication of any health hazard whatsoever as a result of this heavy application of malathion, the spraying in 1962–1963 over three counties, and the continued use of malathion for mosquito control. Because of this safety record, Florida experts advised aerial spraying in California 8 or 9 months ago. If heeded, there would be no crisis nor health-hazard furor today.

JULIA F. MORTON

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Saccharin and Bladder Tumors

Several reports (1) suggest an increased incidence of bladder tumors in male rats fed high doses of saccharin for prolonged time intervals. These reports review the information on saccharin which indicates that very little, if any, is metabolically altered and that the compound is essentially completely eliminated in the urine. The compound does not appear to react with DNA, and its mutagenicity is debatable. The mechanism by which an otherwise innocuous compound can induce bladder tumors appears to be an enigma. We should like to suggest a factor which appears to have been overlooked.

The bladder tumors are seen only with maximum tolerated doses of sodium saccharin which are in the range of 4 grams per kilogram per day. Since all of this

would appear in the urine, which may be estimated at a volume of 200 milliliters per kilogram per day, the concentration of saccharin in the urine of these rats would be approximately 0.1 molar. Saccharin, however, is an acid with a pK_a of about 1.4 (2) and therefore should be distributed across cellular membranes according to the pH gradients across those membranes. The pH of the rats' urine was about 6.0; indeed, in the studies cited ammonium chloride (NH_4Cl) was administered to some of the rats to maintain the urine at an acid pH value. Although the intracellular pH of rat bladder epithelium is not known, most mammalian cells have an intracellular pH of about 7.0 (3), and it is reasonable to assume that bladder epithelial intracellular pH should be near this value. Furthermore, NH_4Cl treatment can raise intracellular pH due to the transmembrane diffusion of nonionized NH_3 . Therefore, at a urine pH of 6 and an intracellular pH of at least 7, the intracellular concentration of saccharin in the bladder epithelium should be greater than 1 molar. This concentration approaches the solubility limit for some salts of saccharin. Even if intracellular precipitation of saccharin salts does not occur, the effect of such a massive solute concentration on cellular functions must be profound. The chronic physical presence of these high concentrations of saccharin ions precipitates, or both, might induce tumors through an indirect effect on the cells' internal environment. Therefore, the tumors may be an artifact of the combination of massive doses, renal elimination, and cellular transmembrane pH gradients in the bladder.

W. J. WADDELL

M. P. LACHANCE

Department of Pharmacology and
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References

1. J. Chowanec and R. M. Hicks, *Br. J. Cancer* **39**, 355 (1979); *IARC Monographs on the Evaluation of the Carcinogenic Risks of Chemicals to Humans*, vol. 22, *Some Non-Nutritive Sweetening Agents* (International Agency for Research on Cancer, Lyons, 1980); D. L. Arnold *et al.*, *Toxicol. Appl. Pharmacol.* **52**, 113 (1980).
2. C. Long, Ed., *Biochemists' Handbook* (Van Nostrand, Princeton, N.J., 1961), p. 51.
3. W. J. Waddell and R. G. Bates, *Physiol. Rev.* **49**, 285 (1969).

Erratum: In the report "Staining of blue-sensitive cones of the macaque retina by a fluorescent dye" by F. M. de Monasterio *et al.* (11 Sept., p. 1279), the calibration bar, referred to in the legend of Fig. 2, was omitted; the bar corresponds to 5 mm of the printed page. In the same report, the labeling of Fig. 3C (bottom right panel of Fig. 3, p. 1280) is missing. Its ordinate axis should read "Percentage," and the ordinate axis marks should read (from top to bottom) "13, 11, 9, 7, 5."

Erratum: The mezzotint of Isaac Newton on page 1341 of the issue of 18 September should have been credited to the Prints Collection, New York Public Library, by permission of New Republic Books.

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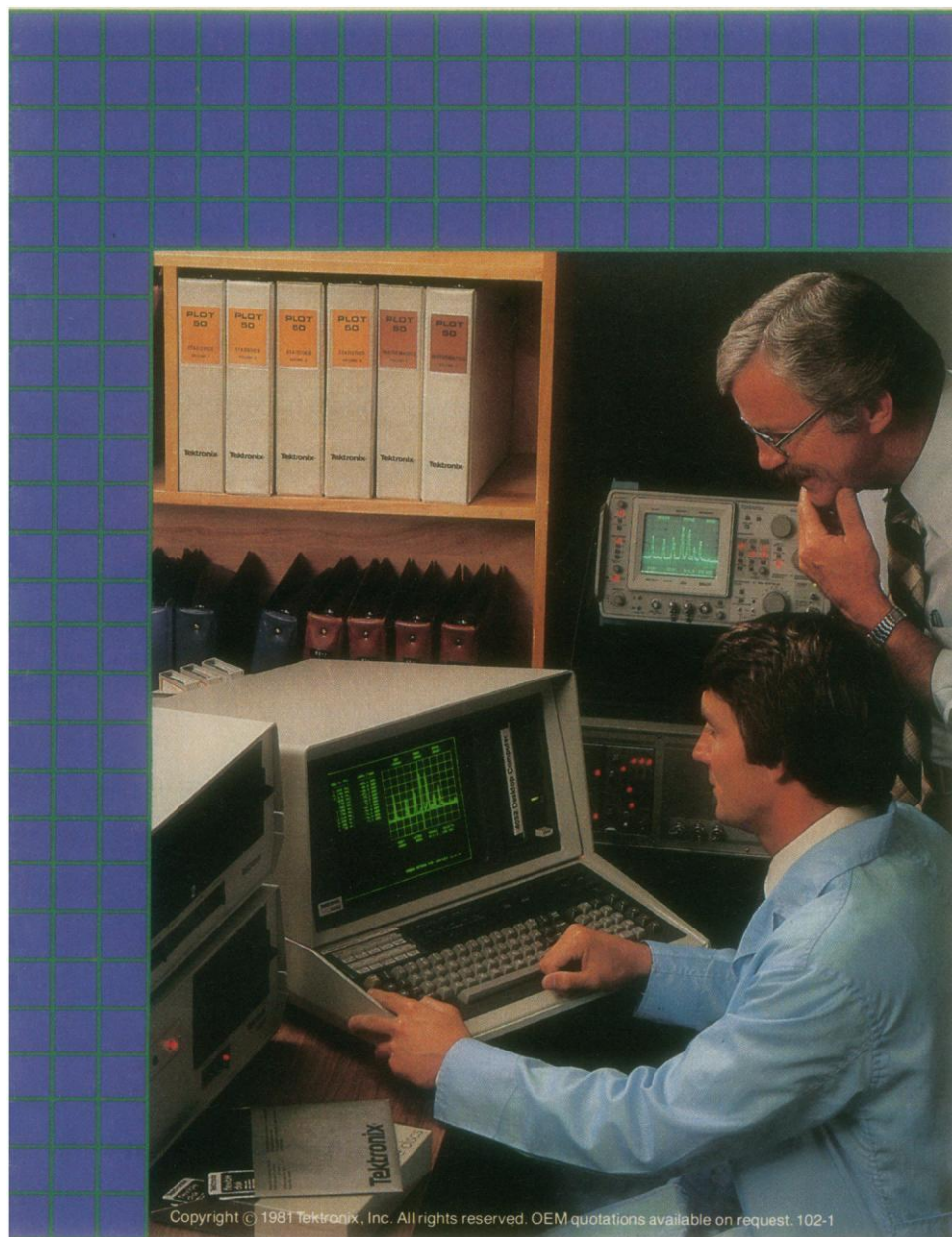
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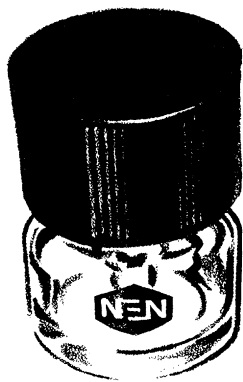
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Women/Minorities in Science and Technology

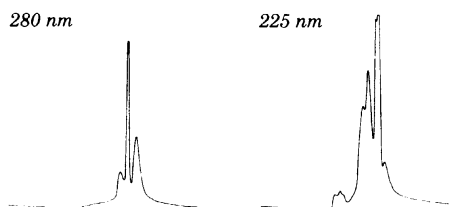
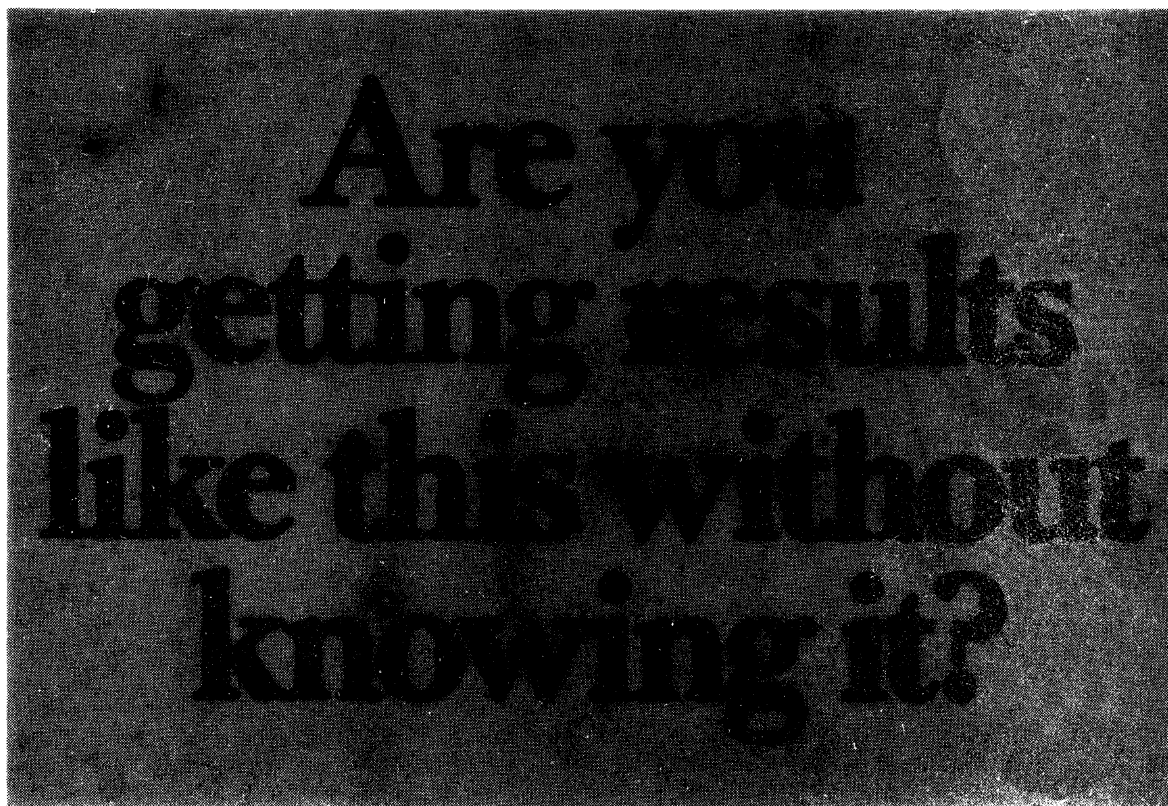
In response to recent budget cuts at the National Science Foundation, scientists and engineers deplored in turn the effects of budget decisions on international science programs, social and behavioral sciences, and science and engineering education. The rationale for the excisions and the manner in which they were accomplished baffled and disturbed many, who believed that legislative processes for arriving at such decisions were ignored. Less prominent have been protests against cuts in programs designed to increase the participation of women and minorities in science and technology.

Past arguments for inclusion were phrased in such a way that only demands for rights were heard. This seems unfortunate at a time when such rights are unpopular, or at least considered unaffordable. Some scientists and engineers—male and female, minority and nonminority—have voiced the other reasons for supporting increased participation of women and minorities in science and technology. They have called attention to the waste of the brainpower of 60 percent of the population while we need to build capacity in all of the population to meet the challenges to our nation's scientific and technological preeminence. They have spoken of the role of women and minorities in addressing issues of health, national defense, and productivity. They have pointed out that personnel shortages in critical areas of science and technology can be met, while maintaining quality, by better utilizing the talents of these groups, and they have talked about the diversity of perspectives and experiences which are brought to science and technology by a heterogeneous mix of participants. Science has not been served well by our past prejudice and discrimination; we have lost time, talent, and ideas.

Although the battles for access, advancement, status within the professions, equal treatment, and equal pay are not finished, women made tremendous gains during the 1970's. This is not true of minorities. Quirks of statistics obscure the fact, but minorities saw little real progress over the last decade. Problems of access for minorities begin at the precollege level, in the science and mathematics education which students receive from the early grades on. The historical barriers, lower expectations of teachers, and poor overall quality of training offered by the schools affect these students most. Minority scientists, calling for access for the youth who would follow them and recognizing that quality is a part of equality, demand improvements in training, increased course requirements in mathematics and science, and a return to rigor.

Buck passing, however, is rampant. The federal government says that precollege education belongs to the states and local governments—to the states that originally led minorities to seek federal redress and to the local governments of many inner cities which are suffering under declining tax bases, increased need to provide basic human services, and little sympathy or money from state legislatures whose suburban and rural factions have traditionally remained unimpressed by these facts.

The Administration's suggestion that the private sector be involved is a reasonable one, but can be expected to work only for efforts which industry sees as being in its own interest. Where national and private sector interests intersect, there is no problem. History tells us, however, that public and private sector needs not only match imperfectly, but often conflict. For this country to attend to the health of science as well as provide for the common defense, see to the physical and mental health of the people, and increase national productivity necessitates greater participation of women and minorities in science and technology. Seeing to the health of science and technology is a legislated federal responsibility—where the interests and activities of other sectors intersect as well as where they do not. We must protest cuts in programs for developing the capabilities of women and minorities, not only for the sake of these groups, but also for the sake of science and for the sake of our nation.—SHIRLEY M. MALCOLM, *Office of Opportunities in Science, AAAS, Washington, D.C. 20036*



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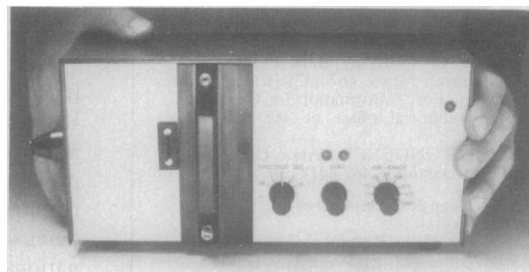
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possible match appeared linking that enzyme to sheep myoglobin. There were 23 identities among the 127 aligned residues, and the NAS score positioned it relatively high on the listings (Table 3). The statistical significance was uncertain ($n = 2.4$ S.D.). What puts the lie to common ancestry, quite apart from the distant relationship of yeast and sheep, is that none of the other myoglobin sequences, of which there were more than two dozen explored, had a resemblance anywhere near approaching the sheep comparison. A statistical anomaly occurred in which there were several identities in one small segment, and that had carried the bulk of the "homology."

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