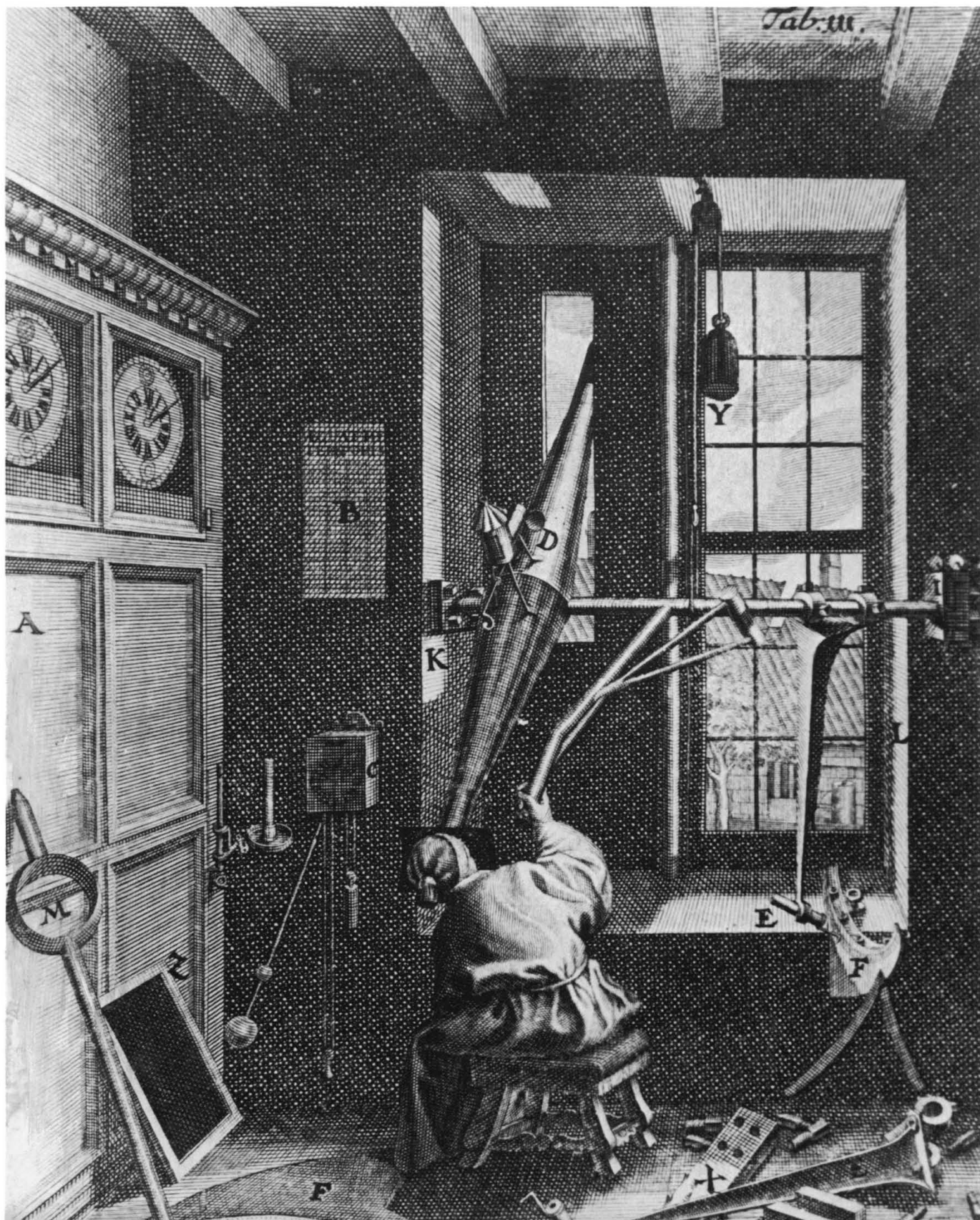


# SCIENCE

18 June 1976

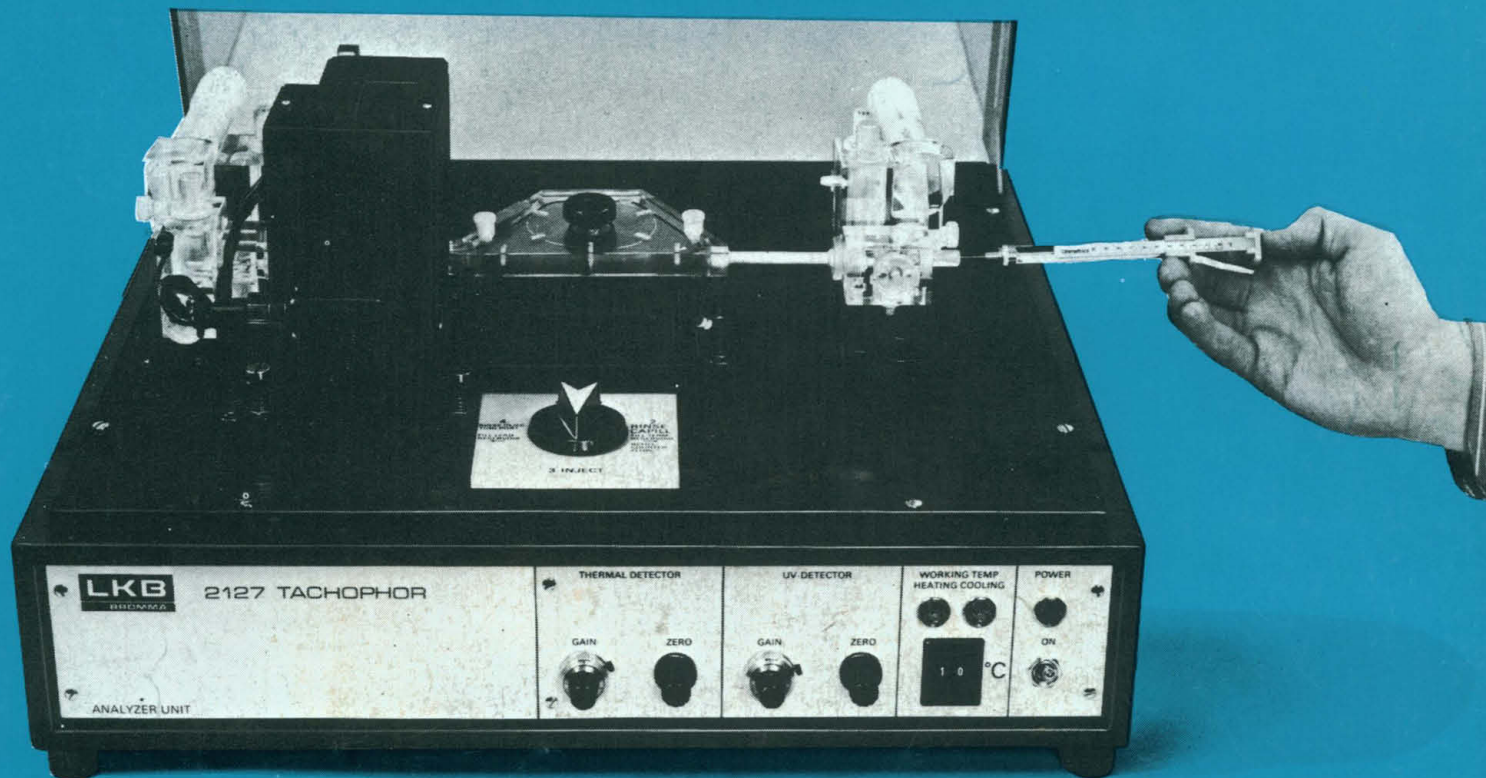
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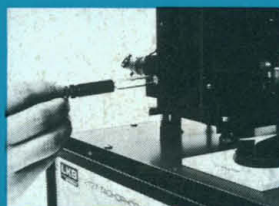
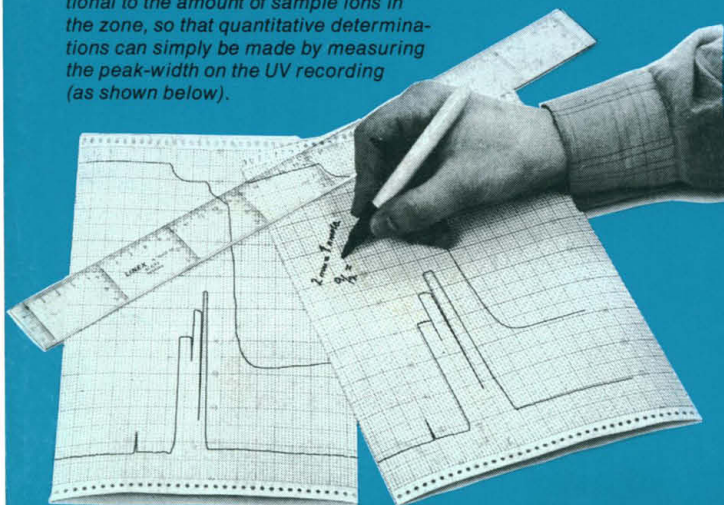
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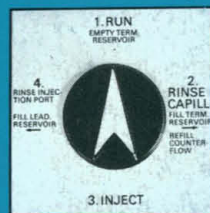
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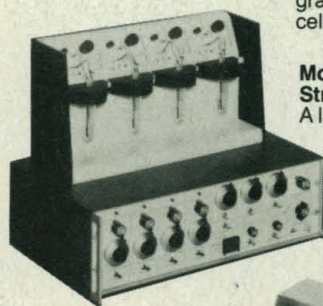
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# SCIENCE

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## COVER

Danish astronomer Olaus Römer sweeps the sky with a meridian telescope in 1689, in the middle of a 70-year span of anomalous solar behavior. See page 1189. [From Peder Horrebow, *Basis Astronomiae*, 1735; permission of the Houghton Library, Harvard University, Cambridge, Massachusetts]

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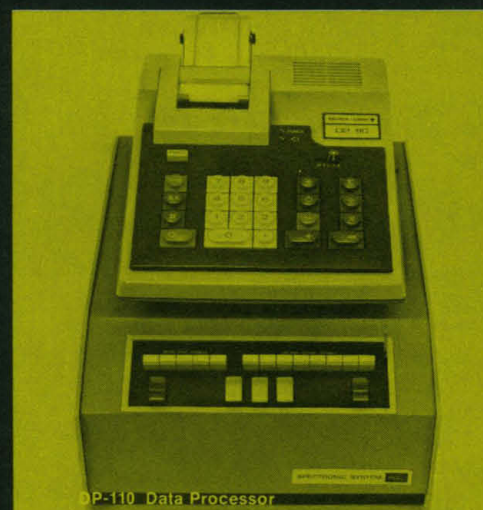
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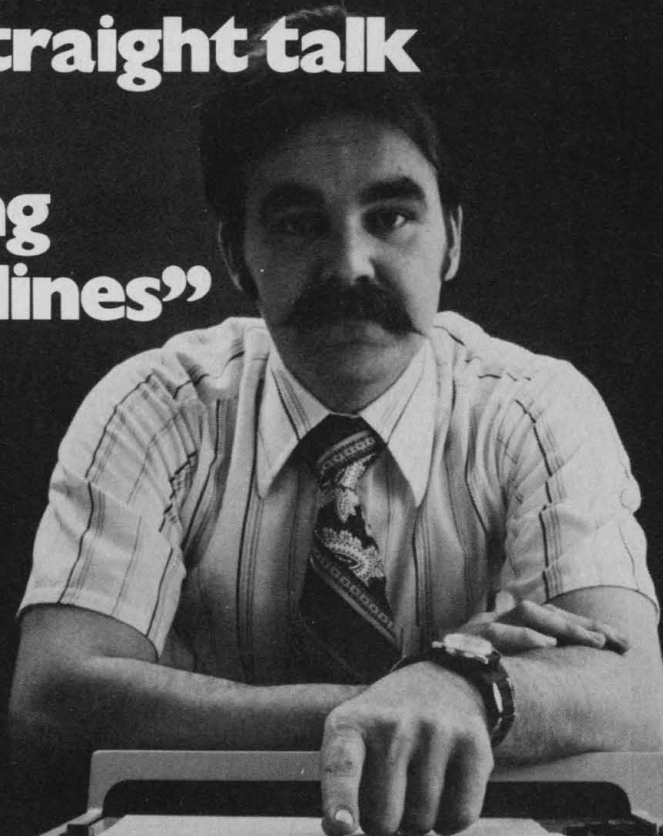
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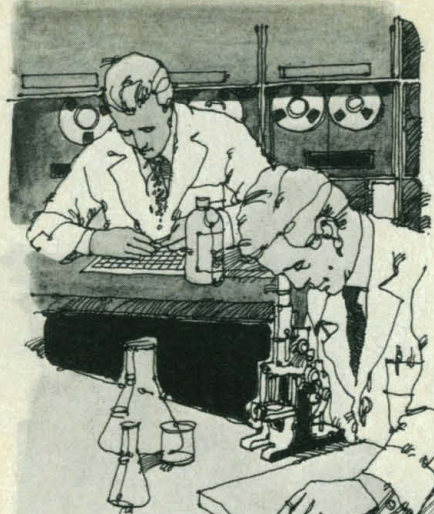
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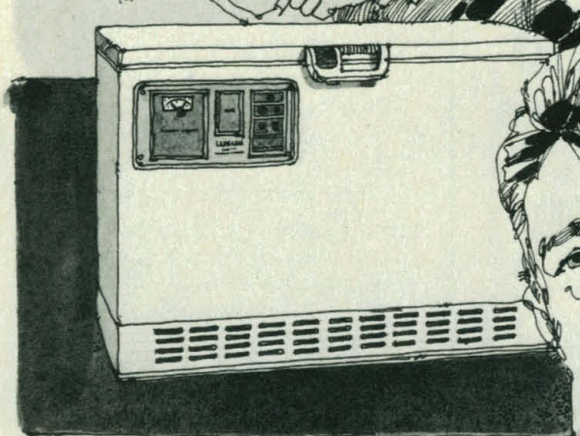
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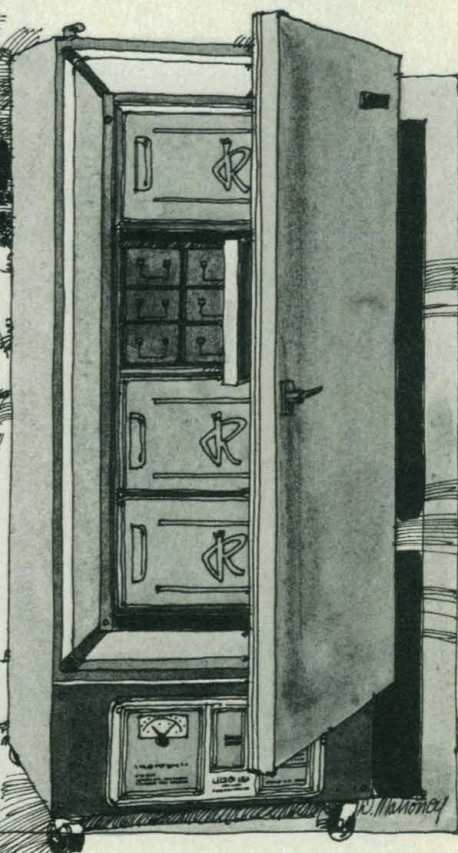
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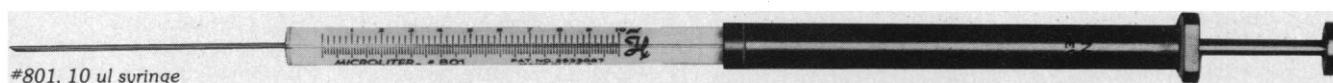
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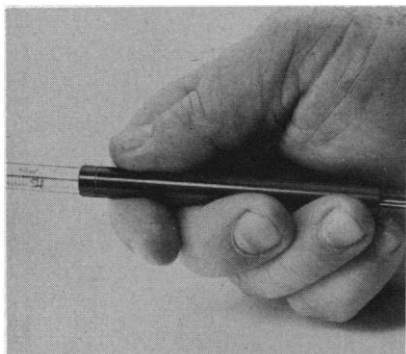
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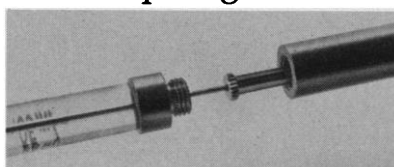


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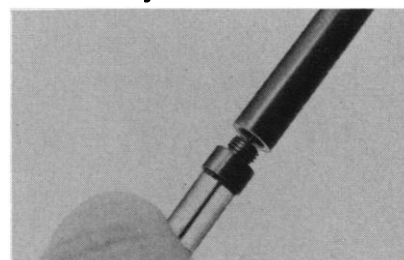
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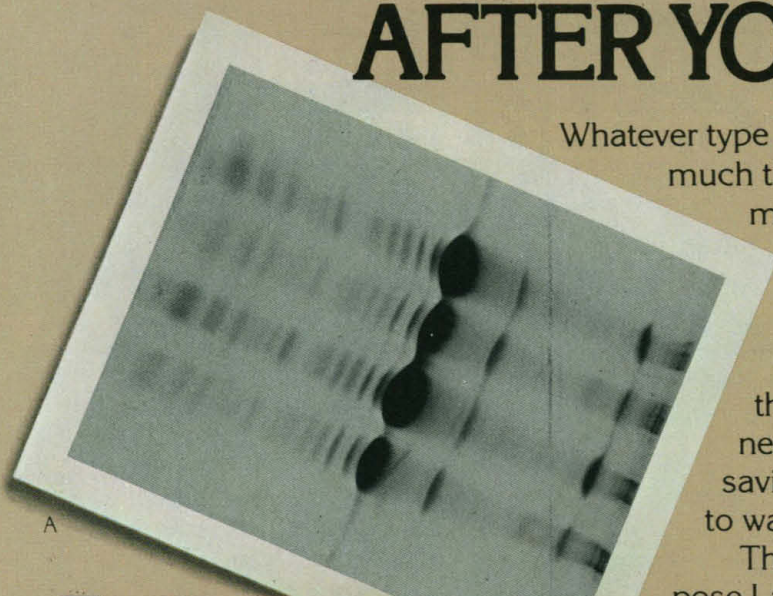
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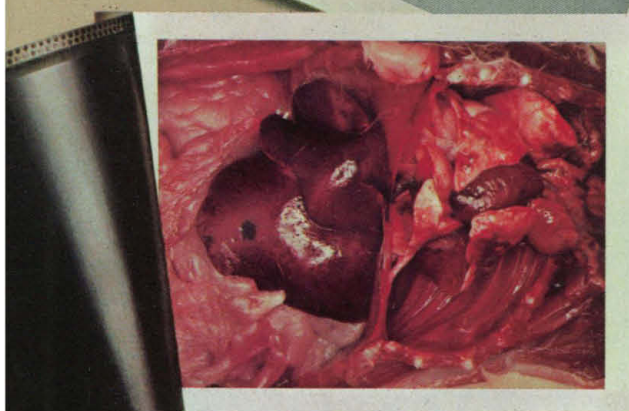
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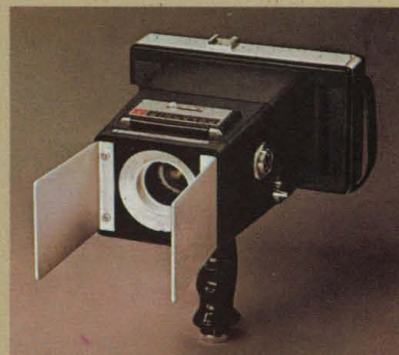


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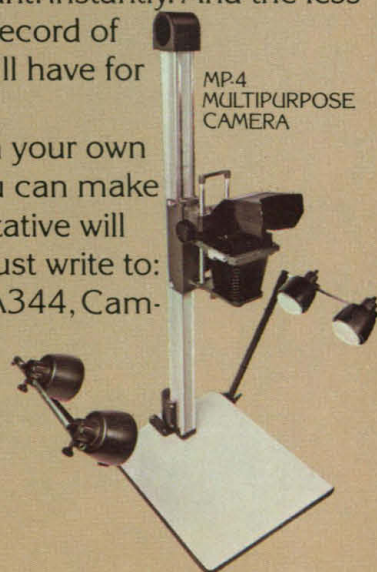


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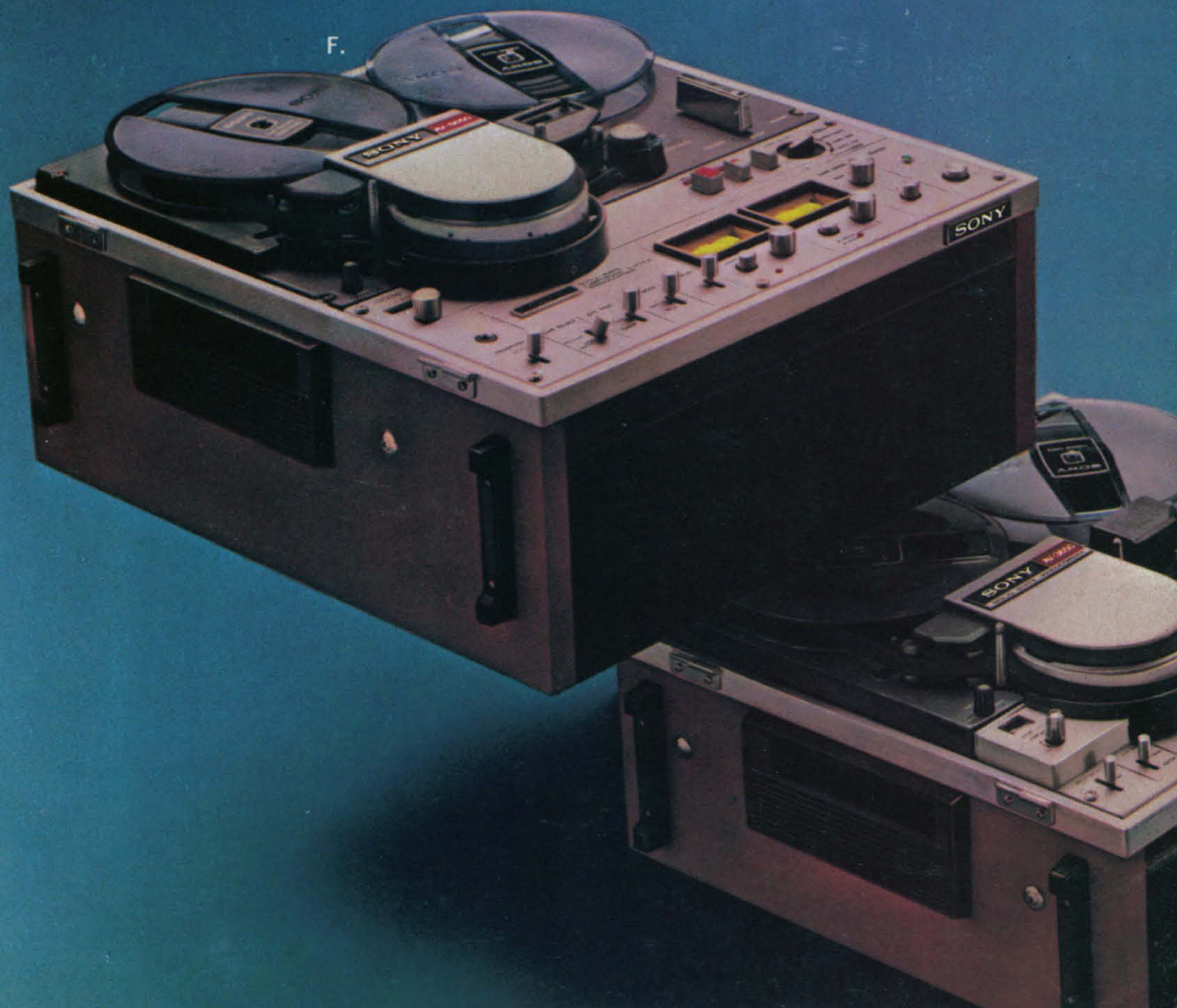
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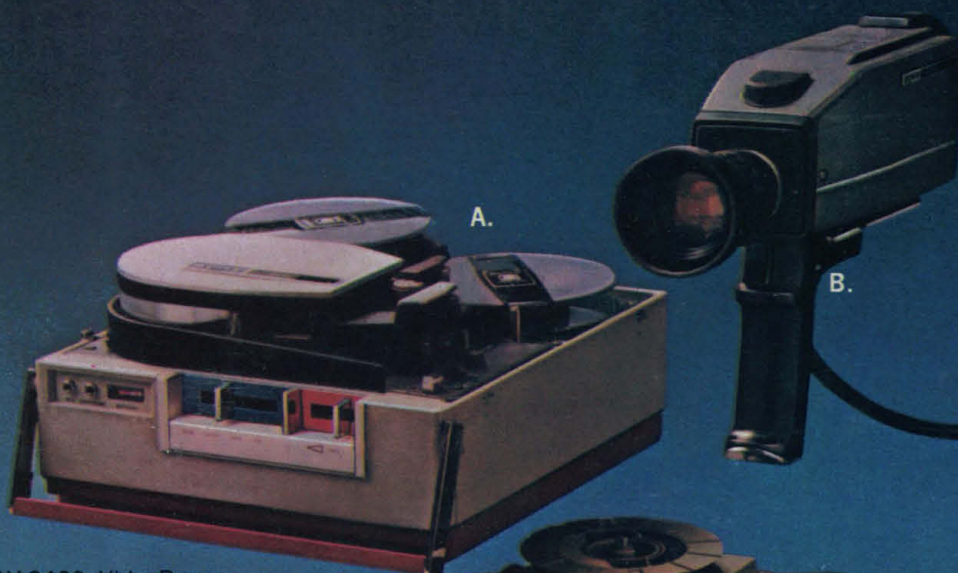
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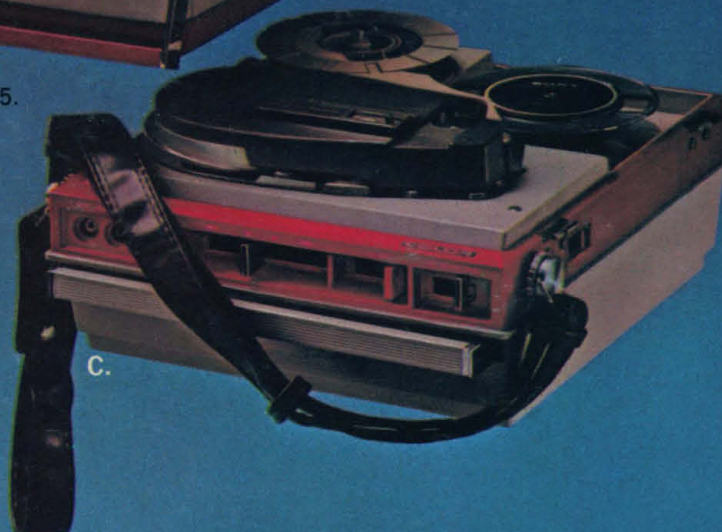




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## LETTERS

### Hayflick's Tragedy

I read Nicholas Wade's article "Hayflick's tragedy: The rise and fall of a human cell line" (News and Comment, 9 April, p. 125) with great astonishment. The "fall" of this particular cell line was predictable, simply because of Hayflick's most important discovery in aging research—that cell cultures, which preserve all the specificity of normal human cells, age and die. Hayflick's tragedy is not related to the fact that he did not preserve unlimited supplies of early passages; 15 years ago, when *in vitro* aging was discovered in this cell culture, nobody could predict how many ampules might be needed in the future. One strain would probably be finished sooner or later, but other, similar strains could be developed and are indeed already available. It was the discovery, not the particular cells, which was important. Nor is the tragedy in the fact that some samples happen to be unsterile (one might expect this, when storage is made after several passages), when the question is really about pioneering work. Nor is the tragedy in the commercial side of the problem, or in the dispute about the ownership of samples; they actually belong to science, like the double helix of DNA or the genetic code. Few people are more interested in the practical use of new methods and better qualified in the use of the samples than Hayflick himself.

The tragedy, as I see it, lies in the surprisingly tendentious approach of *Science* and some other publications about this case. Wade's article describes the conflict between National Institutes of Health accountant James W. Schriver and a prominent scientist concerning research work. Much more publicity is given to the accountant's point of view than to the scientist's, and the scientist himself is not given a real chance to explain his own version of the events. It is a tragedy that an outstanding scientist can be forced to resign his professorship at a university without discussion of his case by his colleagues. Wade's picture of the events, like other press accounts of this conflict, tries to raise doubts about Hayflick's moral and ethical behavior. I think it relevant for me to acknowledge that, during my long struggle for human rights and scientific freedom in the Soviet Union, I was supported and helped by many colleagues and friends abroad. This help saved my freedom and probably my life, first when I was forcibly put into a mental hospital in 1970 and later when I was arrested in 1972 in Kiev



during the 9th International Gerontological Congress. But nobody helped me more than Leonard Hayflick, whom I had known through correspondence since 1963 and first met in Moscow in 1966. When I was dismissed from my position as head of the Laboratory of Molecular Radiobiology in Obninsk in 1969 (after my book about T. D. Lysenko was published in the United States), Hayflick offered me a position as senior scientist in his department at Stanford University. In 1972 I arrived in Kiev to participate in the Gerontological Congress and to give a lecture, as announced in the program of the International Association of Gerontology. I was unexpectedly arrested on the street near the Congress Hall on the opening day. It was Leonard Hayflick who immediately organized a strong lobby group and made an uncompromising demand—either I was to be released immediately and harassment stopped, or most of the Western gerontologists would not participate in the Congress and would leave the Soviet Union the next day. Hayflick's conditions were reluctantly accepted by Soviet officials, who faced him in person at an unprecedented "closed" meeting held in the hotel room of the president of the International Association of Gerontology, N. Shock, when they realized that Hayflick and his group really meant business. It was a unique case of Russian scientific officials making a recorded concession after a serious confrontation. If other foreign scientists were to act similarly on behalf of Soviet or other colleagues who are in trouble, the scientific community would be much better protected against bureaucratic or political intervention.

After the Kiev episode and the official Soviet promise to stop harassment (to enable the Congress to continue), my research was quietly resumed and I was even permitted in 1973 to accept an invitation for a 1-year official visit to the National Institute for Medical Research in Britain. After 6 months in Britain I was unexpectedly deprived of my citizenship, and the Soviet bureaucracy gained revenge for my dissent. When I found myself stateless and jobless in Britain in 1973, Leonard Hayflick was again the first who offered me a helping hand and invited me to take an official position in his laboratory. However, my British colleagues also offered me a position and let me continue my research work uninterrupted. If I had not been able to get a position in Britain, I would certainly have accepted Hayflick's invitation and started aging research with him. And I would certainly have resigned after my

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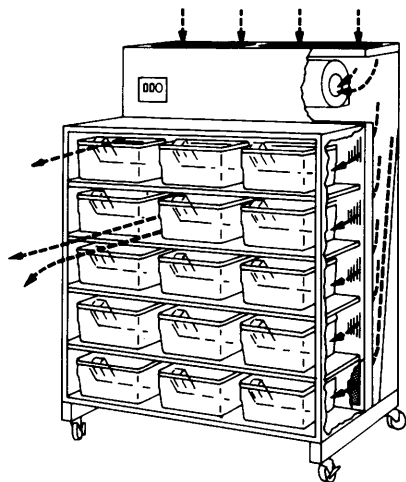


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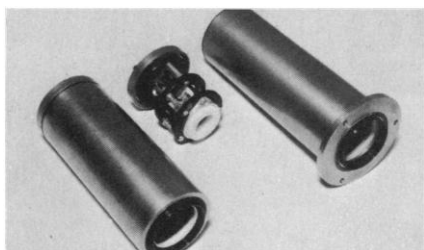
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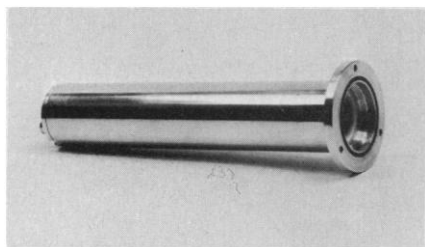


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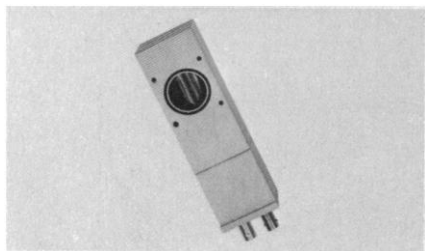
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### References

1. W. F. Hemmens, *Biochim. Biophys. Acta* **68**, 284 (1963); R. Shapiro and C. N. Gordon, *Biochem. Biophys. Res. Commun.* **17**, 160 (1964).
2. Private communications from the Nutritional Biochemicals Company (now ICN Pharmaceuticals, Inc.) and the Schwarz/Mann Division of Becton, Dickinson and Company.

### Health Care: Service or Business?

Philip H. Abelson's editorial "Cost-effective health care" (14 May, p. 619) contains much wisdom. A mysterious facet of human nature is the inability to learn from experience. The greater the separation between "providers" and "utilizers" of a service, the more expensive and less appropriate the service will be. Every intervening step reduces the accountability of the server and the ability of the served to obtain what they want. A major effort should be made to develop a system of adequate medical care for all coupled with an awareness that care does in fact cost money, and that it is, therefore, in the patient's interest to utilize the least expensive service that is satisfactory.

It is clearly cheaper and more efficient to add oil to an automobile's engine than to keep putting in new engines when the old one runs dry. We don't seem to have the same understanding about the human machine. Those of us with responsibility for health care must try to persuade individuals to utilize that which is already known regarding health maintenance. Such an effort would be both cheap and effective.

One matter is not touched on in Abelson's editorial. This is the effect on the medical care system of being transformed into a "business operation." Properly, the goal of medical practice is the provision of a service; the result, due to the gratitude of those served, is the remuneration of the individual providing the service. The introduction of business techniques tends to reverse this situation; the goal becomes the production of a profit. This methodology, in which strikes and boycotts are used as negotiation devices, is antithetical to the essence of medical care, which is a completely voluntary contract between two individuals. The transformation of the medical care system by the methodology of business is leading to the demise of medicine as a healing art.

We have several options regarding health care. We can embalm ourselves in our unrealistic system that treats obesity with pills, employs pills as contraceptives, and flattens ears in the name of psychological support. Or we can realize that how we live largely determines what we become and how we shall die. I wonder if the American people are willing to take the economic and psychological risks of the latter choice.

GEORGE L. SPAETH

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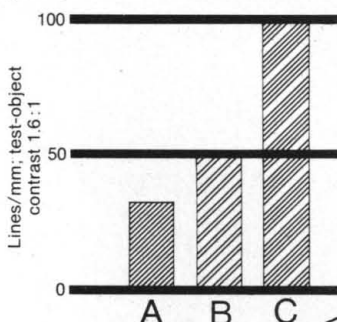
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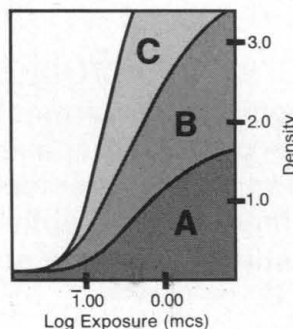
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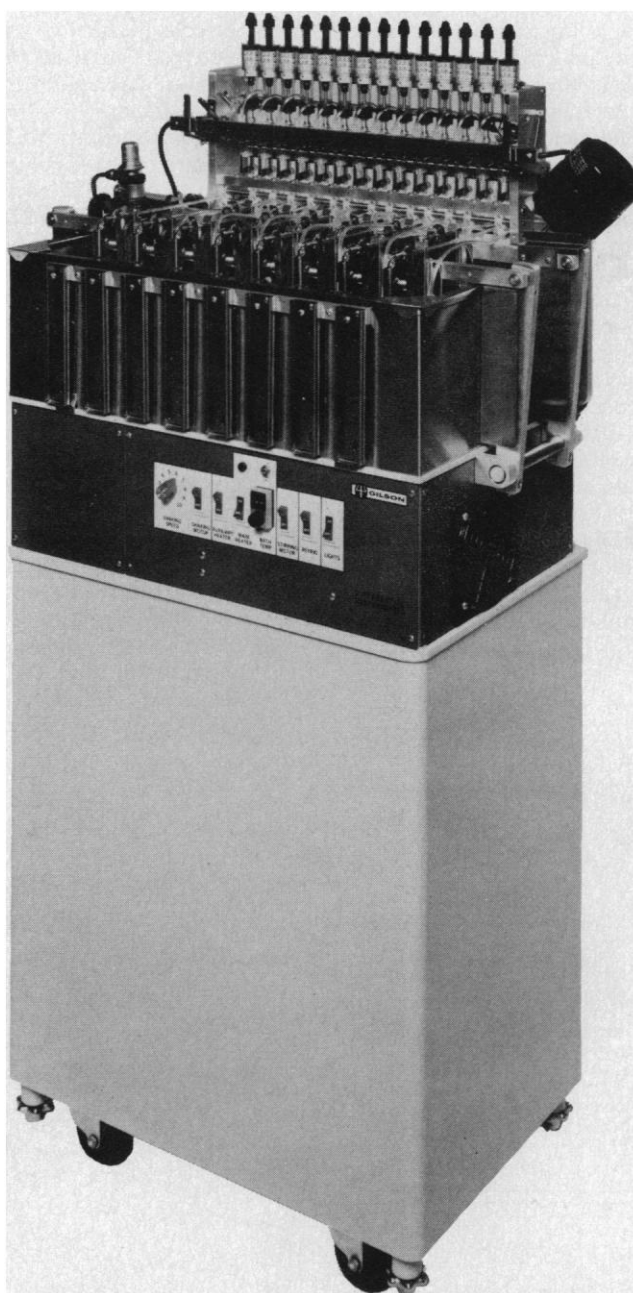


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## Adjusting to Change

These days a college diploma in itself is not very helpful or much in demand. However, the graduate who has worked for and experienced some of the great intellectual growth possible at a university will achieve both future economic benefits and a better life. In the uncertain days ahead, involving changes that can only be dimly perceived, the truly educated person will meet vicissitudes with enhanced poise and equanimity.

Some of the values of higher education cited in a recent article\* were such achievements as the ability to clearly define a problem and know how to go about trying to solve it, and a sense of our cultural and intellectual heritage that makes it possible to view the present and to face the future with a perspective that fosters confidence and maturity of judgment.

Today, two of the most difficult qualities to attain are perspective and good judgment. We are flooded, even overwhelmed, by communication from the mass media. Trying to attain perspective and judgment under this stimulus is like trying to do creative thinking while a dozen people are shouting at you. In the search for perspective and judgment, little of substance can be found in the excitement of the moment. Rather, one should continue practices fostered during undergraduate days and look for more scholarly inspiration.

If one views the passing scene from a standpoint that disregards the excitement of the moment, it is much easier to identify major significant changes. One's clarity of vision is also improved by the knowledge that while circumstances change, many important facets of humans do not. Many if not all of the traits that make humans human have persisted through the ages: the strengths and virtues, the weaknesses and follies. In our own way we are superstitious, are prone to believe in miracles, are willing to be swayed by demagogues, are ready to engage in forms of mob action, including witch-hunts. We are forever trying to eat our cake and have it, and to get something for nothing.

A further aid to identifying the really significant changes, so that one may adjust to them, is to analyze the source of the forces producing them. There is a mysterious chemistry of human interaction that gives rise to unexpected manifestations. These may be short-lived phenomena such as streaking on campus. Or they may be of substantial duration and have large-scale effects at the time—for example, the Crusades around A.D. 1100 and the tulip craze in Holland around 1630. During the past two decades there has been a series of what seemed at the time very important events, such as disorders on campus. With the passage of time, the emotions that create such manifestations fade away, and often little remains.

There are important changes arising out of human interaction that have enduring consequences, and these are changes that merit careful attention. An example from the past is the Industrial Revolution. An example from the present is the continuing scientific-technological revolution. Our recent experience in coping with energy and environmental problems illustrates a need for individuals and for society as a whole to develop better ways of adapting to changes resulting from the scientific-technological revolution. To most people science is a form of magic capable of producing miracles both good and bad. Unable to make judgments about it, they alternate between excessive faith and feeling helpless and acutely uncomfortable.

In the future, applications of science and technology inevitably will have an increasing role in affecting people's lives. One can choose to live in ignorance and hence be subject to blind fear, or one can enjoy through knowledge a more relaxed attitude. One can live in a state of helpless confusion about the changing world or one can perceive more clearly than most the outlook for the future, the better to adjust to it and shape it.

—P. H. ABELSON†

\*J. F. Padgett, *Liberal Education*, vol. 51, pp. 473-477 (December 1975). †This editorial was adapted from a commencement address by P. H. Abelson at Tufts University, Medford, Mass., May 1976.



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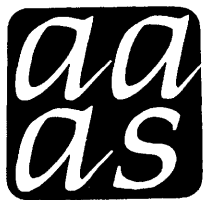
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# Annual Meeting Denver 20-25 February 1977

## Call for Contributed Papers

For the forthcoming AAAS Annual Meeting in Denver (20-25 February 1977), we will depart from recent practice and *once again have contributed-paper sessions*, thanks to the cooperation of the AAAS Southwestern and Rocky Mountain Division (SWARM), which is meeting jointly with us in Denver. These sessions will be of two different types: *slide sessions* and *poster sessions*. In the slide sessions each contributor

will have 15 minutes to present his material and entertain questions about it (a 36 mm, that is, 2×2, slide projector will be available for use). In the poster sessions each contributor will have a bulletin board on which to place text and graphic material for a 3-hour period so that he can discuss his work, at length, with all interested parties. (See *Science*, 28 June 1974, page 1361.)

—ARTHUR HERSCHMAN

### Instructions for Contributors

Type abstracts on ordinary white bond paper (21.5cm×28cm) according to the format shown on the right (the example is reduced to approximately one half of the ordinary linear dimension). Indicate at the top of the page the kind of session it is intended for (*poster* or *slide*) and the letter of the AAAS Section to which its subject matter makes it most appropriate (see the bottom of the contents page of any issue of *Science*). Type the title and author block using the typography indicated in the example and a column width of 12 cm, continue with the abstract and footnote blocks. *Note that your original copy will be our camera-ready copy for reproduction; therefore type as carefully and cleanly as you can and hand letter (where necessary) as carefully as you can.* The total length of the abstract (from the top of the title to the bottom of the footnotes) should not exceed 12 cm.

At the bottom of the page type the name and affiliation of the AAAS member who is contributing the abstract and have this member sign the page. *The contributor need not be an author; however, the privilege of contributing an abstract for one of these sessions is limited to AAAS members (or fellows).*

Send the original together with two copies of your abstract to:

Dr. Max P. Dunford  
Executive Officer, SWARM  
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Las Cruces, NM 88003

NO LATER THAN 15 October 1976. Dr. Dunford will send you further instructions after he receives your abstract.

Abstract submitted for AAAS Annual Meeting in Denver  
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AAAS Section nearest to subject matter \_\_\_\_\_.

Abstract is for poster session.

Indent Five Spaces and Type Title in Upper and Lower Case Letters and Underline. AUTHOR'S NAME (Institution in Parentheses), SECOND AUTHOR (Institution).\*

Skip a space and type abstract. The full width of the column should be twelve (12) centimeters and the total height of the entire submission (from top of title to the bottom of footnotes) should not exceed twelve (12) centimeters. It is important that the typing be clear and of the best quality that your equipment can produce. All special symbols and signs which have to be hand lettered ( $\pi$ ) should be rendered in reproducible black ink and be done clearly and carefully. The entire submission should be of camera-ready quality so that it can be photographed, turned into a plate, and printed. Abstracts will not be reset for possible future publication. At the present time we will definitely print the titles and authors of each abstract, then, if budget permits, we will publish abstracts directly from author copy. Avoid paragraphing in abstract, as this wastes space. However, you may use your allotted space to neatly letter in equations

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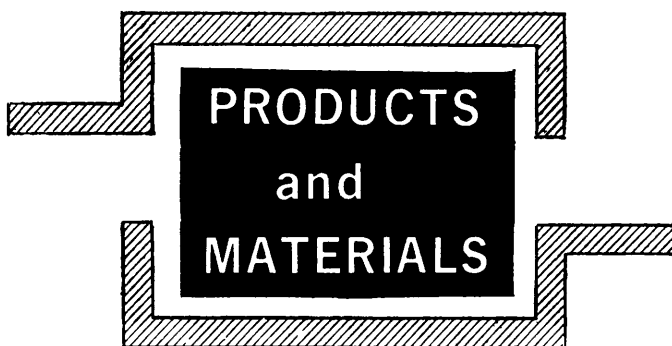
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### Cell Counter

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### Urine Culture System

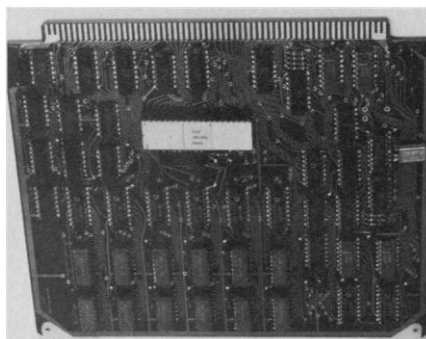
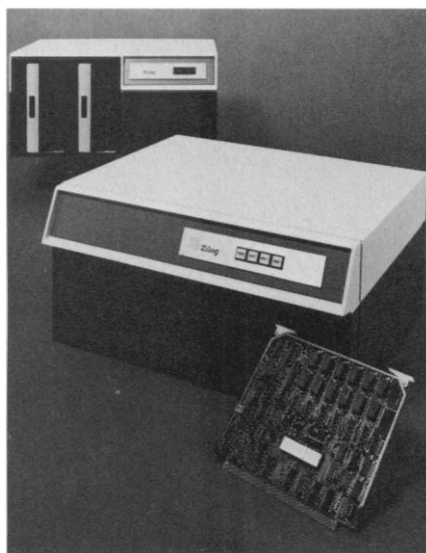
The DIP-N-COUNT system requires the operator to dip a paddle in the specimen, incubate the paddle for 18 to 24 hours, and read the results. A color chart is used to interpret the results. The standard paddle has CLED medium on one side for total colony counts and MacConkey medium on the other side for identification of microorganisms. Paddles are available with other media upon request. Royal Scientific. Circle 725.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 1174A and 1262A) and placing it in the mailbox. Postage is free.

—RICHARD G. SOMMER

### Microcomputer System

The Z-80 product line is a third-generation system with full software support. It offers a single-chip, N-channel processor with a set of 158 instructions. These include up to 16-bit operations. Instructions feature memory-to-input/output and memory-to-memory block transfers and searches, 16-bit arithmetic, nine types of rotates and shifts, bit manipulation, and a variety of addressing modes. A floppy-disk operating system combined with a real-time debugging module is included with input/output parts for high-speed peripherals. Software package includes assembler, editor, disk operating system, file maintenance, and debug. Zilog. Circle 734.



### Carboxylic Acid Analyzer

The model S-603 separates carboxylic acids by ion exchange chromatography and detects them by a specific color reaction. Carboxylic acids are reacted with dicyclohexylcarbodiimide to form an active intermediate, which then reacts with hydroxylamine to form hydroxamic acids and dicyclohexylurea. The hydroxamic acids then react with ferric ion to form chelates which produce characteristic colors. Kikkoman International. Circle 724.

### Portable Infusion System

This system allows continuous dosage without restricting the patient's movements. Flow rates as low as 0.16 milliliter per hour (4 milliliters per day) are possible. The rechargeable power supply lasts up to 7 days. The 50-milliliter medication bags and tubing sets are sterile and disposable. The pump is a miniature peristaltic device and there is a plug-in meter to calibrate the rate of flow. Cor-med. Circle 726.

### Survey of Serum Protein Concentrations

A survey for normal ranges of 12 serum proteins is now available. The data were accumulated from 23 major community hospitals and medical centers located in the United States and Canada. Data from 1720 healthy blood donors from age 18 to 55 are included. The ranges are broken down in tables by race, sex, and geographic region. Meloy Laboratories. Circle 727.

### Literature

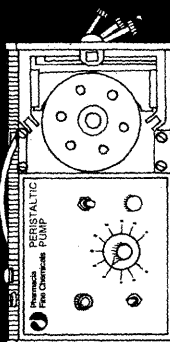
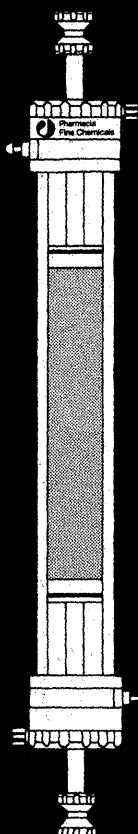
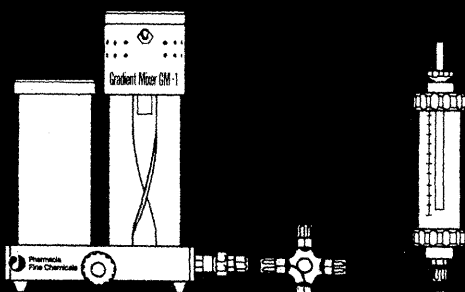
*Cages* lists a line of enclosures for all types of laboratory animals. Unifab. Circle 729.

*NIH/Tungsten Syringe Shield* is the subject of a data sheet. Atomic Products. Circle 730.

*Learning about Liquid Chromatography* is a brochure about a school on the practical applications of this separatory technique. Waters. Circle 731.

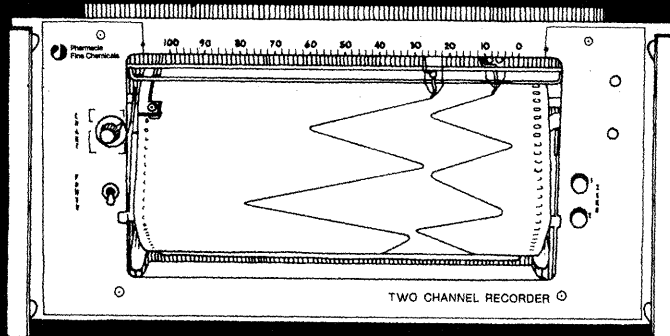
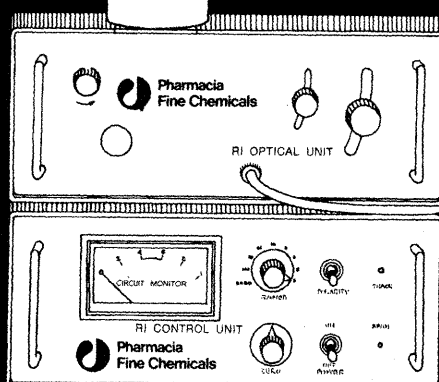
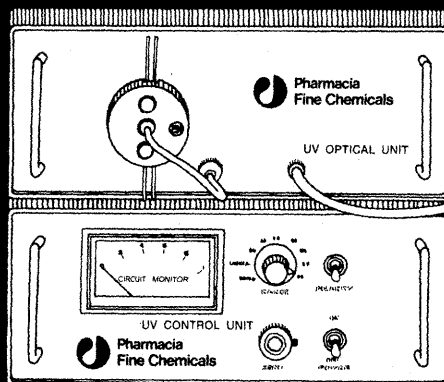
*35-Gigahertz Electron Paramagnetic Resonance Systems* are described in a four-page brochure devoted to the E-line Century Series. Varian Instrument Division. Circle 718.

*Analtechniques* compares conventional and hard-layer thin-layer chromatographic plates in urine analysis for drugs. Analtech. Circle 719.



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## BOOKS RECEIVED

(Continued from page 1228)

sundheit. Papers from a meeting, Lausanne, Nov. 1974. C. Müller, Ed. Karger, Basel, 1975. vi, 116 pp., illus. Paper, \$22.75. Reprinted from *Psychiatria Clinica*, vol. 7, No. 4-5.

**The Economic Superpowers and the Environment.** The United States, the Soviet Union, and Japan. Donald R. Kelley, Kenneth R. Stunkel, and Richard R. Wescott. Freeman, San Francisco, 1976. x, 336 pp. Cloth, \$11.95; paper, \$5.95.

**Ego Development.** Jane Loevinger with the assistance of Augusto Blasi. Jossey-Bass, San Francisco, 1976. xxii, 504 pp. \$17.50. The Jossey-Bass Behavioral Science Series.

**Electrical Measurement Systems for Biological and Physical Scientists.** Leonard J. Weber and Donald L. McLean. Addison-Wesley, Reading, Mass., 1975. xiv, 400 pp., illus. \$14.95. Addison-Wesley Series in Life Sciences.

**Electronic Biology and Cancer.** A New Theory of Cancer. Albert Szent-Györgyi. Dekker, New York, 1976. x, 112 pp., illus. \$13.50.

**Electronics for Scientists and Engineers.** R. Ralph Benedict. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1976. xviii, 606 pp., illus. \$16.95.

**Encyclopedia of Electrochemistry of the Elements.** Vol. 5. Allen J. Bard, Ed. Dekker, New York, 1976. xii, 408 pp., illus. \$69.50.

**Encyclopedia of Explosives and Related Items.** Vol. 7. H<sub>2</sub> to Lysol. Basil T. Fedoroff and Oliver E. Sheffield assisted by Seymour M. Kaye. Picatinny Arsenal, Dover, N.J., 1975 (available as ADA#019502 from the National Technical Information Service, Springfield, Va.). Various pages. \$37.50.

**Energy and Environment.** A Primer for Scientists and Engineers. Edward H. Thorndike. Addison-Wesley, Reading, Mass., 1976. xvi, 286 pp., illus. Paper, \$8.95.

**Energy Storage, Compression, and Switching.** Proceedings of a conference, Asti-Torino, Italy, Nov. 1974. W. H. Bostick, V. Nardi, and O. S. F. Zucker, Eds. Plenum, New York, 1976. xiv, 538 pp., illus. \$35.

**Environment of Life.** Kenneth E. Maxwell. Dickenson, Encino, Calif., ed. 2, 1976. xviii, 490 pp., illus. \$12.95.

**Environmental Planning.** Perception and Behavior. Thomas F. Saarinen. Houghton Mifflin, Boston, 1976. xiv, 262 pp., illus. Paper, \$6.50.

**Erythropoiesis.** Proceedings of a conference, Tokyo, 1974. Kiku Nakao, James W. Fisher, and Fumimaro Takaku, Eds. University Park Press, Baltimore, 1975. x, 516 pp., illus. \$39.50.

**Evaluation of Psychological Therapies.** Psychotherapies, Behavior Therapies, Drug Therapies, and Their Interactions. Proceedings of a meeting. Robert L. Spitzer and Donald F. Klein, Eds. Johns Hopkins University Press, Baltimore, 1976. xiv, 314 pp., illus. \$17.

**Evolution, Development, and Children's Learning.** Harold D. Fishbein. Goodyear Publishing Co., Pacific Palisades, Calif., 1976. xx, 332 pp., illus. \$8.95. Goodyear Developmental Psychology Series.

**Evolution of Desert Biota.** Proceedings of a symposium, Boulder, Colo., Aug. 1973. David W. Goodall, Ed. University of Texas Press, Austin, 1976. vi, 250 pp., illus. \$12.95.

**Experimental Methods in Organic Chemistry.** James A. Moore and David L. Dalrymple. Saunders, Philadelphia, ed. 2, 1976. viii, 334 pp., illus. \$10.95. Instructor's Manu-

al. 84 pp. Saunders Golden Sunburst Series.

**Experimental Myopathies and Muscular Dystrophy.** Studies in the Formal Pathogenesis of the Myopathy of 2,4-Dichlorophenoxyacetate. Rainer Heene. Springer-Verlag, New York, 1975. vi, 100 pp., illus. \$19.70. Neurology Series, 16.

**Experimenting with Organizational Life.** The Action Research Approach. Alfred W. Clark, Ed. Plenum, New York, 1976. x, 260 pp. \$25.

**A Field Guide to the Butterflies of the West Indies.** Norman D. Riley. Quadrangle (New York Times), New York, 1976. 224 pp. + plates. \$12.50. Quadrangle Field Guide Series. A Demeter Press Book.

**A Field Guide to the Nests, Eggs and Nestlings of British and European Birds.** Colin Harrison. Quadrangle (New York Times), New York, 1976. 432 pp., illus. \$12.50. A Demeter Press Book. Quadrangle Field Guide Series.

**Figuring Anthropology.** First Principles of Probability and Statistics. David Hurst Thomas. Holt, Rinehart and Winston, New York, 1976. xii, 532 pp., illus. \$13.50.

**Food Technology in the 1980s.** Papers from a symposium, May 1974. The Royal Society, London, 1975. 198 pp., illus. £4.65. Reprinted from *Proceedings of the Royal Society of London*, series B, vol. 191, No. 1102.

**Forecasts, Famines and Freezes.** Climate and Man's Future. John Gribbin. Walker, New York, 1976. x, 132 pp., illus. \$8.95.

**Formerly British Honduras.** A Profile of the New Nation of Belize. William David Setzekorn. Dumbarton Press, Newark, Calif., 1976. x, 292 pp. Cloth, \$7.95; paper, \$3.95.

**The Fourth Kingdom.** William J. Sauber. Aquari, Midland, Mich., 1975. viii, 118 pp. \$6.95.

**From Single Cells to Plants.** E. Thomas and M. R. Davey. Wykeham, London, and Springer-Verlag, New York, 1975. xvi, 172 pp., illus. Paper, \$7.20. The Wykeham Science Series.

**Function and Evolution in Behaviour.** Essays in Honour of Professor Niko Tinbergen, F.R.S. Gerard Baerends, Colin Beer, and Aubrey Manning, Eds. Clarendon (Oxford University Press), New York, 1976. xxxii, 394 pp., illus. \$41.

**Gaussian Processes, Function Theory, and the Inverse Spectral Problem.** H. Dym and H. P. McKean. Academic Press, New York, 1976. xii, 336 pp. \$35. Probability and Mathematical Statistics, vol. 31.

**Genetics and the Law.** Proceedings of a symposium, Boston, May 1975. Aubrey Milunsky and George J. Annas, Eds. Plenum, New York, 1976. xii, 532 pp. \$22.50.

**Genetics, Evolution, and Man.** W. F. Bodmer and L. L. Cavalli-Sforza. Freeman, San Francisco, 1976. xviii, 782 pp., illus. \$14.95.

**Glossary of Astronomy and Astrophysics.** Jeanne Hopkins. University of Chicago Press, Chicago, 1976. viii, 170 pp. \$10.95.

**The Golgi Apparatus.** W. G. Whaley. Springer-Verlag, New York, 1975. xii, 190 pp., illus. \$38.30. Cell Biology Monographs, vol. 2.

**The Great Lakes Transportation System.** Eric Schenker, Harold M. Mayer, and Harry C. Brockel. University of Wisconsin Sea Grant College Program, Madison, 1976. xviii, 292 pp., illus. Paper, \$3.50. Technical Report No. 230.

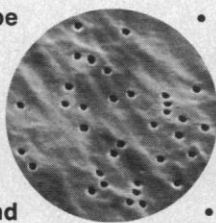
**Handbook of Electronic Testing, Measurement and Troubleshooting.** Matthew Mandl. Reston (Prentice-Hall), Reston, Va., 1976. xii, 288 pp., illus. \$16.95.

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**Handbook of Facial Growth.** Donald H. Enlow with contributions by Robert E. Moyers and William W. Merow. Illustrations by William Roger Poston, II. Saunders, Philadelphia, 1975. xiv, 424 pp., illus. \$17.50.

**Histopathology of the Endometrium.** G. Dalenbach-Hellweg. Translated from the German second edition (Berlin, 1975) by F. D. Dalenbach. Springer-Verlag, New York, 1975. xii, 328 pp., illus. \$53.40.

**Hospital Planning Handbook.** Rex Whitaker Allen and Ilona von Károlyi. Wiley-Interscience, New York, 1976. xiv, 242 pp., illus. \$16.

**Human Systems in Extreme Environments. A Sociological Perspective.** Dennis S. Mileti, Thomas E. Drabek, and J. Eugene Haas. Uni-

versity of Colorado Institute of Behavioral Science, Boulder, 1975. viii, 166 pp. Paper, \$5. Program on Technology, Environment and Man Monograph No. 21.

**Hunger.** Basic Mechanisms and Clinical Implications. Papers from a meeting, Los Angeles, Jan. 1975. Donald Novin, Wanda Wywicki, and George A. Bray, Eds. Raven, New York, 1976. xvi, 494 pp., illus. \$34.

**The Hydrolysis of Cations.** Charles F. Baes, Jr., and Robert E. Mesmer. Wiley-Interscience, New York, 1976. xxii, 490 pp., illus. \$29.95.

**IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man.** Vol. 9, Some Aziridine, *N*-, *S*- and *O*-mustards and Selenium. International Agency for Research

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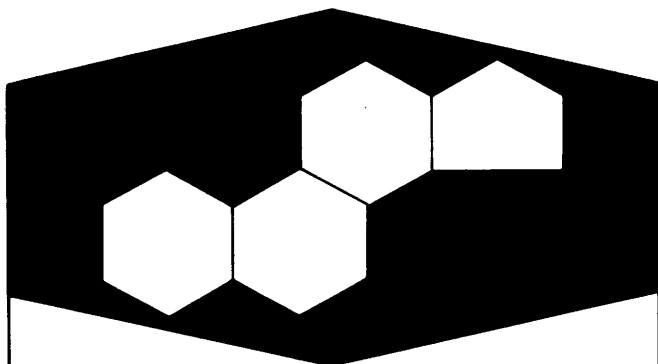
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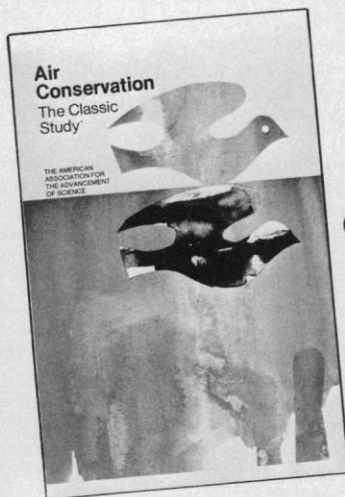


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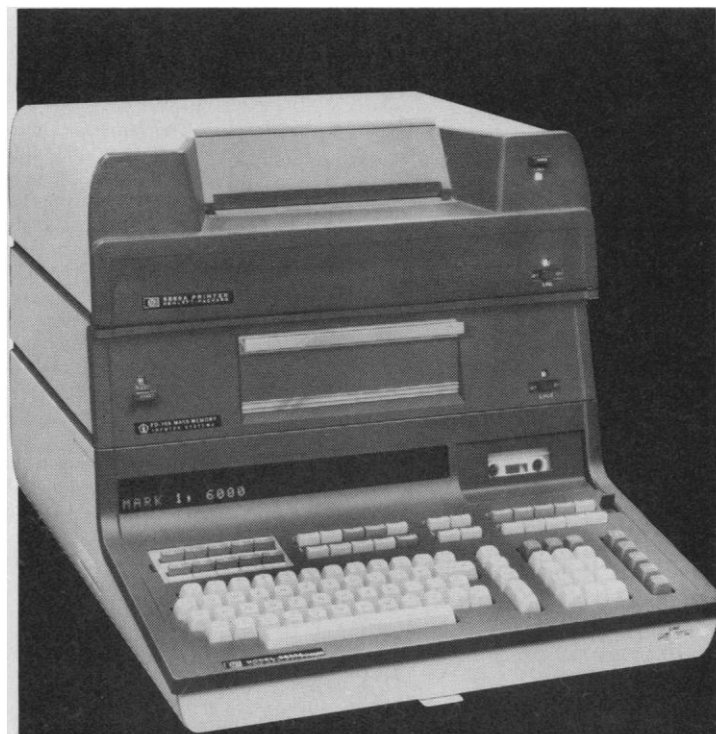
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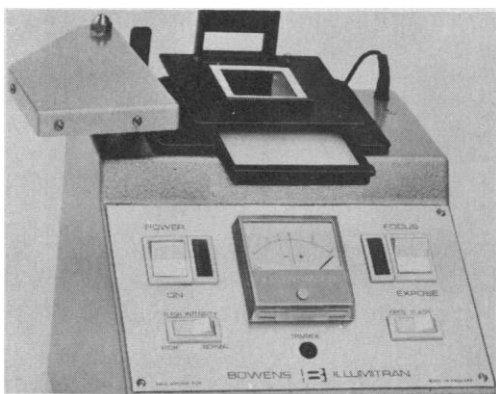
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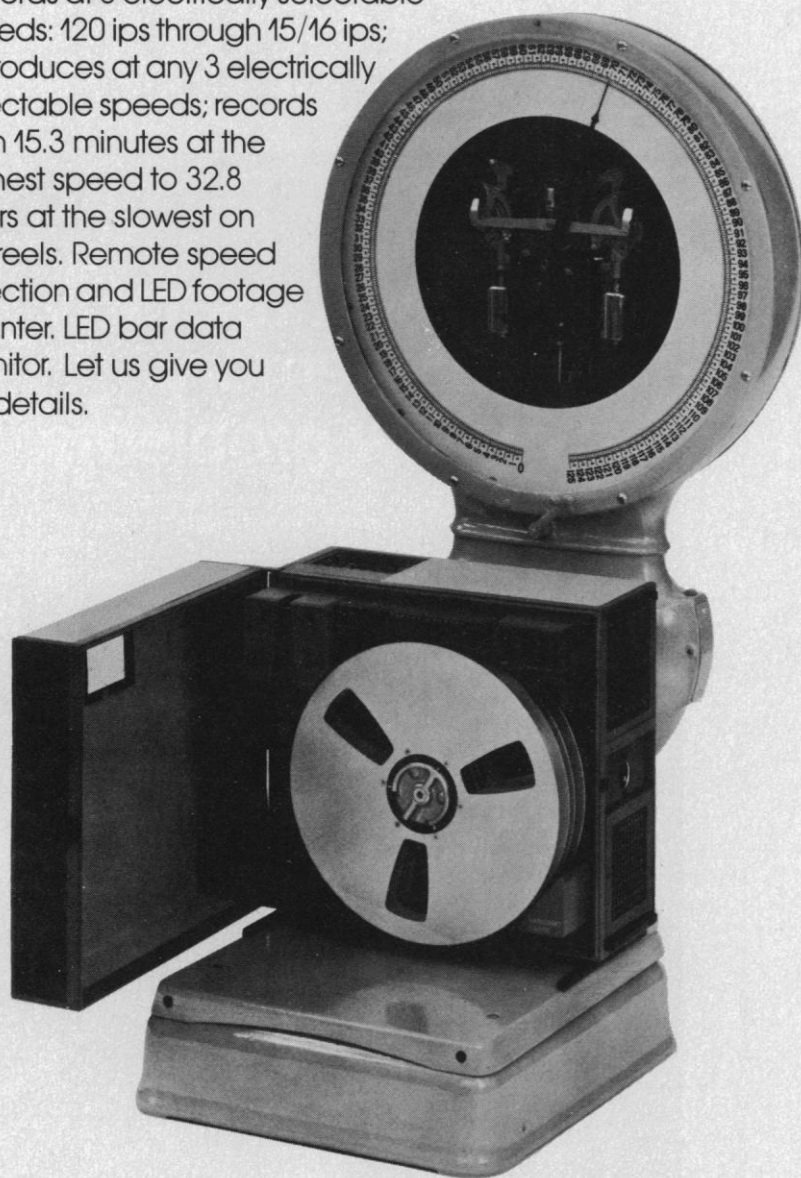
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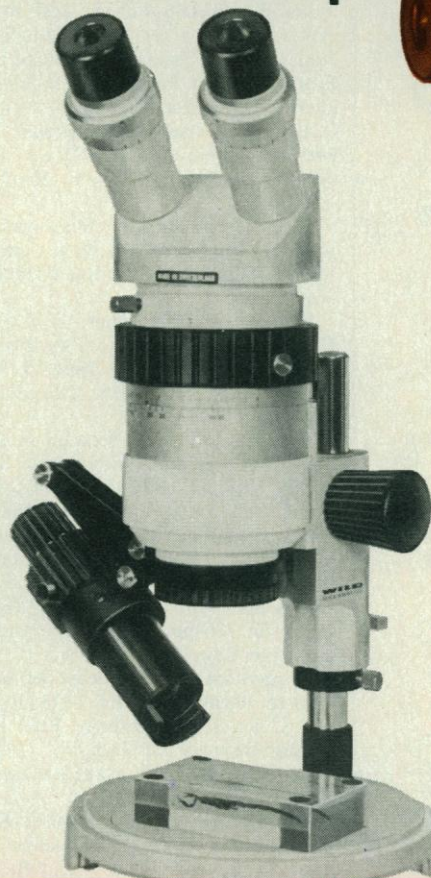
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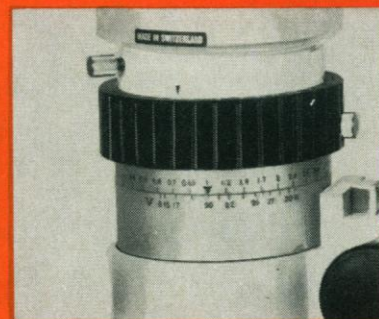
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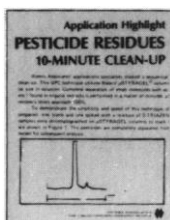
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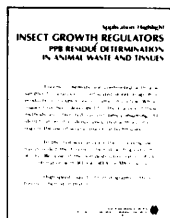
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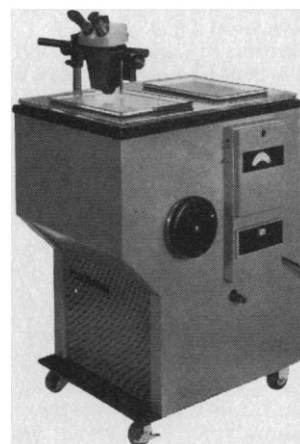
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