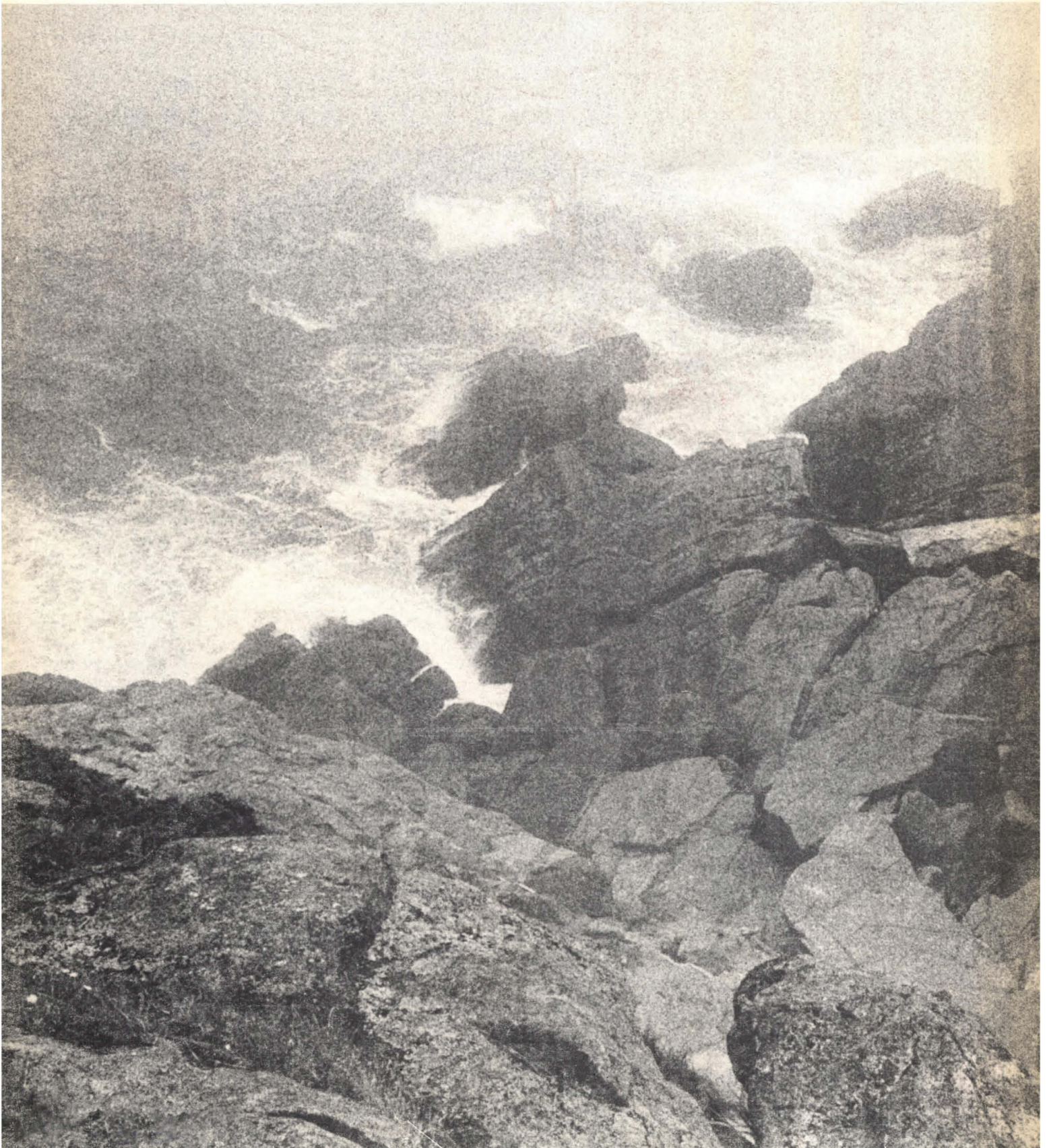


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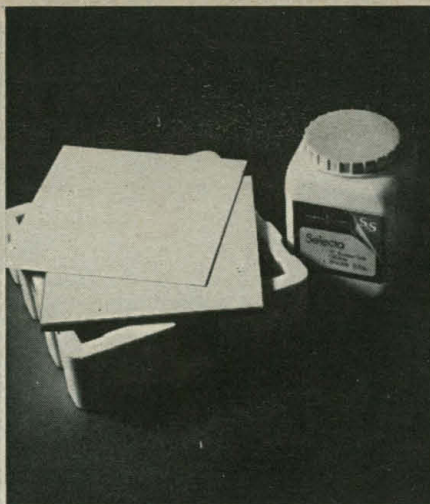
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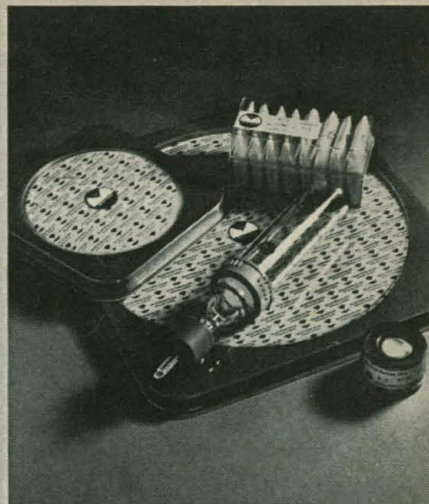
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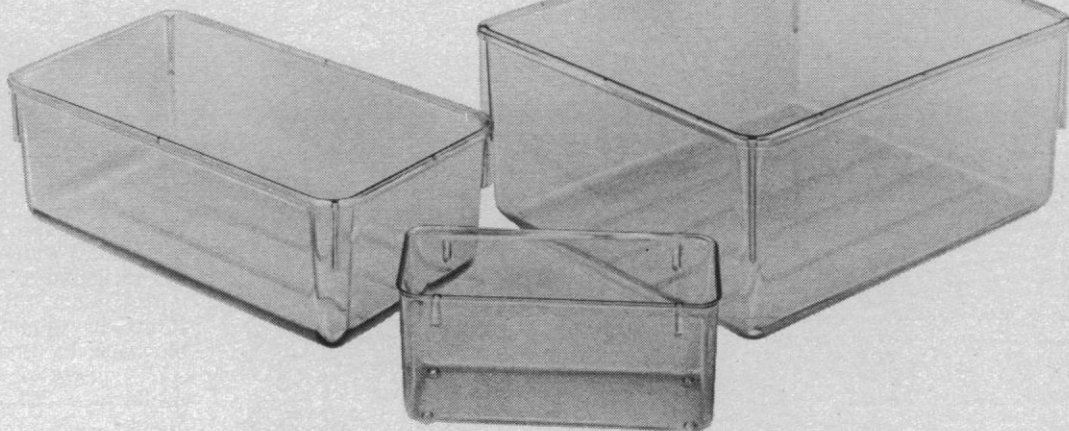
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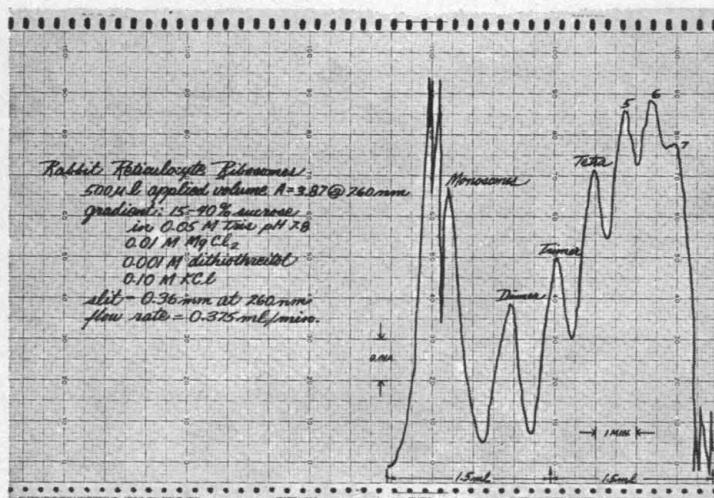
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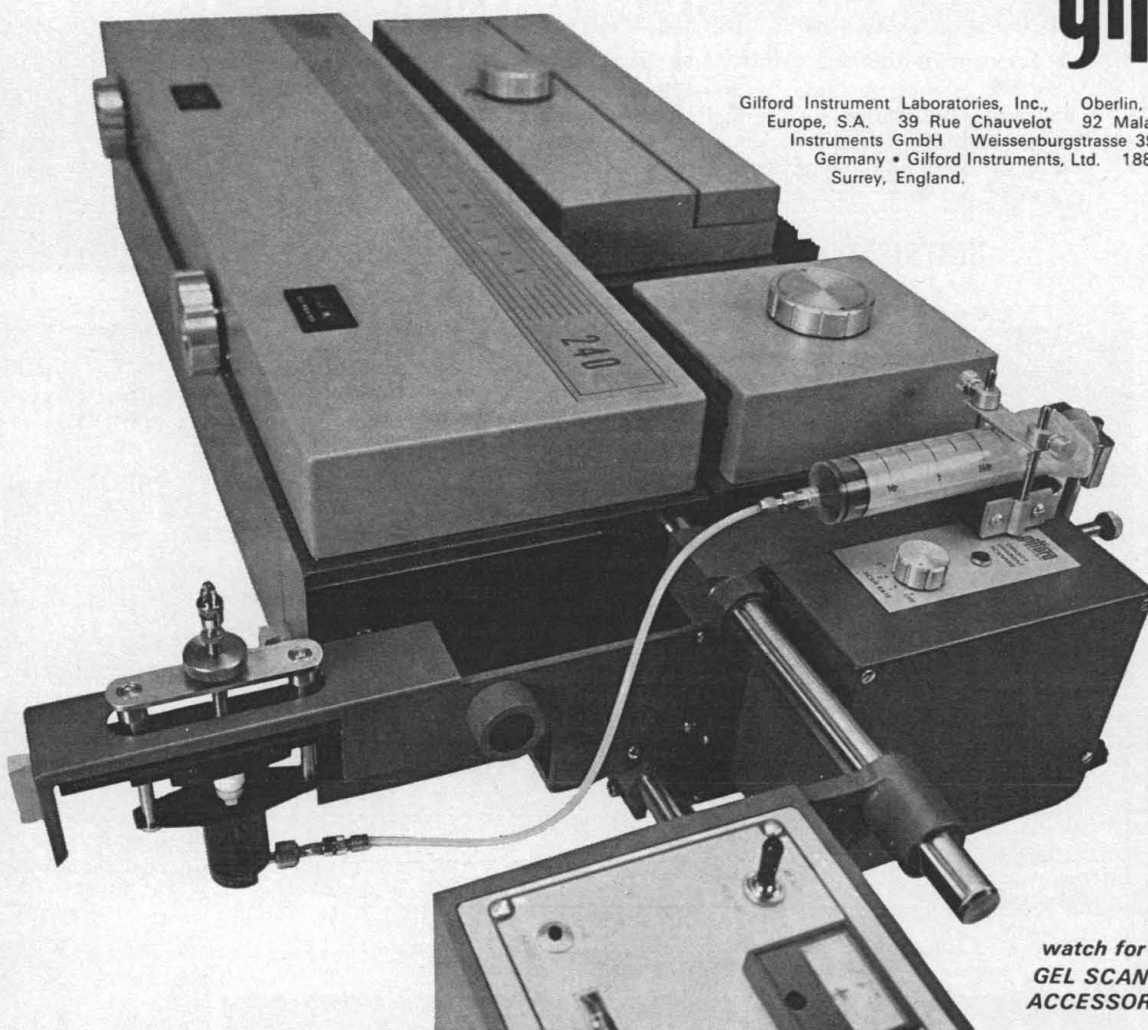


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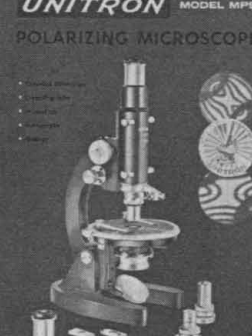
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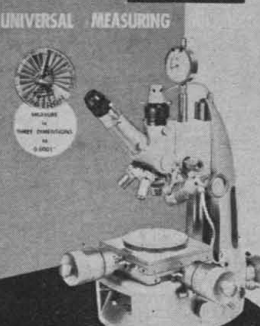
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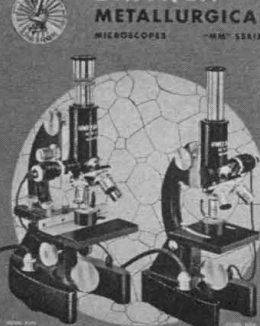
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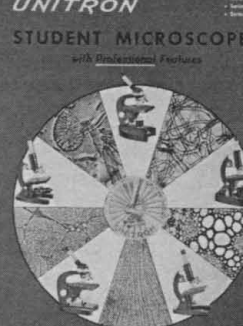
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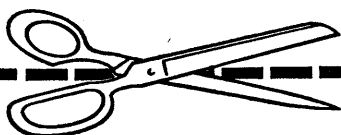
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
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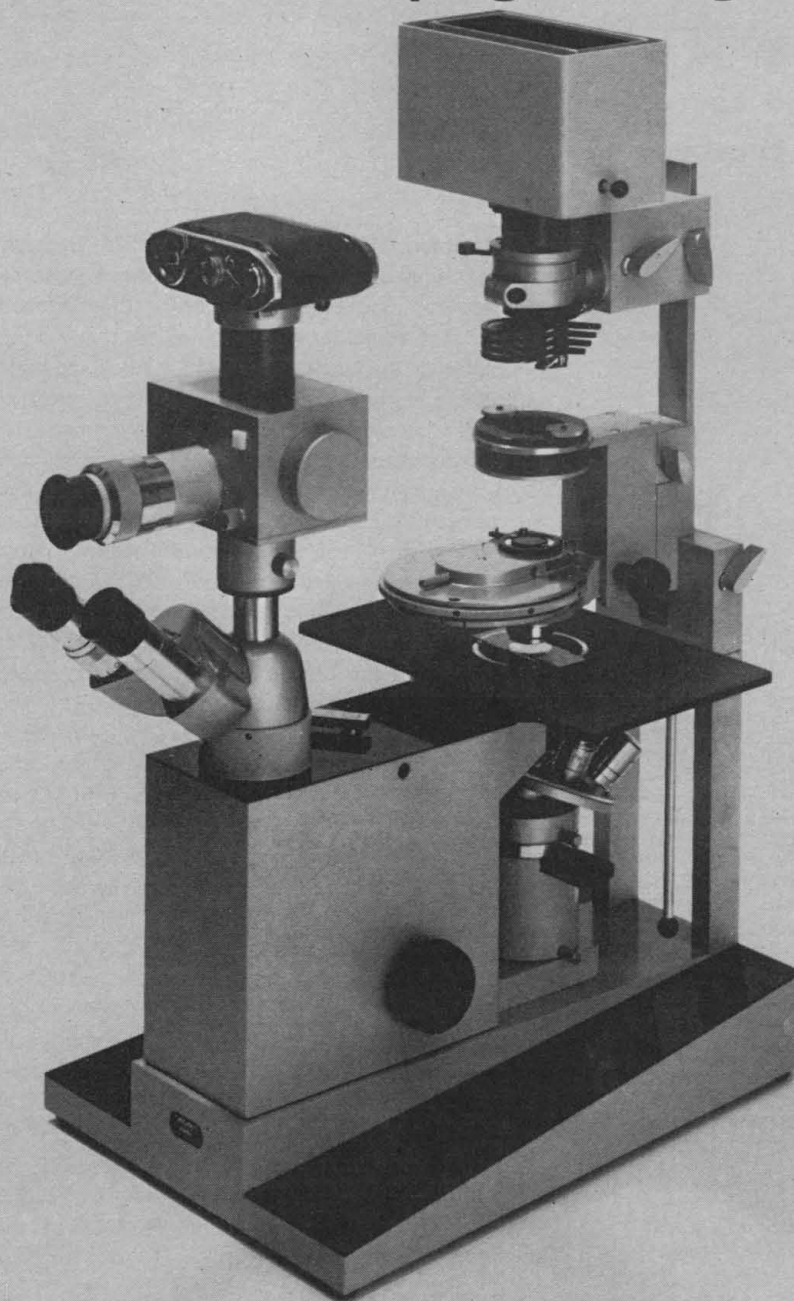
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ANOMALY: The most discussed academic issue on campuses across the country is Immanuel Velikovsky's synthesis of sciences and the humanities. Courses examine his theories and their reception; theses and seminars explore the implications of his research; his lectures are *events* (for his lecture at McMaster University, Canada, six additional halls had to be linked by closed circuit television to the main auditorium). Yet, scientific journals, with few exceptions, still deal with his work only parenthetically, leaving their readers unaware of the great synthesis and its revolutionary significance. *Pensée* announces —

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The spring, 1972, *Pensée* (Immanuel Velikovsky Reconsidered #1) enjoyed such an unusual and enthusiastic reception on campuses (numerous colleges and universities have ordered copies — in lots up to 500) and evoked such a vigorous response from the academic community, that *Pensée's* editors have decided to dedicate nine more successive issues to "Immanuel Velikovsky Reconsidered." These issues will be spaced over the 1972-73 and 1973-74 academic years. We are already assured of participation by scientists and scholars of national and international repute, as well as by an awakened young generation of researchers in fields covering the entire spectrum of human knowledge. Each richly illustrated issue, containing 60,000 words, will carry at least one article (or chapter from an unpublished book) by Velikovsky.

What is most important is that [Velikovsky's] ideas stimulate thought and experiment, and move us eventually to a wider and deeper understanding of nature. The fact that Velikovsky suggests such a wide variety of ingenious experiments to test his theories certainly is in the best scientific tradition. He obviously has a keen mind which clearly grasps many of the intricacies of modern experimental techniques, and he has made some extremely ingenious suggestions about the application of and limitations of these techniques."

P.P.M. Meincke, professor of physics and associate dean, University of Toronto

"My personal heresy is to believe that we are now in the midst of a scientific revolution equal to that of 1895-1920. . . In my judgment the

three events which led off this new era of change were: 1) Velikovsky's resynthesis of astronomic events (1950); 2) Reines and Cowan's experimental demonstration of the finite existence of the neutrino (1953); 3) Yang and Lee's prediction of the violation of parity (1956 — proven 1957)."

H. C. Dudley, professor of radiation physics, University of Illinois Medical Center

"... the time has come to leave the debating table and begin the enormous task of evaluating empirically those hypotheses of Dr. Velikovsky's that are amenable to scientific study."

Richard F. Haines, research scientist, Neurosciences Branch, NASA Ames Research Center.

"Perhaps the American Association for the Advancement of Science could be interested in holding a symposium on scientific logic using the Velikovsky case as a specific study. . . the public deserves a better assessment of the validity of Velikovsky's work than it has received to date."

Walter Orr Roberts, astrophysicist and former president, American Association for the Advancement of Science

"I do not propose to waste time in indulging — for the benefit of skeptics — in any apology for considering Velikovsky's ideas seriously. It is enough to say that I don't see how any serious scientist can refuse to consider them, or to test them against the body of fact and theory he has detailed knowledge of."

Euan W. MacKie, Hunterian Museum, University of Glasgow

"Velikovsky has illuminated the very essence of the most interesting period of Egyptian history. In doing so he has forged a firm link between the Nile and Greece, making a basic contribution to Mediterranean Studies.

Cyrus Gordon, chairman, department of Mediterranean studies, Brandeis University, discussing Velikovsky's *Oedipus and Akhnaton*

The fall, 1972, issue (Immanuel Velikovsky Reconsidered #2) is off the press. In it Ralph E. Juergens sets forth a revolutionary approach to celestial mechanics, accounting for the role of plasma in sheathing the charged celestial bodies. Velikovsky's "H.H. Hess and My Memoranda" makes public the full text of his memos from 1956 to 1969. Submitted to the organizing committee of the International Geophysical Year, and to H.H. Hess, chairman, Space Science Board, National Academy of Sciences, these memos document a remarkable story of successful advance claims. This issue of *Pensée* also carries a score of other papers, by P.P.M. Meincke (professor of physics, University of Toronto) and Cyrus Gordon (orientalist, Brandeis University) among others. It reports on Velikovsky's lecture and consultation at NASA's Ames Research Center, August 14, 1972 — at the invitation of the Exobiology Division — and on the three-day symposium on Velikovsky's work August 16-18 at Lewis and Clark College, Portland, Oregon. 250 scholars and observers from the U.S. and Canada participated in this landmark symposium. The symposium papers will be published in *Pensée*.

BONUS — New subscribers will receive a free copy of the spring, 1972, issue (Immanuel Velikovsky Reconsidered #1). It contains articles from the pens of physicists, philosophers, historians, and archaeologists; the sordid story of the Harvard University astronomers' successful effort to

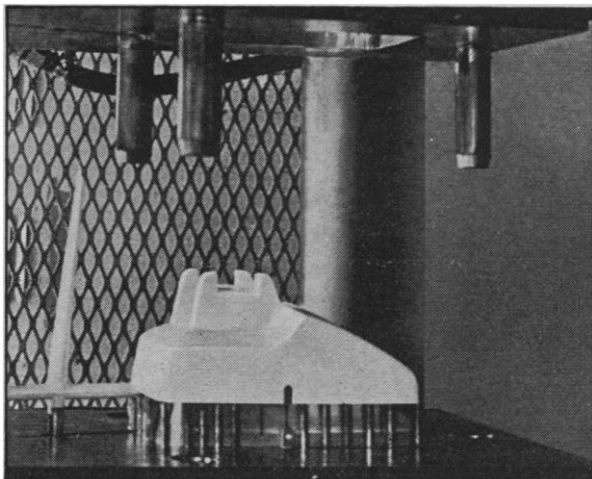
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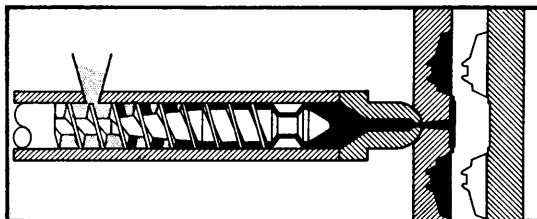
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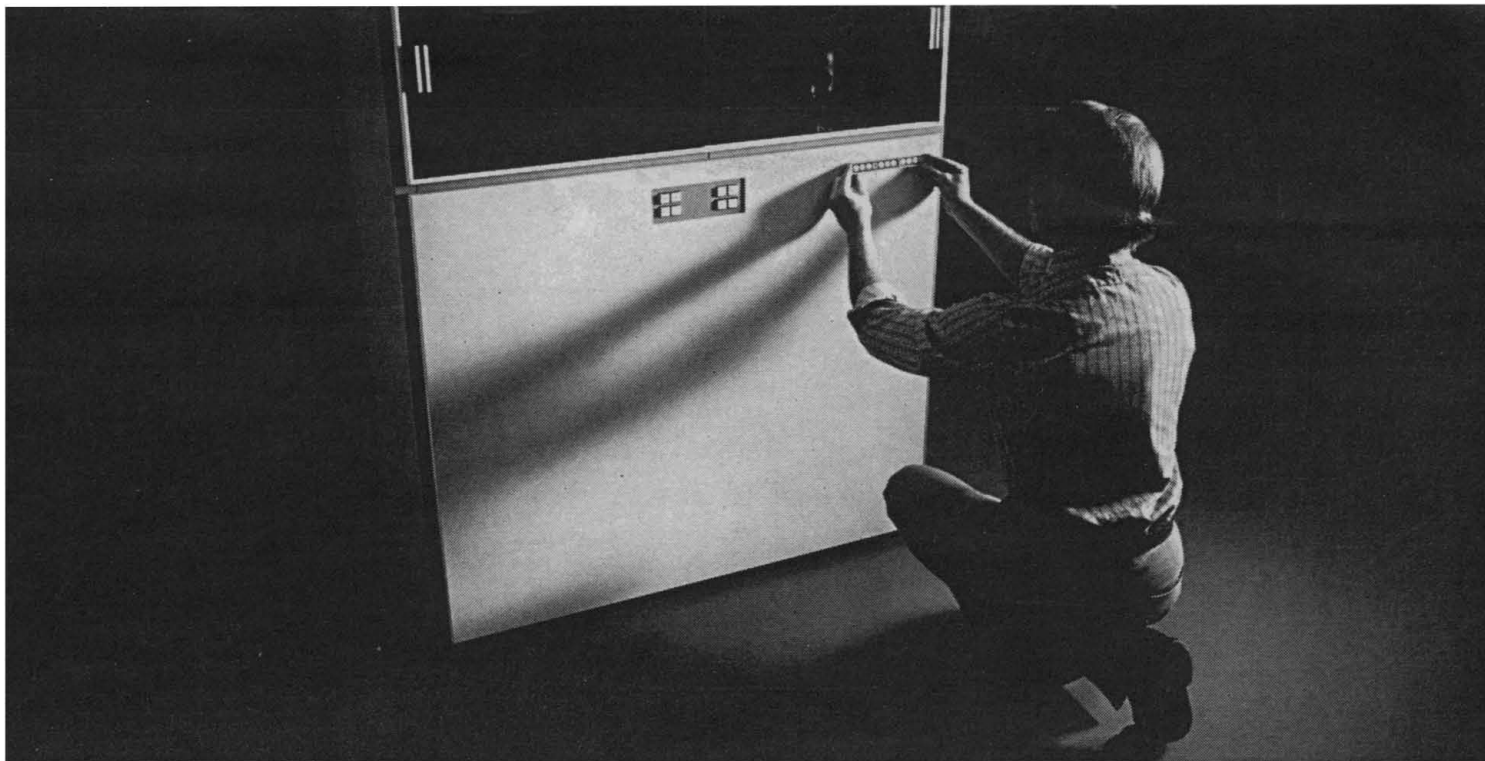
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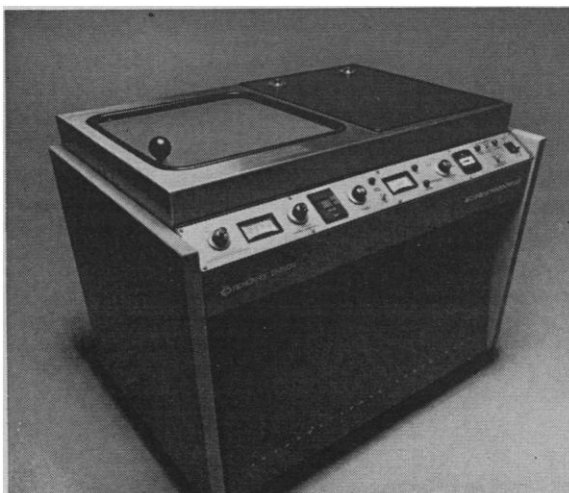
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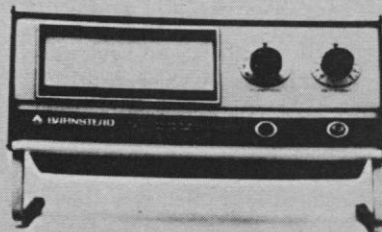
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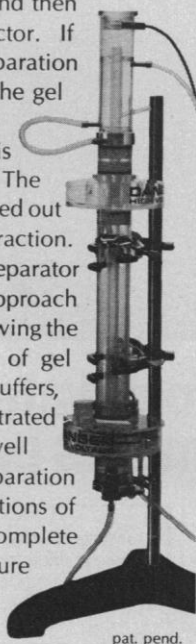
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LETTERS

Preserving Scientific Manpower

A letter from H. M. Agnew (22 Sept., p. 1057) of the Los Alamos Scientific Laboratory lauds the President's Intern Program designed to put unemployed scientists and engineers to work. This is indeed an admirable program and should be supported much more strongly than it is. On the other hand, it applies only to recent graduates and ignores the thousands of unemployed scientists and engineers who are rapidly losing their skills as they must turn to nontechnical jobs (if they can get them) to survive.

Scientists and engineers and their professional organizations have been singly inert about pressing for government measures that would alleviate the unemployment prevalent among their highly trained members. In spite of the general agreement that such people constitute a valuable national resource, there has been very little support for a number of bills in Congress designed to preserve these people as skilled individuals. I specifically refer to bills (S.3697 and H.R.14298) by Senator Edward W. Brooke (R-Mass.) and by Representative Ronald V. Dellums (D-Calif.), which together constitute the Scientific Manpower Act of 1972, and a bill (H.R.16605) by Representative Ella T. Grasso (D-Conn.) designed to promote the employment of scientists and engineers by states, counties, and municipalities.

This indifference and inertia reminds me of Santayana's "Those who cannot remember the past are condemned to repeat it." Why can't we use our vaunted intelligence to devise a better system to avoid the human misery engendered in layoffs and to preserve scientific and engineering manpower for the good of the nation.

ALAN C. NIXON

*American Chemical Society,
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Berkeley, California 94704*

Linus Pauling and Vitamin C

The report by Barbara Culliton (News and Comment, 4 Aug., p. 409) and the letter from Linus Pauling (29 Sept., p. 1152) clearly call for comment by me, as I was chairman of the editorial board of the *Proceedings of the National Academy of Sciences* when Pauling's two articles (1) on ascorbic

acid appeared. The first, on ascorbic acid in evolution, came to the editorial office in September 1970, when I was on leave of absence in Australia. F. Peter Woodford, who was then managing editor, handled the article promptly, and it appeared in the December issue. In his annual report to the editorial board in April 1971, Woodford mentioned that some people, whom he did not identify, had told him that they considered the article unsuitable for the *Proceedings* and believed that it should not have been published there. I do not know their reason. Woodford concluded, on the contrary, that the article was quite suitable for publication, and so did I. Indeed I read it with interest and enjoyment. Pauling's second paper, concerning statistical evidence for the value of ascorbic acid in preventing colds, also was published promptly.

I certainly could never have been justified in saying that most members of the National Academy of Sciences (NAS) disagree with Pauling's views on ascorbic acid. I have no possible way of knowing this; indeed I suspect that many academy members would disclaim any competence to pass judgment on the matter at all.

On very few occasions we published articles in the *Proceedings* in spite of "extreme mental reservations." In such cases we always communicated those reservations to the author and asked him to consider withdrawing the paper or revising it. Pauling's two ascorbic acid papers, on the contrary, were published promptly, and we raised no question with the author regarding their suitability.

JOHN T. EDSALL

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References

1. L. Pauling, *Proc. Nat. Acad. Sci. U.S.A.* **67**, 1643 (1970); *ibid.* **68**, 2678 (1971).

There is no question that Linus Pauling has a right to many "feelings," including his classification of actions by *Science* as derogatory.

On the other hand it is difficult to see how he could assert "I doubt that *Science* questioned most of the 900 NAS members. I am sure that the statement that most NAS members took issue with the scientific validity of these papers is false." It would appear that both statements assert something about some fact, and that this "something" is amenable to empirical verification.

Pauling should have verified the facts before making either assertion.

I, for one, question Pauling's second-mentioned paper (1), and not because of improper statistical treatment of data. Rather, the issue is the question of "Who has, and when does one have, a common cold?" As a practicing anesthesiologist I must often decide such an issue, in view of the presumed increased hazards of administering general anesthesia to a patient with a preexisting respiratory infection. In a substantial number of instances, such a decision cannot be made, by myself or by many other physicians. It is then difficult for me to see how this uncertainty can become a certainty once it has been processed statistically.

A. BOBA

Southern Illinois Clinic and Medical Center, Mount Vernon 62864

Reference

1. L. Pauling, *Proc. Nat. Acad. Sci. U.S.A.* 68, 2678 (1971).

Cancer Prevention

Nicholas Wade (News and Comment, 30 June, p. 1402) refers to the Conquest of Cancer Program as the "cure cancer crusade" or "the fight to cure cancer." We certainly want to cure cancer. A cured case is visible evidence of the efficacy of our research. But probably more important than curing the disease is preventing it, even though a prevented case is rarely visible. It is doubly upsetting to see references to all our work as "cure cancer" activities in the same piece in which Wade writes about a new research center (Fort Detrick) that will be devoted mostly to problems of viruses and chemicals that "cause cancer."

Substantial progress has been made in preventing cancer. The antismoking campaigns have been much more effective than many people seem to be aware of. So much so that if there is anything to the smoking-cancer link, we should soon see declines in lung cancer mortality in white males. From 1965 to 1970, 42 percent more men and 37 percent more women became "former smokers." (A 1970 survey showed that 37 percent of all male smokers had quit; the corresponding figure for women was 27 percent.) Cigarettes now contain much less tar and nicotine than they did 10 years ago.

However, the incidence of lung can-

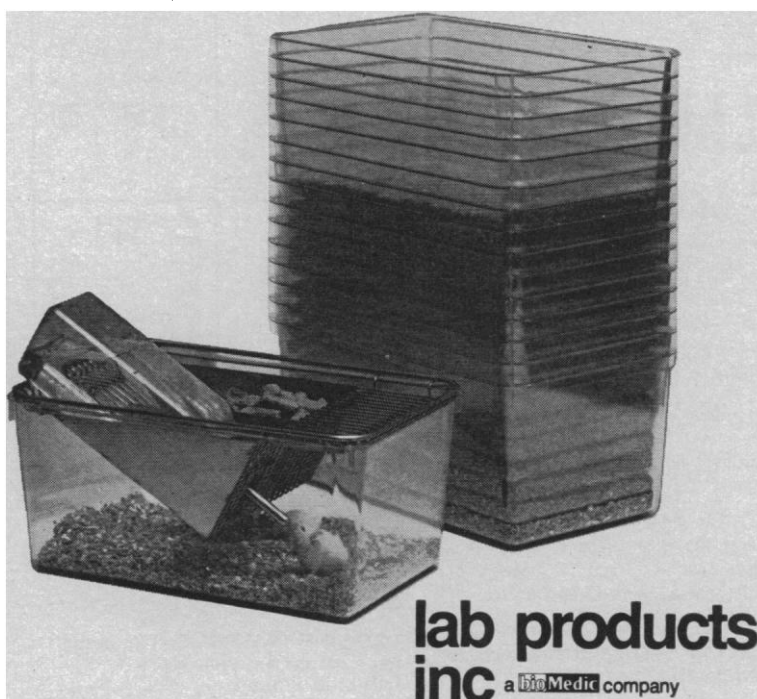
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cer in women and in blacks is increasing. Too many women smoke; too few are giving it up. At one time the ratio of male to female deaths from lung cancer was nearly 7:1. It is now 4:1, and not because male deaths have declined. The antismoking campaigns have not done as well as we would like among women, and among blacks. There is a need for a vigorous, well-directed, antismoking campaign that would appeal to blacks, to women, and to young people.

Several cancers are already declining rapidly as causes of death: cancer

of the uterine cervix in women (in part due to introduction of the Papanicolaou smear, even though the decline started before the Pap smears were introduced; we look upon better personal hygiene, and soap and water, as important factors too); cancer of the stomach (in both men and women); and acute lymphocytic leukemia—the disease for which so much success in treatment has been reported by the chemotherapists. There has been a decline of almost 50 percent in the reported incidence in children under age 5. This decline has been reported by the cancer

registries in Connecticut and California for the second half of the 1960's compared to the first half. Whether the reduced incidence is due to a reduction of prenatal irradiation, as Fraumeni and Miller suggested some years ago (1), or to a reduction in influenza infections in pregnant women, as a recent British study (2) suggests, is not clear. Both reduced radiation exposures and reduced influenza are consequences of good public health measures.

Not everything on the prevention front looks good, however. The incidence of cancer among blacks is rising alarmingly. Deaths from cancer of the esophagus are going up for blacks while they are going down for other segments of society. There are some clues that the increase is related to exposure to carcinogens combined with dietary deficiencies. It is possible that a minor dietary modification, or additive, could be preventive.

Increased sexual freedom leading to earlier intercourse and to more sexual partners may turn the trend of cervical cancer deaths upward again. If this change does occur, we should see it first among white middle-class women, who now have the lowest rate of death from cervical cancer. Cancer of the pancreas is increasing too, and we don't know why.

With the cooperation of the National Institute for Occupational Safety and Health, the Environmental Protection Agency, the Department of Labor, and state departments of industrial health, many industrial carcinogens have been taken out of use. With hesitance on the part of the Department of Agriculture, the use of some carcinogenic food additives and pesticides is now being sharply proscribed, and perhaps more of them may soon be eliminated. The Atomic Energy Commission has repeatedly lowered allowable levels of radiation exposure. Experimental work supported by the National Cancer Institute has demonstrated that a less hazardous cigarette (for mice at least) can be put together. All these things will reduce the incidence of cancer.

MARVIN A. SCHNEIDERMAN
JAMES A. PETERS

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National Institutes of Health,
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1. J. Fraumeni, Jr., and R. Miller, *Science* **155**, 1126 (1967).
2. J. Fedrick and E. D. Alberman, *Brit. Med. J.* **1972-II**, 485 (1972).

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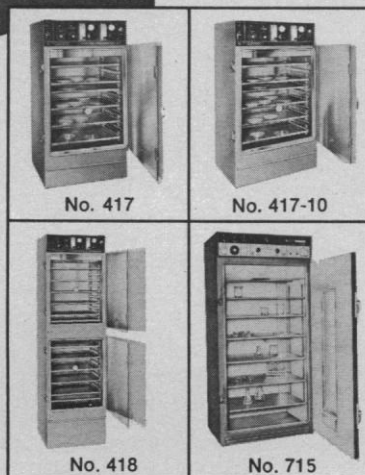
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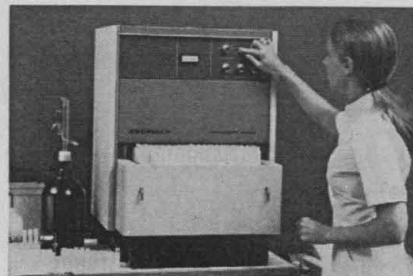
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Science, Technology, and Diplomacy

Science and technology are now assuming an expanded role in world affairs. At the same time, the modes by which U.S. science and technology interact with those of other countries are evolving. These developments have accompanied far-reaching changes in the fundamental assumptions of U.S. policy-makers.

For many years U.S. foreign policy and actions were influenced strongly by faith that our form of government and value systems were superior and universally applicable, and belief that a liberal program of foreign aid would lead to progress, democratic governments, and enduring gratitude. An outcome of these assumptions was enmity with the Soviet Union and the People's Republic of China.

The unsatisfactory recent results of U.S. foreign policy are evident. Our foreign aid programs have neither been advancing democracy nor winning staunch friends. Enmity with the Soviet Union and China has produced perilous tensions. A new approach is indicated. In formulating new policies, the Nixon Administration has taken into consideration some present-day realities. First, the U.S. public and its elected representatives are disillusioned. Second, balance of payments difficulties argue against generosity. Third, there is a growing realization at the highest levels that the United States' greatest relative strength lies in its science and applied technology. Another present-day reality is that there exist far more irreconcilable differences between the Soviet Union and China than between the United States and either of these countries.

A crucial event was the announcement that Nixon would visit China. Immediately, a progressive warming in U.S.-Soviet relations became apparent. This has been especially evident in matters involving science and technology. An important outcome of Nixon's visit to Moscow was a series of agreements for U.S.-Soviet cooperation in science and technology. Earlier there had been a small but significant scientist exchange program, managed on our side by the National Academy of Sciences. This supplemented useful contacts at international meetings and the activities of private groups, such as Pugwash. The new program will involve far more interchange and will be managed at a high official level.

In congressional hearings on the new U.S.-Soviet agreements,* Edward E. David, the President's Science Adviser, noted great differences between the two countries—political, economic, social, philosophical, organizational—that in the past have led to frustrating difficulties. Nevertheless, he said, "The United States is moving . . . toward a new relationship with the U.S.S.R." He then listed many technological and scientific efforts in which the two countries might cooperate and made it clear that the Administration is committed to fostering a meaningful joint enterprise.

In keeping with U.S. disillusionment with give-away programs, the cooperation will not be one-sided. Most of the programs will be selected on the basis of mutual ability to contribute. The pacts with the Russians are some of many recent bilateral arrangements between the United States and other powers. In such agreements, the United States is an honored partner with adequate voice in arrangements that promise to advance the interests of this country.

In contrast, recent experience with multilateral activities, especially those connected with the United Nations system, has not been so satisfactory. In consequence, the status of these organizations is at a new low in Washington and the bilateral mechanism has risen in stature as an instrument of foreign policy.—PHILIP H. ABELSON

* Panel on Science and Technology, *International Science Policy*, 12th meeting, Proceedings before the Committee on Science and Astronautics, U.S. House of Representatives, 92nd Congress, first session (Government Printing Office, Washington, D.C., 1971).

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THE NEW CARWORTH CATALOGS MYTH OR REALITY?

In the course of this newspaper's investigations into the new Carworth guinea pigs, our reporters have also uncovered the fact that Carworth is about to release two new catalogs.

The first of these catalogs presumably deals with Carworth rats and mice and, we suspect, the "secret" guinea pigs, too.

The second catalog seems to cover Carworth's extensive line of laboratory animal care equipment including: animal housing systems, contamination control products like laminar flow devices, bedding, cleaning materials and other accessories and supplies.

We queried the Carworth advertising agency about the existence of these new catalogs and were told by a representative that they know nothing (Editor's Note: an unusual agency admission!), but that if Carworth were to issue new catalogs soon, "they would be likely to be beauties," they stated with characteristic immodesty.

The New City Times can't help but wonder what other surprises these Carworth people have in store for us. In any event, for now we suggest that you write Carworth, New City, (Rockland County), N.Y. 10956 (or call 914/634-8931) and say: "if these new catalogs are not a myth, please send!"

CARWORTH INTO GUINEA PIGS RESEARCH COMMUNITY PLEASED

Surprisingly, Company Says "No Comment"



The guinea pig, believed to be a tame form of the cavy, *Cavia cutleri*. The capybara, the largest rodent alive (or even dead, for that matter), is also a well-known cavy.

The New City Times today learned from an unidentified but usually reliable source, that Carworth, a leading supplier of high quality rats and mice since 1935, has expanded its service to the research community by adding guinea pigs to its line.

Calls by this newspaper to a random selection of research people indicate that the guinea pig, always a popular animal for bacteriologic and vitamin C work, is now also being widely used in immunologic, pharmacologic, virologic, and endocrinologic studies of all types.

Thus, it seems obvious to this paper that the entry into this field of a quality house like Carworth provides researchers with a valuable new source for this important laboratory animal.

Our investigative reporters have also uncovered the fact that the Carworth guinea pigs are actually Dunkin/Hartley animals from a closed colony meticulously maintained for over 15 years.

Carworth personnel have routinely responded to our inquiries about this development with enigmatic smiles and "no comment" and will neither affirm nor deny any of the above allegations.

Despite this uncharacteristic reticence, our reporters are firm in their conviction that all researchers interested in Carworth-quality guinea pigs are entitled to know more. The New City Times suggests, therefore, that interested parties demand more data. Write CIA (Carworth Information Agency), c/o Carworth, New City, (Rockland County), New York, 10956 (or call 914/634-8931). They'll get the message.

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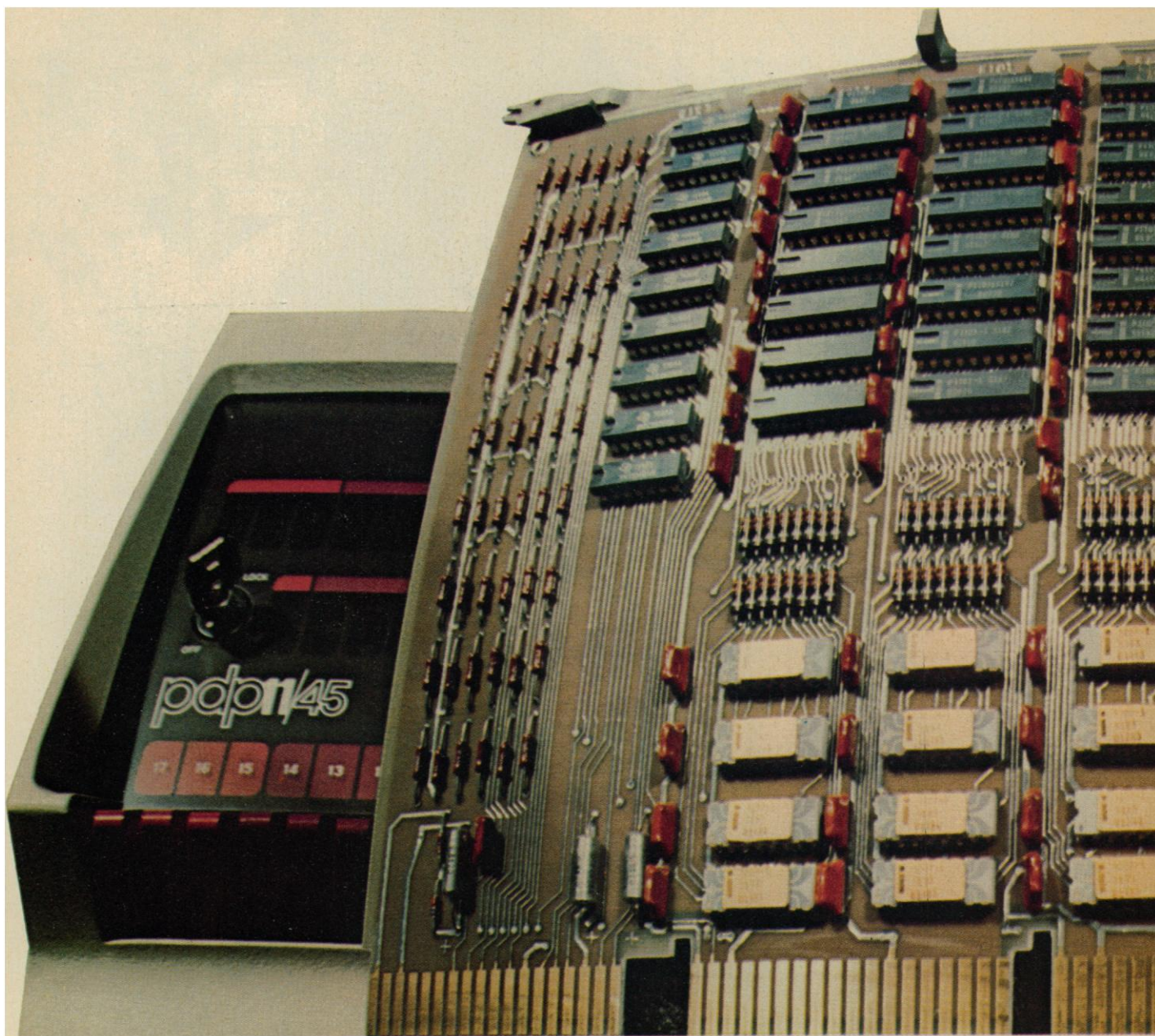
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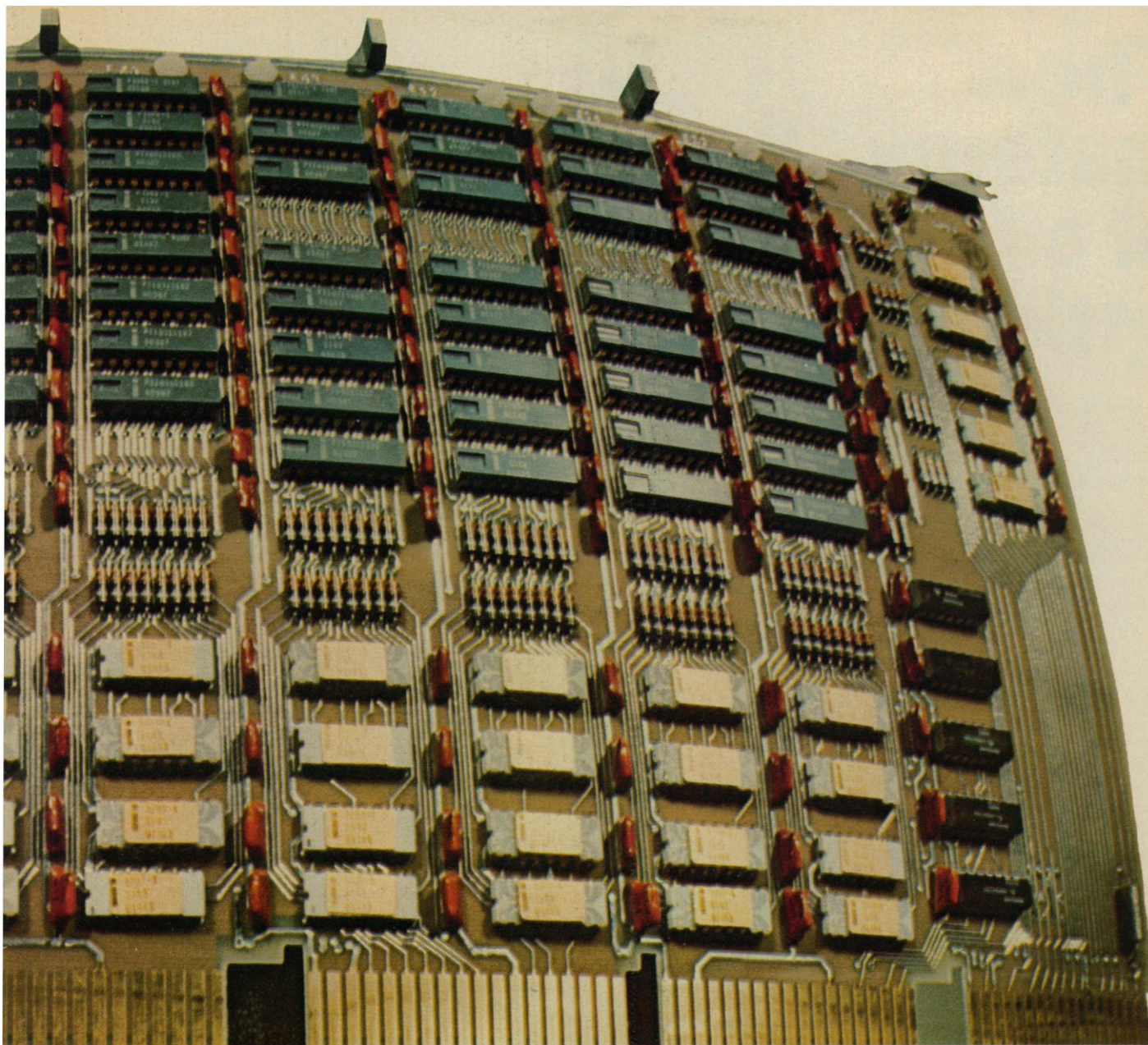
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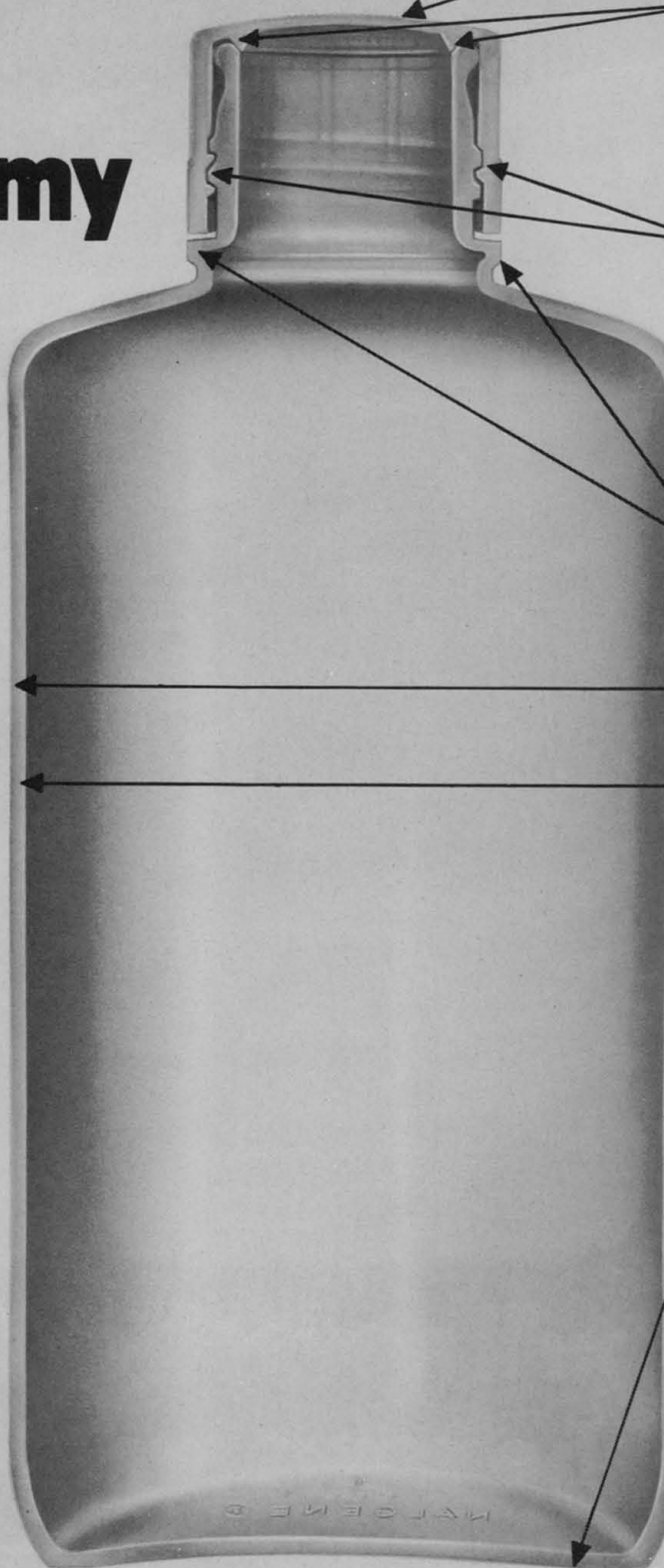
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lege), presented his results on the micromanipulation of dividing cells which show clearly that the mitotic apparatus, and more specifically the asters, are responsible for the localization of the furrow, and that the furrow acts by a contractile mechanism. The nature and origin of the cleavage force, as determined by direct surface measurement, was discussed by Y. Hiramoto (Tokyo Institute of Technology). These micromanipulation studies received direct support from electron microscopy of a variety of cleaving cells. Studies on the cleavage of HeLa and sea urchin cells (T. Schroeder, University of Washington), on the unilateral cleavage of the jellyfish egg (D. Szollosi, University of Washington), and on the telolecithal egg of the cephalopods (J. M. Arnold, University of Hawaii) all indicate the presence of a band of microfilaments forming a contractile ring that mechanically accomplishes the furrow. Further work may relate the activity of this microfilamentous band more directly to the primitive motile systems discussed above. Its apparent induction by the asters of the mitotic apparatus provides an interesting link between the microfilament and microtubular systems.

The final day of conference was devoted to a consideration of the role of these organelles in the process of development. R. A. Cloney (University of Washington) chaired this session, and described his research on the role of microfilaments in the resorption of the ascidian tail, which was one of the first demonstrated instances of the contractile role of microfilaments in a developmental process. P. C. Baker (University of California, Berkeley) reviewed the work on microtubules and microfilaments in amphibian gastrulation and presented her investigations on the role of microfilaments in the change of cell shape associated with gastrulation, and on the reduction of the external membrane during such shape changes by the sequestering of plasmalemma in specialized regions of the cell. The role of microtubules in the invagination of the chick primitive streak was discussed by N. H. Granholm (South Dakota State University). Studies by B. Burnside (Harvard University) on neurulation of amphibia indicate that microtubules are implicated in the elongation of cells of the neural plate, and microfilaments are active in cells undergoing apical constriction to form the neural tube.

The meeting closed with an afternoon of general discussion which in-

cluded a consideration of some recent controversies on the action of cytochalasin B on microfilaments, and on the role of microtubules in chromosome movement. The small size of this meeting provided an opportunity for the informal discussion of current developments by all the participants and, in the opinion of the writer, such conferences can contribute much to clarifying—if not resolving—conflicting points of view.

ROBERT E. KANE

*Pacific Biomedical Research Center,
University of Hawaii,
Honolulu, Hawaii 96822*

Arene Oxides:

Biochemistry and Metabolism

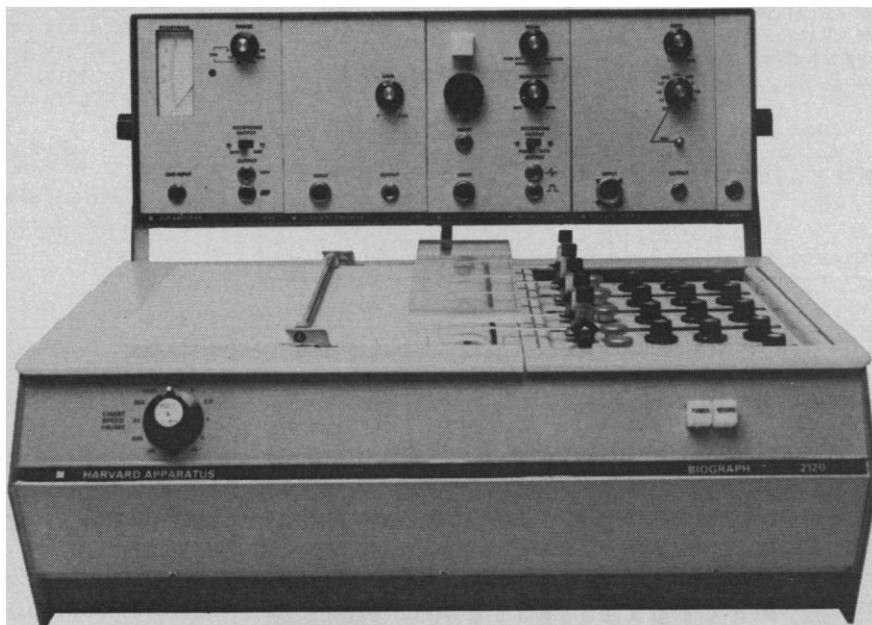
Although arene oxides (epoxides of aromatic compounds) were proposed as reactive intermediates in the metabolism of polycyclic aromatic compounds some 25 years ago by E. Boyland, the first symposium on this subject was held at the Roche Institute of Molecular Biology, Nutley, New Jersey, on 6 and 7 April 1972. Arene oxides have become the focal point of interest in laboratories around the world because of the possibility of obtaining them synthetically in sufficient amounts for studying their chemical, physical, and biological properties. It has become possible to demonstrate that they are in fact the primary oxidation products of catalytically hydroxylated—for example by aryl hydroxylase (cytochrome P-450)—aromatic compounds. Naphthalene and dibenz(*a,h*)anthracene (directly) and brombenzene and benzo(*a*)pyrene (indirectly) yield the corresponding arene oxides as primary oxidation products on treatment with cytochrome P-450. The oxides are highly reactive electrophiles with a lifetime of minutes under physiological conditions. They rearrange to phenols, which react with glutathione to yield adducts that are then converted to mercapturic acid. With a water molecule arene oxides give rise to corresponding dihydrodiols. The rearrangement and hydration are presumably catalyzed by enzymes.

Of special interest is the cytotoxicity of arene oxides resulting from covalent binding to proteins and nucleic acids. Direct evidence was presented relating cytochrome P-450-catalyzed arene oxide formation to cytotoxicity, mutagenicity, and carcinogenicity of

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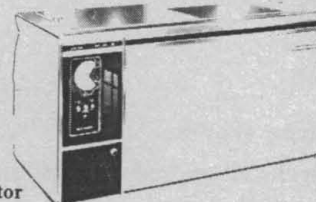
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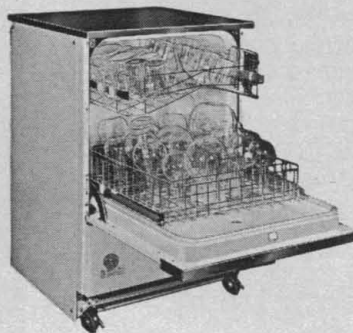


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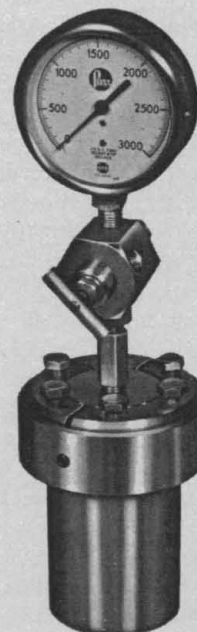
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compounds such as naphthalene, benzo(a)pyrene, 7,12-dimethylbenz(a)anthracene, K-region oxides of several carcinogenic hydrocarbons of the benz(a)anthracene series, and phenanthrene. The evidence of cytotoxicity of halogenated benzene derivatives and 2-allyl-2-isopropylacetamide, due to the same metabolic pathway, was also presented. Data in the above experiments have been obtained from cells in tissue culture as well as from intact, experimental animals.

A rapid assay method for benzo(a)pyrene hydroxylase activity was described. During the development of the assay, data were obtained on products of interaction of arene oxides with proteins and nucleic acids; these products are being characterized.

The studies reported at the symposium demonstrated the importance of understanding the toxicity of chemical compounds at the molecular level. Recent advances have already led to suggestions for protection against chemical toxicity. This could be achieved by the use of cytochrome P-450 inhibitors or with drugs that react preferentially with arene oxides and act as scavengers. A rational approach to new drugs design would be to develop molecules that cannot be converted to arene oxides in the presence of the aryl hydroxylases cytochrome P-450 or P-448.

About 50 investigators participated in the Symposium. Those who presented contributions to the field discussed at the Symposium, or acted as chairmen of the sessions, were E. Boyland (University of London), B. B. Brodie (NIH), J. W. Daly (NIH), F. DeMatteis (Medical Research Council, Great Britain), H. V. Gelboin (NIH), J. R. Gillette (NIH), T. Hayakawa (Roche Institute of Molecular Biology), C. Heidelberger (University of Wisconsin), D. M. Jerina (NIH), W. Levin (Hoffmann-La Roche Inc.), P. Sims (Chester Beatty Research Institute, Great Britain), S. Udenfriend (Roche Institute of Molecular Biology), L. W. Wattenberg (University of Minnesota), and B. Witkop (NIH). Many others participated in discussions.

The Roche Institute of Molecular Biology has published a collection of abstracts of the symposium papers supplemented with an up-to-date bibliography of research in the field of arene oxides.

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The Armies of the Ant. Based on the experiences of Charles L. Hogue. Created by Alan Landsburg Productions. World, New York, 1972. xviii, 234 pp., illus. \$12.50. The American Museum of Natural History's The New Explorers.

Arts of the Environment. Gyorgy Kepes, Ed. Braziller, New York, 1972. viii, 244 pp., illus. \$12.50. Vision and Value Series.

Atlas of Animal Migration. Cathy Jarman. Illustrated by Peter Warner and Rony Swift. Day, New York, 1972. 124 pp. \$10.

Atlas of Wildlife. Jacqueline Nayman. Illustrated by Adrian Williams and David Nockels. Day, New York, 1972. 124 pp. \$10.

Atmospheres. Richard M. Goody and James C. G. Walker. Prentice-Hall, Englewood Cliffs, N.J., 1972. x, 150 pp., illus. Cloth, \$7.75; paper, \$2.95. Foundations of Earth Science Series.

Baby's Recipe Book. Linda McDonald. Barnes, Cranbury, N.J., 1972. 272 pp., illus. \$8.95.

The Big Foundations. Waldemar A. Nielsen. Columbia University Press, New York, 1972. xiv, 476 pp. \$10.95. A Twentieth Century Fund Study.

Biochemical Regulatory Mechanisms in Eukaryotic Cells. Ernest Kun and Santiago Grisolia, Eds. Wiley-Interscience, New York, 1972. x, 530 pp., illus. \$24.95.

The Biochemistry of Animal Fossils. Ralph W. G. Wyckoff. Scientechnica, Bristol, England; Williams and Wilkins, Baltimore, 1972. viii, 152 pp., illus. \$19.50.

Biological Applications of Electron Spin Resonance. Harold M. Swartz, James R. Bolton, and Donald C. Borg. Wiley-Interscience, New York, 1972. xii, 570 pp., illus. \$27.50.

Biological Transmutations and Their Applications in Chemistry, Physics, Biology, Ecology, Medicine, Nutrition, Agriculture, Geology. Louis Kervran. Translated from the French by Michel Abhe-
sera. Swan House, Binghamton, N.Y., 1972. xx, 164 pp., illus. \$5.75.

The Biology of Behavior. Peter Van Sommers. Wiley, New York, 1972. xii, 184 pp., illus. Paper, \$3.95. Basic Topics in Psychology Series.

Biology of Halophytes. Yoav Waisel. Academic Press, New York, 1972. xiv, 396 pp., illus. \$18.50.

Biomaterials for Skeletal and Cardiovascular Applications. A symposium, Atlantic City, N.J., Aug. 1971. C. Homby and C. D. Armeniades, Eds. Interscience (Wiley), New York, 1972. x, 170 pp., illus. \$10. Biomedical Materials Symposium, No. 3.

Blood Lipids and Lipoproteins. Quantitation, Composition, and Metabolism. Gary J. Nelson, Ed. Wiley-Interscience, New York, 1972. xii, 980 pp., illus. \$39.95.

Body Engineering. A symposium, Bedfordshire, England, July 1970. Institution of Mechanical Engineers, London, 1972. viii, 160 pp., illus. £7.35. Proceedings 1969-1970, vol. 184, part 3M.

British Arachnological Society. The 40 Bulletins comprising the publications of the Flatford Mill Spider Group and

the British Spider Study Group, 1959-1968. Classey, Hampton, England, 1971 (U.S. distributor, Entomological Reprint Specialists, Los Angeles). Various sized, illus. \$10.40; to members, \$5.20.

Case Studies in Atomic Collision Physics II. E. W. McDaniel and M. R. C. McDowell, Eds. North-Holland, Amsterdam; Elsevier, New York, 1972. xiv, 650 pp., illus. \$49.50.

The Changing Chemistry of the Oceans. Proceedings of a symposium, Lerum and Göteborg, Sweden, Aug. 1971. David Dyrssen and Daniel Jagner, Eds. Almqvist and Wiksell, Stockholm; Wiley-Interscience, New York, 1972. 366 pp., illus. \$21.50. Nobel Symposium 20.

Chemical Bonds in Solids. Vol. 4, Semiconductor Crystals, Glasses, and Liquids. Proceedings of a symposium, Minsk, U.S.S.R., 1967. Academician N. N. Sirota, Ed. Translated from the Russian edition (Minsk, 1969) by Albin Tybulewicz. Consultants Bureau, New York, 1972. xiv, 166 pp., illus. Paper, \$37.50.

The Chemistry of Acyl Halides. Saul Patai, Ed. Interscience (Wiley), New York, 1972. xiv, 548 pp., illus. \$33. The Chemistry of Functional Groups.

Chemistry of the Earth. Karl K. Turekian. Holt, Rinehart and Winston, New York, 1972. x, 132 pp., illus. Paper, \$3. Physical and Technology Series.

Clinical Immunobiology. Vol. 1. Fritz H. Bach and Robert A. Good, Eds. Academic Press, New York, 1972. xiv, 296 pp., illus. \$13.

Commissariat à l'Energie Atomique. Rapport Annuel 1971. Commissariat à l'Energie Atomique, Paris, 1972. 184 pp., illus. Paper.

The Computer from Pascal to von Neumann. Herman H. Goldstine. Princeton University Press, Princeton, N.J., 1972. xii, 378 pp. + plates. \$12.50.

Computers in Chemical and Biochemical Research. Vol. 1. C. E. Klopfenstein and C. L. Wilkins, Eds. Academic Press, New York, 1972. xii, 266 pp., illus. \$14.

Consciousness and Reality. The Human Pivot Point. Charles Musès and Arthur M. Young, Eds. Outerbridge and Lazard, New York, 1972 (distributed by Dutton, New York). xii, 472 pp., illus. \$10.

Control System Diagrams in Physiology, Biology and Medicine. Cecil Allweis. Israel Journal of Medical Sciences, Jerusalem, 1971 (available as PB-208 796 from the National Technical Information Service, Springfield, Va.). 84 pp., illus., + charts. Paper, \$3. *Israel Journal of Medical Sciences*, supplement to vol. 7.

Crystal Chemical Classification of Minerals. A. S. Povarennykh. Translated from the Russian edition (Kiev, 1966) by J. E. S. Bradley. Plenum, New York, 1972. 2 vols. Vol. 1, xvi pp. + pp. 1-458, illus. Vol. 2, pp. 459-766, illus. \$40.

Death and the College Student. A Collection of Brief Essays on Death and Suicide by Harvard Youth. Edwin S. Shneidman, Ed. Behavioral Publications, New York, 1972. xx, 208 pp. Cloth, \$9.95; paper, \$4.25.

Diseases of Fish. Proceedings of a symposium, London, May 1971. Lionel E. Mawdesley-Thomas, Ed. Published for the Zoological Society of London by Academic Press, New York, 1972. xxiv, 380 pp., illus.



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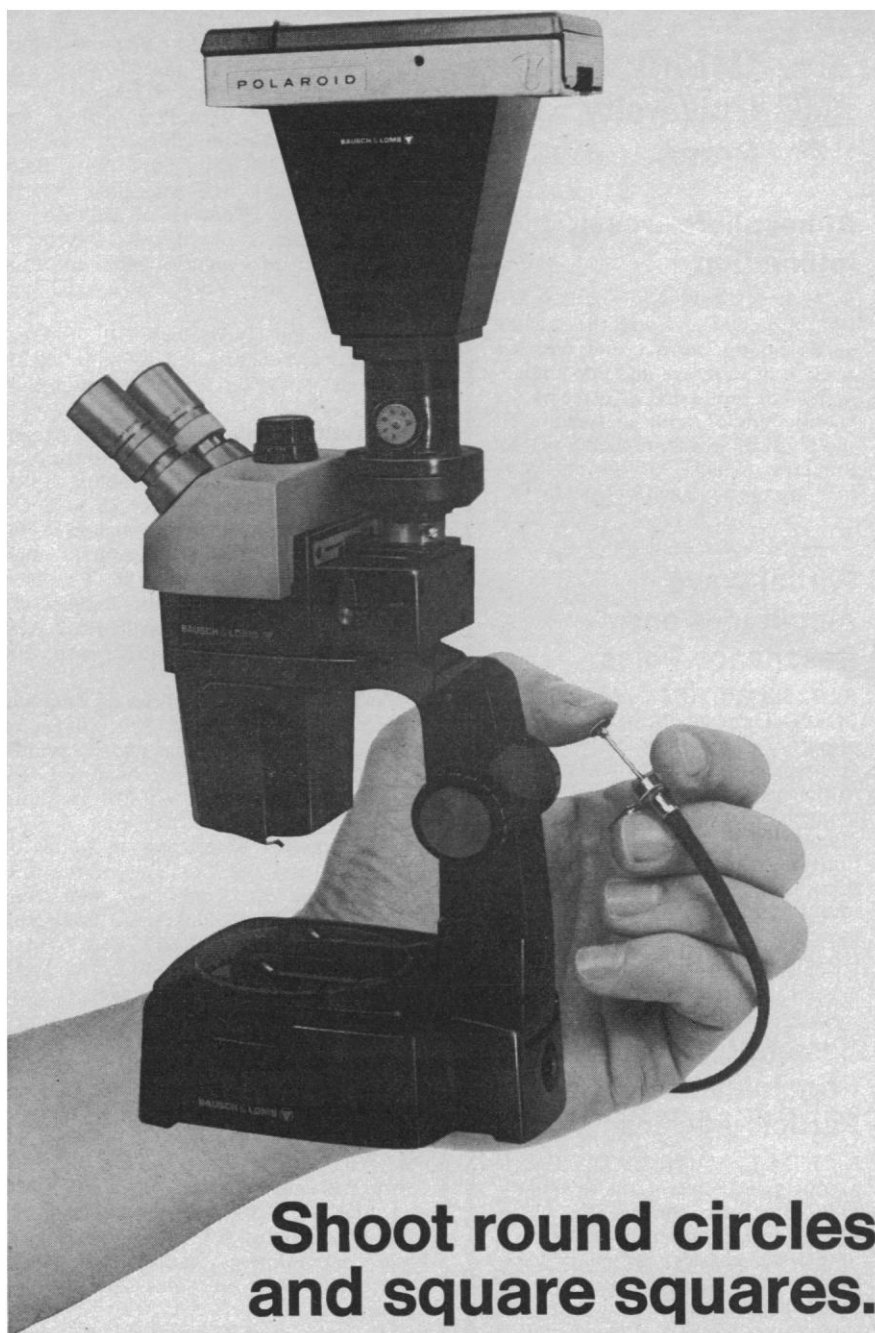
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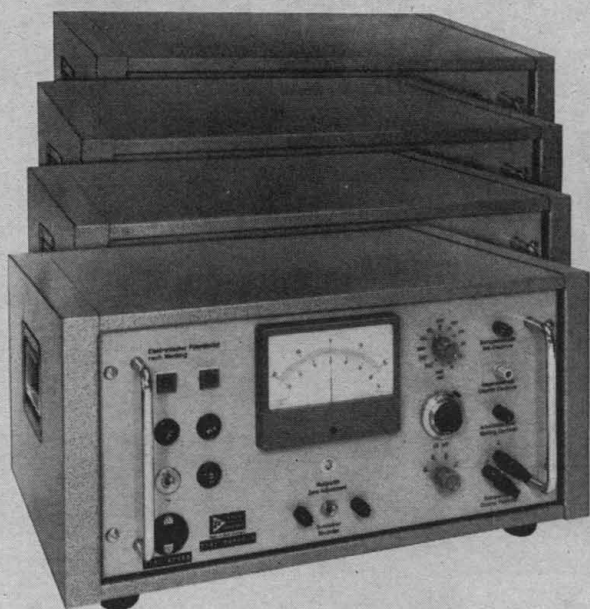
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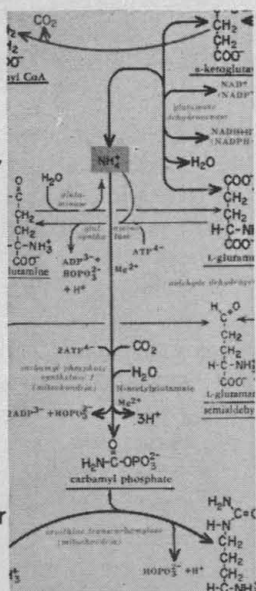
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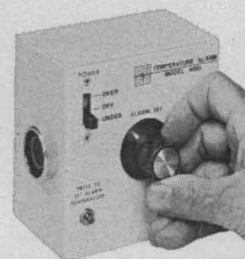
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NEWS AND COMMENT

(Continued from page 732)

cil sometimes went to unusual lengths. At one point, it assigned staff member Robert Kay to an exercise cryptically dubbed "Sigma M," in which Kay was to think up broad new reasons for expanding federal support for marine R & D. Try as he might, though, Kay never came up with any persuasive new "unifying themes."

Actually, given Johnson's proclivity for screening his staff for "new initiatives" to slip into speeches and spring on the public from time to time, weighty new arguments hardly seemed necessary.

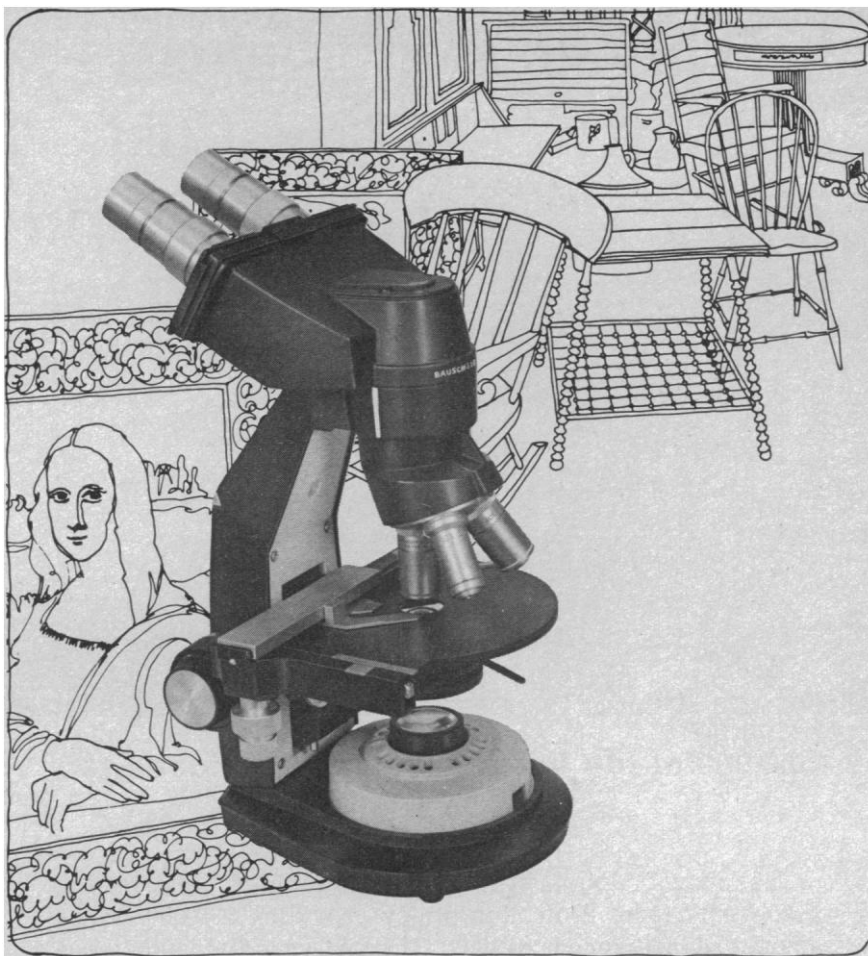
Johnson is said to have kept one of his chief aides, Joseph Califano, busy trolling for new ideas, and Wenk's staff cooperatively dropped a few into the net every time Califano happened by. Thus, for example, in preparing for the 1968 budget, the council picked through more than 100 ideas from various agencies and from PSAC; from these it selected nine programs—worth \$41 million—for sale to the President. Johnson bought them all, practically sight unseen, and ticked them off in a message to Congress in March 1967: A boost for the sea-grant program, development of fish protein concentrate to feed the hungry of the world, improved coastal weather prediction, and so on.

Apart from whatever merit these programs had in their own right, their selection also reflected careful consideration by the council more along Machiavellian lines. Whereas an erudite John Kennedy might see the virtue in supporting science for its own sake, the council was now with a "product of the Texas hill country," and its sales pitch had to be adjusted accordingly. Everyone recognized Lyndon Johnson's concern for the downtrodden of the world, so why not feed them concentrated fish? And every Texan appreciated the destructiveness of tornadoes and hurricanes, hence the appeal of better coastal weather prediction.

The marine resources council, Wenk says, deliberately soft-peddled basic science:

It was increasingly clear that Johnson was disenchanted with science advocates and lukewarm to his own science adviser. . . . Don Hornig became less and less at home in the White House. Moreover, on the theme of "What have you done for me lately?" Hornig was under pressure to demonstrate the contribution science could make to victory in Vietnam through defoliation chemicals and remote

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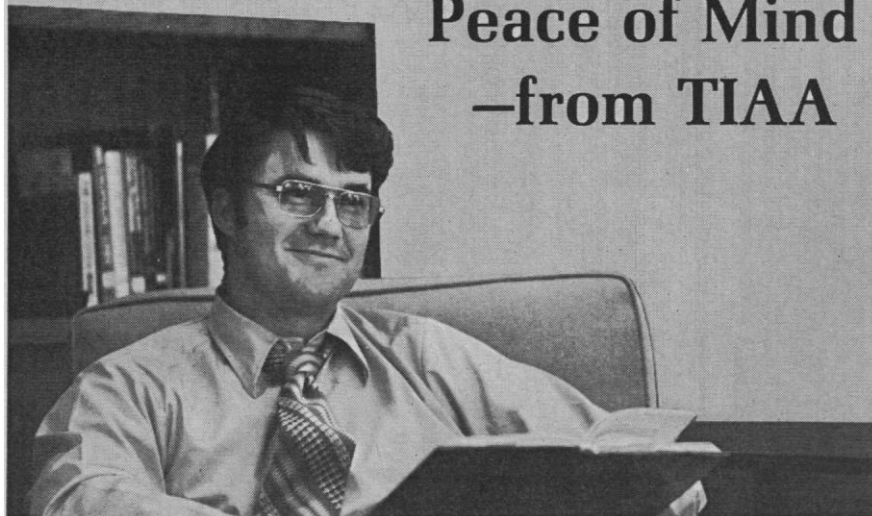


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acoustical surveillance. In that antagonistic atmosphere, it was clear that emphasis in our marine program had to be placed clearly on social, economic, and political goals of the nation as interpreted by LBJ.

The Nixon Years

And what of the Nixon Administration? Apart from its reluctant establishment of NOAA, Wenk gives it low marks, as any one salesman might who had the door slammed on his foot. For what seemed to be initial enthusiasm for maintaining the pace of growth enjoyed under the Democrats quickly palled under the Republicans. In a campaign speech in Miami in 1968, Nixon vowed to create something he called the Sea Exploration Agency but that was the last anyone heard of that idea. In 1969, Agnew, in an initial spurt of enthusiasm, enunciated a five-point program for expanding ocean research, and that was the last anyone heard of *that* idea.

Wenk particularly takes the Nixon Administration to task for failing to press for planned management of the nation's coastal zones—an issue the Administration prefers to treat as a segment of larger land-use policy issues. While some might think that approach makes sense, Wenk argues that the effect has been to do nothing at all about coastal zone problems.

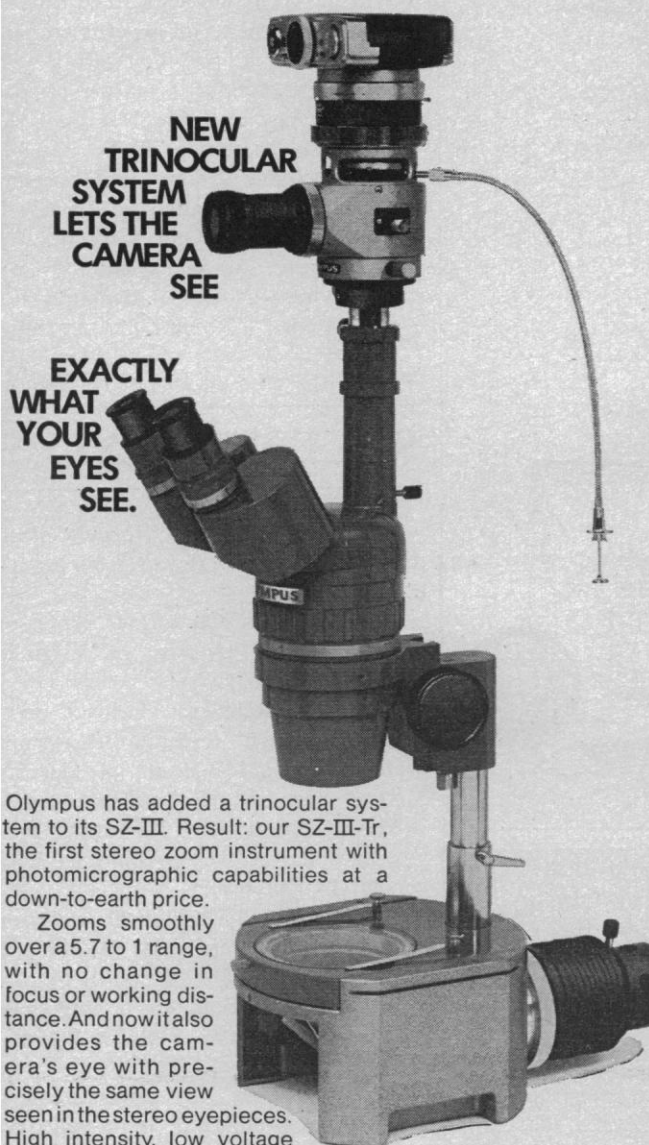
In some of his criticism, Wenk is open to accusations of partisanship. In addition to his past ties with Democrats, he is effusive in his praise of Humphrey's intellect, energy, and administrative ability as head of the marine council and plainly scornful of Agnew. In all likelihood, though, the difference has more to do with who did what for oceanography than with Wenk's personal political leanings.

Certainly Wenk's experience with Agnew was not a happy one. Having succeeded Humphrey as head of the council, Agnew attended only one meeting, in 1969, and that proved a disaster. Arriving too late for a thorough briefing on the controversial budget issues to be discussed by agency heads, Agnew tried to moderate the argument and failed. "Everyone sensed his growing panic, even a desire to stop the meeting," Wenk writes. Thereafter, the Vice President refused to attend council meetings unless a verbatim script for all participants were prepared in advance, an order Wenk says was impossible to fill.

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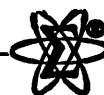


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	500mg	12.60	1g	69.50
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(we think):

8-AZIDO CYCLIC AMP
8-BROMOADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
2'-DEOXYADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
N⁶,O²-DIBUTYRYL ADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
N⁶,O²-DIBUTYRYL GUANOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
N⁶,O²-DISUCCINYL CYCLIC AMP
8-HYDROXY CYCLIC AMP
N⁶-MONOBUTYRYL ADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
O²-MONOBUTYRYL ADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
O²-MONOBUTYRYL-8-BROMO ADENOSINE 3': 5'-CYCLIC
MONOPHOSPHORIC ACID
N⁶-MONOBUTYRYL-2-DEOXYADENOSINE 3': 5'-CYCLIC
MONOPHOSPHORIC ACID
N⁶-MONOBUTYRYL GUANOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
O²-MONOBUTYRYL GUANOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
O²-MONOSUCCINYL ADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
O²-MONOSUCCINYL ADENOSINE 3': 5'-CYCLIC MONOPHOSPHORIC ACID
N⁶-MONOSUCCINYL CYCLIC AMP

8-AMINO CYCLIC ACID	8-ETHYLTHIO CYCLIC AMP
8-METHOXY CYCLIC AMP	8-METHYLAMINO CYCLIC AMP
8-METHYLTHIO CYCLIC AMP	TYROSYL METHYL ESTER of O ² -SUCCINYLYL CYCLIC AMP

Since "Little Sigma" isn't properly equipped as yet, we had to get the cooperation of an outside lab to assay these products for us. We are told that 1 microgram of Protein Kinase cAMP Dependent, Lot 22C-8540, will bind about 0.05 picomoles (10^{-12} mole) of 3':5'-cyclic AMP at 0°C at pH 4.0. By adding the inhibitor, the binding is doubled.

Lyophilized powder containing approx. 80% protein, 10% EDTA and 10% KHPO₄, pH 7. Known impurities include: < 0.01 μ M units per mg AT Pse and approx. 0.5 μ M units Phosphodiesterase, 3': 5'-cyclic Nucleotide per mg which is inactive under the binding assay conditions.

PROTEIN KINASE INHIBITOR	10 mg Protein	7.50
From Beef Heart	50 mg Protein	25.00
Lyophilized powder containing > 98% Protein and < 2% Buffer Salts.		

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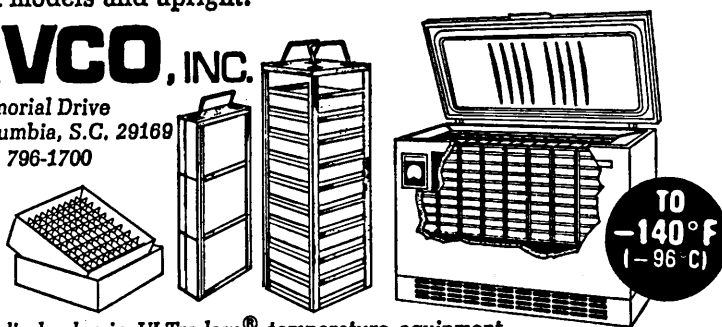
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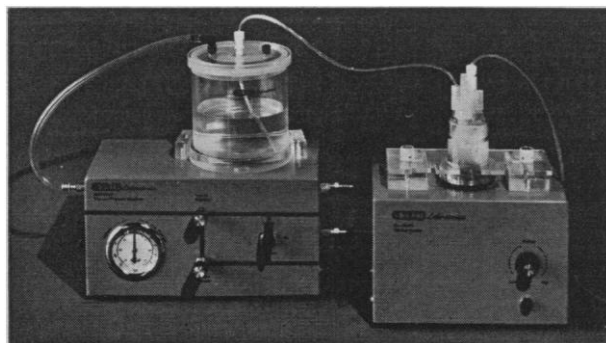
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inclined to partisan politics than to federal management," Congress cut off its funds and the council expired in June 1971.

With it, Wenk contends, died a noteworthy experiment in government administration, and one that left a vacuum in leadership for marine science and technology at the highest level.

That may be, but it is also possible that the Nixon White House prefers no leadership to leadership from advisory councils that carry torches for special causes. As Wenk admits, "We ran an honest game, but definitely not a neutral one."—ROBERT GILLETTE

RECENT DEATHS

John F. Baggett, 85; former president, Kentucky Wesleyan College; 14 September.

Earl L. Boggs, 68; former professor of education, University of Virginia; 17 September.

Everett C. Bracken, 63; head, post-doctoral section, research fellowships branch, National Institute of General Medical Sciences; 12 October.

Max R. Brunstetter, 70; former provost, Teachers College, Columbia University; 14 October.

Philip Cooper, 63; clinical professor of surgery, University of Florida; 2 October.

Samuel H. Dolbear, 86; mining engineer consultant, Behre Dolbear & Company; 5 October.

Paul Friedman, 73; associate clinical professor emeritus of psychiatry, Mount Sinai School of Medicine; 12 October.

Bernard Glueck, 88; psychiatrist, formerly at University of North Carolina Medical School; 5 October.

Lauren B. Hitchcock, 72; former professor of chemical engineering, University of Virginia; 15 October.

Nils O. Myklestad, 63; professor of aerospace and mechanical engineering, University of Texas, Arlington; 23 September.

Erratum: In the report by E. Matin *et al.* "Metacortisone and Saccadic Suppression" (*Science* 178, 179-182, 13 Oct. 1972), there were several errors in the first two columns on page 180. These were the result of changes made by the editors after the authors had returned the galley proofs.

1) The size of each of the five squares in the fixation array was 6 minutes of arc by 6 minutes of arc (6' by 6' visual angle); it was not 1.8 by 1.8 m or 6 by 6 feet as printed.

2) The size of the slit beneath the target square was 2 minutes of arc (horizontal) by 30 minutes of arc (vertical); it was not 0.6 m by 9 m as printed.