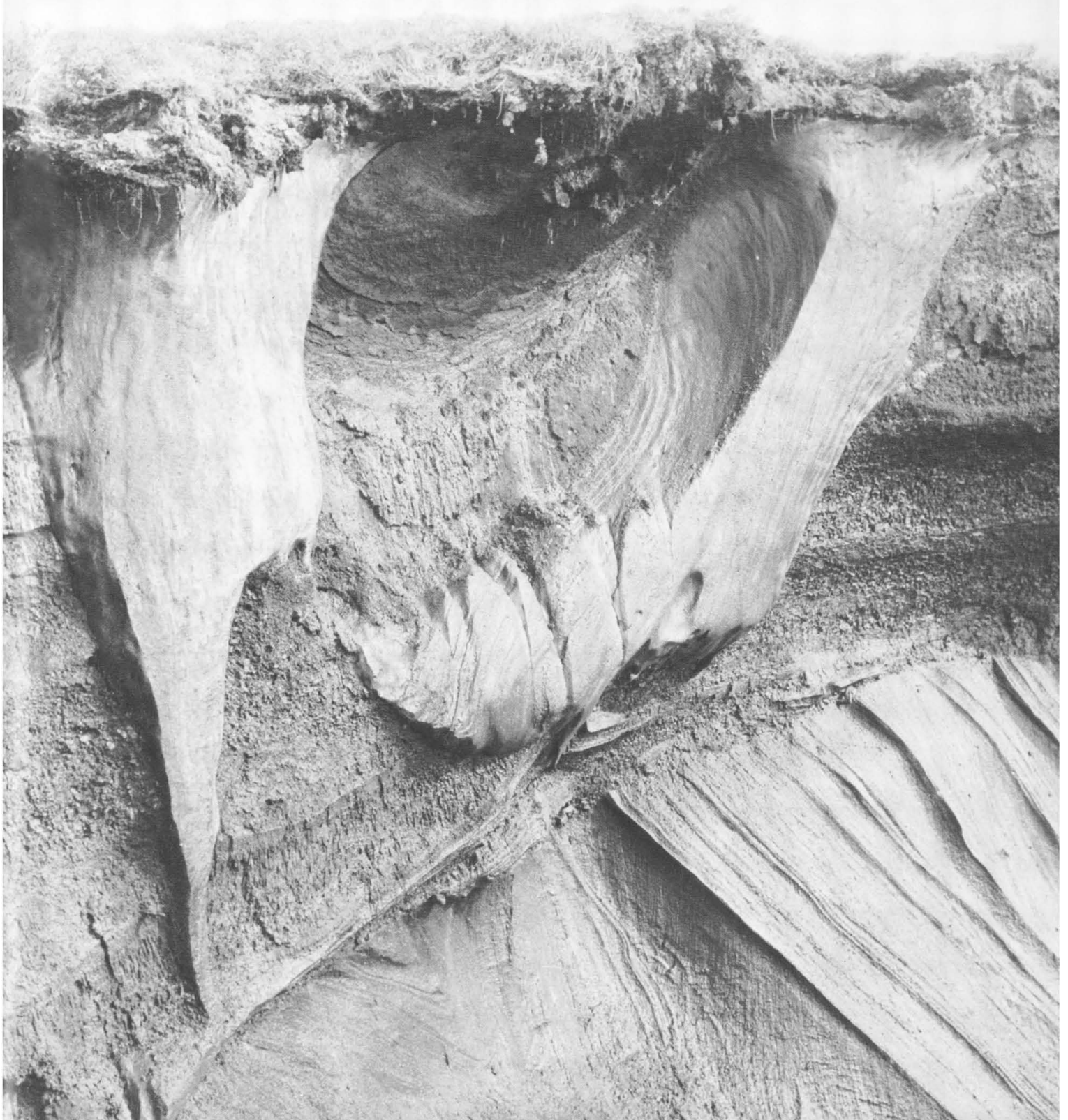


SCIENCE

23 June 1972

Vol. 176, No. 4041

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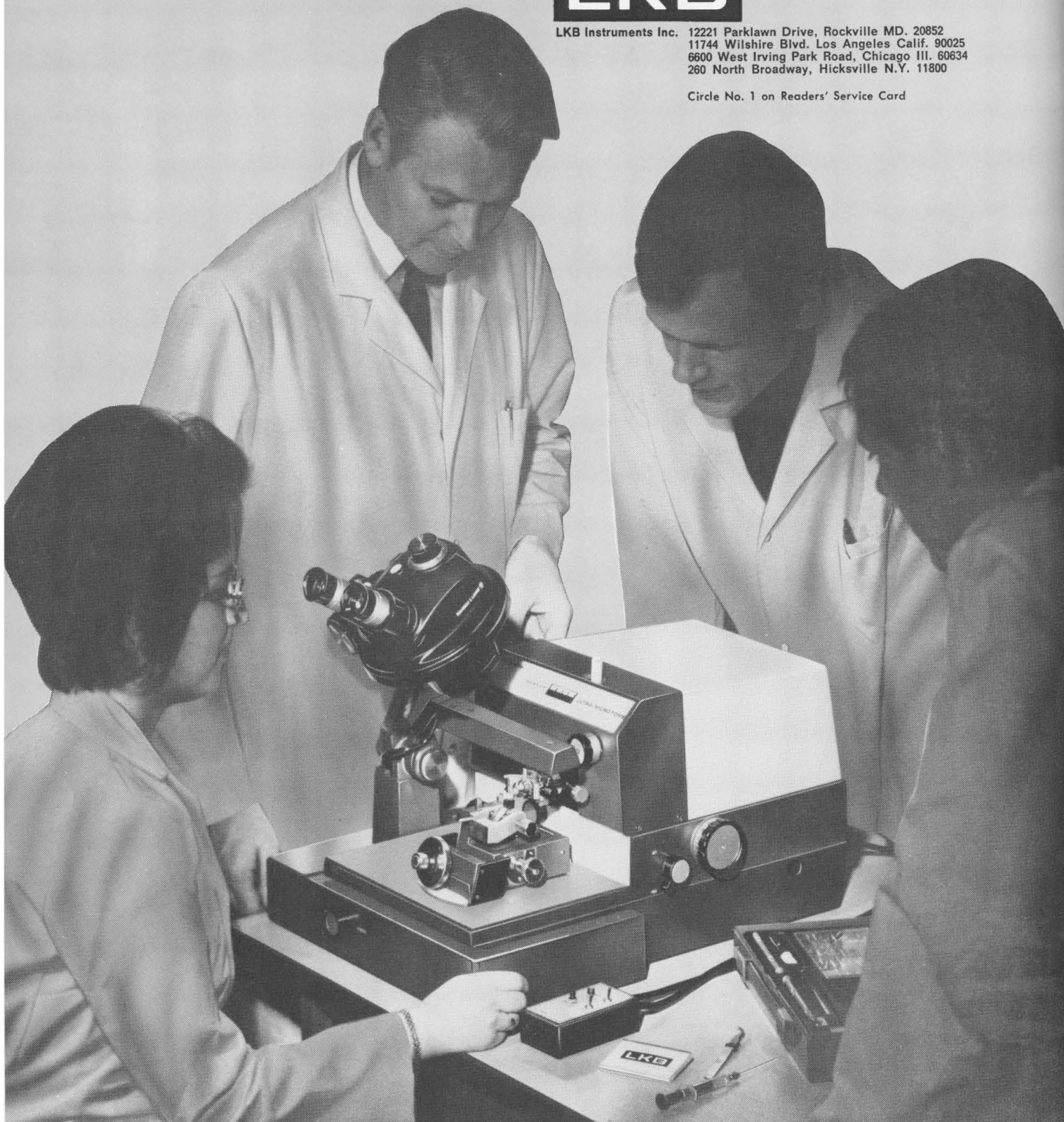
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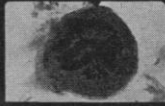
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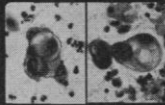
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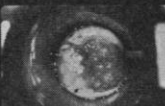




158. Late anaphase animal polypoid cell



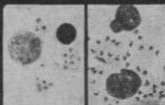
159. Anaphase C2 clone



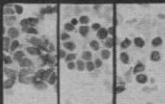
160. Anaphase C2 clone



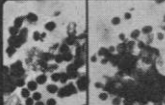
161. Anaphase C2 clone



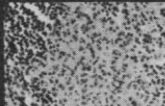
162. Anaphase C2 clone



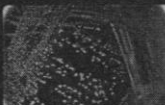
163. Anaphase C2 clone



164. Anaphase C2 clone



165. Anaphase C2 clone



166. Anaphase C2 clone



167. Anaphase C2 clone

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COVER

Ice wedges developed in lake silts truncating glacially deformed, ice-rich Pleistocene sediments more than 40,000 years old. The ice wedge at the left is 4 meters wide at the top. Garry Island, Northwest Territories. See page 1321. [J. Ross Mackay, University of British Columbia, Vancouver]

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.

**Until the new Cary 118
you could always
judge a spectrophotometer
by its cover.**



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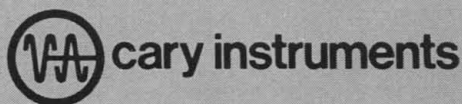
But rest assured. The new Cary 118 combines the exceptional performance of the Cary 16 with the operational ease of the Cary 15. In fact, the features include a double monochromator, a digitally coupled wavelength scan and chart drive, and a photometric accuracy of 0.001 at 1 absorbance.

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The Student Academic Freedom Forum presents:

**How Much of Yesterday's Heresy
Is
Today's Science?**

IMMANUEL VELIKOVSKY *Reconsidered*

Special Issue • Pensée Magazine • Stephen L. Talbott, Editor • First Printing: 35,000

During the 1950's Dr. Immanuel Velikovsky published his bestsellers, *Worlds in Collision* and *Earth in Upheaval*, in which he argued that the earth suffered a series of cosmic catastrophes during historical times. These upheavals, he claimed, sculpted our planet's face and changed the course of history, bringing an end to Egypt's Middle Kingdom,

destroying civilizations around the world, and figuring in the Israelite Exodus. (This last receives detailed treatment in *Ages in Chaos*.) Initially castigated for his views by scientists, Velikovsky has now been vindicated by numerous space-age discoveries. This special issue of *Pensee* surveys the evidence.

The Scientific Mafia — *David Stove, senior lecturer, department of philosophy, University of Sydney, Australia*
How Stable is the Solar System? — *Dr. C. J. Ransom, plasma physicist, General Dynamics*

A Record of Success

37 documented confirmations of Velikovsky's scientific claims, most of which were considered unlikely or impossible when he first voiced them. For example, regarding the moon, Velikovsky deduced (before the Apollo landings) that (1) the lunar "rocks and lavas could conceivably be rich in remanent magnetism resulting from strong currents when in the embrace of exogenous magnetic fields"; (2) "Since the moon was heated and its surface became molten only a few thousand years ago, the temperature gradient under the surface crust will show, to some depth, a mounting curve"; and (3) "excessively strong radioactivity will be detected in localized areas" on the moon.

Lunar Rocks and Velikovsky's Claims — *Dr. Derek York, associate professor, geophysics division, University of Toronto*
When Was the Lunar Surface Last Molten? — *Immanuel Velikovsky*

Magnetic Remanence of Lunar Rocks/A Candid Look at Scientific Misbehavior — *Robert Treash, San Diego Evening College*

"One or more Apollo missions could have been spared were Velikovsky's books and memoranda considered."

On Decoding Hawkins' Stonehenge Decoded — *Immanuel Velikovsky*

A full-length analysis of Stonehenge and its meaning in the light of cosmic catastrophes during man's history.

The Censorship of Velikovsky's Interdisciplinary Synthesis — *Dr. Lynn Rose, professor, department of philosophy, State University of New York (Buffalo)*

The Center Holds — *Dr. William Mullen, departments of classics and comparative literature, and division of interdisciplinary and general studies, University of California (Berkeley)*

Shapley, Velikovsky and the Scientific Spirit — *Dr. Horace Kallen, co-founder and former dean of the graduate faculty, and research professor in social philosophy, New School for Social Research*

Einstein's reaction to the suppressive efforts against Velikovsky is revealed in a letter 30 days before his death.

Velikovsky at Harvard — *Stephen Talbott, editor, Pensee magazine*

The dramatic story of Velikovsky's lecture and seminar last February 17-18 to an enthusiastic crowd at Harvard.

Is Venus' Heat Decreasing? — *Immanuel Velikovsky*

Akhnaten, Aten and Venus Reconsidered — *Lewis Greenberg, assistant professor, department of art, Franklin and Marshall College*

Could Mars Have Been an Inner Planet? — *Dr. Lynn Rose, professor, department of philosophy, State University of New York (Buffalo)*

Venus' Circular Orbit — *Chris Sherrerd, electrical engineer, Bell Laboratories*

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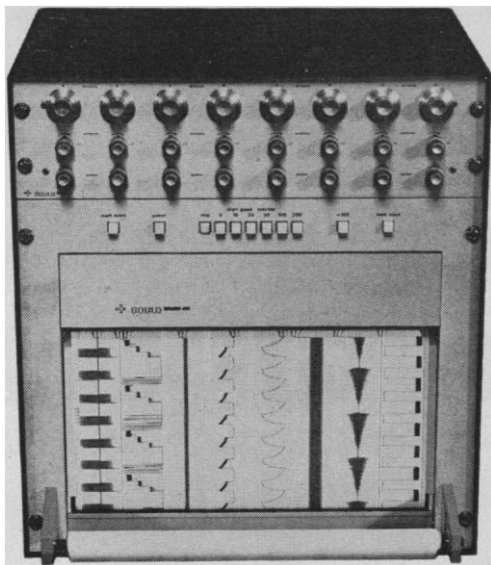
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Gentlemen: Please send me _____ copies of "Immanuel Velikovsky Reconsidered" at \$2.00 each (\$1.50 each for 10 or more; \$1.00 each for 100 or more). Enclosed is my check or money order.

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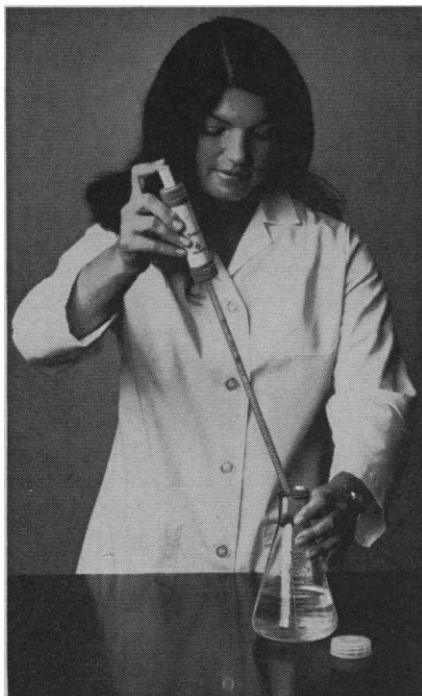
It gives you Brush quality. And Brush innovations. For example: pressurized inking system that writes dry and eliminates smudging, puddling and priming. And Metrisite® non-contact servo-loop feedback device that guarantees 99.5% linearity.

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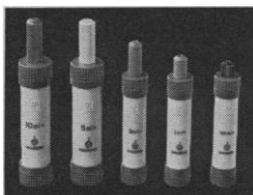
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1288

Clear-cutting

Robert Gillette reports in "A modest environmental message" (News and Comment, 11 Feb., p. 609) that conservationists were critical of President Nixon's hesitation to impose restrictions on "the frequently destructive practice of clear-cutting in the national forests."

Few foresters would deny that clear-cutting is misapplied or is a poor choice among alternative timber-harvesting methods under certain circumstances. Aesthetic considerations, recreational use, soil stability, forest-cover type, and objectives of management, among other things, may affect the choice of a harvesting method. About the nonquantitative expression "frequently destructive," one may ask, Destructive of what? Again, circumstances determine whether something of value is destroyed or whether a renewable resource is converted to human use.

Considering the broad spectrum of our national forests, one can question whether nationwide restrictions on clear-cutting should attract the support of scientists and professionals, who are committed to analysis and the making of distinctions. Clear-cutting is, in the majority of our commercially important timber types, the method of harvesting and regeneration that makes the least demands on other valuable resources, such as energy and labor, and on road mileage, transportation, and supervision. One of the duties of foresters is to decide, after due consideration of the many values and costs involved, how or whether to harvest timber. They ask no more—nor less—respect for their competence and integrity than does a physician who would rightly resist a federally imposed ban on appendectomies.

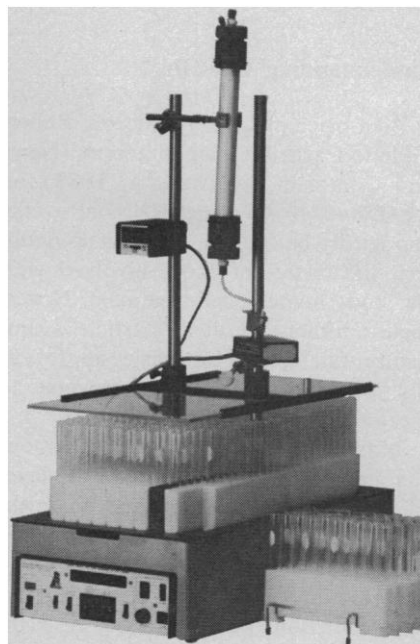
JOHN W. DUFFIELD

*Department of Forestry,
School of Forest Resources,
North Carolina State University.
Raleigh 27607*

Newsgathering

We take strong exception to the tone and much of the substance of the report on the National Cancer Act by Barbara J. Culliton (News and Comment, 28 Apr., p. 386). This is but the latest of a series of articles which attribute attitudes, opinions, and even direct quotations to informants who remain

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mercifully anonymous and therefore beyond evaluation and scrutiny. This irresponsible approach to newsgathering is bad enough when it focuses on public issues and policies. It is inexcusable when it deals with the reputation and personal characteristics of individuals.

In particular, we protest the cavalier treatment accorded to Carl Baker [retiring director of the National Cancer Institute] and the less extensive but equally undocumented tidbits about other protagonists of the current cancer effort. We urge the editor to adhere in *Science's* news section to the criteria of scientific accuracy and documentation that are required in the remainder of its pages and to leave the gossip columns to those organs which devote their undivided attention to yellow journalism.

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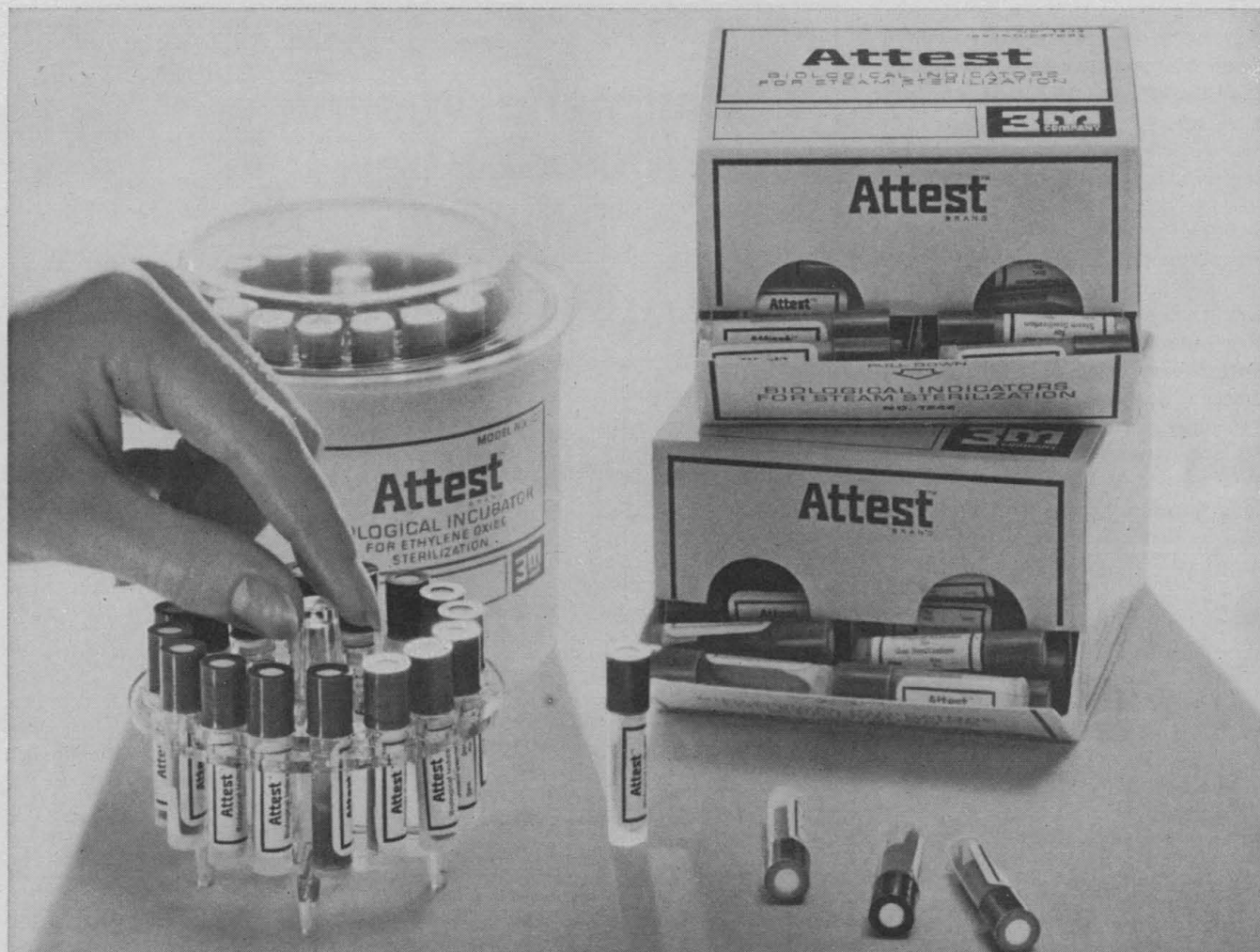


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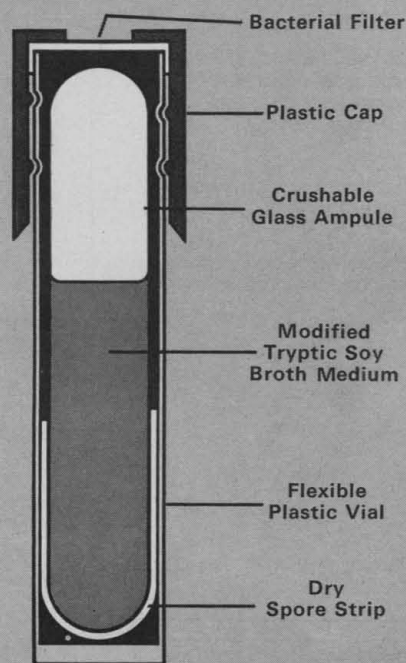
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The Flavor of SALT

Great will and determination at the highest political levels were essential to permit the U.S.-Soviet strategic arms agreement to be signed. The protests of nuclear numerologists had to be overcome, since requiring perfect symmetry when none is possible would have been sufficient to bring the negotiations to a permanent stalemate. There is no calculus that can manipulate simple counts of missiles, nuclear warheads, and total megatonnage to obtain precise equivalence when the United States and the Soviet Union differ as they do in geography and in design approaches to their weapons systems.

The SALT (strategic arms limitation talks) agreement is a substantial and necessary advance toward arms stabilization, even though it does not, by itself, achieve this goal. It will control two of the most virulent contributors to the U.S.-Soviet arms race by limiting antiballistic missiles (ABM's) to a militarily insignificant level and by limiting the seemingly endless buildup of Soviet strategic missiles.

The agreement has other significant ramifications. By limiting missile defense, we now have official recognition that deterrence is to be the strategic posture for both sides. By implicitly recognizing the United States and the Soviet Union to be nuclear peers, hopefully both sides can forego the presumed political benefits stemming from appearances of superiority. By banning deliberate concealment measures that might interfere with "national means" of verification, the agreement legitimizes the U.S. requirement of keeping track of Soviet strategic arms activity.

On the other hand, the United States and the Soviet Union can still race to produce weapons not limited by the agreement—for example, long-range bombers. Both can also devote tremendous resources to modernizing and replacing those strategic forces whose numbers are limited by the agreement. It will take at least one more round of successful negotiations before we can stabilize the nuclear equation.

From an early stage in the negotiations, it was known that the agreement would not include control of multiple independently targeted reentry vehicles (MIRV's). It was a bitter disappointment to many that the political and technical complexities involved in controlling MIRV's were not surmounted. Now it will be difficult to put the MIRV genie back into the bottle.

However, if restraint and caution are exercised on both sides, ironically, MIRV's could facilitate arms reduction. With MIRV's each side can meet its security requirements with substantially smaller forces than it now has. For example, a small submarine force equipped with MIRV's is sufficient to devastate an opponent and overwhelm any conceivable defense system (20 submarines can launch more than 3000 nuclear warheads, each several times the size of the Hiroshima bomb). Also, such a submarine force could be kept invulnerable, particularly if both sides can agree to avoid measures that might be judged threatening to the other's strategic submarine forces. Furthermore, with the passage of time, improvements in accuracy will make land-based missiles appear to be increasingly vulnerable, and their foreseeable obsolescence should make their reduction easier to accept.

But if fear, suspicion, and propensity for arms buildup do not subside on both sides, SALT will have proven to be an exercise in futility. Let us hope that this first step encourages restraint and quickly leads to the agreements now necessary to achieve nuclear stability.—J. P. RUINA, Department of Electrical Engineering, Massachusetts Institute of Technology, Cambridge 02139

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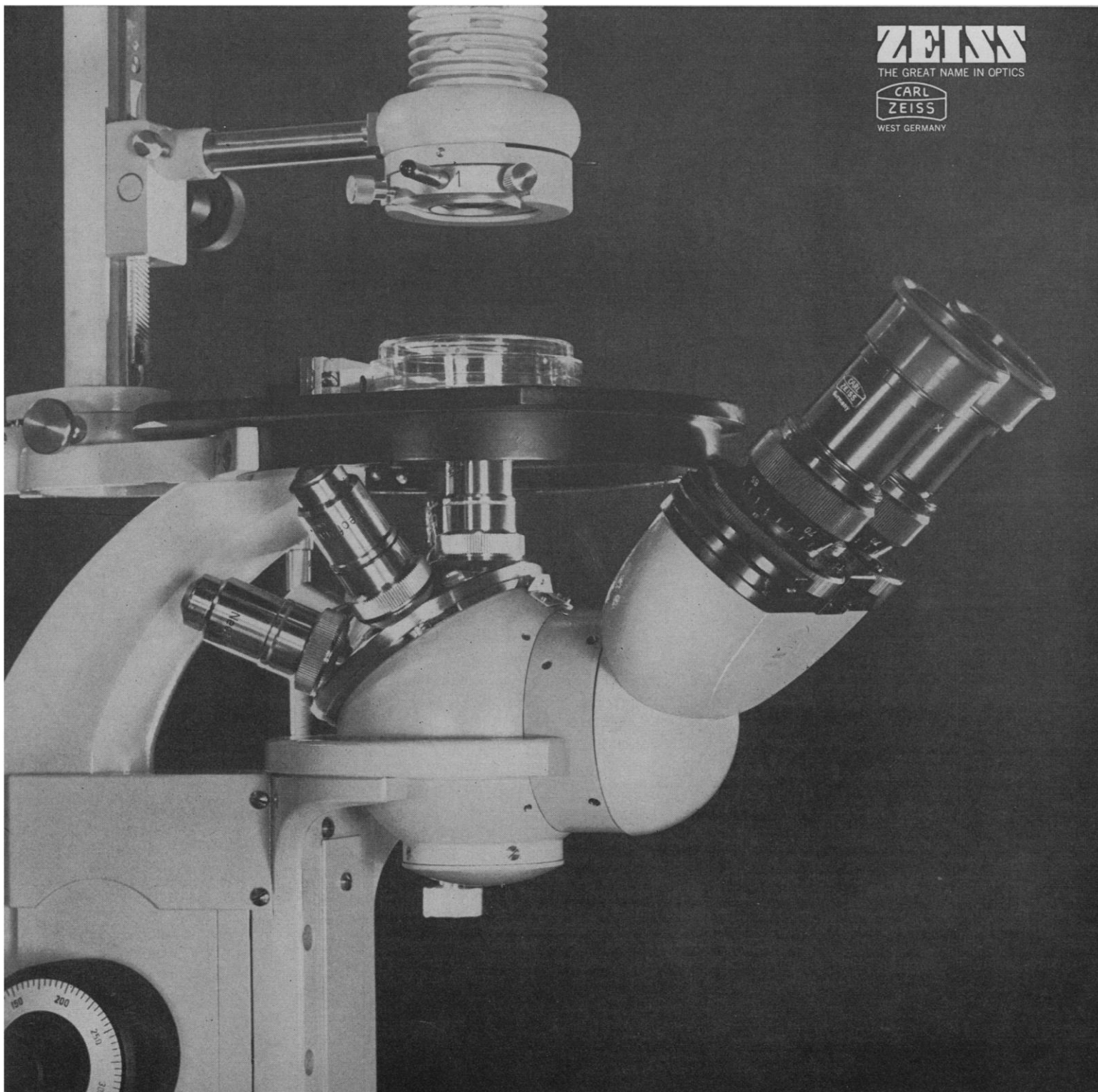
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Grzimek's Animal Life Encyclopedia. English edition. Bernhard Grzimek, Ed. Vol. 10, Mammals I. Walter Fiedler, Wolfgang Gewalt, Bernhard Grzimek, Dietrich Heinemann, Konrad Herter, and Erich Thenius, Eds. Van Nostrand Reinhold, New York, 1972. 628 pp., illus. \$29.95. The set (13 volumes), \$325.

Handbook of Construction Management. Laurence E. Reiner. Prentice-Hall, Englewood Cliffs, N.J., 1972. x, 340 pp., illus. \$15.99.

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Hemodilution. Theoretical Basis and Clinical Application. A symposium, Rotach-Egern, Germany, Oct. 1971. K. Messmer and H. Schmid-Schönbein, Eds. Karger, Basel, 1972 (U.S. distributor, Phiebig, White Plains, N.Y.). xii, 322 pp., illus. \$19.60.

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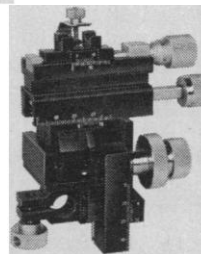
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Introduction to Statistical Pattern Recognition. Keinosuke Fukunaga. Academic Press, New York, 1972. xiv, 372 pp., illus. \$18.50. Electrical Science.

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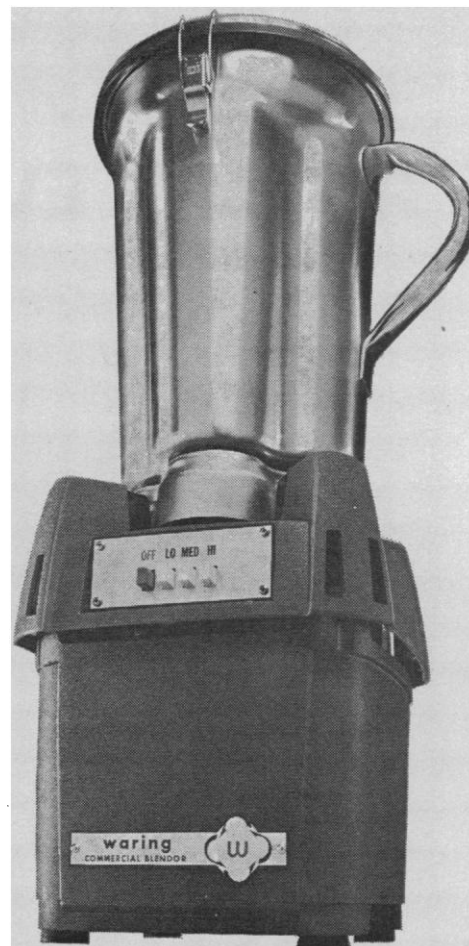
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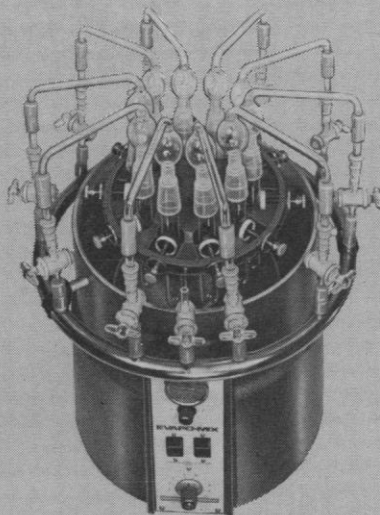
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HUMAN ECOLOGY AND SUSCEPTIBILITY TO THE CHEMICAL ENVIRONMENT (4th Ptg.) by Theron G. Randolph, *The Swedish Covenant Hospital, Chicago.* '72, 160 pp., 1 il., \$7.50

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HUMAN STERILIZATION: A Conference Sponsored by International Institute for the Study of Human Reproduction, College of Physicians and Surgeons of Columbia University, and Center for Population Research, National Institute of Child Health and Human Development edited by Ralph M. Richart and Denis J. Prager. Forewords by Philip A. Corfman and Raymond L. Vande Wiele. (33 Contributors) '72, about 440 pp., 140 il., 55 tables

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Press, Cranbury, N.J., 1972. 120 pp. + plates. \$8.

Man in the Living Environment. A workshop, Madison, June 1971. Published for the Institute of Ecology by the University of Wisconsin Press, Madison, 1972. xxiv, 288 pp., illus. Cloth, \$12.50; paper, \$2.50.

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Mathematical Model Techniques for Learning Theories. Gustav Levine and C. J. Burke. Academic Press, New York, 1972. xii, 288 pp. \$12.50.

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Optimum Packing and Depletion. The Computer in Space- and Resource-Usage Problems. A. R. Brown. Macdonald, London.

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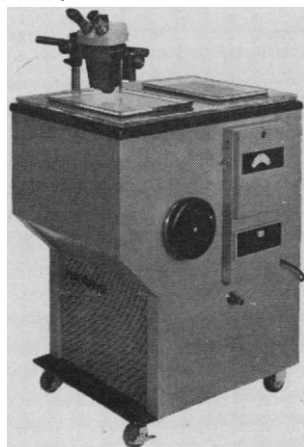
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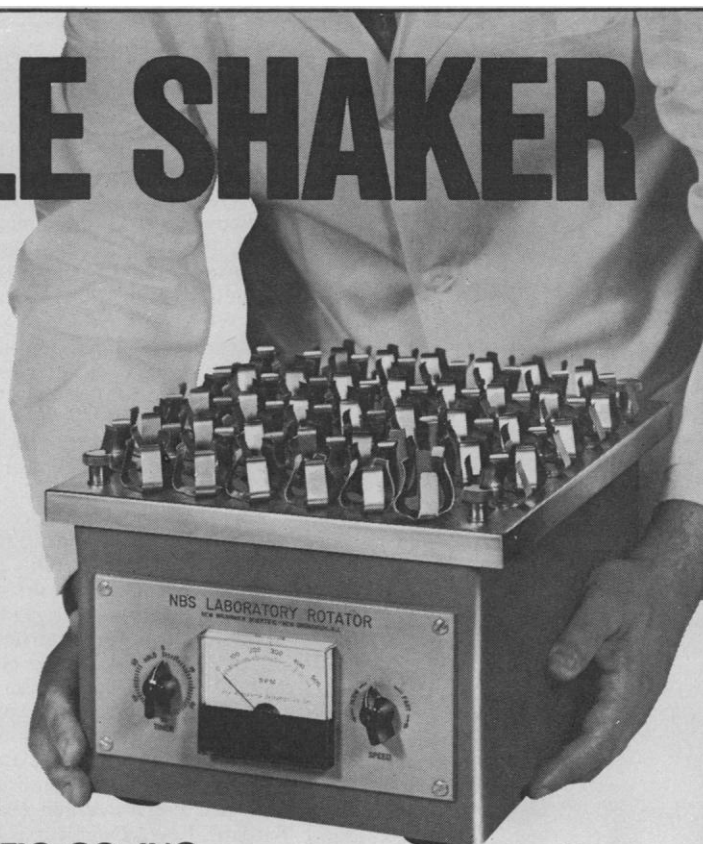
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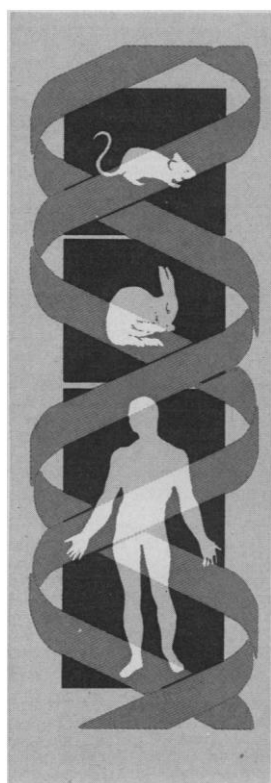


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