

SCIENCE

18 December 1970

Vol. 170, No. 3964

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



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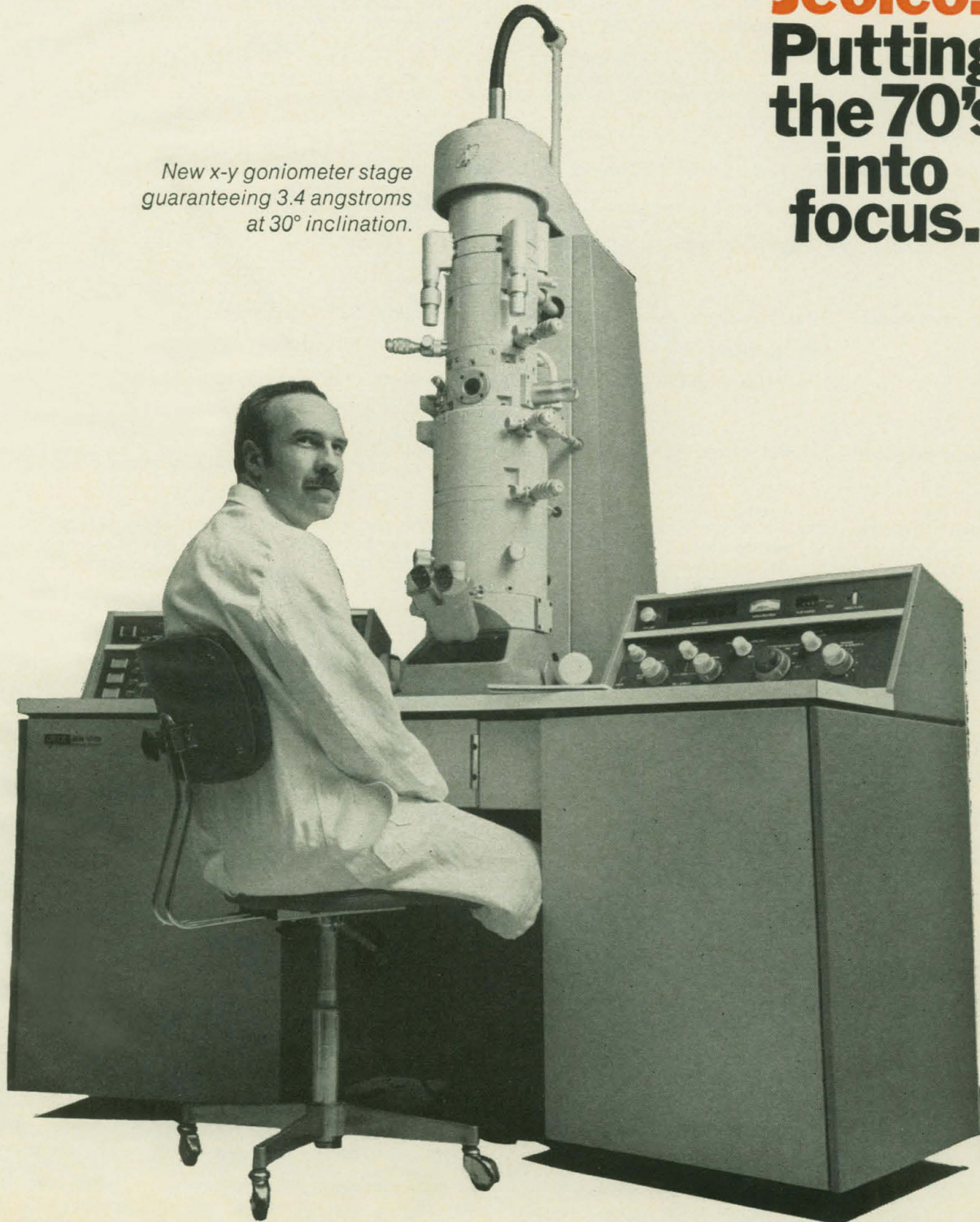
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COVER

X-ray photograph of *Phacops* sp. shows details, such as intestinal tract and the appendages with gill filaments. Such organs are not visible in mechanical preparations (about $\times 3$). See page 1300. [W. Stuermer, Erlangen, West Germany]

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.

Some things are changing for the better.

A practical way to automate a GC lab . . . one step at a time

Although gas chromatographs (GC's) are designed and built for around-the-clock operation, the majority of them are used only a few hours each day . . . and never on Sunday. There are always good reasons for such under-utilization of expensive equipment. In this case, it's a matter of manpower: some one has to be present to inject a new sample into the GC; and every time an analysis is completed, some one has to spend about a half-hour translating the analog data of the recorded chromatogram into a meaningful quantitative analysis. Since most GC laboratories operate on a 40-hour week, it simply has not made good economic sense to add a second and third shift simply to realize a fuller utilization of the GC's.

But that's no longer the only solution. Some new instruments have recently appeared on the scene that allow you to triple the analytical output of your GC lab without increasing

your staff or number of GC's. And you can do it a step at a time, as your budget allows, each step fully compatible with the next one.

First there's the 7670A Automatic Sampler. It measures and injects samples into your GC, completely unattended. The impact of the 7670A on the productivity of your lab can be dramatic: a single chromatographer can prepare samples and load them into the 7670A thirty six at a time, keeping the GC productive around the clock, even over weekends. Assuming a half-hour cycle per sample, he can produce well over 200 analytical runs a week, easily three times his best output with manual injections. If you're wondering about the reliability of the 7670A, don't. We have repeatedly performed 24,000 continuous automatic injection cycles with it in our laboratories—the equivalent of more than two years of unattended operation—without a failure. As an unexpected bonus, you'll also improve the quality of your laboratory's output because the 7670A's

machine-reproducibility is consistently more precise than a skilled technician. Cost is \$2850.

Then there's the 3370A Integrator. It automatically quantitates the GC analysis, prints an area count for each peak on the chromatogram and a total area count for the analysis, if desired. This cuts the chromatographer's computational load by about 10 minutes per sample (the time that it takes him to make area measurements manually). Apply this to a 7670A-equipped GC capable of producing 200 analyses a week, and you eliminate more than 30 hours of computation time . . . enough to pay for the 3370A, which costs \$4950, in about four months. And you'll enjoy a further marked improvement in the precision of your GC analyses.

Next step in this modular approach to automation is the 3360A GC Data Processing System, an on-line data handling system whose HP 2114B Computer is fully programmed for GC. It processes data simultaneously from up to eight GC's equipped with 3370A integrators and automatically prepares a typewritten report of each analysis, including the name, retention time and % concentration of each component. The 3360A thus completely eliminates manual computation, cutting an additional 20 minutes per sample from the chromatographer's load (the time that it takes him to compute component concentrations manually and prepare a final report). To understand the potential impact of the 3360A on your GC lab, two additional facts must be kept in mind: the cost of the 3360A to a laboratory that has eight GC's already equipped with 3370A integrators is not \$100,000 or \$50,000, but less than \$20,000 installed; and the 3360A is theoretically capable of processing more than 6000 analyses per month. Even if we assume that it will be used for as few as 1000 samples monthly, the 3360A will eliminate more than 300 hours of computation time from your manpower budget, enough to pay



for the entire cost of the system in little more than 6 months.

Finally, for laboratories whose sample load does not exceed 500 per month, there's an even more economical way to automate data handling. By adding a hardware-plus-software option to your 3370A Integrator, you can automatically produce a computer-compatible punched paper tape record of integration data. You then feed the punched paper tape off-line to any of the principal time-share computers, using the BASIC language program provided, and automatically receive a complete report of the analysis, as with the 3360A. This cuts some 17 minutes of computation time per sample (in addition to the 10-minute reduction from the 3370A proper) . . . or a savings of some \$1400 monthly based on a 500-sample load. Considering all costs—the \$1550 cost for the 3370A option and the variable costs of the time-share computer lease—payout takes less than six months.

If you care to study in more detail the economics of HP's step-by-step automation for your GC lab, write for the Fall 1970 issue of *Analytical Advances*, a 32-page study of the subject.

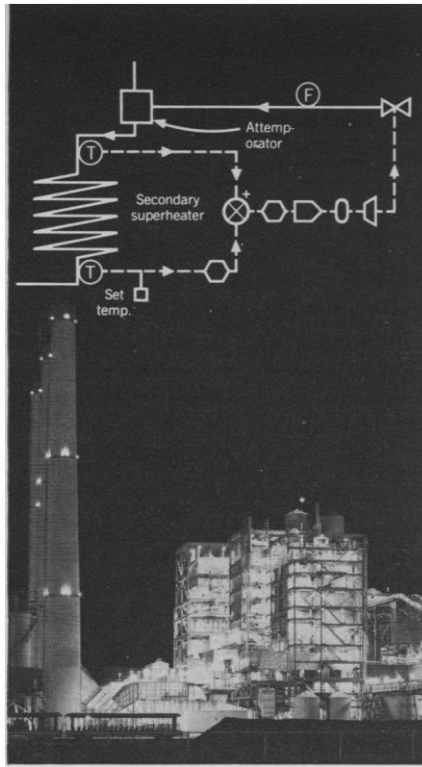
New tool for on-line control system analysis

(Note: To our Scientist Readers: The subject of the following article is a new instrument for continuous signal analysis that is useful in medical research, acoustics, radio astronomy and many other scientific measurements as well as in the process control application described.)

Very recently at a large power station in England, a system analysis of an attemperator (temperature control) loop was completed on-line, without disturbing plant output in any way. As the control characteristic of the loop was displayed on a screen during the experiment, adjustments were made to optimize control system response and the results were displayed immediately.

The job of the control system engineer—to predict how the system will react to a given input pulse—has not always been so easy. If he tested the system with a large enough impulse to produce a measurable response, plant output was changed in a way that could not be tolerated.

Some progress was made when control system analysts discovered the power of cross-correlation. With this mathematical technique, a test noise signal is applied to system input at such a low level that system output is not changed beyond normal background disturbances. Yet by cross-correlating



the test noise with system output over a relatively short period, the engineer is able to extract the impulse response of the system; background disturbances do not interfere because they are uncorrelated with the test noise. At first, cross-correlation did not help because it could only be accomplished after the fact, through off-line digital computation. What made the difference in the English experiment was the availability of two new HP instruments: a Model 3721A on-line correlator that's about as easy to use as an oscilloscope, and a Model 3722A precision noise generator that synthesizes repeatable pseudo-random noise, ideally suited to system analysis.

Correlation is fundamentally an averaging technique that is a powerful tool in recovering all kinds of periodic signals that are buried in noise, and in establishing a relationship between apparently unrelated signals. With the 3721A, the technique is easily applied on-line for continuous signal analysis in many kinds of scientific measurements. It might be useful in your work too. The Correlator costs \$8325 and the Noise Generator \$2650. On request, we'll be glad to send you a packet of information on these two instruments and a 96-page booklet on Discrete Signal Analysis.

Acquire and reduce scientific measurements automatically . . . without a computer

If you're a typical scientist, you spend a lot of time on the bench making measurements . . . and you don't object to that at all. What you do mind is the ever-increasing amount of time that you must spend at the desk making the

calculations that turn raw measurements into useful information. Some scientists still rely on slide rule and adding machine for this work; some have acquired a 9100 Computing Calculator and, in one economical stroke, cut their computational load by half or more.

If you're in the second group, we'd like to tell you of a new way to liberate even more of your time for scientific investigation, by letting your data gathering instruments communicate directly with a data processing system. You might think that this will necessarily involve you in the cost and complexity of a computer.

Not so. With the new HP 2570 Coupler/Controller, you can now tie many measuring instruments to the 9100 and get reduced data directly . . . from more than 40 HP digital instruments including voltmeters, frequency and time counters, nuclear scalars, quartz thermometers and GC integrators.

You can even connect a teleprinter to the 2570 and get a complete report



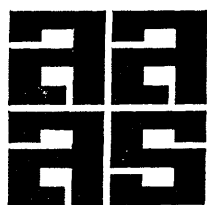
of your experiment, formatted as you like it and prepared automatically on a typewritten sheet, punched paper tape or even on the calculator's X-Y plotter.

We'd be happy to send you a 24-page bulletin that explains how the 2570 can expand the capabilities of your 9100 for on-line data handling and even for automatic test systems. Write for "Calculator-Based Instrumentation Systems." Price of the Coupler is only \$1625. Interfaces cost \$450—\$1775 per device. Hewlett-Packard, 1507 Page Mill Road, Palo Alto, California 94304. In Europe: 1217 Meyrin-Geneva, Switzerland.

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TAPES

At the Annual Meetings of the American Association for the Advancement of Science, many of the more thoughtful and concerned scientists and their counterparts in other areas of creative endeavor come together to explore, in public, advances in science and their consequences. With the permission of the speakers, a wide selection of their discussions are recorded. It represents an extraordinarily rich collection of views, commentaries, analyses, and critiques.

Listed below are 11 diverse topics, typical of several score of others that are available for sale. Persons interested in the issues of the day of the future, often exhilarating or profoundly troubling, will profit from their study.

HUNGER AND MALNUTRITION (in 7 parts)

1/69, I,II,III,IV,V,VI,VII

A review of the whole range of problems related to nutrition in a large and diversified country like the United States.

Jean Mayer (Harvard School of Public Health), Joaquin Gravioto (Hospital de los Enfermos de la Nutricion, Mexico City), Roger Revelle (Harvard School of Public Health), Mark Hegsted (Harvard School of Public Health), Ancel Keys (University of Minnesota), Nevin S. Scrimshaw (M.I.T.), Jack Geiger (Tufts University School of Medicine), Margaret Mead (American Museum of Natural History), Robert Choate (National Institute of Public Affairs), and others.

EFFECTS OF NUTRITION ON BEHAVIOR—STUDIES IN ANIMALS AND MAN (in 2 parts)

3/69 I,II

The discussion centers on the different kinds of malnutrition, the effects on different species, and the effect on human children in different countries.

Joseph J. Vitale (Boston City Hospital), Harry F. and Margaret K. Harlow (University of Wisconsin), Herbert G. Birch (Albert Einstein College of Medicine), and others.

HUMAN SETTLEMENTS AND ENVIRONMENTAL DESIGN (in 6 parts)

4/69, I,II,III,IV,V,VI

A discussion of the planned and unplanned interactions of man and his environment.

Clarence J. Glacken (University of California, Berkeley), Leo Marx (Amherst College), Hugh A. Prince (University College, London), T. Kevin Lynch (M.I.T.), Hassan Fathy (United Arab Republic), Donald A. Schon (M.I.T.), John McHale (State University of New York, Binghamton), Gyorgy Kepes (M.I.T.), and others.

IS THERE AN OPTIMUM LEVEL OF POPULATION? (in 4 parts)

10/69 I,II,III,IV

Is there an optimum level of population for the United States? What do we mean by "optimum" and how does it depend not only on the level but also on the concentration and rate of growth?

Preston E. Cloud (University of California at Santa Barbara), Harrison Brown (Foreign Secretary, National Academy of Sciences), Alvin M. Weinberg (Oak Ridge National Laboratory), John H. Knowles (Massachusetts General Hospital), Bernard Berelson (Population Council), Garrett Hardin (University of California at Santa Barbara), Margaret Mead, and others.

THE IDENTITY AND DIGNITY OF MAN: A SCIENTIFIC AND THEOLOGICAL DIALOGUE ON ISSUES EMERGING FROM BEHAVIORAL, SURGICAL, AND GENETIC INTERVENTION (in 8 parts)

11/69 I,II,III,IV,V,VI,VII,VIII

Leading life scientists, theologians, and social ethicists are engaged in a dialogue on issues related to the ethical problems emerging from the biotechnical revolution and the heightened concern for the preservation and enhancement of human identity and dignity.

Hudson Hoagland (Worcester Foundation for Experimental Biology), Roger L. Shinn (Union Theological Seminary), Francis D. Moore (Harvard Medical School), L. Harold DeWolf (Wesley Theological Seminary), Bernard D. Davis (Harvard Medical School), James M. Gustafson (Yale University Divinity School), Ernst Mayr (Harvard), G. Evelyn Hutchinson (Yale), Helen B. Taussig (Johns Hopkins Medical School), Alan F. Guttmacher (New York), Kenneth E. Moyer (Carnegie-Mellon University), Hans Jonas (New School of Social Research), Isaac Asimov (Boston University), John R. Platt (University of Michigan), Paul M. Doty (Harvard), Philip Morrison (M.I.T.), and others.

CLIMATE AND MAN (in 2 parts)

19/69, I,II

Questions about the degree to which man is modifying the climate and the result of such modification on life on earth.

Walter Orr Roberts (University Corporation for Atmospheric Research), J. Murray Mitchell, Jr. (ESSA), Edward N. Lorenz (M.I.T.), Erik Eriksson (University of Stockholm), Thomas F. Malone (Travelers Insurance Company), Gordon J. F. MacDonald, Helmut E. Landsberg (University of Maryland), Robert M. White (ESSA), and others.

BIOLOGY AND SOCIOLOGY OF VIOLENCE (in 2 parts)

24/69 I,II

Aspects of violence are reviewed from the vantage points of the life and social sciences.

Frank Ervin (Harvard Medical School), Lawrence Rasavi (Stanford), John Spiegel (Brandeis University), and others.

SCIENCE AND THE FUTURE OF MAN (in 3 parts)

35/69 I,II,III

How can the scientist as an individual and as a member of a scientific community become a more effective and constructive force in society? How can society be made aware of scientific developments directly affecting its future?

J. Tuzo Wilson (University of Toronto), Franklin A. Long (Cornell), Lewis Mumford, John Platt (University of Michigan), George Wald (Harvard), Victor F. Weisskopf (M.I.T.), Senator Edmund S. Muskie, Philip H. Abelson (Carnegie Institution), and others.

PHYSICS AND THE EXPLANATION OF LIFE

40/69

Is it possible and sufficient to seek explanations of life by calling on the insights of the physical sciences alone?

George Wald (Harvard), Eugene P. Wigner (Princeton), J. Bronowski (Salk Institute), Isaac Asimov (Boston University).

POWER GENERATION AND ENVIRONMENTAL CHANGE: RECONCILING MAN'S DESIRE FOR POWER WITH THE NEEDS OF HIS ENVIRONMENT

(in 2 parts)

41/69, I,II

A consideration of the three primary means of generating power—nuclear, hydroelectric, and fuel combustion. What the environmental effects of each are, and what can be done to suppress or control them.

James A. Fay (M.I.T.), Merrill Eisenbud (Environmental Protection Administration, New York City), Arthur Tamplin (Lawrence Radiation Laboratory), Jack P. Ruina (M.I.T.), Gordon J. F. MacDonald, Erik Eriksson, Arthur M. Squires (City College of the City University of New York), and others.

BRAIN AND LANGUAGE

44/69

The acquisition (and loss) of language skills, the common threads of grammar, and design of word sequences are analyzed.

Jerome Y. Lettvin (M.I.T.), Noam Chomsky (M.I.T.), Norman Geschwind (Harvard Medical School), Eric Lenneberg (Cornell), and Stephen Toulmin (Michigan State).

INNOVATION

45/69

Our understanding of the innovation process is, at best, imperfect. Can engineers be taught to utilize existing scientific knowledge more imaginatively? What are the special characteristics of the technological entrepreneur? How does one re-direct groups of people toward new goals?

Myron Tribus (Assistant Secretary of Commerce), Edward B. Roberts (M.I.T.), Alvin M. Weinberg (Oak Ridge National Laboratory), Donald A. Schon (Organization for Social and Technical Innovation).

Please refer to SCIENCE, 31 July 1970 (pages 422-424) for a complete listing of all available tapes.

The cost of the tapes may be calculated as follows: single-session symposium, \$11 per session; multi-session, \$11 for the first session ordered of each symposium; \$9 for each additional session ordered of the same symposium. There is a handling and postage charge of 75¢ per session for foreign orders. AAAS members enclosing payment with their orders will receive a discount of 10 percent of their total order. Use form below to order reels, cassettes, or a free catalog. Please print. If payment enclosed, use check or money order.

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45/69

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9627	Ammonium Fluoride, Ultra Pure	Heavy metals (as Pb) < 0.0001%, Fe < 0.00005%, Cl < 0.0005%, SO ₄ < 0.0005%, As not detectable	1 kg. \$ 18.25 5 kg. \$ 72.00	
1946	Ammonium Sulfate, Ultra Pure	Maximum limits of impurities: Pb not detectable to 0.00003%, Ca 0.000022%, Mg 0.000013%, Zn 0.00014%, Mn not detectable to 0.000006%, Fe not detectable to 0.00005%, Cu not detectable to 0.000021%	1 kg. \$ 5.00 5 kg. \$ 22.00 25 kg. \$ 69.00 50 kg. \$ 110.00	
7801	Guanidine Hydrochloride, Ultra Pure	Exceptional care in preparation reduces the content of all eight major interfering impurities. UV spectra run on all batches prove conclusively that the total amount of all these impurities combined is reduced to 10 ⁻⁷ M or even less.	100 g. \$ 12.00 500 g. \$ 48.00 1 kg. \$ 96.00 10 kg. \$ 92.20/kg.	
9530	Sucrose, Density gradient, Crystalline, Ultra Pure	Special grade of sucrose, free of ribonuclease activity, for use in sucrose density-gradient centrifugation of RNA preparations. Each lot is especially purified and assayed for ribonuclease activity. The assay procedure calls for 18 hours of incubation with RNA at 37° C and measurement of the production of acid-soluble ultraviolet absorbing material. A lot is considered to be satisfactory if no acid-soluble ultraviolet material is released. Maximum Limits of Impurities: Heavy metals < 5 ppm, As < 0.0001 ppm, RNase Activity none	1 kg. \$ 9.00 5 kg. \$ 30.00	
6593	Tris, Hydrochloride, Ultra Pure	Atomic absorbance tests reflect the following results as run on a Beckman DB.G (Acetylene Air System): maximum limits of impurities: Pb 0.000022%, Mn 0.0000021%, Cu 0.00004%, Fe 0.000031%, Ca 0.000016%, Mg 0.000013%	100 g. \$ 6.50 500 g. \$ 28.00 1 kg. \$ 39.50	
7438	Tris, Ultra Pure	Trihydroxymethylaminomethane for buffer and enzyme use. Maximum limits of impurities: Pb 0.001% max., Fe 0.00005% max., Ca 0.0001% max., Mg 0.0001% max., B no traces, As no traces	100 g. \$ 4.25 500 g. \$ 12.25 10x 500 g. \$ 9.75/500 g.	
9200	Urea, Ultra Pure	Maximum limits of impurities: heavy metals 0.01 ppm, Fe not detectable, Cu not detectable, Pb not detectable, CN not detectable. Ammonia has been added to shift the equilibrium toward urea formation, thus preventing decomposition as well as cyanate formation. However, the ammonia has been removed in last step of purification making this material ammonia free.	1 lb. \$ 10.00 5 lb. \$ 40.00	

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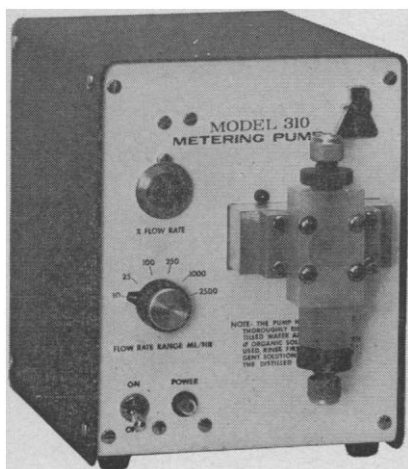
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the good of the party" (to maintain the population).

Orwell was aware of the complexities of the population problem and was skeptical of simple projections of trends. "The experts are proving now that our (the British) population will be only a few millions by the end of this century, but they were also proving in 1870 that by 1940 it would be 100 millions" (1). But Orwell was even more disturbed by the convenient rearrangement of history and memory to suit occasional demands. National problems, like national enemies, may change abruptly in a generation. Blurring these changes should indeed set Orwell's grave astir.

KARL E. SCHEIBE

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Wesleyan University,
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Reference

1. G. Orwell, *Collected Essays, Journalism and Letters of George Orwell*, S. Orwell and I. Angus, Eds. (Harcourt, Brace & World, New York, 1968), vol. 3.

Attitudes toward Women: Flexible or Feudal

"Women in academe" by Patricia Albjerg Graham (25 Sept., p. 1284) was an excellently documented and presented statement, except for two points:

- 1) I do not believe that a "European" woman exists. Having been born in Europe and having lived in different parts of that small continent, I believe that people in Naples and people in Stockholm or Vienna differ profoundly in their ways of thinking, feeling, and living. This is by no means contradicted by the fact that scientists from all those areas can communicate on a topic of mutual interest when they meet at a conference.

- 2) If there is a common trait that unites European women and distinguishes them to some extent from those in the United States, it is their flexibility in changing roles, and doing it imperceptibly to others and mostly to themselves. Even after a childhood atmosphere of early suffragettes and blue stockings, they are in most cases quite comfortable in the double role of being a female in relation to a particular male in whom they are interested and switching to being a no-gender professional in a situation that calls for professional performance. . . .

Human behavior has a biological

basis and the reproductive functions between male and female differ radically. In this area men and women appear to me like two different species. Nevertheless, men will have to develop greater psychological mobility in this age in which heightened flexibility is called for in numerous respects. They, too, will have to revise gradually some of their feudal attitudes toward women which were bred into them in the course of millenia of simpler technologies and of lower human expectations.

ALMA S. WITTLIN

*7023 Draper Avenue,
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While it is true that internal ambivalences beset us, the tenor of the times is vigorously in favor of women working and having less guilt about either their femininity or their children. As Graham points out, the ages that produce the greatest pressure for scholarly publication or, I may add, development of professional competence coincide with those requiring the most domestic performance. Many women not only are unwilling to leave their family responsibilities for full-time work during this period, but are unable to physically accommodate the strains of both, especially when their children are young. If they remain out of their field during this period, which may be 10 years, they may have considerable difficulty returning. Part-time work, it should be emphasized, is an excellent way for a woman to keep up academic interests and professional skills and for a university to gain additional qualified and diverse staff. Although some university administrators (Mary I. Bunting at Radcliffe) have taken the lead and some university women themselves have recognized the problem, part-time positions on university faculties are still not readily available. Let's hope that universities, even in these less plush times, will consider "the woman question" in terms of restructuring of appointments, allowing more part-time appointments for qualified women, as suggested by Graham.

MYRNA M. WEISSMAN

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Graham's article is about as objective as a paper on biology by Lysenko. Obviously she opts for a weird society such as that of the old Shakers. The complete equality, of course, must be available to everyone. And since few,

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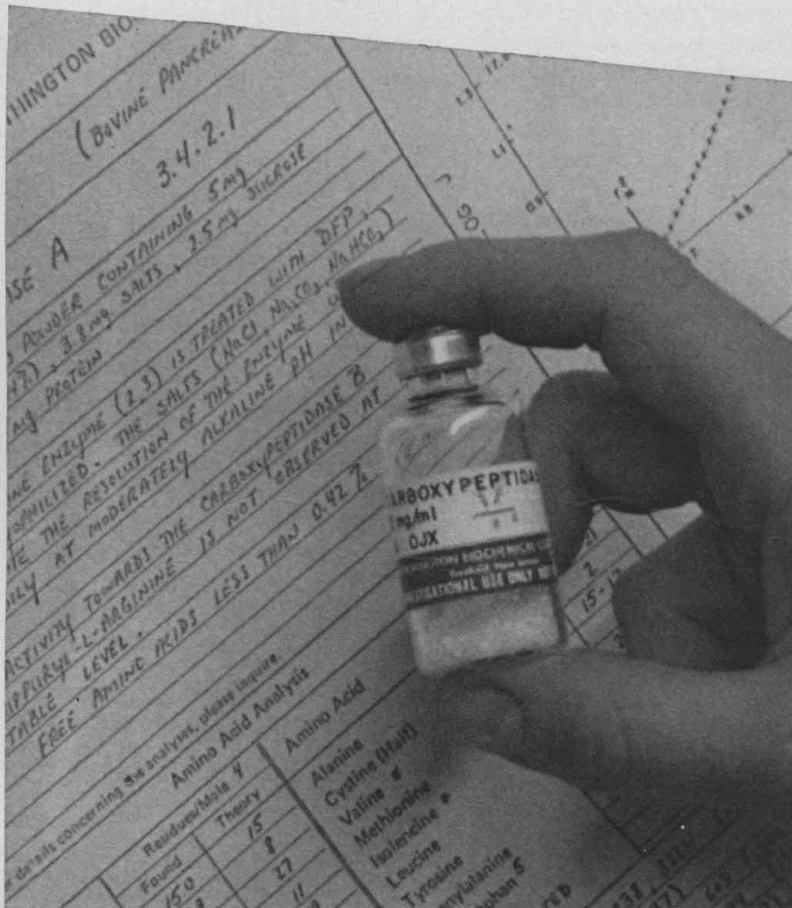
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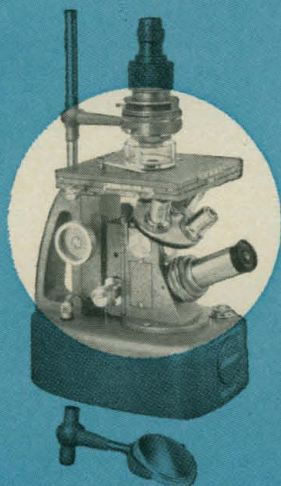
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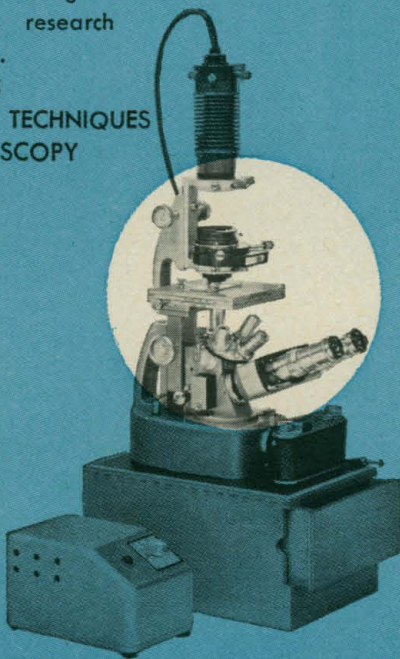
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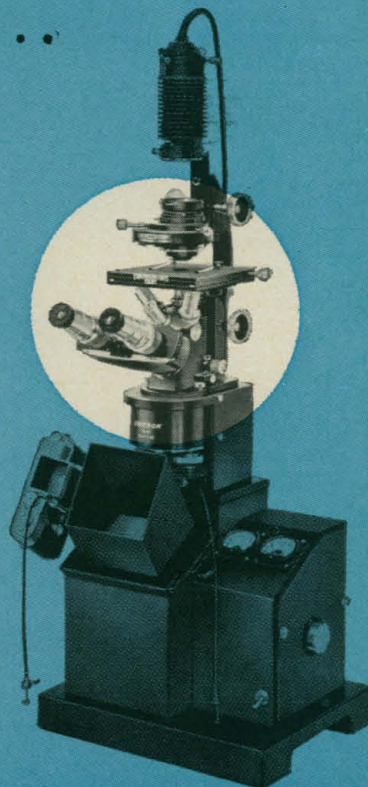
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The University and the Modern Condition

The response of universities to the characteristics of our era must take into account the purposes of universities and the kinds of contributions they can make. Universities are among the important institutions in our society, but there are other important institutions. You will recall de Tocqueville's description: "Americans of all ages, all conditions, and all dispositions constantly form associations. They have not only commercial and manufacturing companies, in which all take part, but associations of a thousand other kinds, religious, moral, serious, futile, general or restricted, enormous or diminutive." The fact there is an unmet need does not at all mean that a university is best equipped to take it on. Even if it is, the added function may place such a burden upon an institution as to defeat its basic purposes. Even a welfare-indoctrinated society must make choices. It may be that new types of institutions are required; it does not follow that universities should become these new types. A university which claims to be all things to all people, or as many different things as different groups wish it to be, is deceitful or foolish or both.

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Perhaps, then, one should ask, "What is the service of this university?" The answer is traditional and old-fashioned. Its greatest service is in its commitment to reason, in its search for basic knowledge, in its mission to preserve and to give continuity to the values of mankind's many cultures. In a time when the intellectual values are denigrated, this service was never more required. I realize, of course, that in all this there appears to be a paradox. It is highly probable, although the subject is not a simple one, that given their choice of profession, training at the University of Chicago has increased the earning power of our students. Basic scientific work at the university could not help but have its impact upon industry. Our graduates do hold a variety of important positions in industry, in the professions, in teaching, and in national laboratories. The university has been a center of self-criticism for our society. We did in fact play a major role in restoring and maintaining an integrated community, and the university's work has given leadership through example as well as study in urban affairs. And while our college is surely not free from the pressure of the discipline of learning, the combination of a research-oriented institution with a small undergraduate college has given us the opportunity for many of the qualities sought—and frequently sought in vain—by the small liberal arts institution. But these results are in fact dependent upon the university's self-limiting goals; its recognition that its only uniqueness ultimately arises from the power of thought, the dedication to basic inquiry, the discipline of intellectual training.—EDWARD H. LEVI, *Office of the President, University of Chicago*

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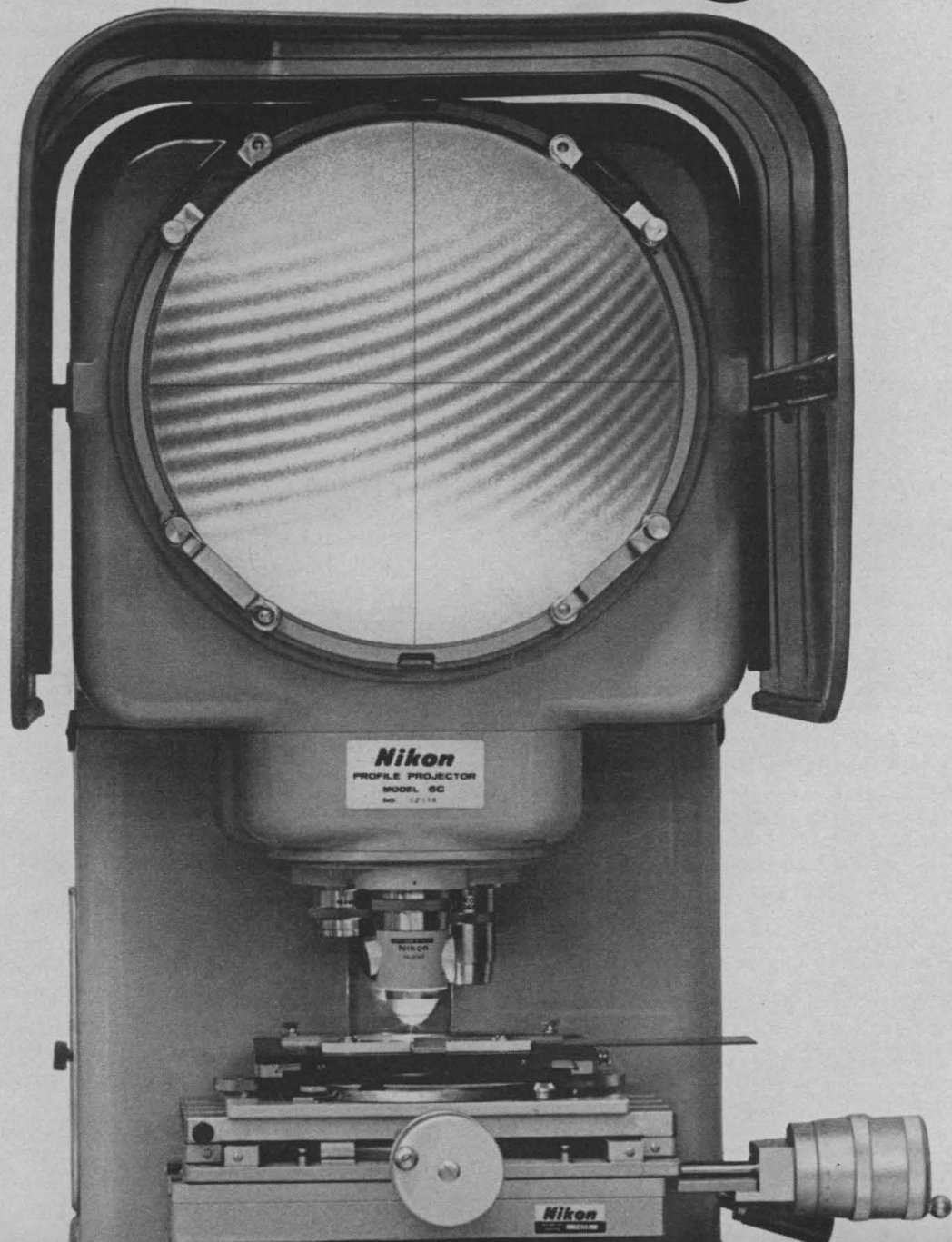
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Archaeological Fakes. Adolf Rieth. Translated from the German edition (Tübingen, 1967) by Diana Imber. Praeger, New York, 1970. 184 pp., illus. \$7.50.

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The Beagle as an Experimental Dog. Allen C. Andersen and Loraine S. Good,

Eds. Iowa State University Press, Ames, 1970. xiv, 616 pp., illus. + plates. \$17.50.

Beyond Economics. Essays on Society, Religion and Ethics. Kenneth E. Boulding. University of Michigan Press, Ann Arbor, 1970. xii, 308 pp., illus. Paper, \$2.95. Reprint of the 1968 edition.

Black Mesa. Survey and Excavation in Northeastern Arizona, 1968. George J. Gumerman. Prescott College Press, Prescott, Ariz., 1970. xvi, 128 pp., illus. Paper, \$4.75. Prescott College Studies in Anthropology No. 2.

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Carbonate Rocks. Limestones and Dolomites. Lucien Cayeux. Translated from the French edition (Paris, 1935) and updated by Albert V. Carozzi. Hafner, Darien, Conn., 1970. xviii, 506 pp., illus. \$37.50. Sedimentary Rocks of France.

Cardiology. Current Topics and Progress. Symposia, Jerusalem and Tel Aviv, September 1968. Marcel Eliakim and Henry N. Neufeld, Eds. Academic Press, New York, 1970. 366 pp., illus. \$15.

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Chains of Opportunity. System Models of Mobility in Organizations. Harrison C. White. Harvard University Press, Cambridge, Mass., 1970. xvi, 418 pp., illus. \$15.

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The Chemistry of Alkenes. Vol. 2. Jacob Zabicky, Ed. Interscience (Wiley), New York, 1970. xvi, 670 pp., illus. \$31. The Chemistry of Functional Groups.

Children and Science. Lazer Goldberg. Scribner's, New York, 1970. xii, 148 pp. \$6.95. Scribner's Guides for Parents and Teachers.

Circuit Theory. An Introduction to the State Variable Approach. Ronald A. Rohrer. McGraw-Hill, New York, 1970. xii, 314 pp., illus. \$14.50. Series in Electronic Systems.

Classical Fields, Particles, and the Theory of Relativity. William R. Davis. Gordon and Breach, New York, 1970. xxiv, 396 pp. \$12; to libraries, \$27.50.

La Climatisation. Marcel Roubinet. Presses Universitaires de France, Paris,

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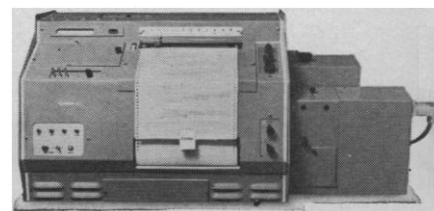
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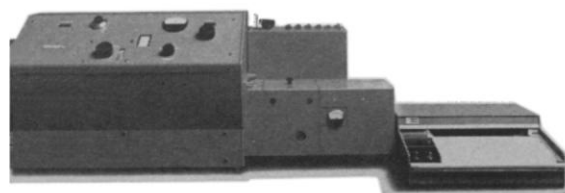
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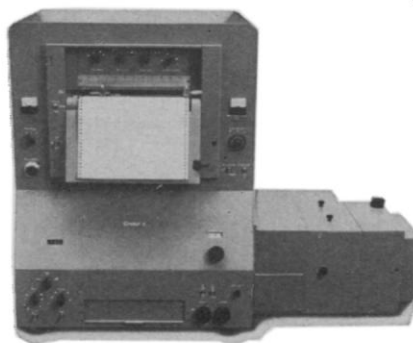
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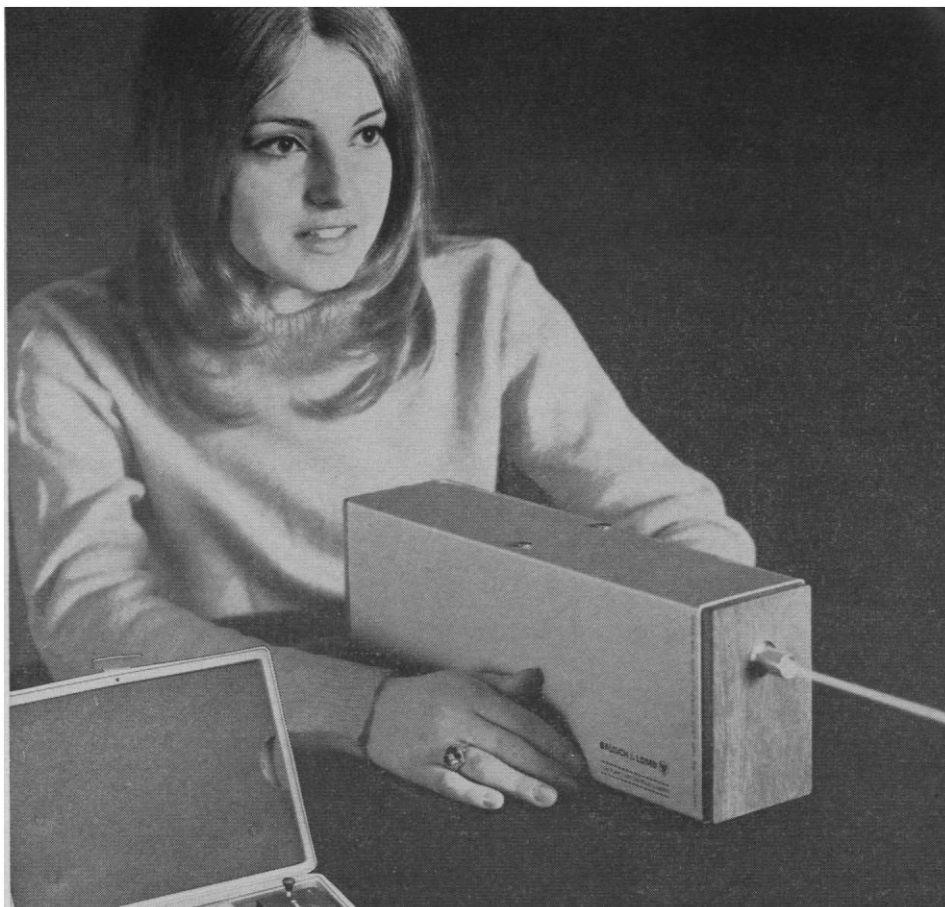
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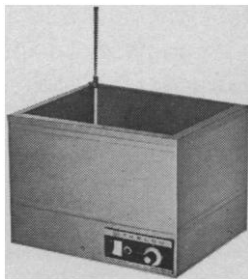
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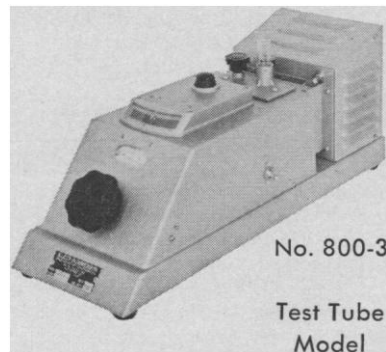
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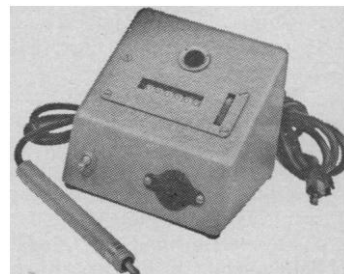
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