

SCIENCE

18 October 1974

Vol. 186, No. 4160

Instrument Issue



Now your rat count won't drown in high water.

Handifluor™ ScintillAR® brings you 50 to 100% more counting efficiency at 30 to 50% water content.

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A complete cocktail for scintillation counting, *Handifluor ScintillAR* gives you brilliant clear solutions or firm translucent gels on aqueous or non-aqueous samples. Counting efficiency stays high at both low and ambient temperatures.

In case you'd like proof of that efficiency claim, here's how *Handifluor* performed against the two leading competitive cocktails:*

GENERAL AQUEOUS SAMPLES

| MI Aqueous Phase Per 10 ml Base | Approx. Water Percent By Vol. | Absolute Tritium Efficiency (Percent) | | |
|---------------------------------------|--|---------------------------------------|--------------------|--------------------|
| | | Handifluor Cocktail Base | Cocktail Base A | Cocktail Base B |
| None | — | 53.7 | 48.9 | 50.8 |
| 0.5 | 5 | 44.5 | 42.9 | 44.5 |
| 1.0 | 9 | 40.5 | 37.1 | 39.5 |
| 1.5 | 13 | 37.5 | 35.6 | 36.6 |
| 2.5 | 20 | 35.0 | 34.1 | 32.9 |
| 3.5 | 26 | 31.0 | 31.3 | 32.3 |
| 5.0 | 33 | 29.8 | 19.9 | 28.2 |
| 7.5 | 43 | 24.1 | 10.7 | 22.4 |
| 10.0 | 50 | 20.7 | 9.8 | 19.6 |

*10 ml of base, tritium equal to 2,000 dpm and aqueous phase giving the indicated percentage of the total cocktail combined and counted by a Packard Model 2425 Tri-Carb® Liquid Scintillation Spectrometer. Instrument efficiency for ^3H by A.E.S. was 97-99%, representing 58-60% absolute tritium efficiency vs. sealed standards. Data represents averages of four successive 10 minute counts. Efficiencies are expressed as percent of the theoretical decompositions per minute actually counted.

After you've read the chart, what more can we say except that it's ready to be delivered to you in Safemor® gallon jugs from your local Mallinckrodt distributor. Catalog No. 4022. If you'd like even more data, ask for our complete comparative data sheet.

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18 October 1974

Volume 186, No. 4160

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COVER

Parallel dendritic drainage pattern. A reduced transparency of this drawing was analyzed on an optical diffraction analysis (ODA) system incorporating a standard petrographic microscope. Results were almost identical with those results obtained by using a conventional ODA system. See page 234.



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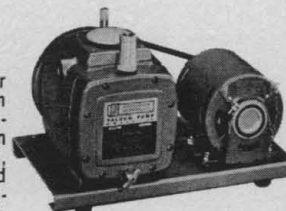
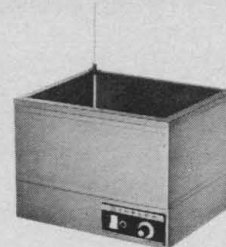
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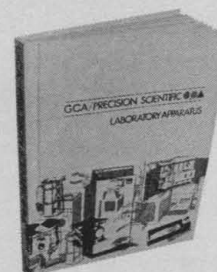
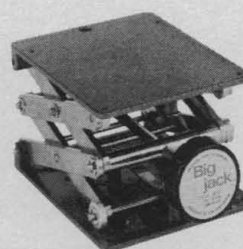
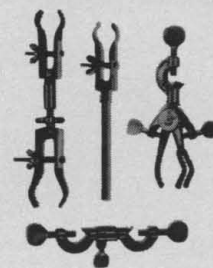
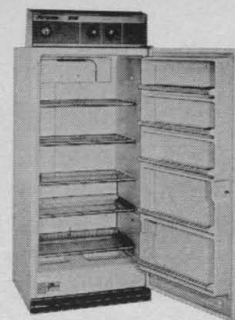
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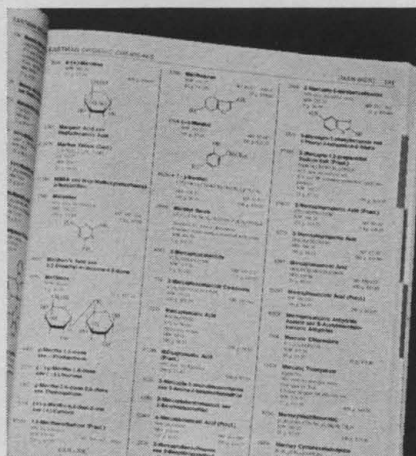
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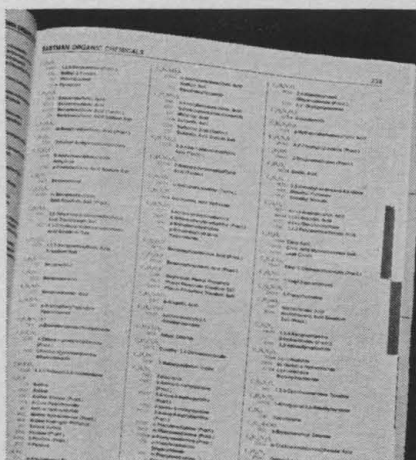
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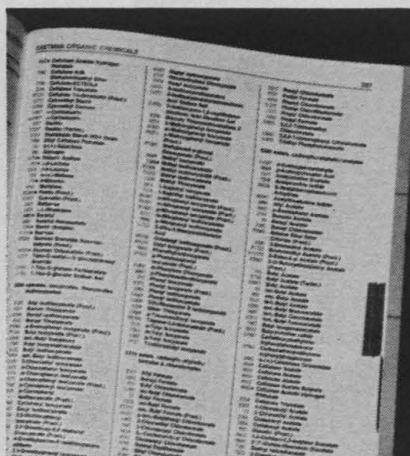


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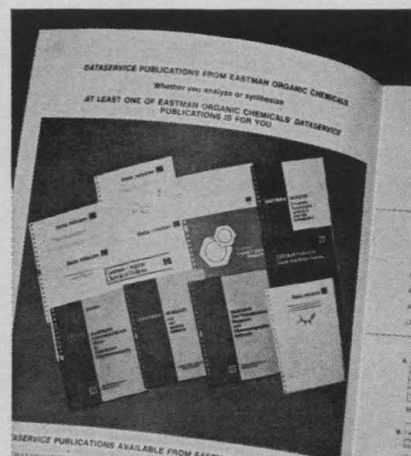
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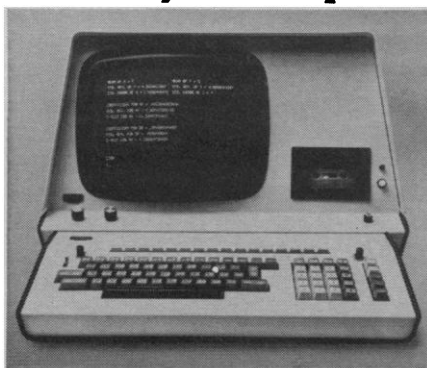
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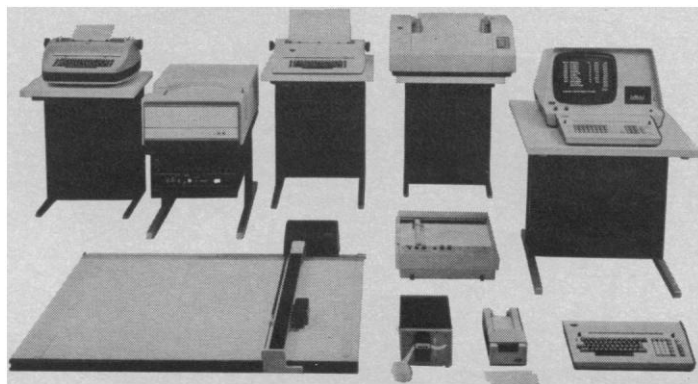
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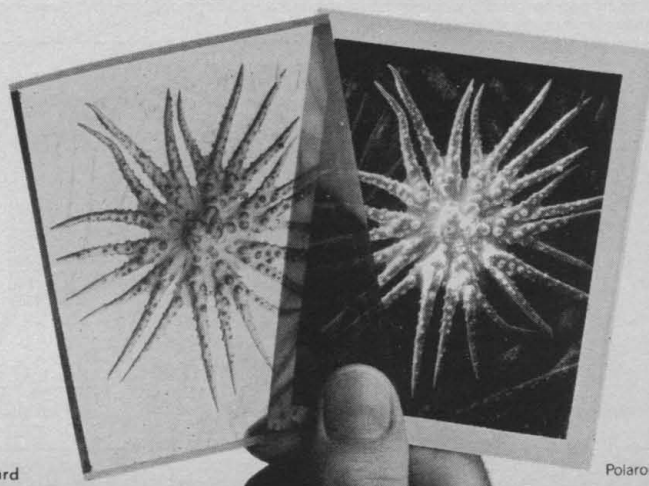
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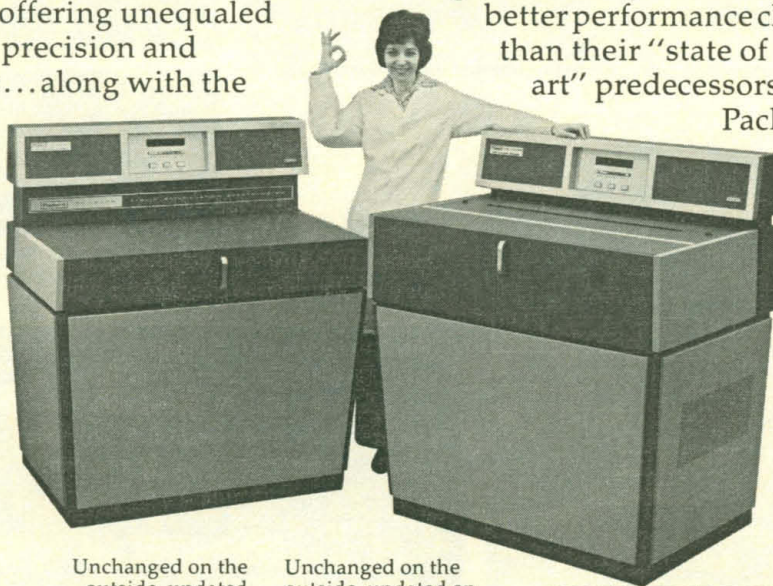
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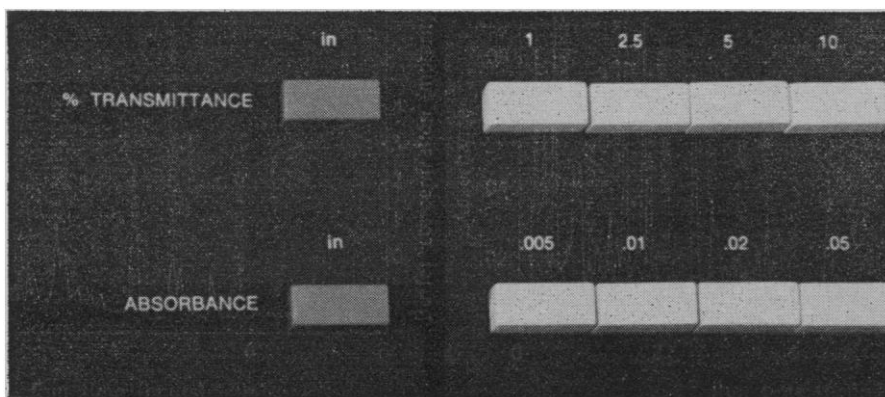
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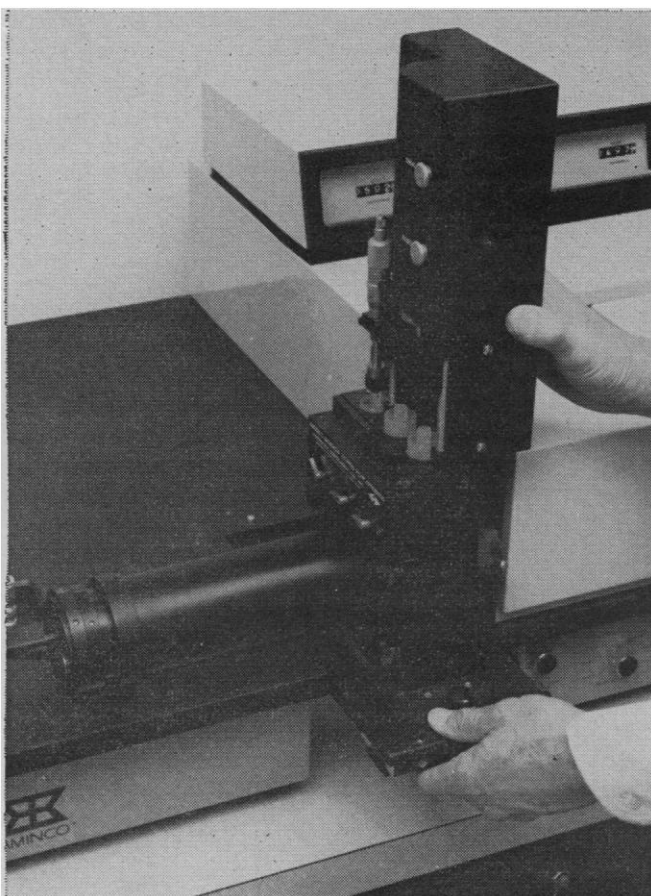
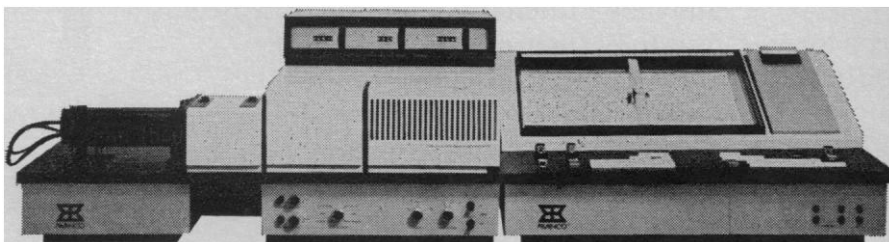
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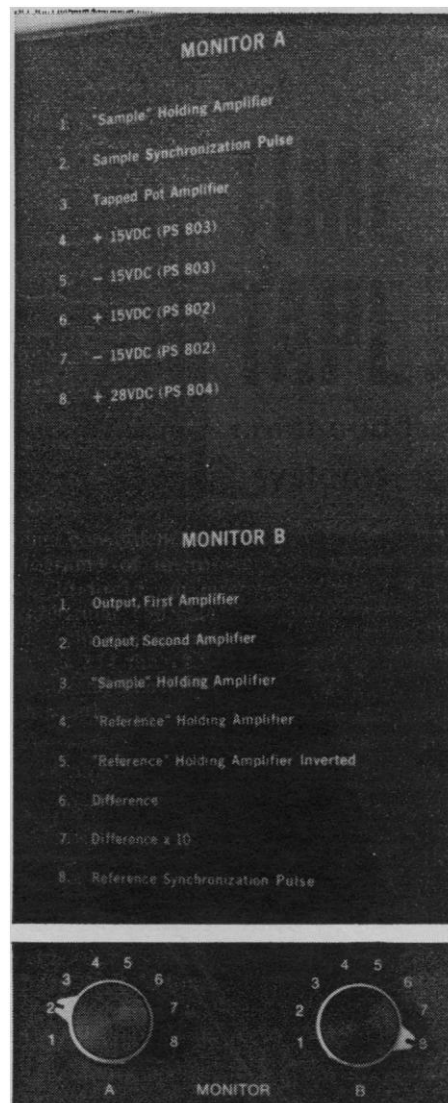


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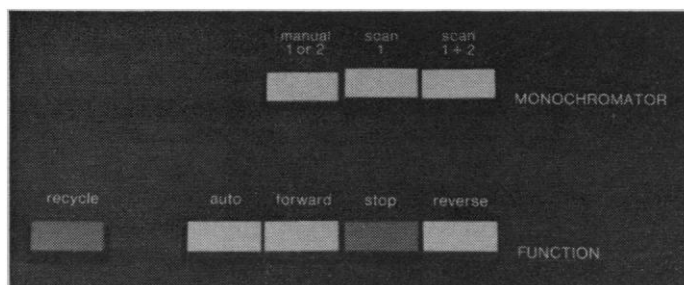
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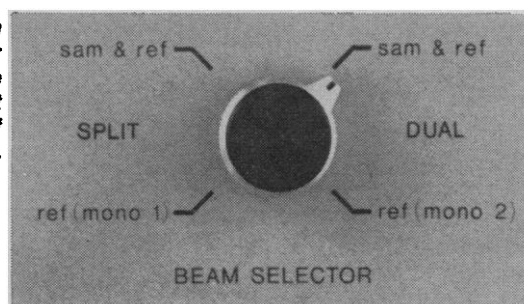
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148M-73

NON-NUCLEAR ENERGY FOR DEVELOPMENT: Arranged by Edmundo de Alba and J. Frederick Weinhold.

- Session I ☐ **The World's Energy Situation:** David Freeman, Jean C. Leclercq
- Session II ☐ **Energy in the Americas:** J. Frederick Weinhold, Fernando Hiriart, Gordon McNabb, Guillermo O. Zubarán, et al.
- Session III ☐ **Energy for Rural Communities:** Francisco Monteverde, Thomas Venables, J. Neal Thompson.
- Session IV ☐ **Wind and Solar Energy:** Edmundo de Alba, Julio Hirschmann, Peter Glaser, Robert Axtmann, et al.
- Session V ☐ **Geothermal Power:** Federico Mooser, Robert Decker, Richard Stoiber.
- Session VI ☐ **Relationship Between Environmental Protection and Energy:** Juan Eibenschutz, Miguel Angel García Lara, et al.

149M-73

EARTHQUAKE AND EARTHQUAKE ENGINEERING: Arranged by Don Tocher and Enrique del Valle C.

- Session I ☐ **The 1972 Managua Earthquake:** Emilio Rosenblueth, R. B. Matthiesen, John A. Blume, Enrique del Valle C., et al.
- Session II ☐ **Seismicity:** Alan Davenport, Luis Esteva, Donald E. Hudson, William Milne, and Jose Grases.
- Session III ☐ **Earthquake Engineering:** Julio Kuroiwa, Joseph Penzien, Jorge Prince, Patricio Ruiz, Roberto Meli, et al.
- Session IV ☐ **Seismic Intensity and Smooth Spectra, Zoning and Structural Design:** Enrique del Valle C., R. B. Matthiesen, Arturo Arias, et al.

151M-73

CIVILIZATION'S FUTURE: WAS MALTHUS CORRECT?

- Session I ☐ Lecture by Norman E. Borlaug

152M-73

THE SEA AND ITS RESOURCES: Arranged by Agustín Ayala-Castañares, and Arthur E. Maxwell

- Session I ☐ **Introduction, Coastal Zone Resources, Ocean Effects and their Management:** Harris B. Stewart, Jr., Bostwick H. Ketchum, and Julian Adem.
- Session II ☐ **Resources of the Sea:** Robert R. Lankford, Martha Vannucci, and Warren S. Wooster.
- Session III ☐ **Coastal Resources:** Bostwick H. Ketchum, Hermann Ugarte, Richard G. Bader, Robert Warren, et al.
- Session IV ☐ **Ocean Effects on Weather and Climate:** Julian Adem, Donald Gilman, R. Simpson, J. Kuettner, Jay S. Winston, and Kirk Bryan.

- Session V ☐ **Non-Renewable Resources:** Robert R. Lankford, Fred B. Phleger, Alberto G. Lonardi, John P. Albers, Melvin Peterson, et al.

- Session VI ☐ **Living Resources:** Martha Vannucci, Mario Ruivo, Paul E. LaViolette, James Joseph, A. Novak, et al.

- Session VII ☐ **Ocean Affairs:** Warren S. Wooster, John A. Knauss, Jorge A. Vargas, Harris B. Stewart, Geoffrey Kesteven, et al.

153M-73

THE IMPORTANCE OF EDUCATION IN DEVELOPMENT: Arranged by Albert V. Baez and Guillermo Massieu.

- Session I ☐ **Educational Technology:** Alfonso Ocampo Londono, Albert V. Baez, Sam Castleberry, Joseph Lagowski, et al.

- Session II ☐ **Laboratory Materials and Teaching Aids:** Nahum Joel, Ernst Hamburger, Rafael Ferreyra, Thomas Taylor, David Lockard, et al.

- Session III ☐ **Motivation and Learning Processes:** David Ehrenfreund, Mary Budd Rowe, Felix Morales, Claudio Dib, et al.

- Session V ☐ **Toward Qualitative Educational Planning:** Don Adams, Manuel Bravo Jimenez, Hernan Vera, William Platt, Douglas Wright, Bernard Kaplan, et al.

- Session VI ☐ **The Improvement of Teachers Education:** Ernst Hamburger, Nahum Joel, Carlos Gomez, Olac Fuentes, Luis S. Capurro, et al.

154M-73

DESERTS AND ARID LANDS: Arranged by Harold E. Dregne and Fernando Medellín Leal.

- Session I ☐ **Planning Problems and Dilemmas in the Development of Arid Zones:** Fernando Medellín Leal, Enrique Beltrán, and Thomas Maddock, Jr.

- Session II ☐ **Solar Energy in Arid Lands:** Hector Ruiz Elias, Gustavo del Castillo, Adam B. Meinel, Marjorie P. Meinel, Edward F. Haase, et al.

- Session III ☐ **Water Use Efficiency in Arid Regions:** Terah L. Smiley, Jose Lizarrage Reyes, Ronald F. Probst, Hasan Qashu, Lloyd E. Myers, et al.

- Session IV ☐ **Educational and Cultural Needs of Desert Zone Inhabitants:** Richard B. Woodbury, Patricio Dreckman, Everett D. Edington, Theodore Downing, Marion F. Baumgardner, Carl N. Hodges, et al.

- Session V ☐ **Storage and Retrieval of Arid Zone Data:** Dean F. Peterson, Antonio J. Prego, Patricia Paylore, Guadalupe Carrion, et al.
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157M-73

SCIENCE, TECHNOLOGY, AND DEVELOPMENT: A NEW WORLD OUTLOOK:

- Session I ☐ **A lecture by Glenn T. Seaborg.**

159M-73

THE EARTH SCIENCES IN WORLD DEVELOPMENT: Arranged by Guillermo P. Salas and Earl Ingerson.

- Session I ☐ **Earth Sciences and Energy and Environmental Problems:** Charles F. Park, P. T. Flawn, P. S. Stepanicic, Eduardo J. Guzman, et al.
- Session II ☐ **Geologic Research, Exploration and Development in Mexico, Central and South America:** Diego A. Cordoba M., Carlos Ruiz Fuller, and Enrique Levy.
- Session III ☐ **Application of Earth Sciences in the Development of Civilization:** Charles F. Park, P. T. Flawn, Eduardo J. Guzman, et al.
- Session IV ☐ **Interrelations of the Sciences in the Solution of Socio-Economic Problems:** Guillermo P. Salas, Earl Ingerson, Charles F. Park, et al.

160M-73

SCIENCE, DEVELOPMENT AND HUMAN VALUES: Arranged by Harrison Brown and Victor L. Urquidi.

- Session I ☐ **Where Have the Rich Nations Gone Wrong? Where Have the Poor Nations Gone Wrong?** Guillermo Massieu, Hollis Chenery, Kenneth E. Boulding, et al.
- Session II ☐ **Knowledge and Development in Latin America:** Renee C. Fox, Carlos A. Mallman, Richard Griego, and Luis Villoro.
- Session III ☐ **Research Priorities for Economic Development in Latin America:** Jose Valenzuela, David Ibarra, and Norman Borlaug.
- Session IV ☐ **The Value of Science and Technology to Human Welfare:** Luis Manuel Penalver, Gerhard Jacob, George Bugliarello, Joseph B. Platt, et al.
- Session VI ☐ **Science, Technology, and Human Values:** Victor Urquidi, Harrison Brown, et al.

161M-73

VIOLENCE AND BEHAVIOR: Arranged by Santiago Genovés and J. P. Scott.

- Session I ☐ **Subcultures of Violence and Social Class as Determinants of Interpersonal Violence:** Berenice A. Carrol, Sandra Bell Rokeach, John Saxe-Fernandez, Osvaldo Sunkel, et al.
- Session II ☐ **External Dependency Structure and Scientific Development:** Chadwick F. Alger, Marcos Kaplan, Sylvia Wynter Carew, et al.

162M-73

HURRICANES: Arranged by Julián Adem, and Louis J. Battan.

- Session I ☐ **New Techniques of Hurricane Observation:** Stanley Rosenthal, Luis Le Moyne, Michael Garstang, Sergio Serra-Castelan, et al.
- Session II ☐ **Hurricane Prediction and Modification Techniques:** Pedro Mosino, Robert H. Simpson, Hector Grandoso, Cecil Gentry, et al.

163M-73

TRANSFER OF TECHNOLOGY AND NATIONAL ECONOMIC DEVELOPMENT: Arranged by Jordan J. Baruch and Miguel S. Wionczek.

- Session I ☐ **Economic Impact of Technological Change:** Anne Carter, Jorge A. Katz, Jack Baranson, Alejandro Nadal, Alan MacAdams, et al.
- Session II ☐ **Social Impact of Current Rate of Technological Change:** Miguel S. Wionczek, Jerome Rotherberg, C. J. Meechan, Edmundo Fuenzalida, et al.
- Session III ☐ **Current Vehicles of Technological Trade I:** C. J. Meechan, Robert B. Staubaugh, Ronald Muller, K. D. N. Singh, et al.

- Session IV ☐ **Current Vehicles of Technological Trade II:** Mark S. Massel, Luis Soto Krebs, Enrique Aguilar, Luis Figueira Barbosa, et al.

- Session V ☐ **Determinants of Technological Policy I:** Francisco R. Sagasti, Manuel Bravo Jimenez, Rodrigo Medellin, Shlomo Argov, Alejandro Nadal, et al.

- Session VI ☐ **Determinants of Technological Policy II:** Maximo Halty Carrere, Carlos Bazdresch, Jorge Sabato, Michael Michaelis, et al.

164M-73

APPLICATIONS OF EDUCATIONAL TECHNOLOGY AND NEW METHODS AND EQUIPMENT IN SCIENCE TEACHING: Arranged by Alfonso Bernal Sahagun, Robert Branson, Thomas E. Taylor, et al.

- Session III ☐ **Program Development:** Alvaro Galvez y Fuentes, Jay Young, Robert Pecsok, Horacio Gomez Junco, Maria del Carmen Millan, et al.

- Session IV ☐ **Television, Wide Territorial Coverage:** Maria del Carmen Millan, Fidel Villarreal, Robert Branson, Isaías Raw, et al.

165M-73

PSYCHODYSLEPTICS AND ADDICTION—MARIHUANA: Arranged by Wallace L. Guess and Oscar Dominguez Vargas.

- Session I ☐ **Psychodysleptics, the Botany, Chemistry and Pharmacology of Narcotic Drugs and Marihuana:** Maynard V. Quimby, Carlton E. Turner, Solomon H. Snyder, Harold T. Conrad, Richard B. Resnick, et al.

167M-73

EDUCATIONAL PLANNING: Arranged by Don Adams and Manuel Bravo Jiménez.

- Session I ☐ **Quantitative Aspects of Educational Planning:** Juan Chong, Cicily Watson, Jose Antonio Caranza, Hector Correa, et al.

- Session II ☐ **Implementing Educational Change:** Guy Benveniste, Jaime Castrejon Diez, Paul Watson, Antonia Ramos, et al.

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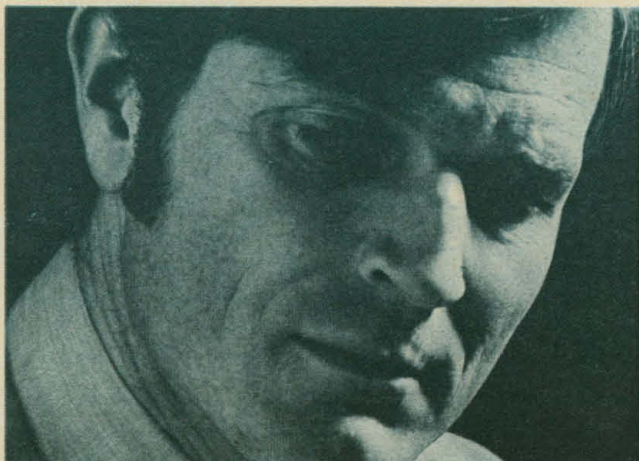
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**Typical annual cost of operating
a scanning electron microscope**

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|---|-----------------|-----------------|-----------------|
| 10' x 10' (100 sq. ft.) room @ 60¢ per sq. ft. | \$ 720 | \$ 720 | \$ 720 |
| Supplies | 5,000 | 5,000 | 5,000 |
| Typical Direct Personnel cost | 30,000 | 30,000 | 30,000 |
| Typical Indirect Personnel cost | 8,000 | 8,000 | 8,000 |
| SEM per year @ 7-year depreciation | 10,000 | 7,143 | 5,000 |
| Typical Annual Laboratory Cost | \$53,720 | \$50,863 | \$48,720 |

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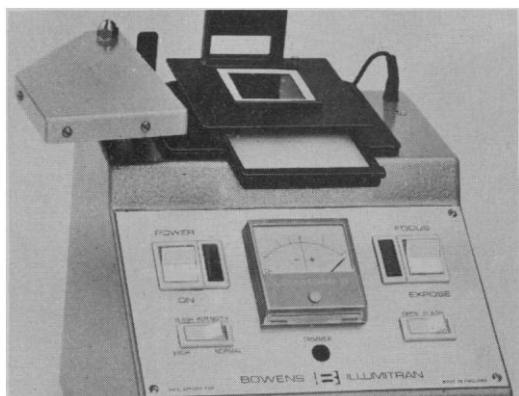
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a refractive index equal to one of the indexes of the fibers as an analyzer. They suggested that such a structure was the basis of biological detection of polarized light. The suggestion seems plausible. Has it been confirmed or refuted?

N. W. PIRIE

*Rothamsted Experimental Station,
Harpenden, Hertfordshire,
England, AL5 2JQ*

References

1. A. N. Fankuchen and I. Fankuchen, *Nature (Lond.)* **182**, 1372 (1958).

Aldrin and Dieldrin

In the report (News and Comment, 16 Aug., p. 601) of the suspension of the manufacture of aldrin and its metabolite dieldrin by the Environmental Protection Agency (EPA), it is not mentioned that the EPA will continue to permit the use of these compounds against termites, as a dip for roots and tops of nonfood plants, and against clothes moths under certain circumstances (1). As a result of these exemptions, aldrin and dieldrin will in all likelihood continue to be manufactured.

DAVID L. WOOD

*Division of Entomology and
Parasitology, University of California,
Berkeley 94720*

References

1. Environmental Protection Agency, "Aldrin and dieldrin may be used for termite control and two other uses" (News Release R-558, EPA Information Section, Washington, D.C., 1974).

Evaluating Acupuncture

It was refreshing to read Clark and Yang's report (7 June, p. 1096) attempting to objectively evaluate a procedure used in acupuncture. Although I have no scientific evidence to support or refute the use of acupuncture as an analgesic, I have had the opportunity of seeing many unfortunate individuals from various parts of the United States who were "treated" with acupuncture for a neural hearing loss, and I have yet to see a change for the better. I might add that such evidence has not slowed down those who benefit financially from the practice of acupuncture for "nerve deafness."

DARRELL E. ROSE

*Section of Audiology, Mayo
Clinic, Rochester, Minnesota 55901*

Clark and Yang suggest that many studies similar to theirs must be done "before it can be concluded that acupuncture analgesia is a myth." No one thinks acupuncture analgesia is a myth any more than many other unknowns, such as the placebo effect, hypnosis, and the workings of some analgesic medications that we cannot explain, are a "myth." They are real, and the only myths are some of the explanations for them. This is an important distinction. Highly useful techniques may remain unused because adequate physiological explanations for them do not exist.

ROGER PEELE

*Saint Elizabeths Hospital,
National Institute of Mental Health,
Washington, D.C. 20032*

Success in Graduate School

As a recent graduate in the biological sciences, I read with interest Warren Willingham's "Predicting success in graduate education" (25 Jan., p. 273). However, I believe it is virtually impossible to predict success in graduate education with any reasonable degree of surety. The data in Willingham's Table 2 indicate that no predictor currently employed is a valid indicator of success in graduate education in biology. This is especially true today, when so many seemingly equally qualified students are entering graduate programs, but not all are attaining a degree.

Perhaps the emphasis of graduate schools, in the absence of any predictor that can measure the myriad intangibles that make successful graduate students, should be on developing valid criteria for judging success. I note with dismay the scarcity of data on the use of departmental qualifying examinations as a criteria of success. As Willingham notes, this "could provide the most reliable and valid criteria of subject competence."

A properly constructed examination, consisting of both objective and subjective written and oral portions and prepared by a well-chosen doctoral committee, serves several functions. First, it provides the student with an opportunity to demonstrate the wealth of important factual knowledge he or she possesses. Second, it provides the doctoral committee, if well chosen, an opportunity to evaluate how well the student can integrate and synthesize the

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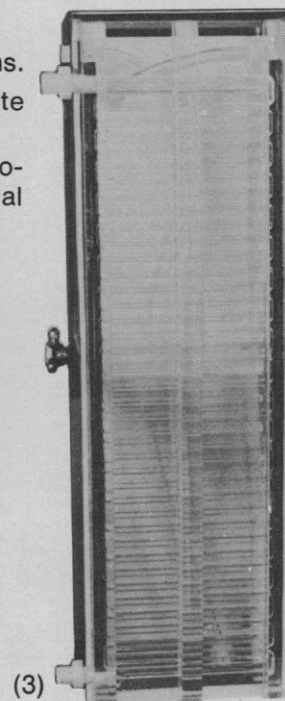
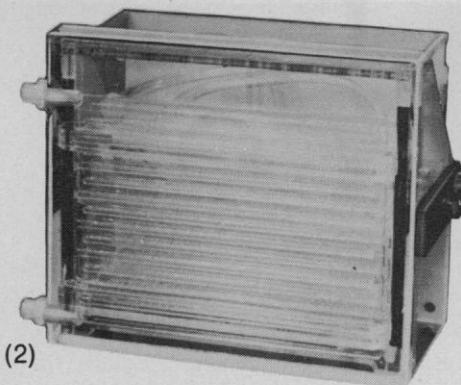
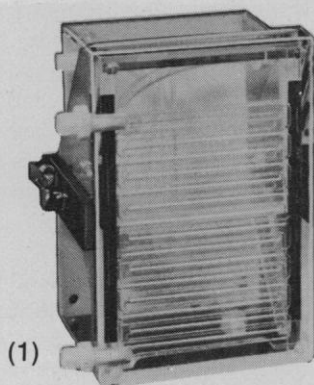
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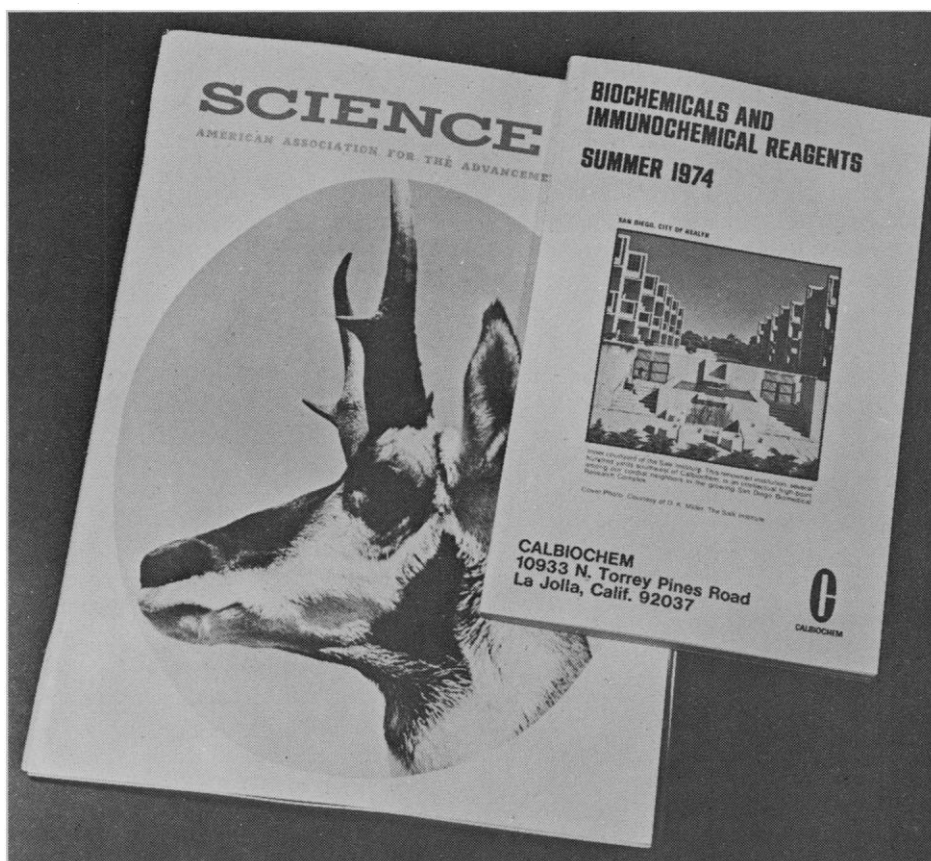
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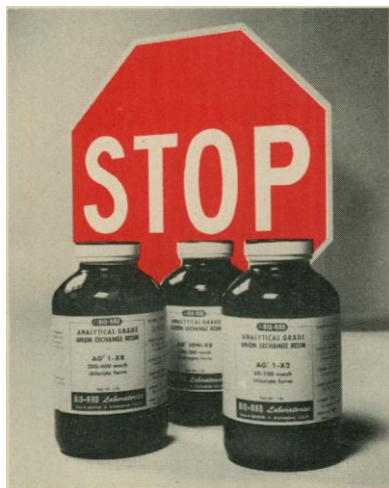
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factual and theoretical knowledge of the subject matter. Third, putting the "bits and pieces" from various sources together allows the student to see, perhaps clearly for the first time, that these bits and pieces can be assembled into a coherent whole. Last, a qualifying examination provides the firm factual and theoretical base needed for the student to begin the next phase of his education; demonstrating his or her ability to think independently by conducting independent research, the ultimate goal of graduate education.

Until the test-makers can provide predictors to measure the numerous "unmeasurables" that make certain graduate students successful, perhaps more emphasis should be placed on proper development of qualifying examinations, one of the two most valuable and reliable criteria of success in graduate school.

RONALD LINDAHL

*Division of Biological and Medical
Research, Argonne National
Laboratory, Argonne, Illinois 60439*

As chairman of our department's admissions committee, I should like to respond to Willingham's article, to what it says and to what it doesn't say.

My primary reservation about what is said concerns the validity studies which provide the basis for Willingham's conclusions. As he tells us, the data in his Tables 1 and 2 are summarized from 43 studies with a variety of sample sizes (20 to 1479 students), done over a 20-year span, in a variety of settings. If there is any reason to assume these studies have comparable results, this reason is not presented to us. And, in fact, the author states, "The studies represented in Table 1 vary widely in quality and scope. Some are based on small samples, making individual correlations unreliable." He concludes, however, that these widely varying studies may be advantageously combined. Perhaps. The idea that the results from two or more studies of dubious value become valid by their combination is not on the face of it a compelling argument. Obviously, if one does not accept the data, one does not accept the conclusion drawn from them.

In that regard, the author proposes an incomplete model of the admissions procedure. Standard test scores, recommendations, background information, transcripts, and the personal interview whenever possible are all used in attempting to evaluate each applicant. The weighting schemes used are

complex and not explicitly formulated. They relate to a pattern recognition on the part of the assessor ("A student much like this one did well here"). Moreover, these procedures may be sequential, involving successive screenings of applicants. An analysis of this process would be most interesting, particularly with regard to the impact of political and psychological factors.

More significantly, the attempt to correlate tests scores and "success" measures seems rather misleading. At best, these tests may measure some aspect of a student's potential to comprehend certain material by virtue of his mastery of English or arithmetic skills. They clearly do not measure his motivation, his tenacity, his response to program demands, his response to personal problems, or his response to changes in the employment market. These are factors which bear heavily on the likelihood of student "success." And, it is these things which point out the impossibility of admitting only "successful" students.

Beyond approaching these tasks rationally and with goodwill, and convincing the university bureaucracy not to lose chosen applicants through oversight, I frankly don't know which way to go. How welcome a system that eliminates the need to make painful decisions would be.

MARTIN ROSENZWEIG

*Department of Biometrics, Temple
University School of Medicine,
Philadelphia, Pennsylvania 19140*

I find no quarrel with most of the points raised in the two letters concerning my article, but I would note that studies on any given topic usually vary in quality and importance. This is certainly true in the case of research on predicting success in graduate education, although work of "dubious value" was not included in the review. The qualification expressed in my article referred especially to the small samples in some studies. Summarizing a set of correlations that may be individually unstable is a routine procedure for estimating the strength of a relationship. While the authors cited in my article did not study other topics, such as student motivation or the nature of the admissions process, I certainly agree that these are interesting and important problems.

WARREN W. WILLINGHAM

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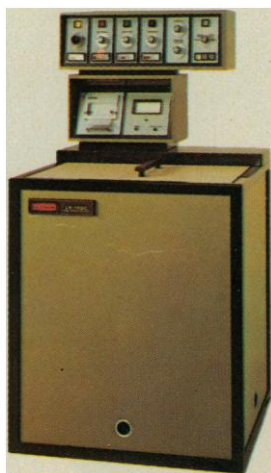


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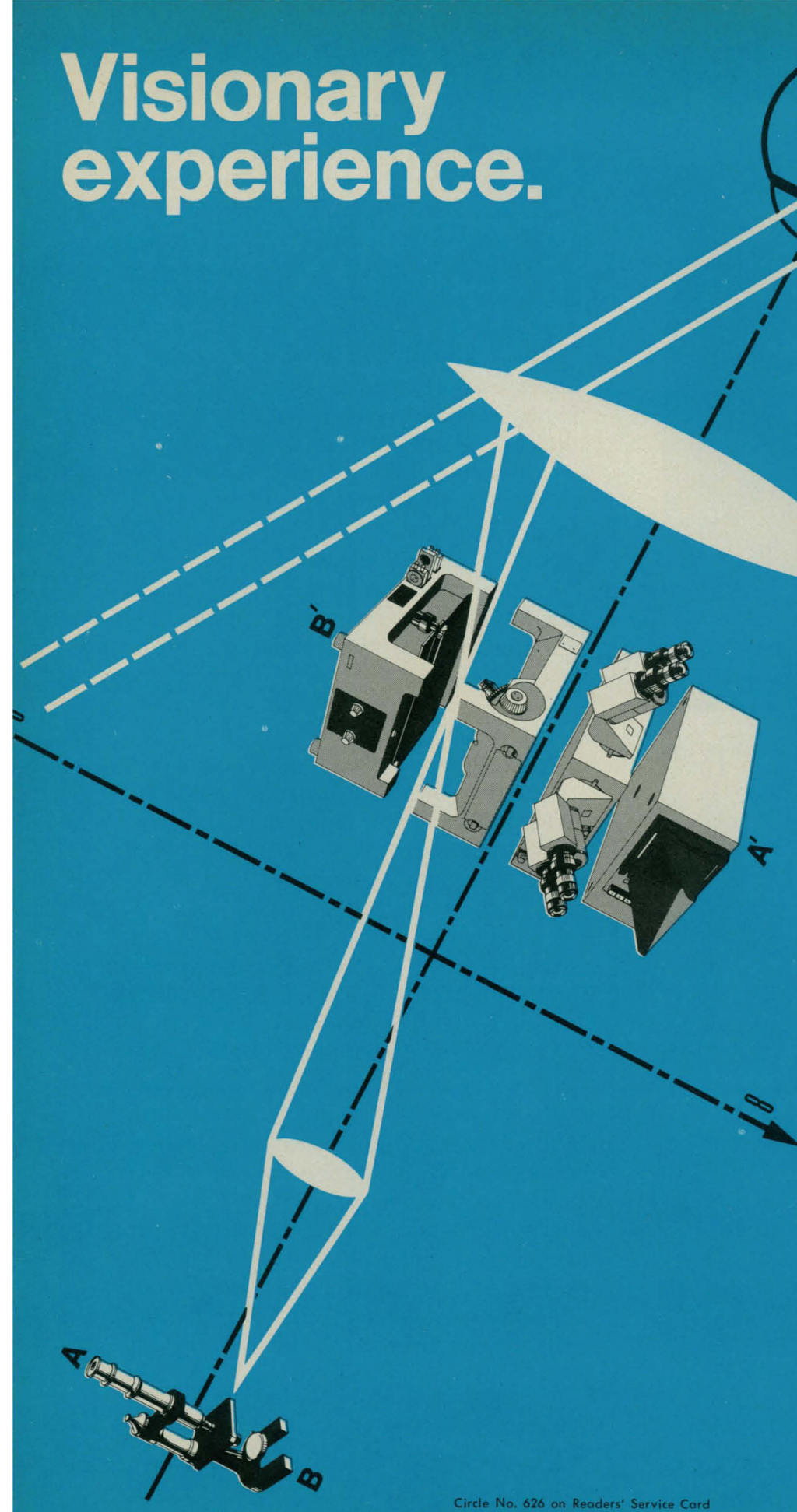
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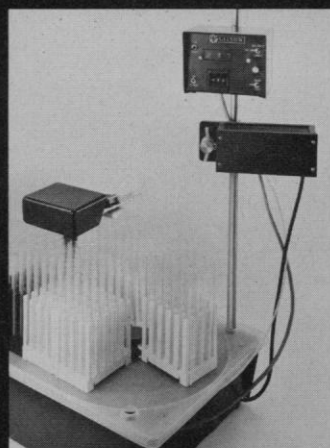
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Global Effects of Man's Production of Energy

Until recently consumption of energy was expanding rapidly. At the moment the increase is at a slower rate. However, there are great unsatisfied wants in many lands. When it becomes feasible to produce larger amounts of energy the former rate of increases might be resumed and even exceeded. Man now produces energy at the rate of 500×10^{17} calories per year. This represents 1/20,000 of the total energy received by the earth from the sun, 1/5,000 of the total energy received by the earth's land mass. Man was increasing his production of energy by about 5 percent a year; within 200 years, at this rate, he would be producing as much energy as he receives from the sun. Obviously, long before that time man would have to come to terms with global, climatological limits imposed on his production of energy. Although it is difficult to estimate how soon we shall have to adjust the world's energy policies to take this limit into account, it might well be as little as 30 to 50 years.

Unfortunately, the science of climatology is unable to predict the ultimate consequences for the earth's climate of man's production of energy. At what rate of energy production would the ice caps melt? Will the carbon dioxide or dust thrown into the atmosphere by the burning of fossil fuel threaten the stability of the weather system? How does the geography of man's energy production affect weather in various parts of the world?

Some attempts to answer these and similar questions have been made, for example, by computer modeling at the National Center for Atmospheric Research. Not enough is known to place too much confidence in such studies; yet answers to these questions may eventually dominate long-term energy policy. In the absence of such answers, how can we formulate intelligent policy?

Two things should be done. First, climatologists should recognize the profound implications of this question and do the basic research in global modeling, in the dynamics of atmospheric circulation, and in increasing our general understanding of our global climate so that, say 20 years from now, we can base our energy policy on a much sounder understanding of this limit than we now possess.

But this is not enough. The problem of global effects of energy production, like so many long-range environmental problems, is everyone's problem, and therefore no one's problem. I propose, therefore, that an institute (or even institutes) of climatology be set up with a long-term commitment to establishing the global effect of man's production of energy. Such an institute should be assured long-term stability, since the question is a long-range one that simply will not go away. The institute would naturally serve to focus the efforts of smaller groups of climatologists, working on more general, basic aspects of climatology; but the institute itself would also contribute to our general understanding of the dynamics of the world's climate.

I would hope that as part of our newer appreciation of the necessity for truly long-range planning in energy, a strong, long-term effort along the lines I suggest will be launched.—ALVIN M. WEINBERG, *Director, Energy Research and Development Office, Federal Energy Administration, Washington, D.C. 20461*



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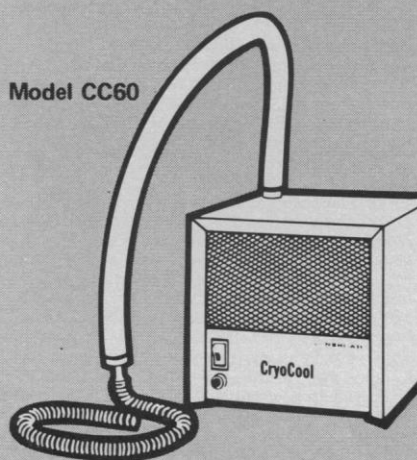
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BOOKS RECEIVED

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perimentation. Papers from a symposium, New Brunswick, N.J., June 1970. Hulda Magalhaes, Ed. Bucknell University Press, Lewisburg, Pa., 1974. 146 pp., illus. \$8.50.

Environments through Time. A Laboratory Manual in the Interpretation of Ancient Sediments and Organisms. Robert L. Anstey and Terry L. Chase. Burgess, Minneapolis, 1974. vi, 136 pp., illus. Spiral bound, \$4.95.

Essentials of Elementary School Mathematics. Max Larsen and James L. Fejfar. Academic Press, New York, 1974. xx, 410 pp., illus. \$10.95.

Ethology and Psychiatry. Norman F. White, Ed. Published for the Ontario Mental Health Foundation by University of Toronto Press, Toronto, Ontario, 1974. xii, 264 pp., illus. Paper, \$4.

The Etruscans. Werner Keller. Translated from the German edition (Munich, 1970) by Alexander and Elizabeth Henderson. Knopf, New York, 1974. xvi, 436 pp., illus. + plates + index. \$12.50.

Evolution of the Nervous System. Harvey B. Sarnat and Martin G. Netsky. Oxford University Press, New York, 1974. xviii, 318 pp., illus. Cloth, \$9.95; paper, \$6.95.

Extraction of Minerals and Energy. Today's Dilemmas. Raul A. Deju. Ann Arbor Science Publishers, Ann Arbor, Mich., 1974. x, 302 pp., illus. \$18.95.

The Feldspars. Proceedings of a NATO Advanced Study Institute, Manchester, England, July 1972. W. S. MacKenzie and J. Zussman, Eds. Manchester University Press, Manchester, and Crane, Russak, New York, 1974. xii, 718 pp., illus. \$27.50.

500 Plants of South Florida. Julia F. Morton. Seemann, Miami, Fla., 1974. 164 pp., illus. + plates. \$9.95.

Fluorine Chemistry Reviews. Vol. 7. Paul Tarrant, Ed. Dekker, New York, 1974. xii, 244 pp., illus. \$24.50.

Fortran Supplement to Accompany Principles of Data Processing. Robert Stern and Nancy Stern. Wiley, New York, 1974. vi, 139 pp., illus. Paper, \$4.50.

Foundations of Behavioral Science Research in Organizations. Sheldon Zedeck and Milton R. Blood. Brooks/Cole, Monterey, Calif., 1974. viii, 200 pp., illus. Paper, \$5.50. Behavioral Science in Industry Series.

Foundations of Embryology. Bradley M. Patten and Bruce M. Carlson. McGraw-Hill, New York, ed. 3, 1974. xx, 650 pp., illus. \$12.95. McGraw-Hill Series in Organismic Biology.

Foundations of Genetics. A Science for Society. Anna C. Pat. McGraw-Hill, New York, 1974. xiv, 386 pp., illus. Paper, \$10.50.

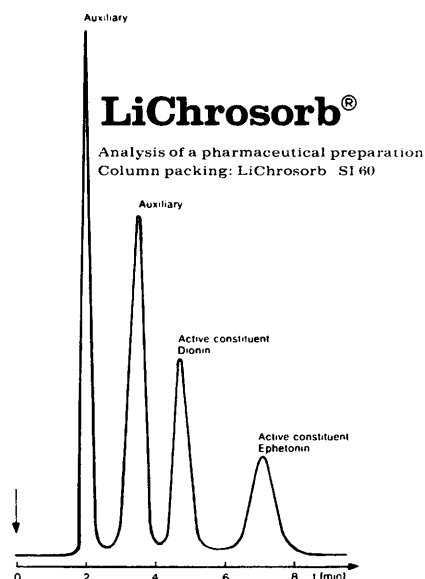
Frequency Response Testing in Nuclear Reactors. T. W. Kerlin. Academic Press, New York, 1974. xii, 176 pp., illus. \$19. Nuclear Science and Technology Series, vol. 11.

Fully Ordered Groups. A. I. Kokorin and V. M. Kopytov. Translated from the Russian edition (Moscow, 1972) by D. Louvish. Halsted (Wiley), New York, and Israel Program for Scientific Translations, Jerusalem, 1974. x, 148 pp. \$23.

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tion. Polymerization, and Application. Vol. 2. Ronald H. Yocum and Edwin B. Nyquist, Eds. Dekker, New York, 1974. xiv, 818 pp., illus. \$46.50.

Galileo. A Philosophical Study. Dudley Shapere. University of Chicago Press, Chicago, 1974. xii, 162 pp. Cloth, \$9.75; paper, \$2.95.

General Climatology. Howard J. Critchfield. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1974. xii, 446 pp., illus. \$11.95.

Genetics. A Basic Guide. I. J. Pedder and E. G. Wynne. Norton, New York, 1974. 184 pp., illus. Paper, \$2.95.

Genetics Lectures. Vol. 3. Ralph Bogart, Ed. Oregon State University Press, Corvallis, 1973. 192 pp., illus. Paper, \$5.

Géologie de la France. Jacques Debelmas, Ed. Doin, Paris, 1974. Two vols., illus. Vol. 1, Vieux Massifs et Grands Bassins Sédimentaires. pp. 1-294. Vol. 2, Les Chaînes Pliées du Cycle Alpin et leur Avant-pays. iv, + pp. 295-540. Each volume, 75 F.

Geology Field Guide to Northern California. John W. Harbaugh. Brown, Dubuque, Iowa, 1974. xvi, 124 pp., illus. Paper, \$2.50.

Geriatric Medicine. Papers from a conference, Glasgow, Scotland, Sept. 1972. W. Ferguson Anderson and T. G. Judge, Eds. Academic Press, New York, 1974. x, 328 pp. \$12.50.

Grzimek's Animal Life Encyclopedia. Vol. 4, Fishes I. Bernhard Grzimek, Werner Ladiges, Adolf Portmann, and Erich Thenius, Eds. Van Nostrand Reinhold, New York, 1973. iv, 532 pp., illus. Each volume, \$29.95; 13-volume set, \$325.

Handbook of Microbiology. Vol. 3. Microbial Products. Allen I. Laskin and Hubert A. Lechevalier, Eds. CRC Press (Chemical Rubber Co.), Cleveland, Ohio, 1973. xiv, 1144 pp., illus. \$23.50.

Health Education Theory and Practice in Cancer Control. A Collection of Original Papers. International Union Against Cancer, Geneva, Switzerland, 1974. 106 pp., illus. Paper.

Health in Elementary Schools. Harold J. Cornacchia and Wesley M. Staton. Mosby, St. Louis, ed. 4, 1974. xii, 392 pp., illus. \$11.25.

Heritage of Excellence. The Johns Hopkins Medical Institutions. 1914-1947. Thomas B. Turner. Johns Hopkins University Press, Baltimore, 1974. viii, 648 pp., illus. \$17.50.

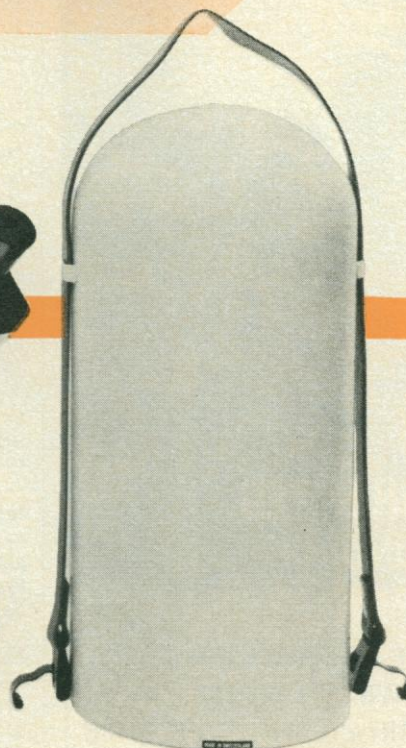
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Histological Typing of Urinary Bladder Tumours. F. K. Mostofi, L. H. Sobin, and H. Torloni. World Health Organization, Geneva, 1973 (U.S. distributor, Q Corp., Albany, N.Y.). 36 pp. + plates. Sw. fr. 34. International Histological Classification of Tumours. No. 10.

Histology. A Text and Atlas. Johannes A. G. Rhodin. Oxford University Press, New York, 1974. xii, 804 pp., illus. \$19.50.

Holography. M. Françon. Translated from the French edition (Paris, 1969) by Grace Marmor Spruch. Academic Press, New York, 1974. xii, 144 pp., illus. \$11.

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Homogeneous Catalysis by Metal Complexes. Vol. 2, Activation of Alkenes and Alkynes. M. M. Taqui Khan and Arthur E. Martell. Academic Press, New York, 1974. xii, 194 pp., illus. \$23.

The Hugh L. Dryden Papers 1898-1965. A Preliminary Catalogue of the Basic Collection. Richard K. Smith, Ed. Milton S. Eisenhower Library, Johns Hopkins University, Baltimore, Md., 1974. 166 pp., illus. Paper.

Hunter's Point. A Black Ghetto. Arthur E. Hippler. Basic, New York, 1974. xiv, 238 pp. \$11.95.

Ideas of the Theory of Relativity. General Implications from Physics to Problems of Society. Mendel Sachs. Halsted (Wiley), New York, and Israel Universities Press, Jerusalem, 1974. xvi, 190 pp. \$9.95.

Immunotherapy. Cellular Transplants and Immunostimulation. MSS Information Corp., New York, 1974. 224 pp., illus. \$17.50.

Index Kewensis. Supplement XIV (1966-1970). Johannis Heslop-Harrison, Ed. Oxford University Press, New York, 1974. iv, 152 pp. \$30.50.

Inorganic Solids. An Introduction to Concepts in Solid-state Structural Chemistry. D. M. Adams. Wiley, New York, 1974. xvi, 36 pp., illus. \$22.50.

Interactive Computing in BASIC. An Introduction to Interactive Computing and a Practical Course in the BASIC Language. Peter C. Sanderson. Petrocelli Books, New York, 1973. viii, 162 pp., illus. Paper, \$6.

Introduction to Chemical Principles. A Laboratory Approach. Susan A. Weiner and Edward I. Peters. Saunders, Philadelphia, 1974. x, 254 pp., illus. Paper, \$5.50. Teacher's manual available.

An Introduction to Electrochemical Science. J. O'M. Bockris, N. Bonciocat, and F. Gutmann. Wykeham, London, and Springer-Verlag, New York, 1974. x, 134 pp., illus. Paper, \$6.20. The Wykeham Science Series, vol. 29.

Introduction to Environmental Science and Technology. Gilbert M. Masters. Wiley, New York, 1974. xii, 404 pp., illus. \$13.50. xii, 404 pp., illus. \$13.50.

Introduction to Finite Mathematics. John G. Kemeny, J. Laurie Snell, and Gerald L. Thompson. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1974. xii, 484 pp., illus. \$11.50.

Introduction to Molecular Structure and Thermodynamics. Frank P. Incropera. Wiley, New York, 1974. xx, 332 pp., illus. \$16.95.

An Introduction to the Mathematics of Electricity and Magnetism. L. I. G. Chambers. Chapman and Hall, London, 1974 (U.S. distributor, Halsted [Wiley], New York). x, 272 pp., illus. Paper, \$12.50.

An Introduction to Nonlinear Optics. George C. Baldwin. Plenum, New York, 1974. x, 156 pp., illus. Paper, \$5.95. Reprint of the 1969 edition.

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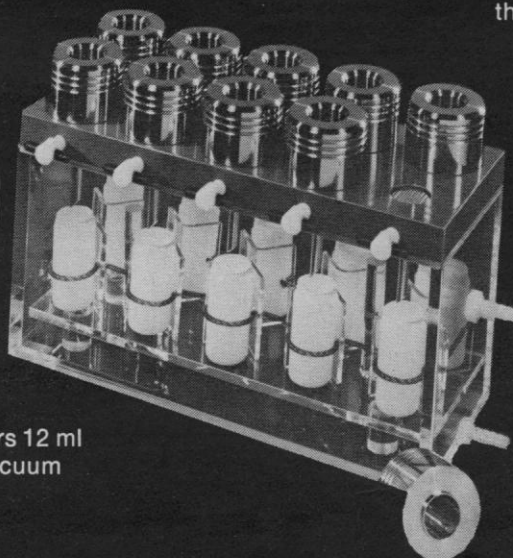
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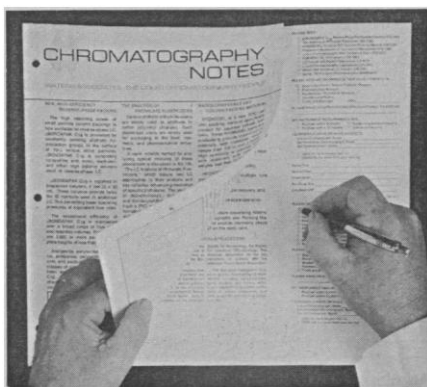
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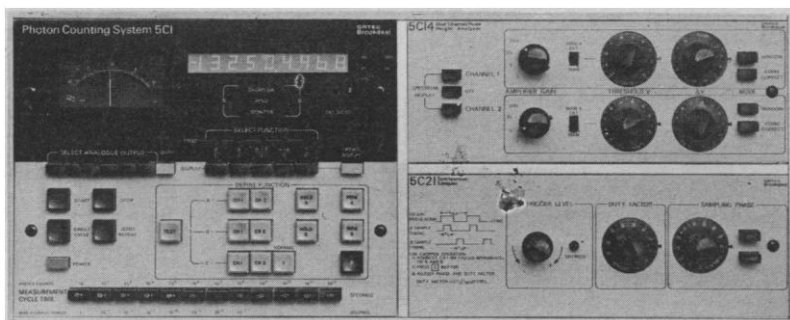
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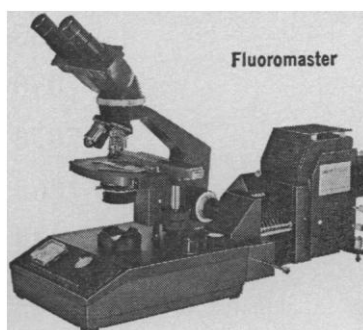


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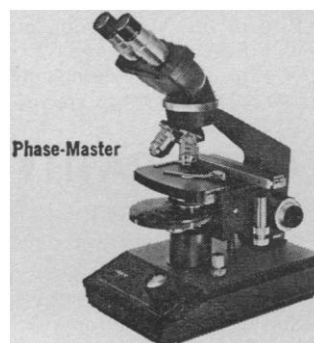
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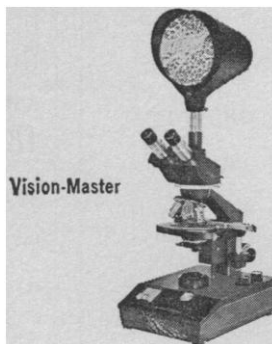
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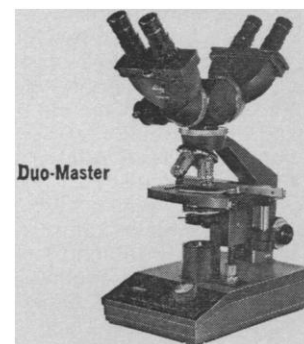
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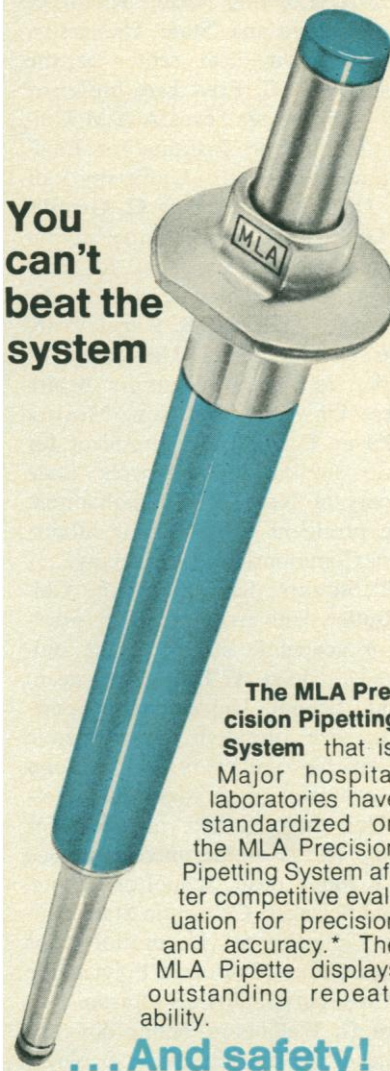
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