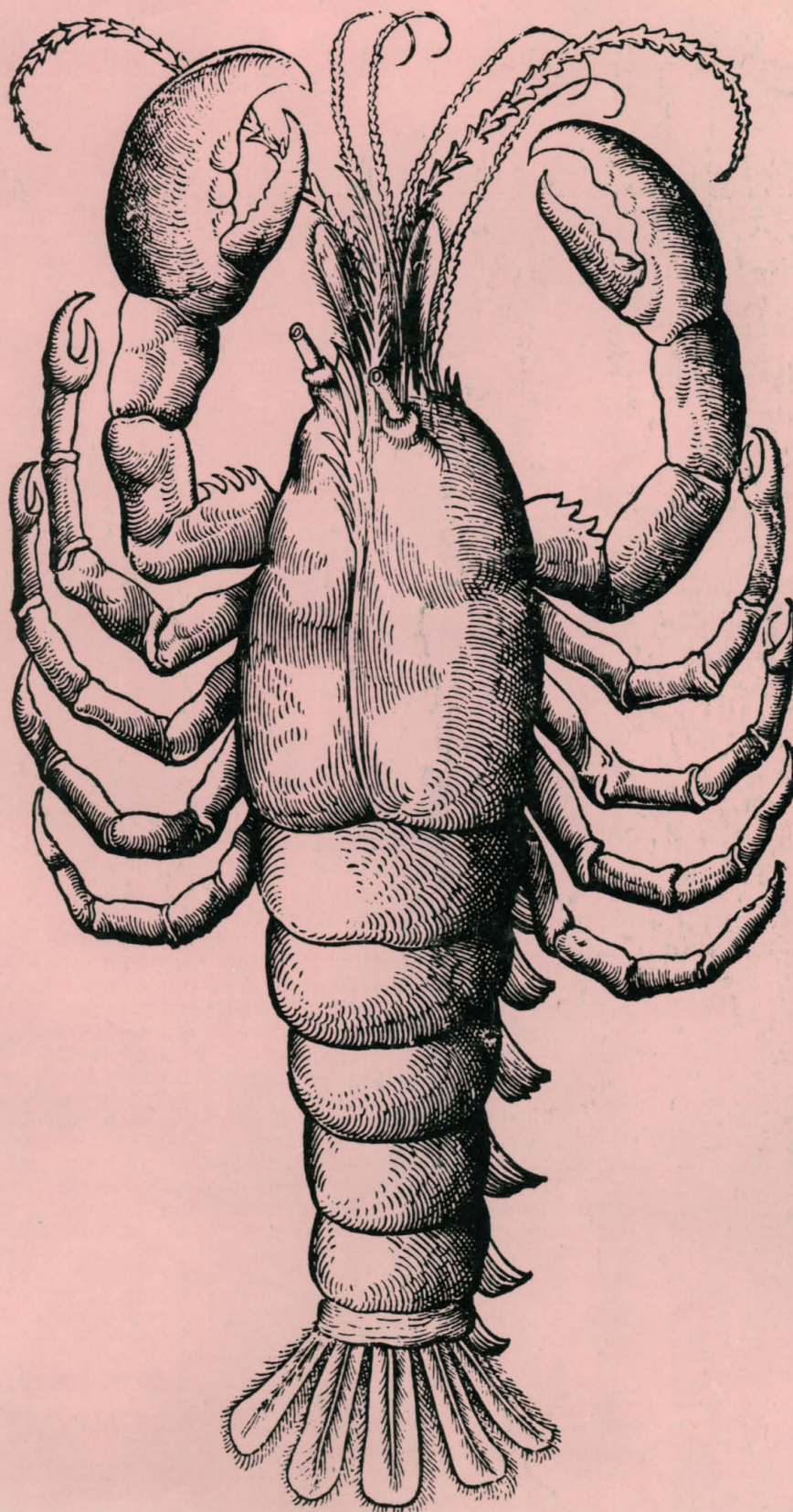


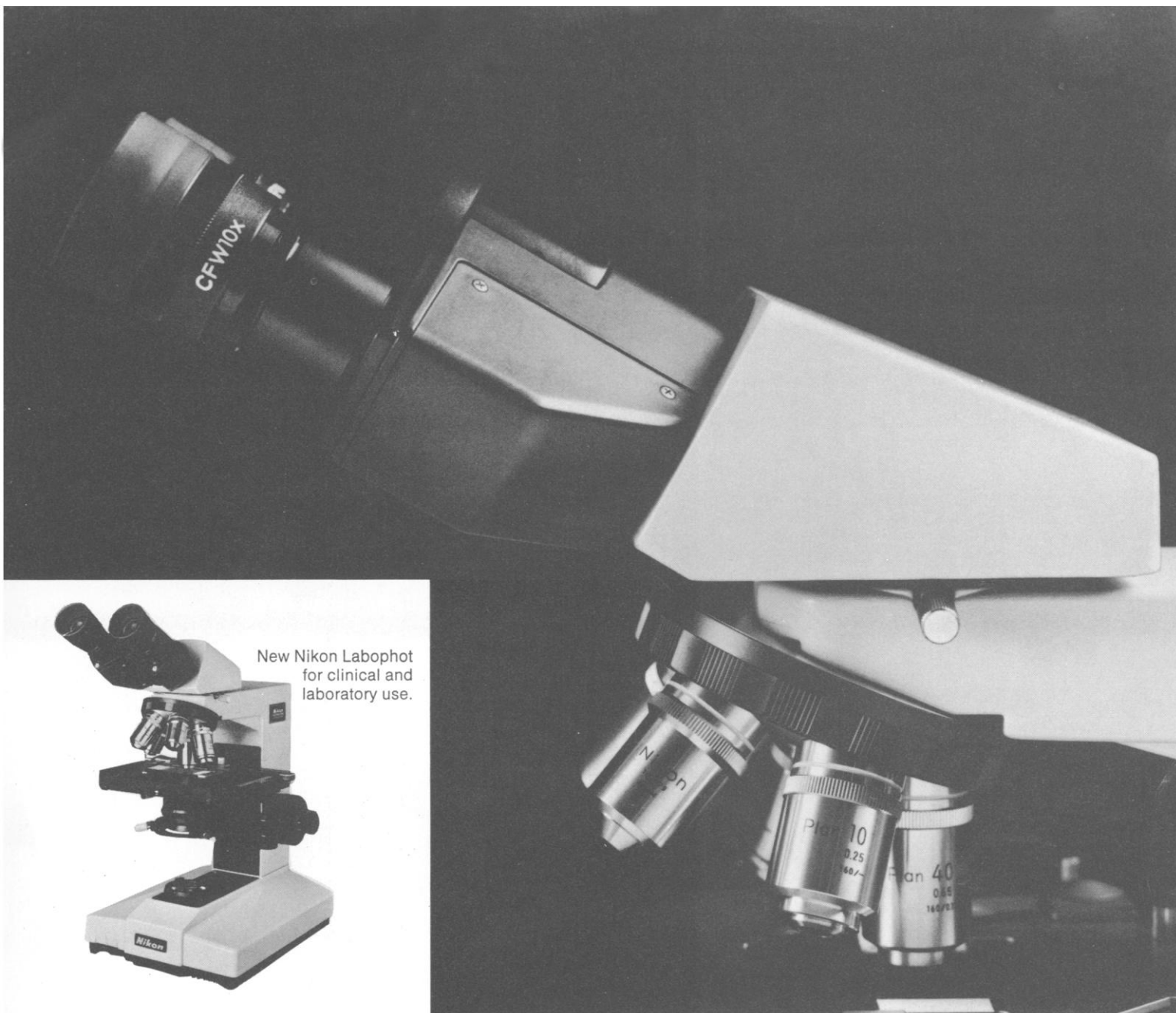
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analate subtraction

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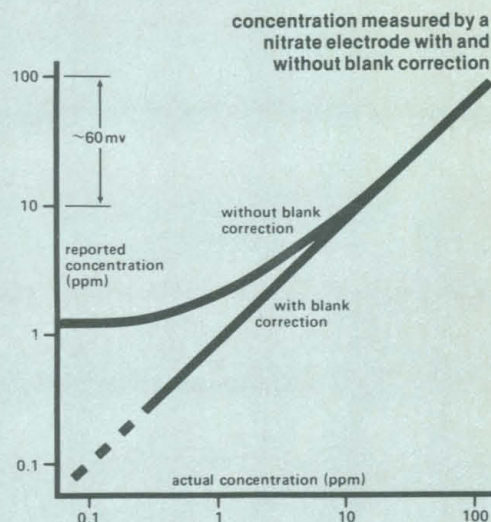
Twice each second the electrode's potential is digitalized and fed to the microprocessor, and the analytical result is calculated using the pre-programmed equations. A concentration result ranging between .000 and 999. is shown on the LED display in a three-digit floating decimal point format. Calculated pH results between 0.000 and 13.999 are displayed.

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LETTERS	Cancer Death Risk in Hospitalized Mental Patients: <i>B. H. Fox</i> ; International Cancer Congress: AAAS Clearinghouse: <i>B. A. Kiernan</i>	966
EDITORIAL	Bad Science and Good Policy Analysis: <i>M. G. Morgan</i>	971
ARTICLES	Quark Catalysis of Exothermal Nuclear Reactions: <i>G. Zweig</i>	973
	<i>Nothomyrmecia macrops</i> : A Living-Fossil Ant Rediscovered: <i>R. W. Taylor</i>	979
	Operating a Major Electric Utility Today: <i>T. J. Nagel</i>	985
NEWS AND COMMENT	Investigators Agree N.Y. Blackout of 1977 Could Have Been Avoided	994
	<i>Briefing</i> : Water Projects: President Facing a Defiant Congress; Alaska Lands: Senate Panel Tilts More Toward Development; Environmental Lobbyists Quarrel over Endangered Species Act	996
	Carter Reorganization Panel Says Federal Data Processing Is Lagging	998
RESEARCH NEWS	U.S. Earthquake Hazards: Real but Uncertain in the East	1001
ANNUAL MEETING	AAAS Annual National Meeting: Houston	1004
BOOK REVIEWS	The Evolution of Social Systems, <i>reviewed by B. C. Trigger</i> ; The Toltecs, <i>E. E. Calnek</i> ; Physiology and Pathobiology of Axons, <i>C. L. Schaaf</i> ; Books Received and Book Order Service	1005

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REPORTS	Plutonium in Drinking Water: Effects of Chlorination on Its Maximum Permissible Concentration: <i>R. P. Larsen and R. D. Oldham</i>	1008
	Venus: Further Evidence of Vortex Circulation: <i>V. E. Suomi and S. S. Limaye</i>	1009
	Isoleucine Epimerization in Peptides and Proteins: Kinetic Factors and Application to Fossil Proteins: <i>N. Kriaušakul and R. M. Mitterer</i>	1011
	Inland Ice Sheet Thinning Due to Holocene Warmth: <i>I. M. Whillans</i>	1014
	Oceanic Residence Times of Dissolved Beryllium and Aluminum Deduced from Cosmogenic Tracers ¹⁰ Be and ²⁶ Al: <i>Y. Yokoyama et al.</i>	1016
	Antitrypanosomal Effect of Allopurinol: Conversion in vivo to Aminopyrazolopyrimidine Nucleotides by <i>Trypanosoma cruzi</i> : <i>J. J. Marr, R. L. Berens, D. J. Nelson</i>	1018
	Children Absorb Tris-BP Flame Retardant from Sleepwear: Urine Contains the Mutagenic Metabolite, 2,3-Dibromopropanol: <i>A. Blum et al.</i>	1020
	Phagocytosis in the Retinal Pigment Epithelium of the RCS Rat: <i>A. I. Goldman and P. J. O'Brien</i>	1023
	Virulent <i>Naegleria fowleri</i> in an Indoor Swimming Pool: <i>V. Kadlec, L. Červa, J. Škvárová</i>	1025
	Bees Have Magnetic Remanence: <i>J. L. Gould, J. L. Kirschvink, K. S. Deffeyes</i>	1026
	Primate Infant's Effects on Mother's Future Reproduction: <i>J. Altmann, S. A. Altmann, G. Hausfater</i>	1028
	Competitive Interactions Between Neotropical Pollinators and Africanized Honey Bees: <i>D. W. Roubik</i>	1030
	Opiate Effects After Adrenocorticotropin or β -Endorphin Injection in the Periaqueductal Gray Matter of Rats: <i>Y. F. Jacquet</i>	1032
	Selective Depression of Serum Growth Hormone During Maternal Deprivation in Rat Pups: <i>C. M. Kuhn, S. R. Butler, S. M. Schanberg</i>	1034
	Experimental Transformation of Muscle Fiber Properties in Lobster: <i>F. Lang, C. K. Govind, W. J. Costello</i>	1037
	Rebound Insomnia: A New Clinical Syndrome: <i>A. Kales, M. B. Scharf, J. D. Kales</i>	1039
	Prolactin Binding Sites in the Rat Brain: <i>R. J. Walsh et al.</i>	1041
	Technical Comments: Nonhuman Models of Hereditary Porphyrias: <i>C. P. Mangum; S. Schwartz and G. R. Ruth</i>	1043

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COVER

Representation of a clawed lobster from the genus *Homarus*. See page 1037 [From *Nomenclator Aquatilium Animalium* by Conrad Gesner, published in 1560]

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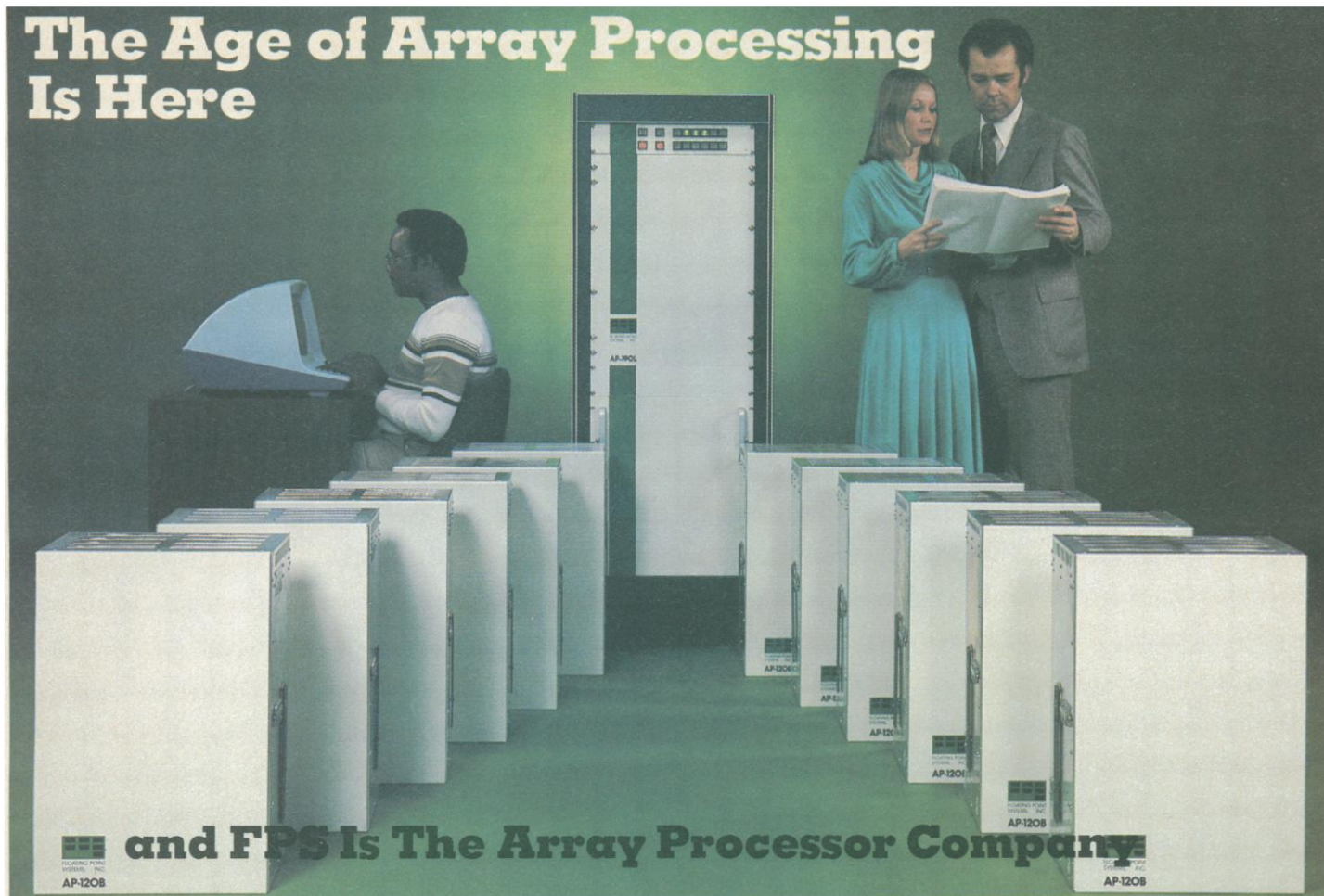
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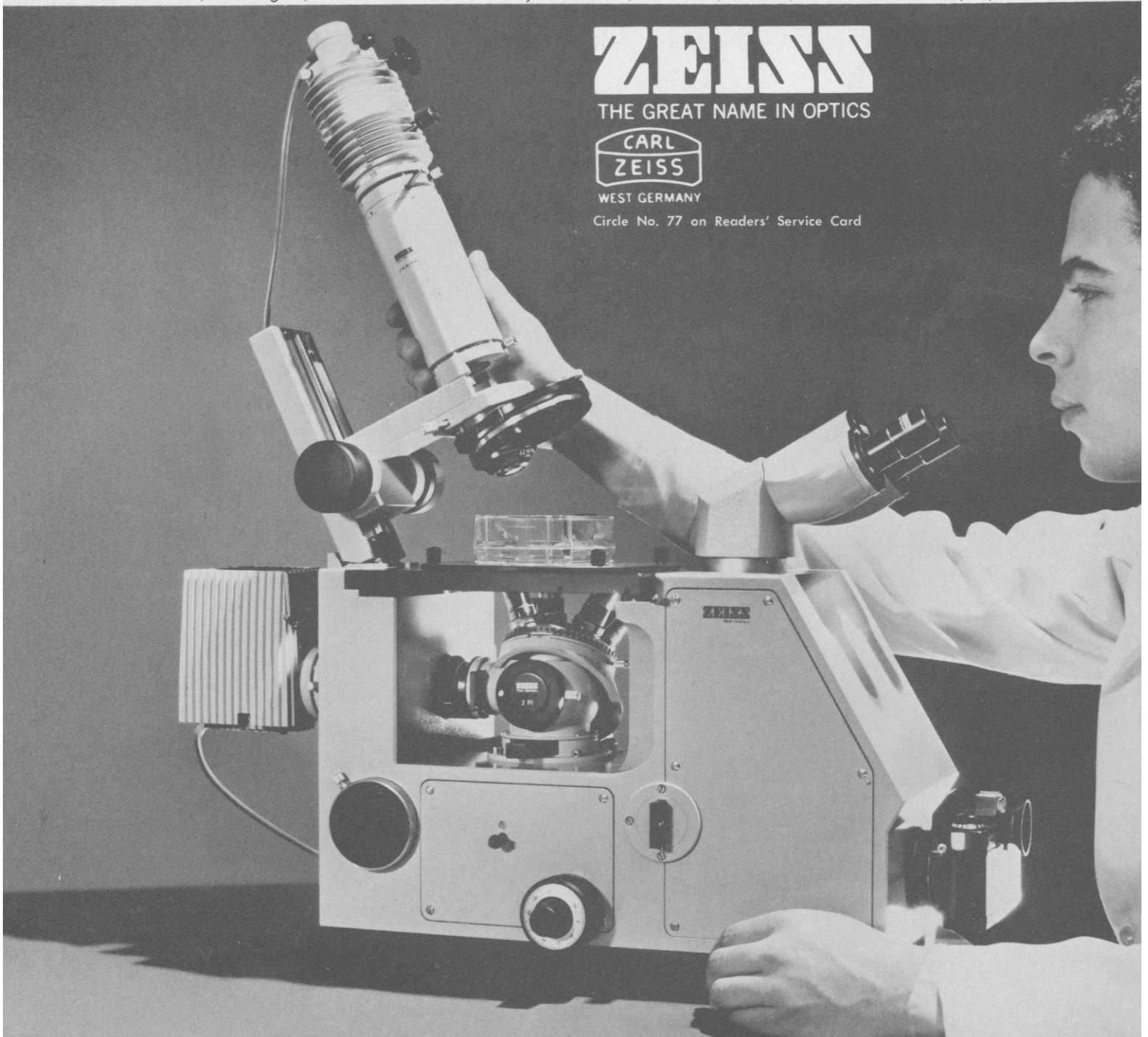
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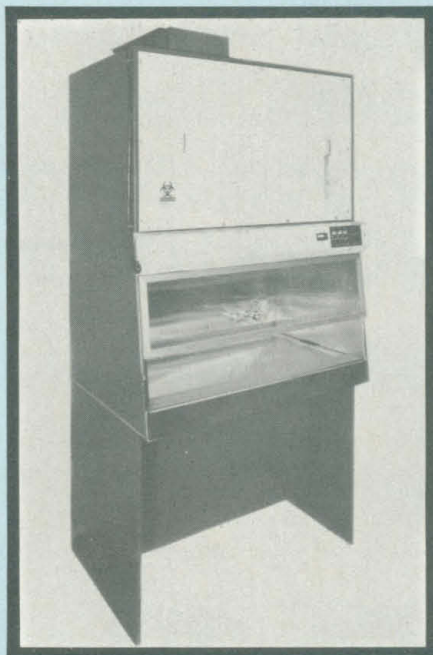
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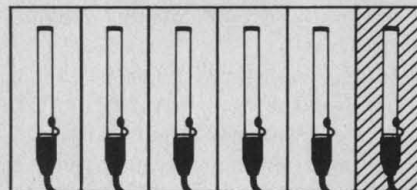
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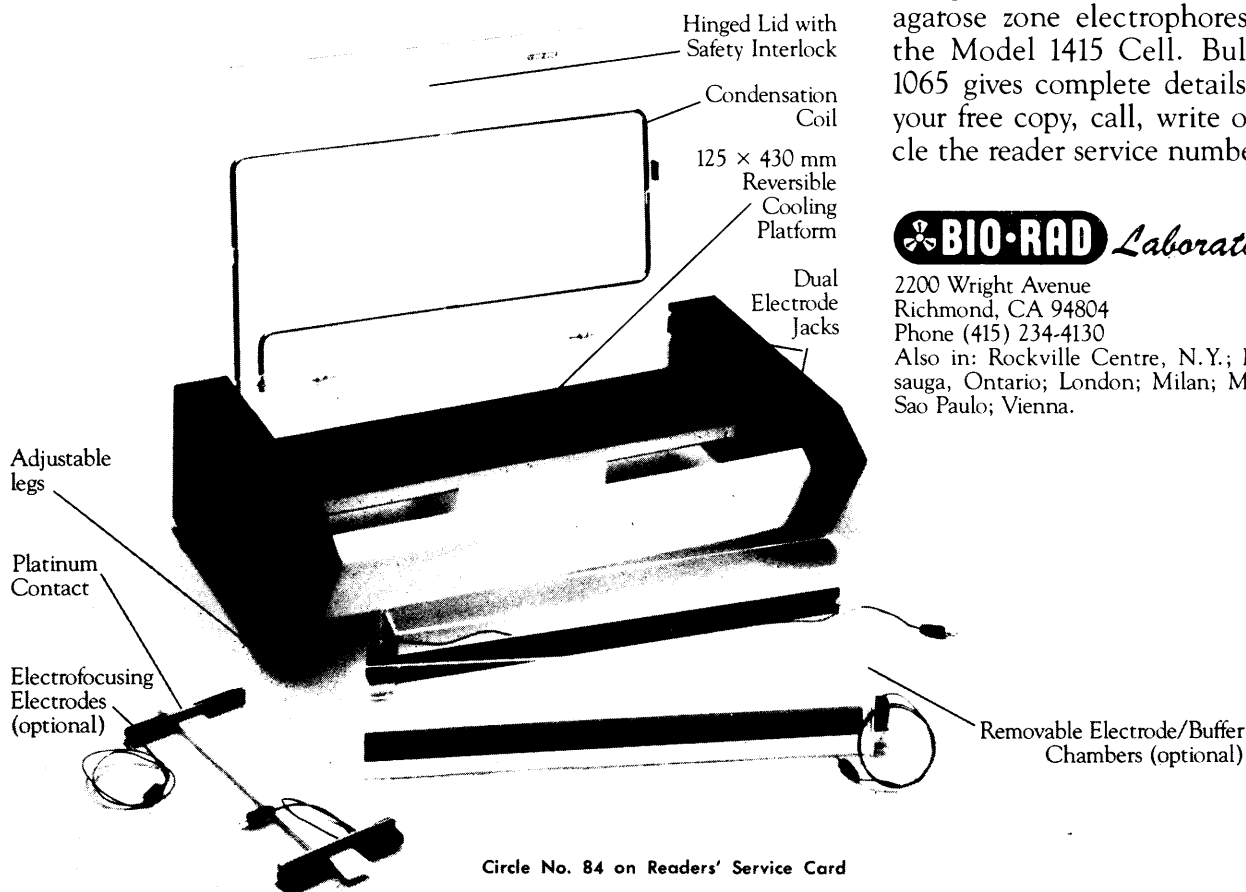
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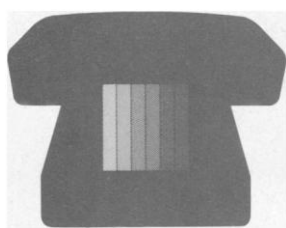
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3. N. C. Rassidakis, M. Kelepouris, K. Goulis, K. Karaiosefidis, *Agressologie* 14, 269 (1973).
4. E. S. Buel, *Allg. Z. Psychiatr.* 80, 312 (1925).
5. A. E. Scheffen, *AMA Arch. Neurol. Psychiatry* 65, 145 (1951).
6. G. M. Perrin and I. R. Pierce, *Psychosom. Med.* 21, 397 (1959).
7. B. H. Fox, *J. Behav. Med.* 1, 45 (1978).
8. — and M. A. Howell, *Int. J. Epidemiol.* 3, 207 (1974).
9. S. Peller and C. S. Stephenson, *Public Health Rep.* 56, 132 (1941).
10. T. J. Mason and F. W. McKay, *U.S. Cancer Mortality by County: 1950-1969* (Government Printing Office, Washington, D.C., 1974).
11. M. Klotz, *Psychiatr. Q.* 31, 669 (1957).
12. H. M. Babigian, E. A. Gardner, H. C. Miles, J. Romano, *Am. J. Psychiatry* 121, 895 (1965); M. Kramer, *ibid.* 125 (No. 10, Suppl.) (1969).
13. J. W. Berg, in *Persons at High Risk of Cancer*, J. F. Fraumeni, Jr., Ed. (Academic Press, New York, 1975), p. 213.
14. Robert Patton, one of the coauthors of the Katz *et al.* paper (1), told me that in most New York State mental hospitals during those years, 20 to 30 percent of deaths were autopsied, and in some as many as 50 percent.

International Cancer Congress: AAAS Clearinghouse

The AAAS Clearinghouse on Persecuted Foreign Scientists serves as a conduit for information about and advocacy on behalf of members of the scientific community in foreign countries whose human rights and/or scientific freedoms have been violated. The Clearinghouse is a project of the Committee on Scientific Freedom and Responsibility, established in 1976 by the AAAS, and is chartered to maintain an awareness of actions of foreign governments which circumvent scientific freedom.

The National Academy of Sciences (NAS) has requested the Clearinghouse to assist participants in the International Cancer Congress, to be held in Buenos Aires, Argentina, from 5 to 11 October 1978, who wish to express their human rights concerns while in Argentina. The human rights problem in Argentina has been a concern of both NAS and the AAAS for some time. Christian Anfinson and Robert Perry visited Argentina in mid-March of 1978 as representatives of the NAS to report on the state of science and human rights. In their report, issued 24 April 1978, they conclude that "the situation for science is adversely affected by the state of human rights in Argentina. Concern for personal safety, the continued practice of arbitrary dismissal from scientific posts, the substantial number of scientists who have disappeared and about whom the governmental authorities profess no knowledge, are clear violations of human rights." Further, Emilio Q. Daddario visited Argentina in December 1977, as president of AAAS, and in his report stated that "the preemptive actions of the state security forces have, with a few

exceptions, made a shambles of scientific freedom in Argentina."

In view of the existence of a pattern of human rights violations affecting scientists in Argentina, an international boycott of the Congress has been initiated, and a counter-congress in Paris is planned to coincide with the Congress in Argentina. It is the position of the AAAS and NAS that participation in the International Cancer Congress should be a matter of individual choice. While we respect the concerns of our fellow scientists who are planning to boycott the Congress, we feel an alternative to the boycott is the act of participating in the Congress and using the opportunity to make representations to Argentine authorities on behalf of scientists whose human rights have been abridged. Some may choose a boycott, others may wish to go and express their human rights concerns, while still others will choose to participate and not be involved in the issue of human rights. Naturally, it is for you to determine what course to pursue.

It is not our purpose to provoke a confrontation with the Argentine authorities or to censure their actions. Rather, our purpose is to express the depth of U.S. scientists' concern for the loss of human rights and scientific freedom in Argentina and to explore new openings for moderating and restoring conditions under which scientists and scholars could return to work without fear of arbitrary arrest or dismissal. Furthermore, we seek to petition for identification of those individuals who are still imprisoned without charge and of those who have disappeared, and for the reinstatement of constitutional rights of due process.

Should you desire to express your human rights concerns while in Argentina, our Clearinghouse office is available to assist you in several ways. First, we can supply background information on the situation in Argentina, including the on-site visit reports issued by NAS and the AAAS. Further, we are in the process of arranging for groups of Congress attendees to visit with Argentine officials and private human rights groups in order that their concerns might be expressed during the meeting in Buenos Aires.

We welcome any comments or suggestions. Please do not hesitate to write, or phone the Clearinghouse office at 202-467-5237.

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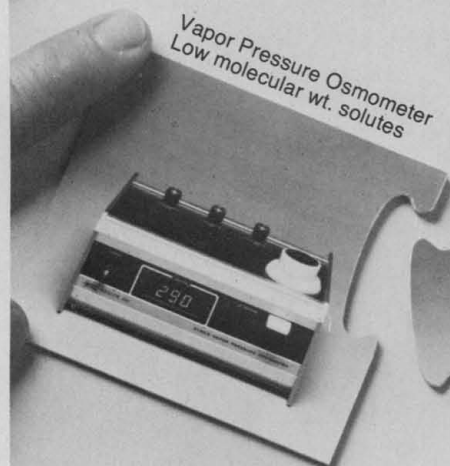
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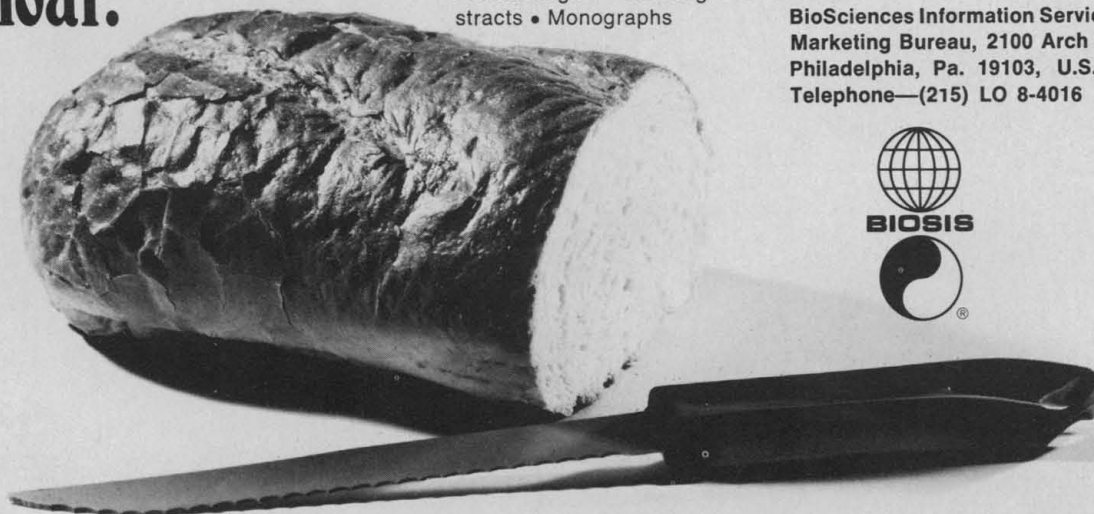
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Bad Science and Good Policy Analysis

This space recently carried a compelling argument on the social penalties of bad science.* Bad science, it was argued, especially in the environment and health area, is leading to unwarranted public concerns, unjustified and costly regulatory action, and serious public misunderstanding. One way to combat the effects of bad science is to actively promote good science through traditional vehicles such as peer review and newer vehicles such as the science court. But another, equally important way to reduce the social penalties of bad science is through the promotion of good policy analysis.

Good science and good policy analysis are not the same thing and do not serve the same ends. Many traditional scientists find policy analysis alien. Good science has as its objective the discovery of physical truth. Opinions, preferences, and values play a limited role in the exercise of good science. Except as it contributes to the design of future experimental and theoretical research, good science does not engage in speculation. It waits for full understanding.

But with or without full understanding, society and its policy-makers make decisions. For example, fossil fuel-fired power plants release sulfur air pollution, which may produce sulfate aerosols, which may cause health damage. They release CO₂, which may contribute to higher atmospheric CO₂ concentrations, which may lead to planetary warming and other global climate change. These processes will probably not be fully understood for many years, but society will act today. It will decide whether it will continue to operate existing plants; whether it will build new plants and, if so, how many it will build; and what regulatory policies, if any, it will apply.

Good policy analysis recognizes that physical truth may be poorly or incompletely known. Its objective is to evaluate, order, and structure incomplete knowledge so as to allow decisions to be made with as complete an understanding as possible of the current state of knowledge, its limitations, and its implications. Like good science, good policy analysis does not draw hard conclusions unless they are warranted by unambiguous data or well-founded theoretical insight. Unlike good science, good policy analysis must deal with opinions, preferences, and values, but it does so in ways that are open and explicit and that allow different people, with different opinions and values, to use the same analysis as an aid in making their own decisions.

Regulatory actions can carry substantial social penalties, both in the form of direct costs and through the limitation and complication of private and public choices and actions. Hence, good policy analysis should not focus solely on factors such as health and environmental risks but should strive to assess the full social implications of alternative actions.

Examples of good policy analysis are much harder to find than examples of good science. There are too many problems and too few skilled and qualified practitioners. This is particularly true for many problems involving science and technology, where good policy analysis requires a thorough understanding of the technical issues involved and an ability to sort out good science from bad.

We must begin to pay more attention to the problem of training good policy analysts who are also good scientists and engineers. The handful of Ph.D. programs for training such people today must be strengthened, and others must be developed. Through research and peer-reviewed publication, improved methodologies and more generalizable analytical insights must be developed. Organizations that engage in applied research in technology and public policy must pay greater attention to institutionalizing quality control. And scientists who find policy analysis alien must strive to understand its value and importance, even if they cannot bring themselves to engage in its practice.—M. GRANGER MORGAN, *Head, Department of Engineering and Public Policy, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213*

*C. Comar, *Science*, 16 June 1978, page 1225.

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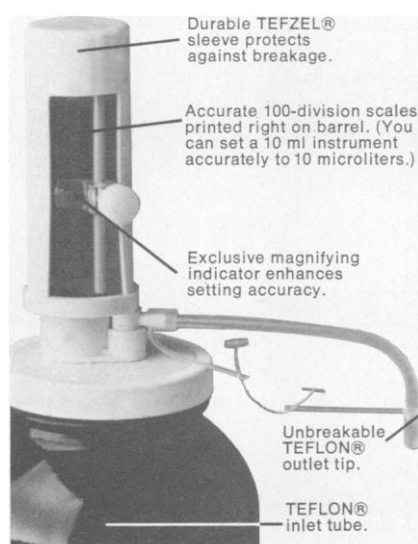
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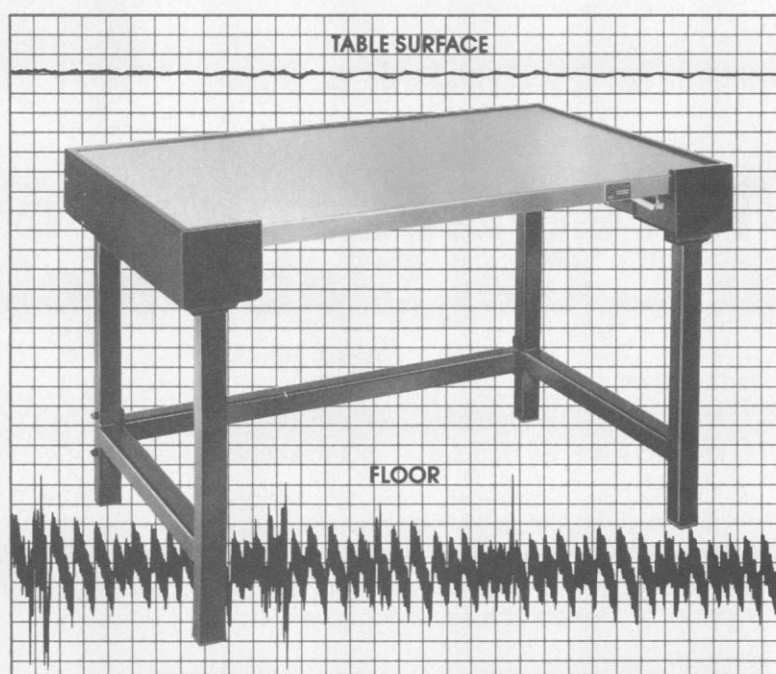
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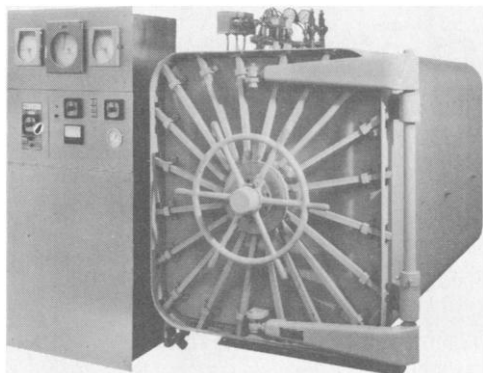


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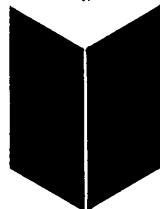
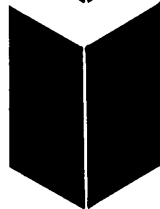
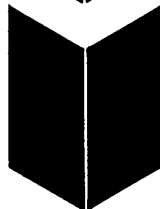
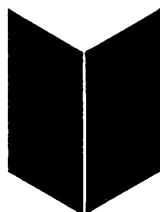


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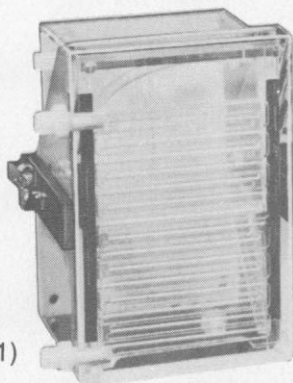
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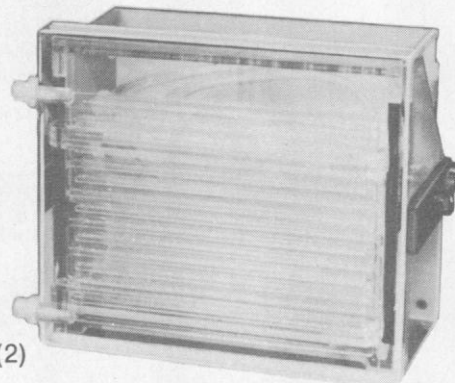
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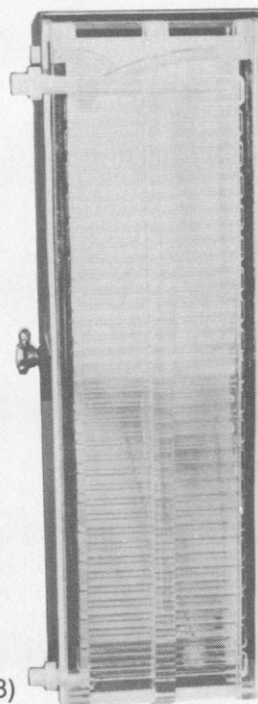
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