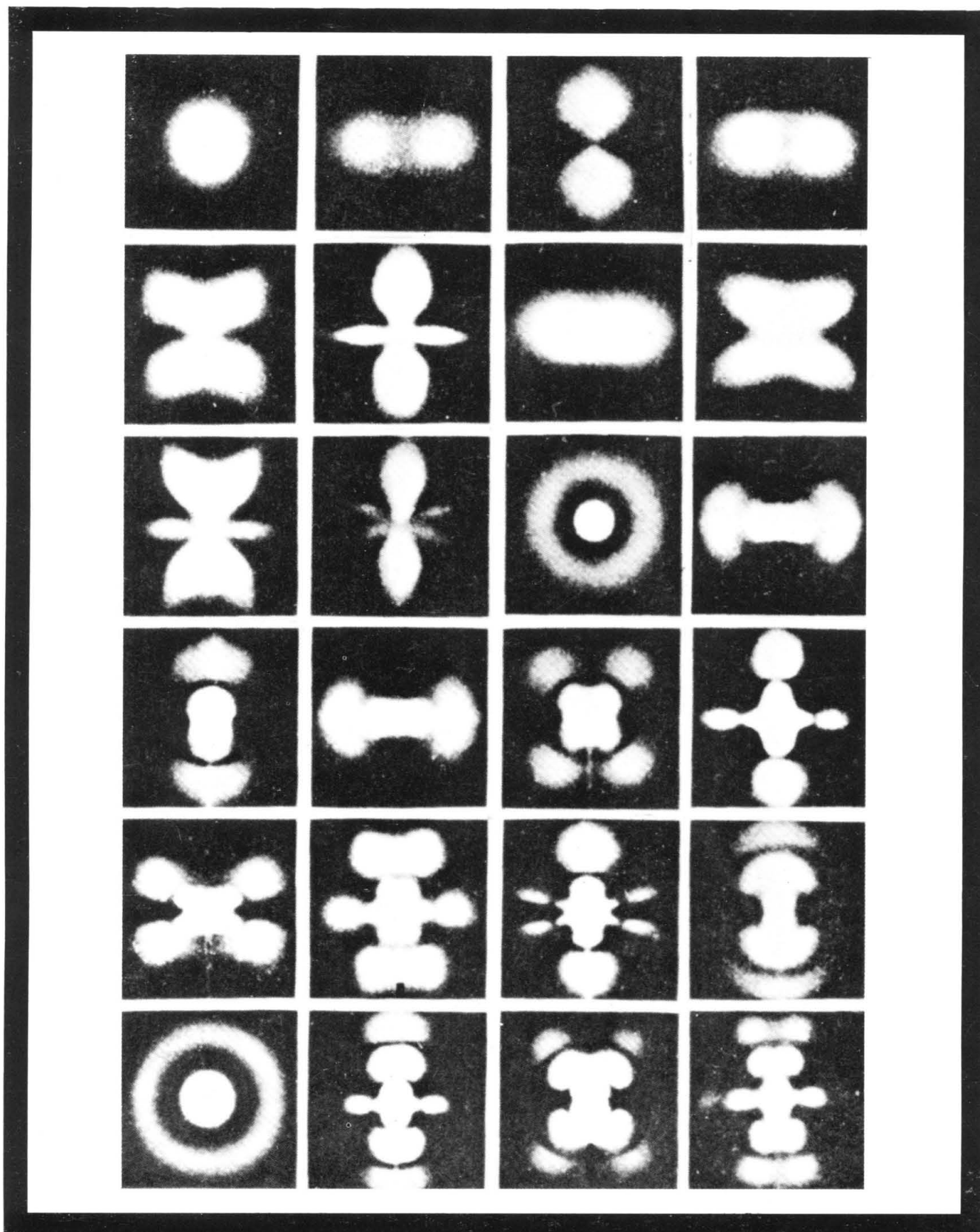


SCIENCE

22 May 1970

Vol. 168, No. 3934

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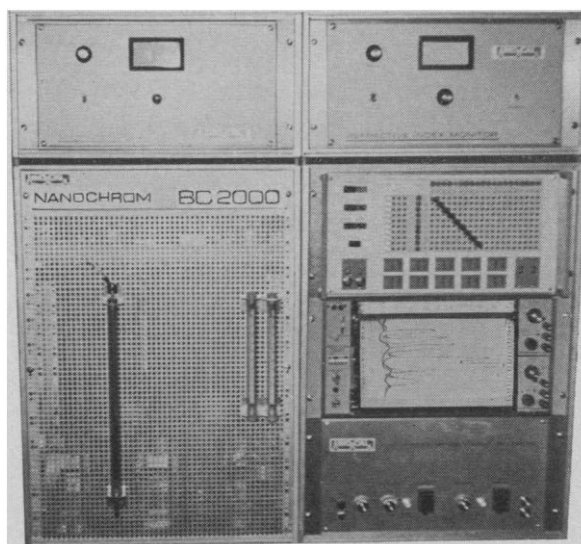
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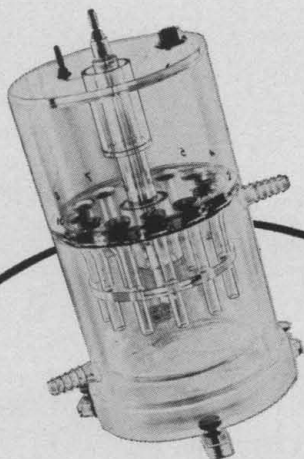
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COVER

Patterns of electron wave functions of different quantum states in the Coulomb field. See page 923. [V. F. Weisskopf, Massachusetts Institute of Technology]

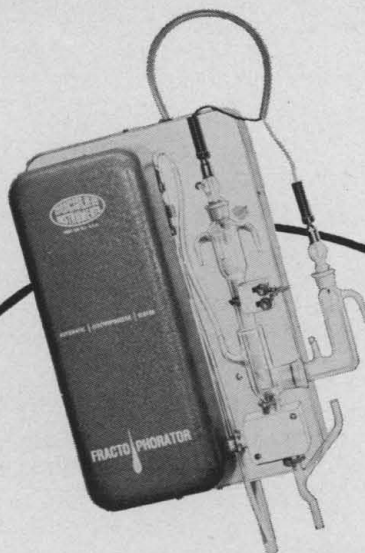
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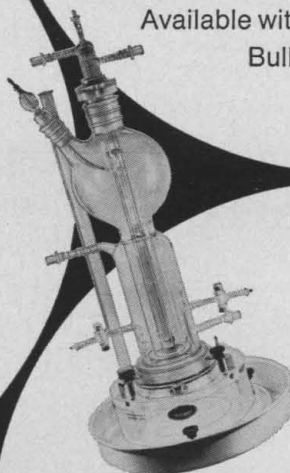
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LITTLE The root sense of "education" is: **BLACK-BOX** to lead out of. The Chemistry **SCHOOLHOUSE** Department at Northwestern University is using analog computers, not to answer questions mindlessly but to raise new ones by offering deeper insights into the problem. In short, by education. In the pursuit of understanding second-order chemical reactions, graduate students are encouraged to use an EAI desk-top analog computer to find rate constants by matching reaction peaks with a computer model and thus read the reaction value from control knobs' settings. Such hands-on-exercise gives student show-and-tell understanding completely unmatched by more abstract manipulation of formulae. Doubtless, too, results in diminished feeling by student that he is only a punch-card in today's educational system. And who today faults this feeling? Insights added by writing "Primer", Dept. 206 x.

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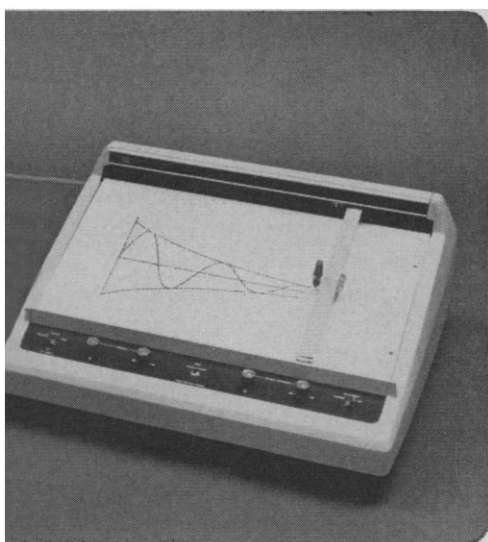
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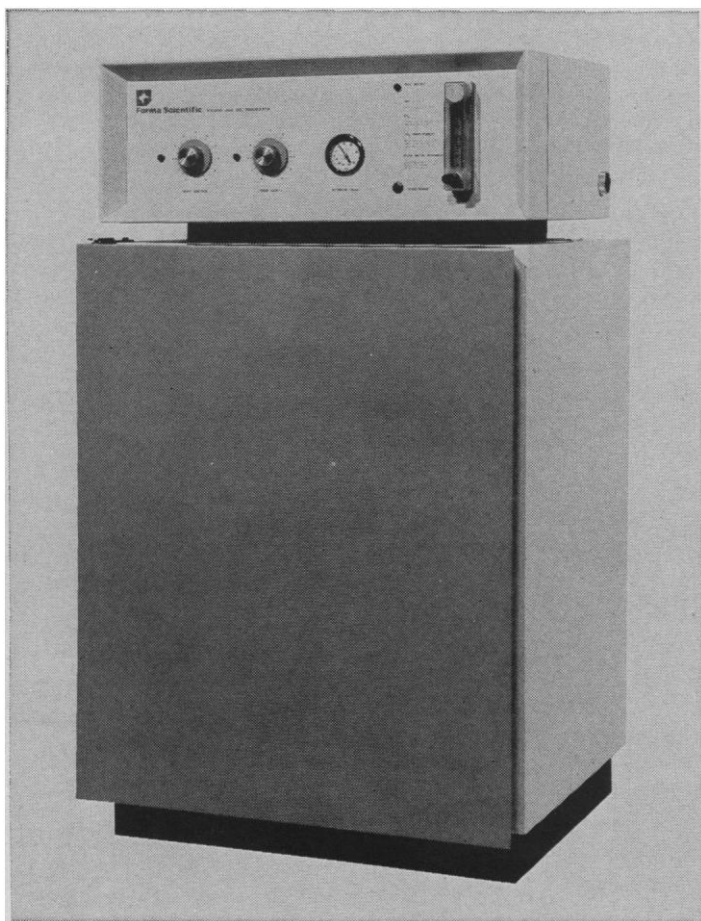
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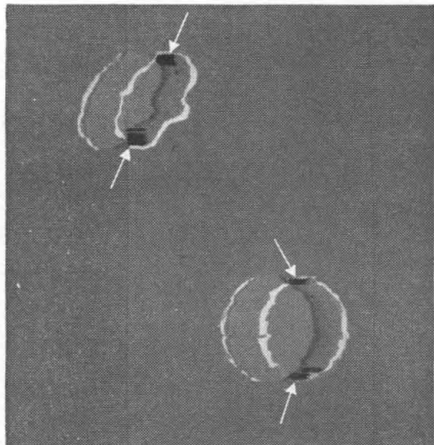
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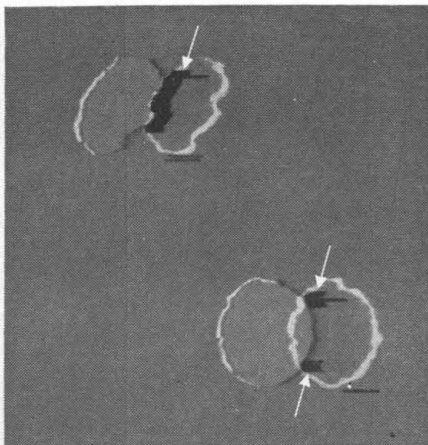


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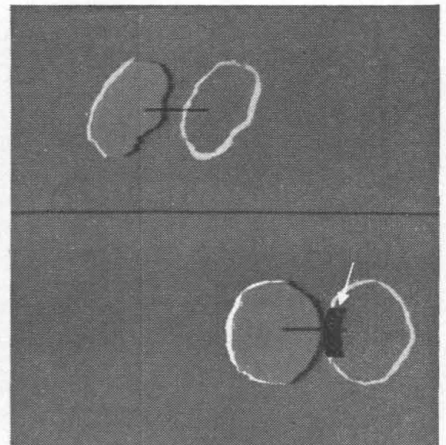
How Western Electric spots dots with TV.



Delay line circuitry creates duplicate, overlapping "ghost" images for pencil mark (upper left) and



regular .025" dot (lower right). The points where the images cross can be made to produce black areas



(marked by arrows). The ghosts are moved right or left, and the positions of the black areas tested

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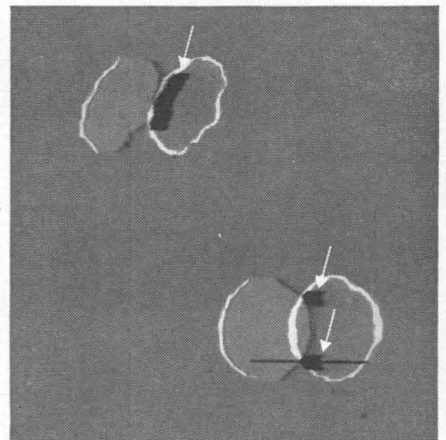
What that meant was that we could not use a conventional tape-controlled drilling machine, which put the drill in precisely the same spot every time. We needed a machine that could, in effect, "see" a dot, no matter where it was, tell it apart from an accidental marking of about the same size and shape, and put a drill right through it.

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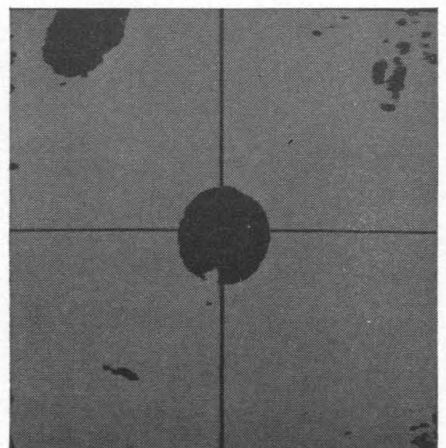
Once the dot has been roughly centered beneath the camera, delay line circuitry creates a second image which is first superimposed on the original, then moved by successive stages to the right. The points where the two images meet—i.e., where the two circles cross—will be in certain positions if and only if the original dot is a perfect circle of the proper size. Logic circuitry tests these positions, and if they are not exactly right, it won't drill and the circuitry sets itself to search for another dot. If they are, it lines the dot up, moves the camera aside, moves the drill into position, and there you are.

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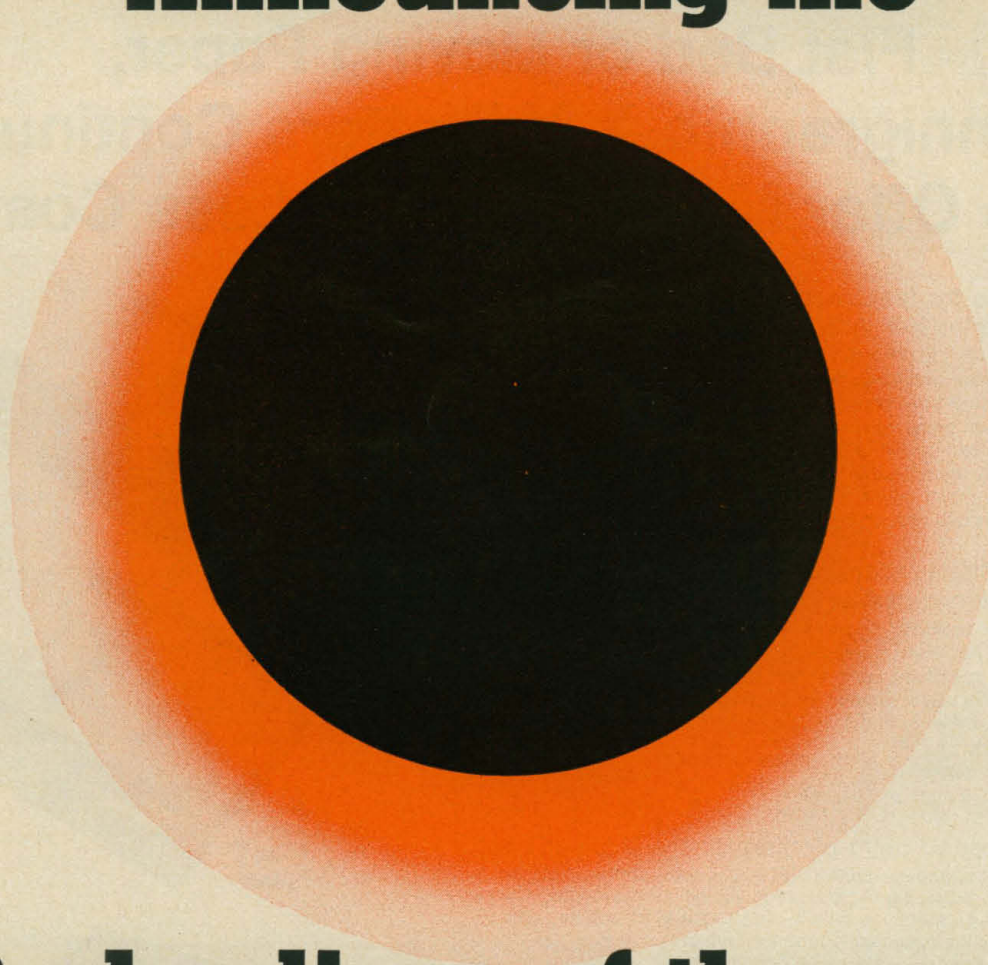
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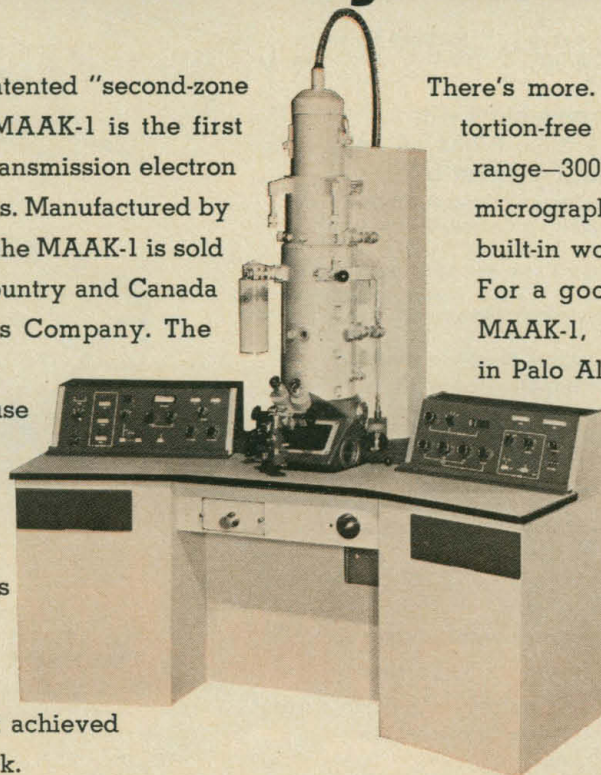
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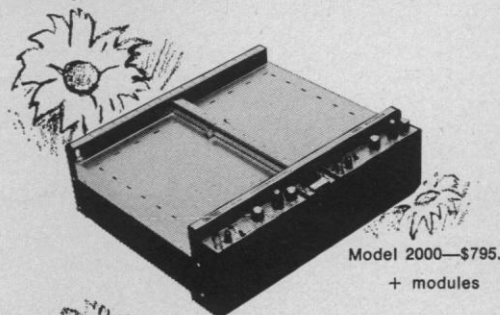
- A plotting speed of 1200 points/minute
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- Plugs into the following Pulse Height Analyzers with only a cable change:

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Nuclear Data	Packard	RCL-RIDL	TMC Victoreen

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- Input impedance 1 megohm, all ranges fixed and variable
- Accuracy ± 0.2% of full scale, repeatability ± 0.1%
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- Pen control local or remote
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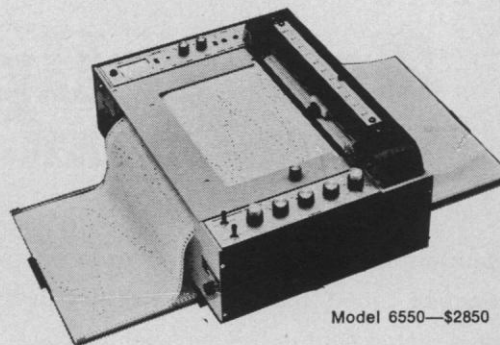
Send for catalog on the complete line of graphic recorders



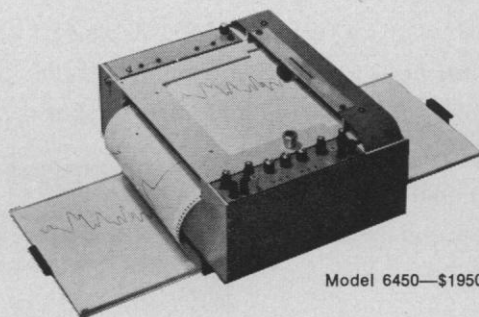
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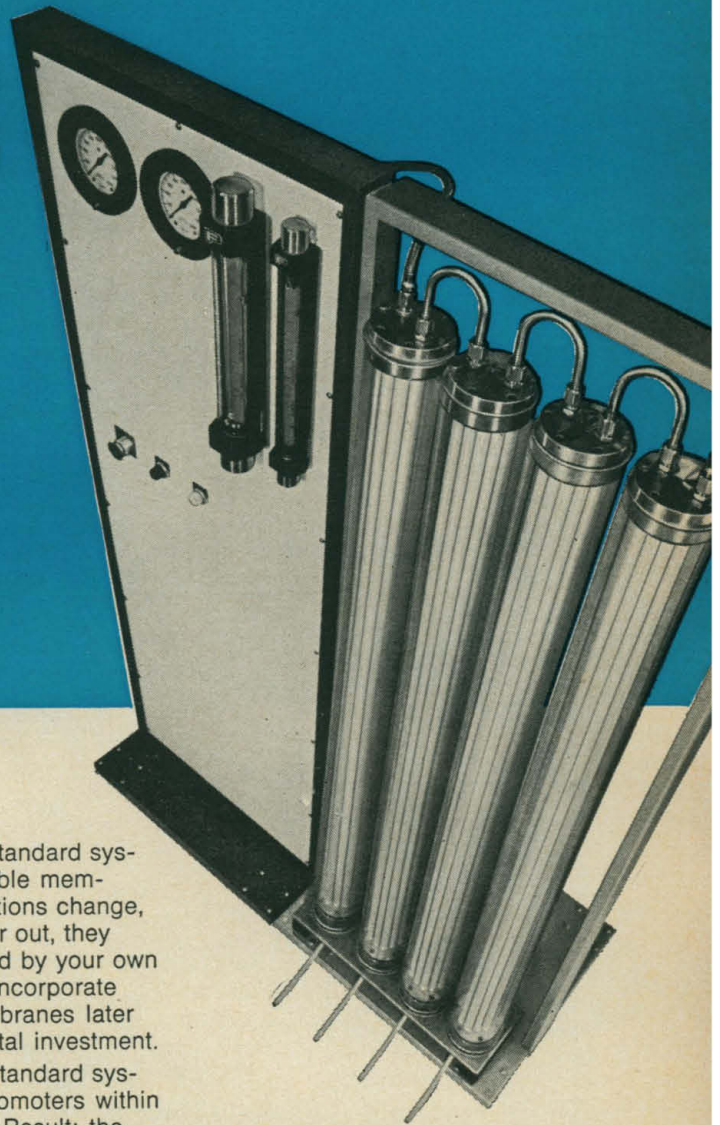
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Our Universal Microscope is exactly what its name states—it is universal, and universally accepted for all applications. But we also offer another instrument, the WL, that for many applications is in the same class. Even if you normally find satisfaction hard to come by, you'll find it easily with one of these microscopes. Which one depends upon what you want to do.

The Zeiss WL Microscope

The WL is an outstanding instrument for most transmitted-light applications, in-

cluding: brightfield, darkfield, phase contrast, Nomarski interference contrast, fluorescence, polarization, microprojection, photomicrography.

A look at just a few of its key features will give you an idea of its excellence:

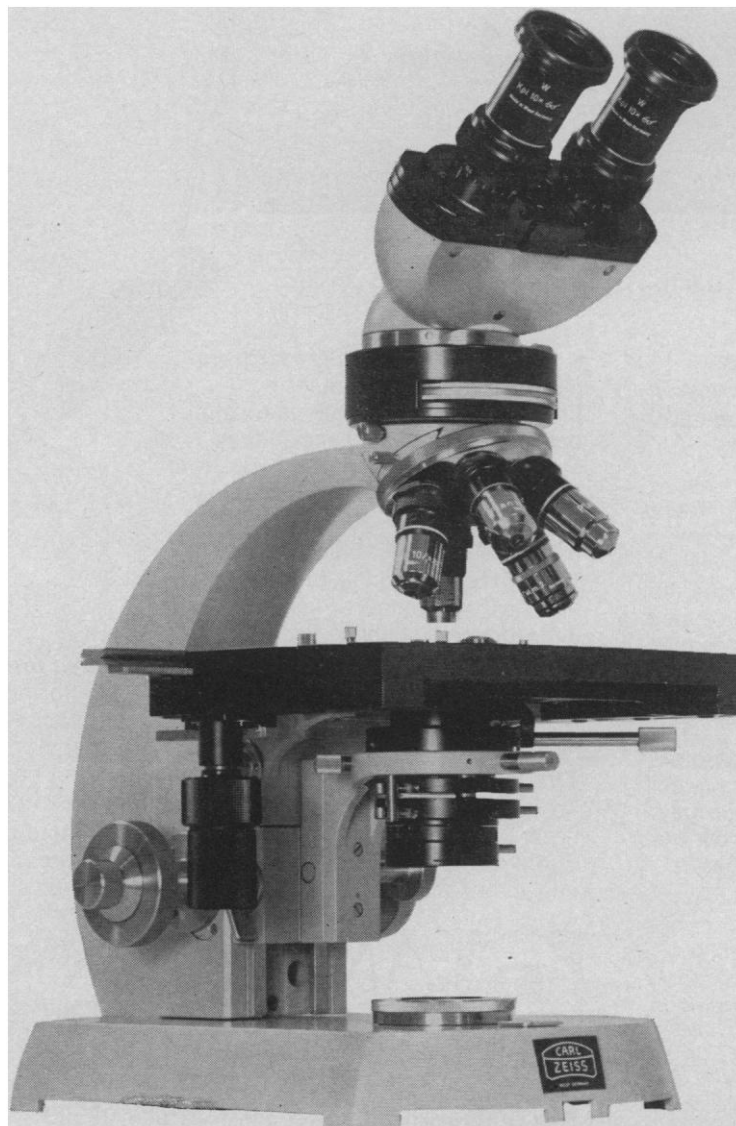
1. Objectives—the most essential component of any microscope. Zeiss objectives are world-famous for their quality. Available for the WL is a complete line of Planapochromats from 4/0.16 to 100/1.3—and *only* Zeiss can offer so many. Complete lines, too, of Neofluars, Planachromats and Achromats. Each, in its class, is the world's best.

2. Brightfield—Phase Contrast—Nomarski Interference Contrast without changing condensers or objectives. And there's no need for a centering telescope either, because the exclusive OPTOVAR

Magnification Changer has an auxiliary lens for centering the light ring on the phase ring. The OPTOVAR also lets you easily change magnifications without changing eyepieces.

3. Stages—Rotating and Centering, Mechanical and Gliding, Polarizing—the most versatile, the sturdiest and smoothest made. Even if you exert pressure on these stages, they won't slip.

4. Attachments—There are cameras (35mm, 4 x 5, Polaroid®, motion picture and video), auxiliary binocular and monocular tubes, projection screens, drawing attachments, a refractometer, etc., etc.—just about anything you might ever want.



The Zeiss WL Microscope

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there would be no need for Zeiss.

The Zeiss Universal Microscope

With the Universal, you can do all the things in transmitted light you can do with the WL—plus a few others. What's more, this is a truly great instrument for reflected light. Perhaps its outstanding feature (aside from the magnificent optics and extra-sturdy stand) is the fact that you can switch from reflected to transmitted light, or vice-versa, just by flipping a lever, *without changing light sources.*

Let's take a closer look at the Zeiss Universal Microscope:

1. Objectives—the same great objectives as the WL has. And, in addition, a full line of Epiplans for reflected light work, and famous LUMINARS for photomicrography.

2. The Microscope Stand—the sturdiest stand of any desk-top microscope. This extra stability allows use of the Microscope

Photometer for both reflected and transmitted light, and is of benefit if a great deal of 4 x 5 or motion picture photography is employed.

For reflected light, more intense light, or fluorescent illumination (including phase-fluorescence), the special illuminators, rather than being accessories, become *part* of the instrument, contributing to its ease-of-operation, compactness and sturdiness.

3. Attachments—The same cameras, projection screens, drawing attachments, etc., as for the WL—plus the Microscope Photometer and the Microhardness Tester.

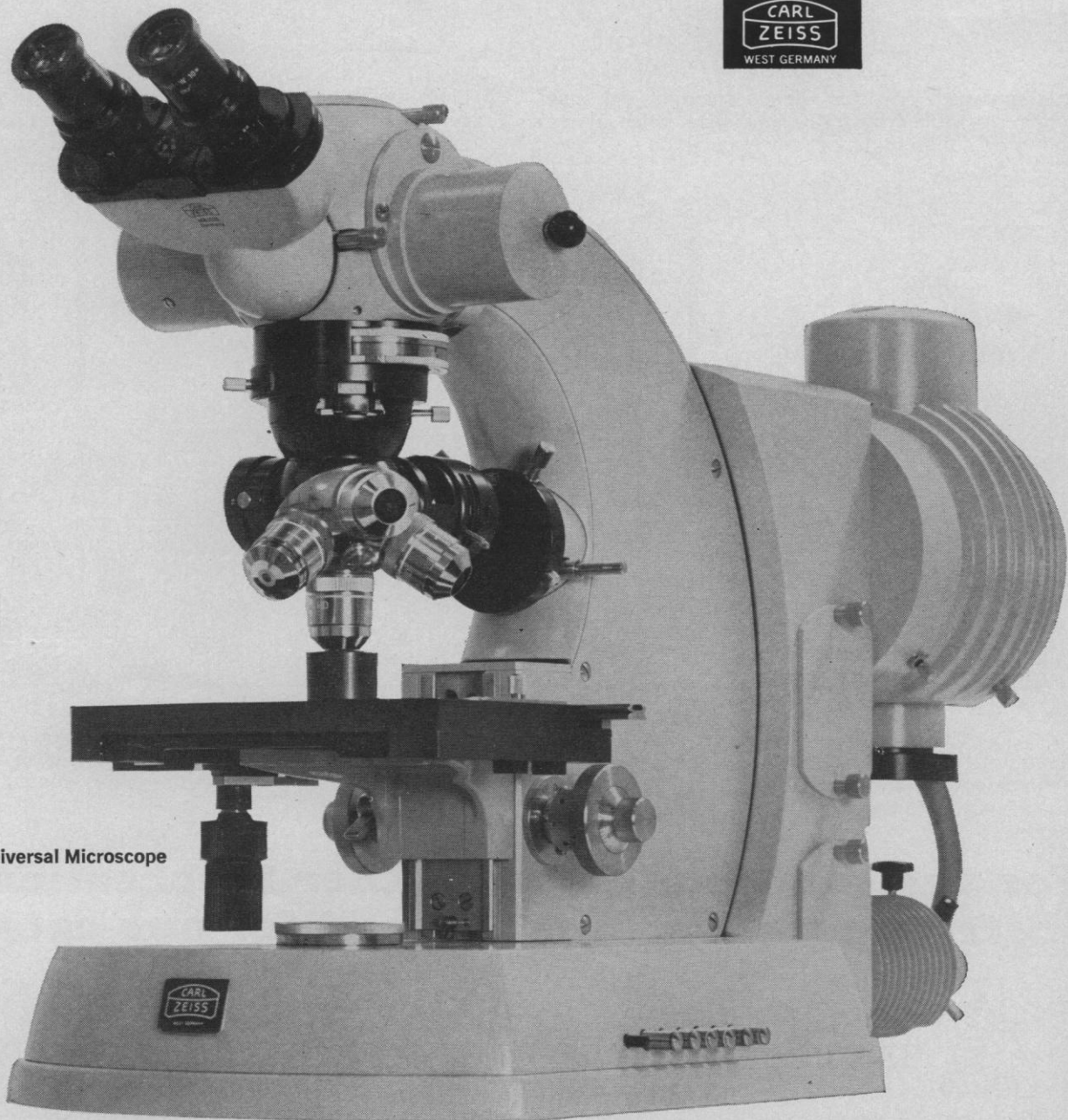
To sum up, the Universal is the instrument to buy when your applications are truly *universal*, when you have to switch from one mode to another during your work. The WL is superb if you are mainly

concerned with transmitted-light microscopy. But no matter which Zeiss microscope you choose, we know you'll be satisfied. Because both are made specifically for the microscopist who is *hard* to satisfy.

For more information on the WL or Universal (or on any of the others in our line) write Carl Zeiss, Inc., 444 Fifth Avenue, New York, New York 10018.

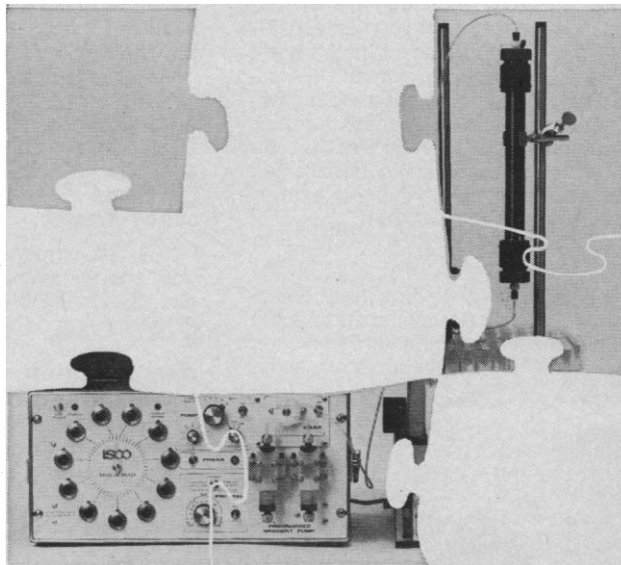
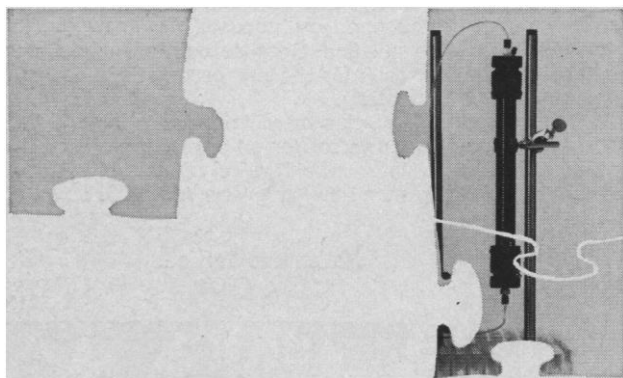
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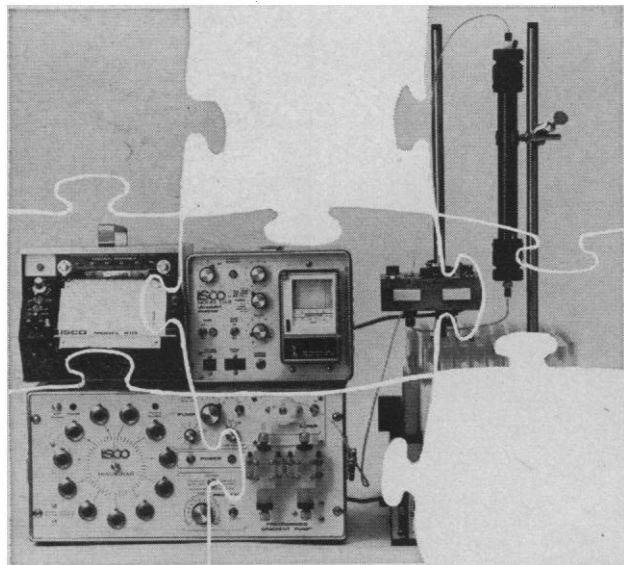
The Zeiss Universal Microscope

Complete the picture

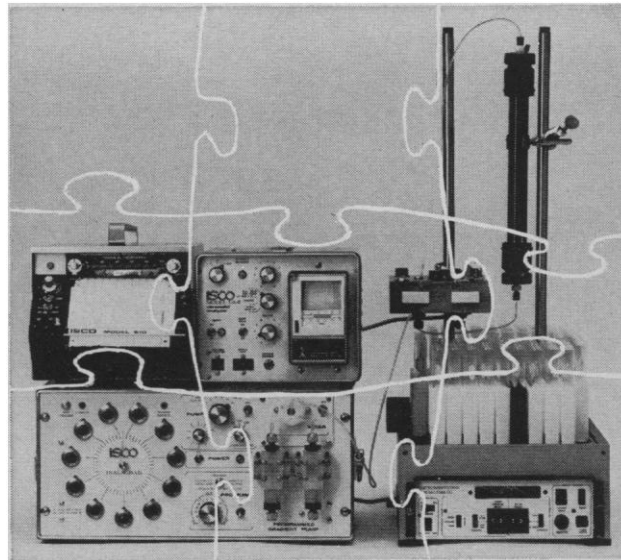


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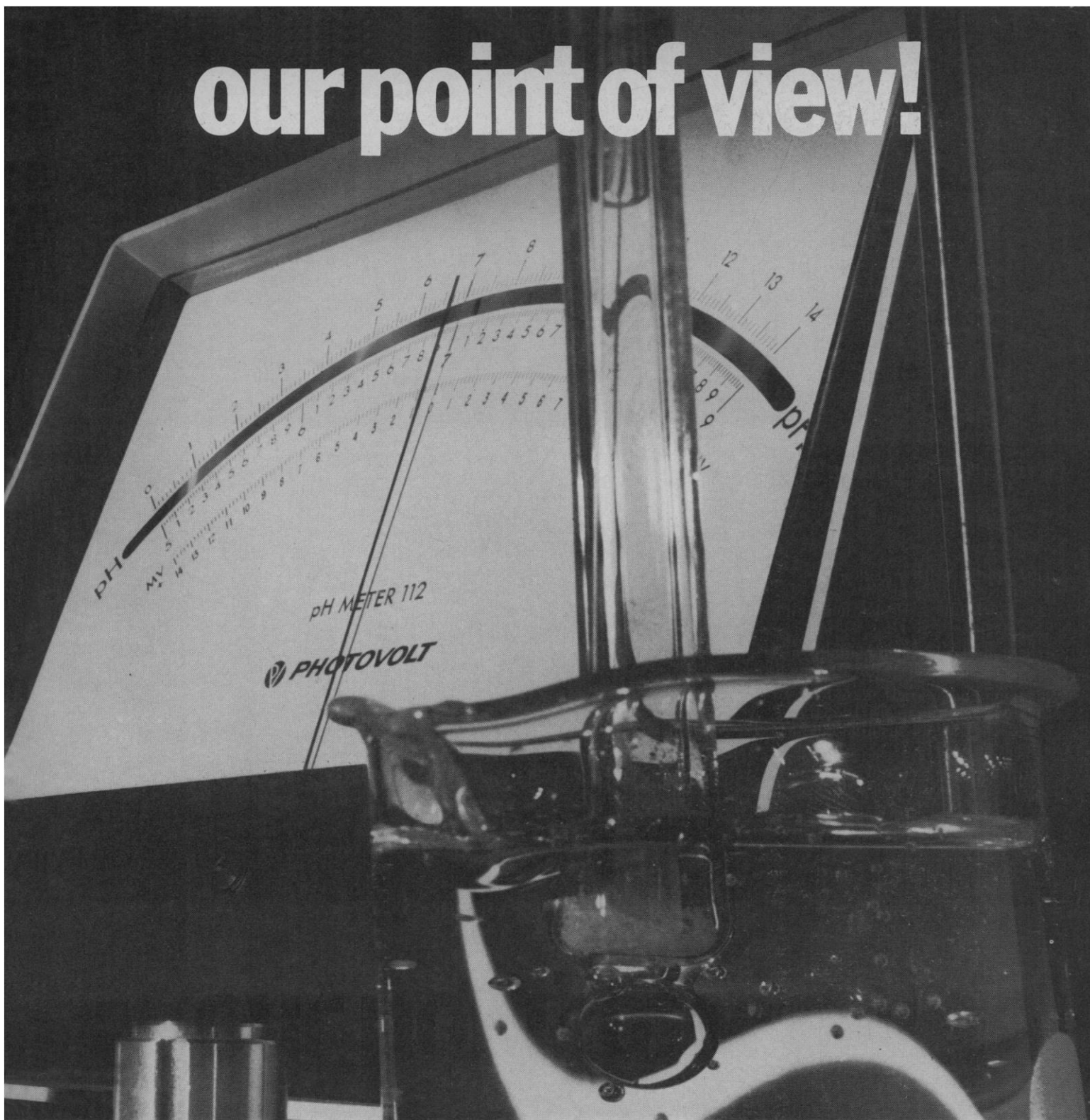
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SCIENCE, VOL. 168

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Expander IV is supplied with a single, fast, high-sensitivity electrode, but it also accepts all others, including ion selective and redox electrodes.

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Now you can have a GC computer installed in your lab for as little as

The new all-HP 3360A System is an on-line real-time dedicated computer packaged for GC and ready for delivery

Until now, the minimum cost of an on-line real-time GC computer system has been \$40,000 to \$50,000. Beginning with the 1970 Pittsburgh Conference where we introduced the HP Model 3360A GC Data Processing System, the price drops to \$18,900 for a single-channel system. The incremental cost for additional simultaneously operating channels, up to a maximum of 8, is just \$3900 per channel. The price structure and modular design of the 3360 allow the GC laboratory to have its own dedicated data processing system under local laboratory control.

THE HP CONCEPT

The reason why the 3360 System costs so much less than others evolves directly from HP's unique approach to GC data handling. In the 3360, detector output is digitized and pre-processed at the GC, then transmitted digitally to the computer. The 3360 therefore requires neither an expensive large-scale computer nor a high-speed analog multiplexer.

Each on-line GC is equipped with an HP 3370 or 3371

digital integrator; as many as eight integrators are connected to an HP 2114B digital computer equipped with plug-in digital multiplexer card. Thus you buy only the hardware that you need, and every component—integrator, computer, multiplexer—is designed, installed and warranted by HP.

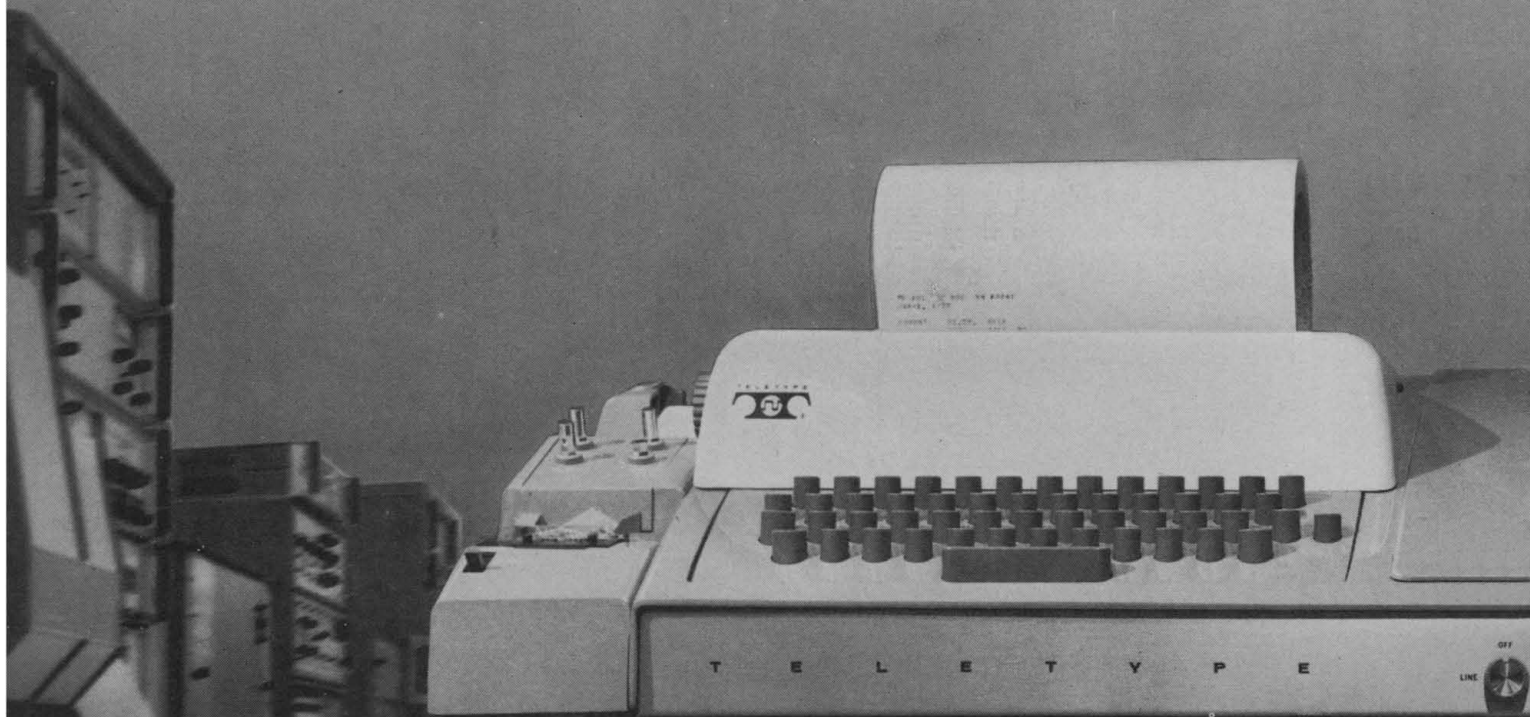
THE HP ADVANTAGES

Compared to GC computer systems based on analog transmission, the 3360 offers more than economy.

Ease of operation. The 3360 dialog is so simple and easy to use that any chromatographer, even one with literally no computer training, can learn to use it easily and quickly. Once in operation, the chromatographer can easily adjust the data processing parameters for each GC in the system, without entering into a dialog with the computer.

Compatibility with any GC. Gas chromatographs of any make and virtually any age can be tied directly to the 3360. In contrast, analog transmission systems require detector signal "clean-up" operations that cost an average of \$1000 per GC. Even so, no analog transmission system can approach the 3360's accuracy in trace component analysis because of the 3360's one-microvolt resolution.

Installation economy. The 3360's error-free digital



system \$18,900

transmission allows cabling between GC integrator and computer which needs no shielding, can be extended at least 1000 feet without signal loss or noise pickup, and is extremely inexpensive. As a result, installation is so simple it can usually be completed in a single day.

Dependability. The 3360 enjoys a degree of protection against loss of data unknown in GC computer systems until now. In the event of computer malfunction or failure, the 3360 provides a semi-automatic data processing back-up through the integrator at each GC and thus avoids loss of data.

Performance. With the HP GC computer system, you continue to operate your GC's as you always have except that the computer makes all calculations and prints out a complete analysis report after each run, including identification, % composition and retention time of each component. What better way to find out how well the 3360A System can work for you than to try it in your lab, with your samples? We'd like nothing better than to demonstrate 3360 in this meaningful way. Just fill out the coupon. As soon as we receive it, we'll schedule a demonstration in your lab, with your GC's and your samples. Then you decide if the 3360 is for you. Hewlett-Packard, Route 41, Avondale, Pa. 19311. In Europe: 1217 Meyrin-Geneva.

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(Phone 215-268-2281)

Gentlemen: Please call me to arrange a demonstration of the new HP 3360A System in my laboratory at the earliest possible time. I understand that you will bring the 3360 to my lab, connect it to my GC's and run my samples.

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Company	Dept.	

Address		

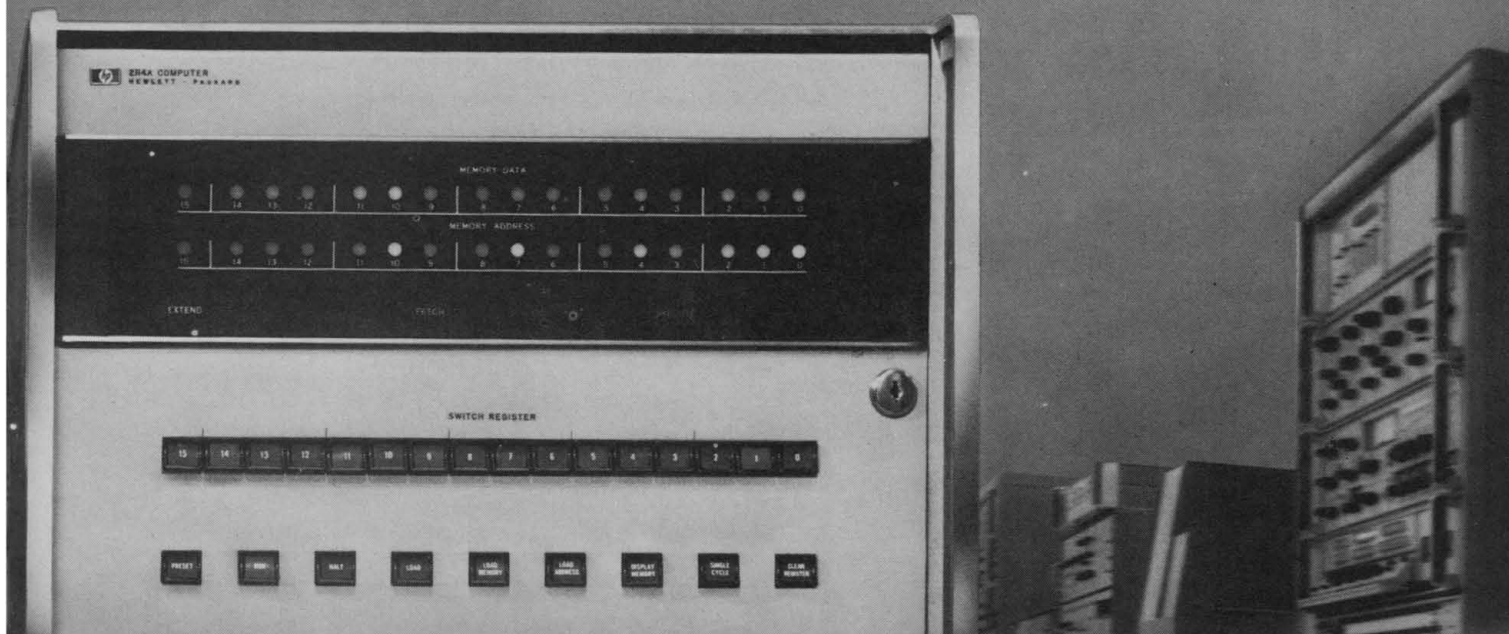
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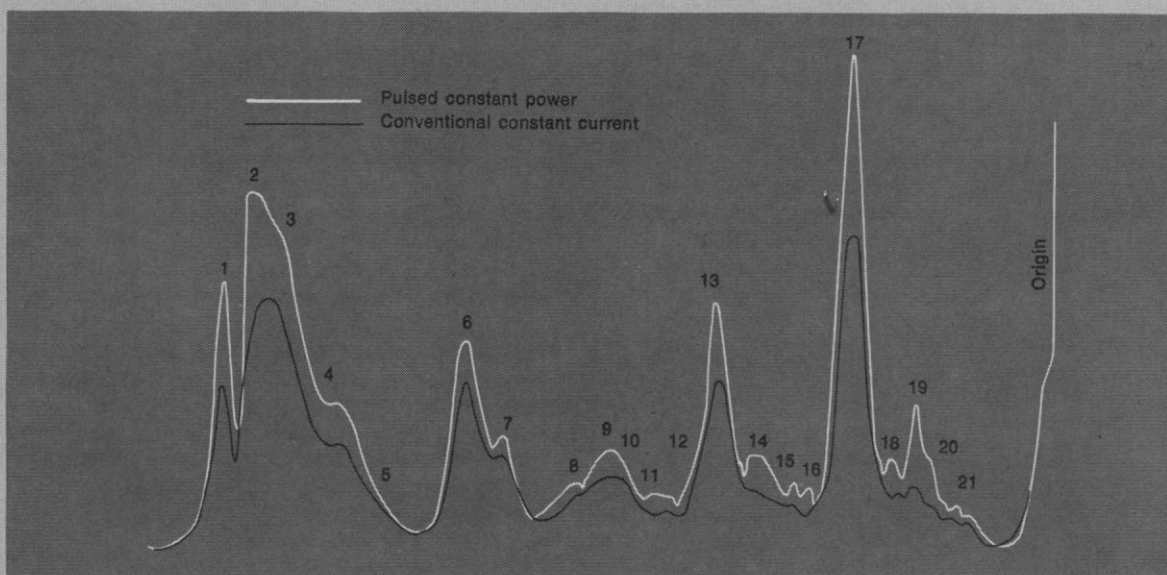
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Of course you're having trouble staining electrophoresed enzyme.

Average Power	Total Units of Esterase Activity*	Peak No 1		Peak No. 17	
		Activity*	Width at ½ height	Activity*	Width at ½ height
27 watts, 85ma constant current	187.6±4.1	10.6±0.32	0.50±0.01	31.4±2.3	0.72±0.02
26.5 watts, pulsed constant power	228.9±8.2	14.8±0.51	0.45±0.01	39.4±2.2	0.60±0.01
Improvement with pulsed constant power	+22.5%	+37.5%	+11%	+25.8%	+20%



* Activity expressed as Model 4300 Microdensitometer counts $\times 10^{-3}$ for $550\mu\text{gm}$ mouse plasma. All runs in quadruplicate. Alpha-naphthyl butyrate as substrate. Fast blue RR salt as coupling agent. Reaction time 15 min. at 37°C .

Now look what Ortec pulsed constant power does to help.

The trouble begins before the staining. The very act of conventional electrophoresis destroys a large part of specific enzyme activity. So only that enzyme whose specific activity survives the separation process can react with the stain. You and your densitometer see only the active enzyme on the stained gel.

Now examine these two mouse-plasma esterase zymograms, made from identical $550\mu\text{gm}$ samples, with all experimental conditions equal except for the power supplies. The black line shows total esterase activity remaining after separation by conventional constant-current d-c polarization. The white line shows activity after Ortec pulsed constant-power electrophoresis. Both zymograms were traced on an Ortec Model 4300 Integrating Densitometer.

The zymograms show that specific activity is approximately 22.5% higher after pulsed constant-power separation than after conventional constant-current separation. Note that total run time was 55 minutes for both, and average power about 27



watts for both. Even without our high-resolution densitometer, the effect of Ortec pulsed constant-power polarization* will be immediately apparent in your lab. The stained gels themselves are easier to evaluate by eye—more bands, sharper bands, indicating enzyme activity that wasn't killed by the power supply. Gels like these give any good densitometer more to work with.

The entire illustrated story on Ortec high-resolution electrophoresis is contained in our Bulletin LS-100. You ought to write for a copy. *Life Science Products, Ortec Incorporated, 133 Midland Road, Oak Ridge, Tenn. 37830.* Or phone 615-482-1006. In Europe: Ortec GmbH, 8 München 13, Frankfurter Ring 81, West Germany.

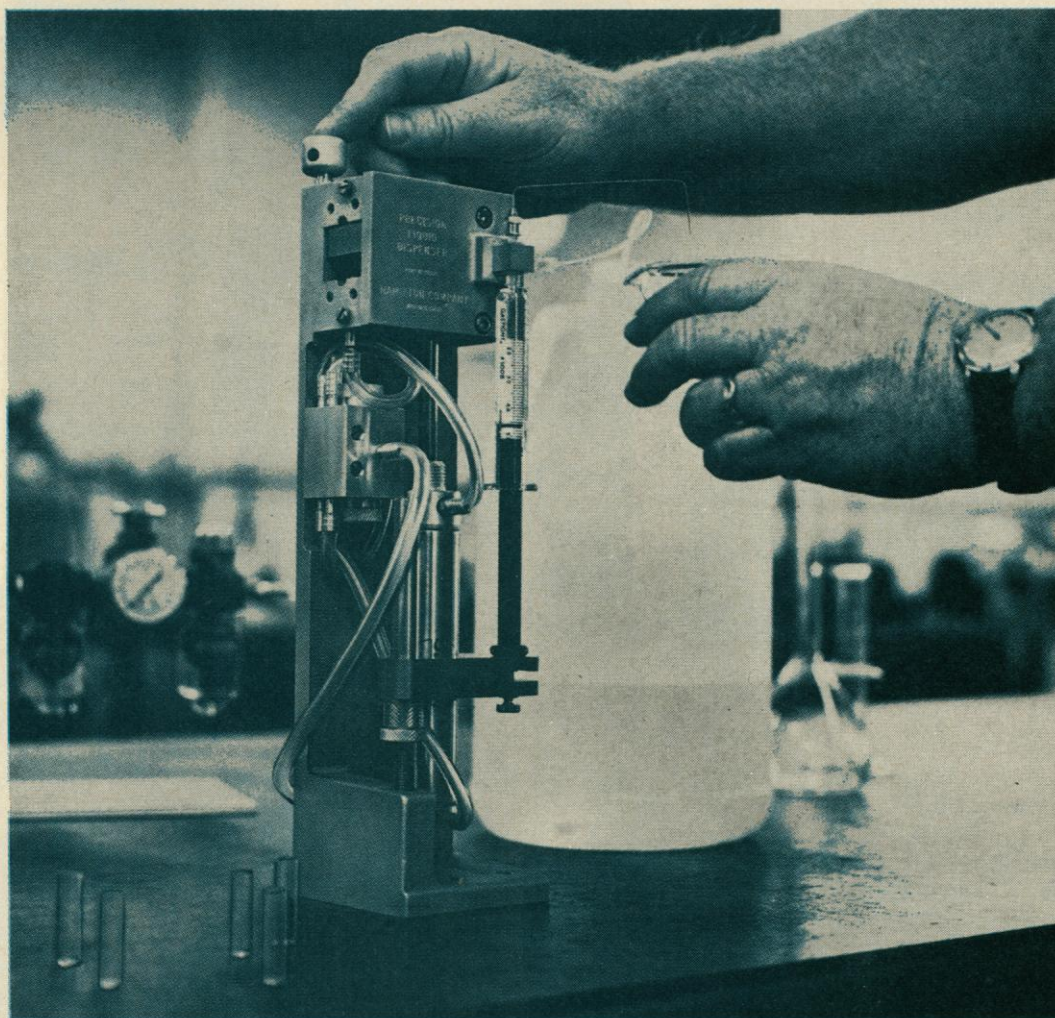
*patent pending 4710

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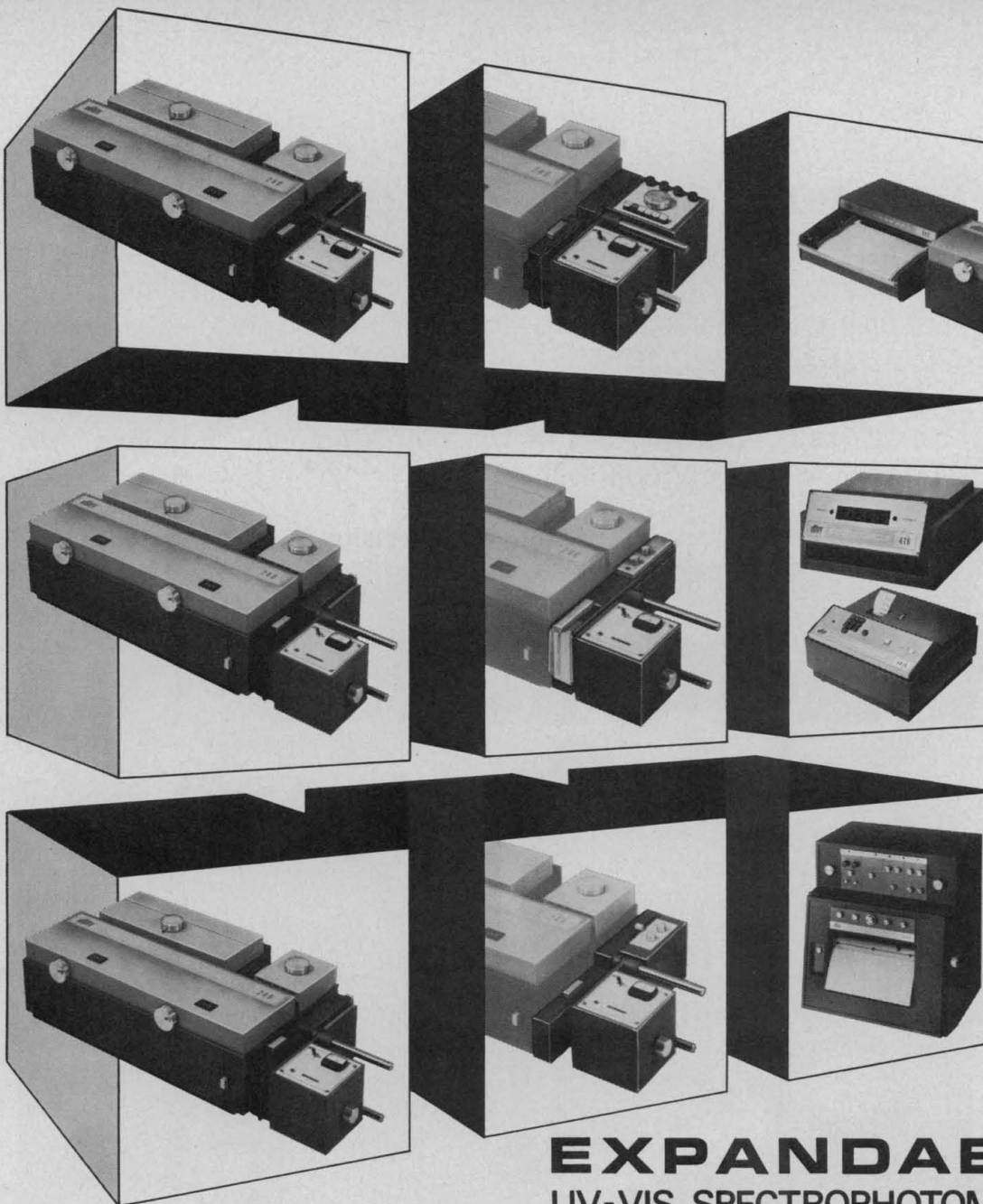
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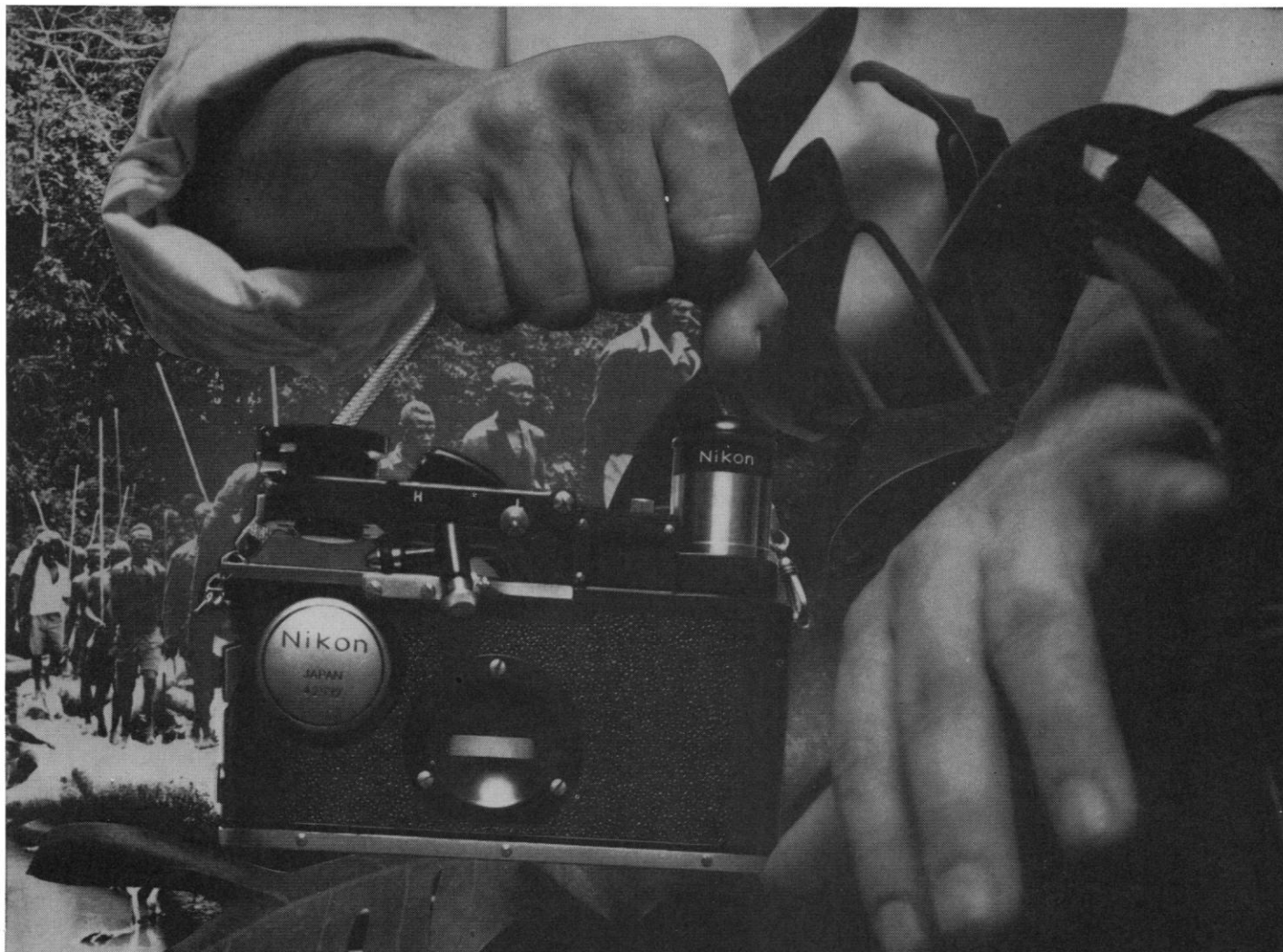
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Nikon Model H Microscope



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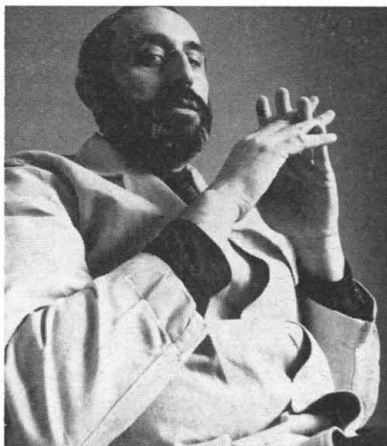
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The Cary 401 vibrating reed electrometer detects currents on the order of 10^{-17} ampere, charges as small as 5×10^{-16} coulomb and potentials down to 2×10^{-5} volts from high impedance sources. Its list of standard features includes solid state circuitry, multiple resistor input switching, remote input shorting, critical damping, measurement of potentials from grounded sources, and master-slave operation. And it can be rack or bench mounted.

If your application is in mass spectrometry, radioactivity, physical measurement or biomedical research, the Cary 401 can



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The 401 provides sensitive,



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While particularly suited to applications which require drift-free operation, the Cary 401 also measures soft beta radiation such as carbon-14, tritium and sulfur-35. Or assays radioactive labeled chromatographic effluents.

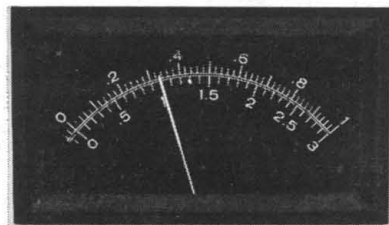
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With the 401, you can investigate resistance, charging, hysteresis, polarization, absorption and dielectric phenomena. Or study the photoelectric, thermoelectric and electrochemical properties of matter. Semiconductor studies include conductivity, resistivity, impurity and Hall effect measurements. And, because input resistance is greater than 10^{16} ohms, the

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When measuring ion transfer, potentials and resistances across membranes, the 401 gives unmatched performance. Other biomedical applications include in-vivo respiratory analyses of $C^{14}O_2$, intermediary metabolism investigations, polysaccharide synthesis and degradation



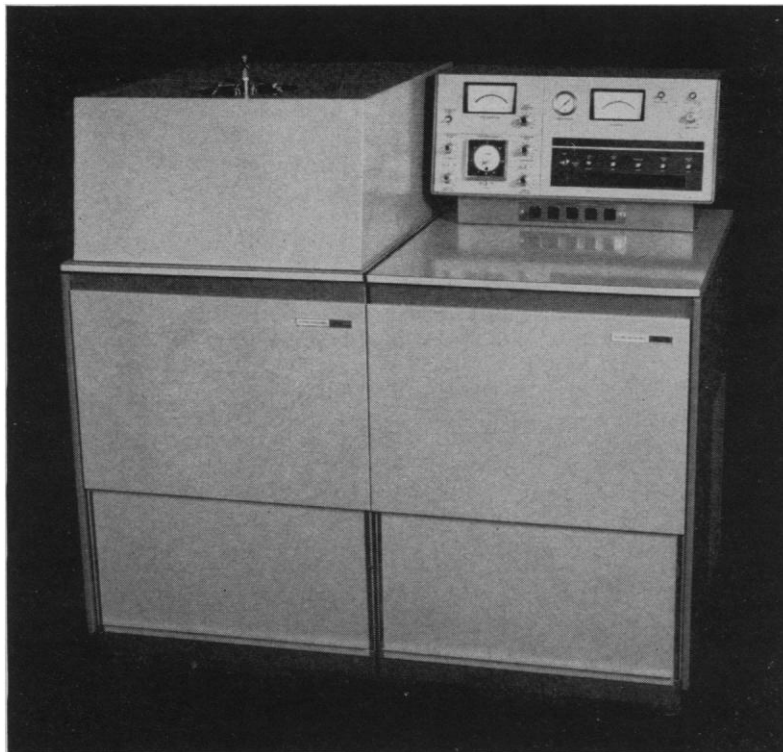
Range 3 millivolts full scale. 10^{12} ohm input resistor. (Equivalent to 10^{-16} amps.)

analyses and gas chromatographic studies of steroid and fatty acid molecular systems.

Twenty-three years of experience stand behind the Cary 401, the world's best commercially available vibrating reed electrometer. By far. For complete details, write Cary Instruments, a Varian subsidiary, 2724 S. Peck Road, Monrovia, California 91016. Ask for data file **E004-50**

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Continuous-flow zonal ultracentrifugation: A beautiful technique awaiting a practical, non-temperamental research instrument.



(Wait no more: you're looking at it.)

Background

Continuous-flow zonal ultracentrifugation was a major development of Dr. N. G. Anderson and co-workers in the AEC-NIH Molecular Anatomy Program at Oak Ridge National Laboratory. And because this technique combined high resolution, high capacity, and high practicality, a production-scale centrifuge is now being used by major pharmaceutical companies for the production purification of influenza virus vaccine. The high resolution of this device is now providing vaccine up to 10X purer than any previously available commercially. (Electro-Nucleonics, Inc., is the only company making this ultracentrifuge—the Model K—available commercially.)

Now announcing the Model RK: the research and pilot-plant version of the Model K.

The high capacity of the Model K is beyond the requirements of many research and pilot-plant applications. The obvious need, then, has been for a simple, non-temperamental continuous-flow zonal ultracentrifuge as dependable and versatile as the production-oriented Model K, but designed for the smaller volumes of

material typical of the research laboratory and the pilot plant. Enter the Model RK.

The Model RK

Oversimplifying somewhat: the Model RK is a smaller Model K. Accordingly, it too features continuous flow capability over the entire speed range. And, most importantly, the design, engineering, and construction aspects of the Model K—the elements responsible for its simplicity and dependability—are retained by the RK. Example: the RK has the K's unique single-pass rotating seal design and operates to 60,000 RPM completely eliminating fussing with complex temperamental demountable seal systems for loading and unloading the rotor.

Now specifications, briefly. The currently available aluminum and titanium RK rotors provide speeds of 35,000 RPM and gravitational forces in excess of 90,000 g. (Subsequent rotors—fully compatible with the RK system—will provide even higher gravitational fields at the RK's full speed of 60,000 RPM.) The RK rotor volume is typically 1.7 liters and the sample flow rate may be 500 ml/min or higher.

The RK is a safety-oriented instrument with a monitoring system which con-

stantly scans the critical operating conditions and forecasts problem areas in sufficient time to correct them. Result: the RK monitoring system protects both your run *and* your instrument.

Applications of continuous-flow zonal ultracentrifugation

This technique has been most effectively used to isolate viruses, bacteria, mitochondria, polysomes, ribosomes, ribosomal subunits, macroglobulins, microsomes, and other sub-cellular particles. It has wide application wherever high-resolution separation of such components is desired. (For background information see: "The Development of Zonal Centrifuges and Ancillary Systems for Tissue Fractionation and Analysis," National Cancer Institute Monograph 21, GPO, Washington, D.C. 20402. \$4.75)

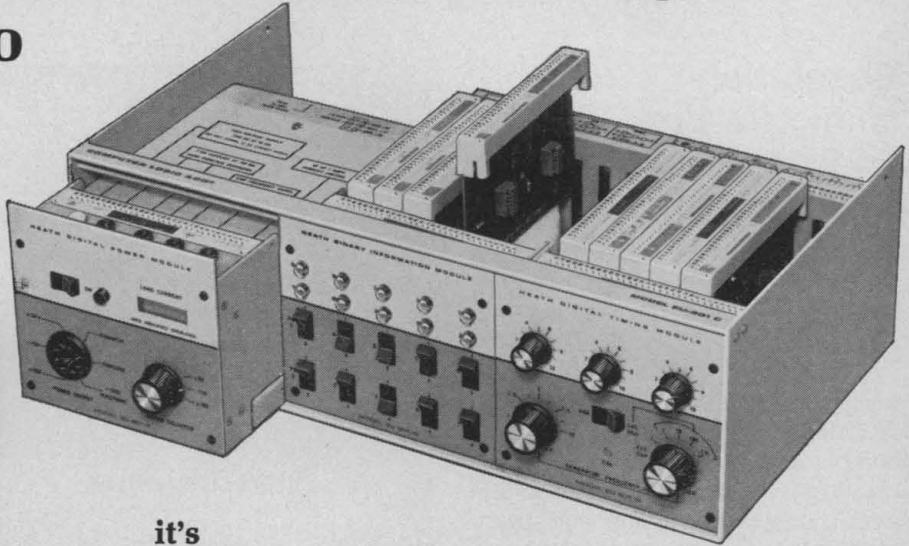
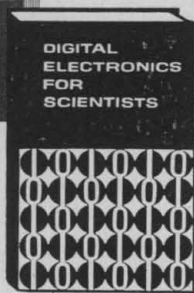
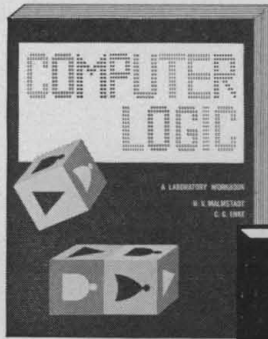
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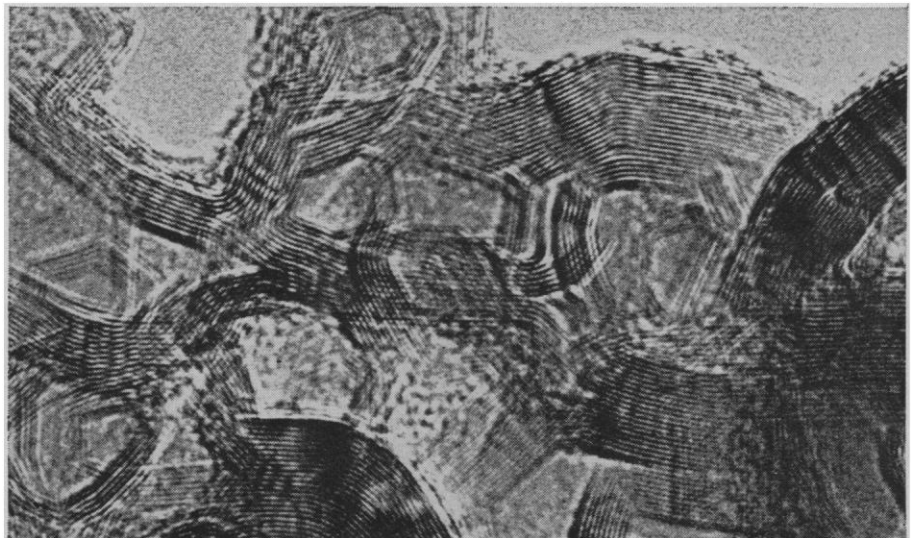
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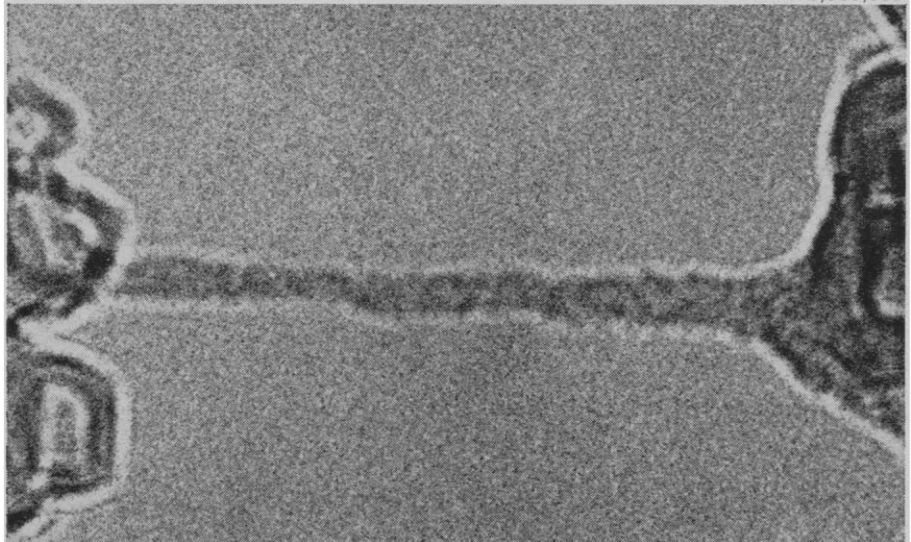
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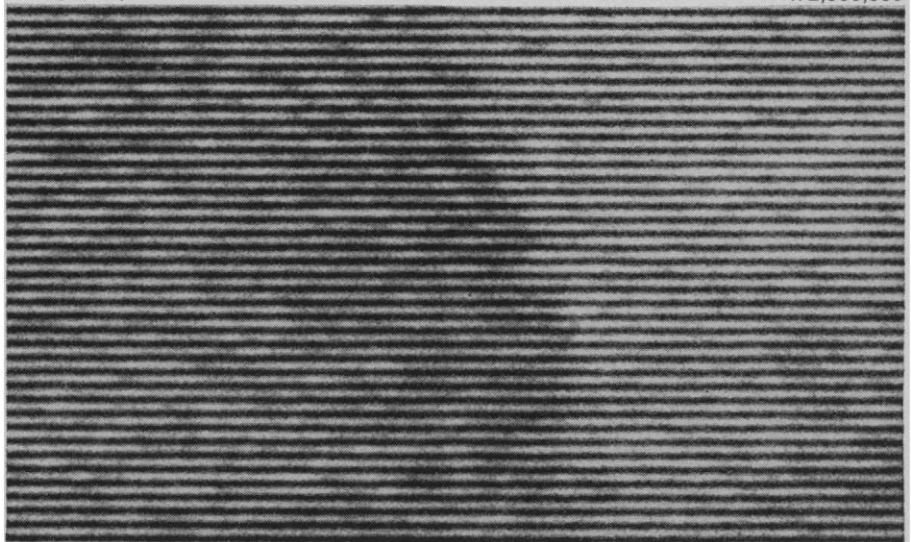
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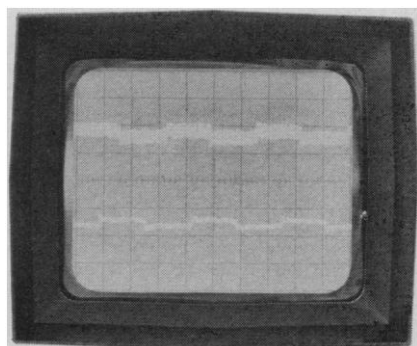
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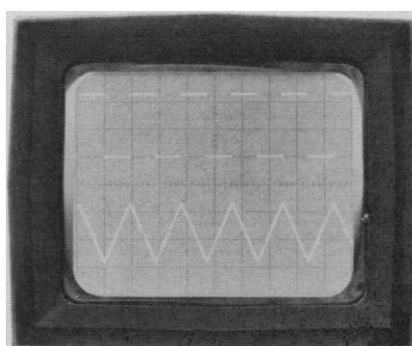
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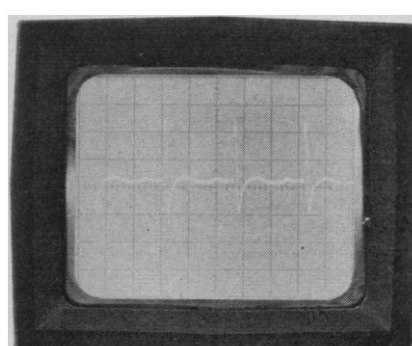
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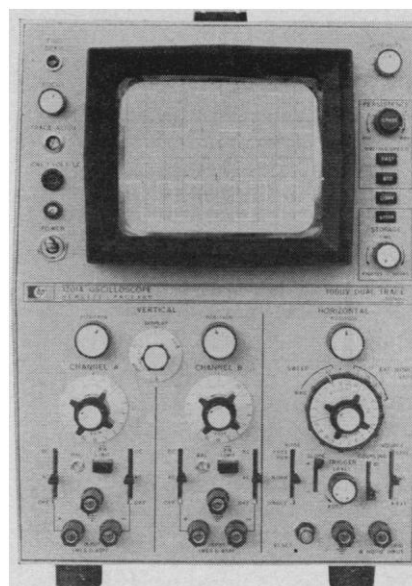
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ence Manpower, 1968, National Science Foundation pamphlet 70-5, January 1970).

If the AAAS and scientists in general are committed to the goal of equal opportunity, is not some investigation called for to ascertain why that goal continues to elude us?

BEVERLY L. CHIÑAS

Department of Anthropology, Chico State College, Chico, California 95926

Effect of the Draft on Graduate Physics Education

On 24 April 1968, Betty Vetter, executive director of the Scientific Manpower Commission, Washington, D.C., gave an address to the American Physical Society entitled "The doomsday machine for physics—the draft." At the time, her prediction that "the new rules will result in the elimination of half of three consecutive classes of entering students (and almost two-thirds in physics)" was considered by many to be exaggerated. It is now apparent that the effect of the draft on graduate physics education at Stanford University is threatening to fulfill her dire prediction.

The Stanford physics department is fortunate in attracting each year an outstanding class of entering graduate students. Out of approximately 400 applicants, an entering class of roughly 30 students is formed. More than 80 percent of the entering students have National Science Foundation or other fellowships and have Graduate Record Examination scores within the top tenth of all physics undergraduate students in the nation.

Of the 29 students who accepted admission to graduate study in our de-

partment in the fall of 1968, 5 did not come for reasons related to the draft, 1 did not come for other reasons, 6 left during the first academic year for reasons related to the draft, and 17 returned for the current academic year; of the 17, 13 are vulnerable to the draft.

In order to explore whether our experience has been duplicated elsewhere, we sent inquiries to the top 21 departments in this country whose graduate faculties were voted as "distinguished" or "strong" in the 1966 *Assessment of Quality of Graduate Education* by A. M. Cartter (American Council of Education, Washington, D.C.). Ten replies were received. Table 1 shows that many of them had experiences similar to ours; that is, of the students who accepted offers of admission for the fall of 1968, between 11 and 38 percent did not come or have since left for draft-related reasons.

Our experience has shown that uncertainty with respect to draft status has an extremely detrimental effect on our students. Graduate study in physics, and, no doubt, in other professional fields, requires an absorption and concentration on the subject matter which is probably unique as far as occupations are concerned. Under these circumstances many of our graduate students cannot bear the pressure of a I-A classification, even for 1 year. They tend to join other activities in which their military status is defined with greater certainty.

Judging by the classifications of the new class of students who entered in the fall of 1969, most of the 13 students vulnerable to the draft will receive I-A classifications during the present academic year. Furthermore, under the present lottery system one may expect that at least half will be

Table 1. Summary of draft experience of students entering graduate work in physics in the fall of 1968.

	ACE rank	Students (No.)				
		Accepted admission	Did not come or left		Remain- ing in 1969	Did not come or left for known draft reasons (%)
			Draft reason	Other reasons		
Berkeley	1	65	20	6	39	31
Harvard	3	22	6	1	15	27
Princeton	4	32	11	1	20	34
Stanford	5	29	11	1	17	38
Illinois	8	88	17			19
Yale	11	21	7	4	10	33
Michigan	13	44	9	14	21	20
Rochester	13	28	3	4	21	11
Maryland	16	90	14			16
Hopkins	19	15	5	0	10	33
Carnegie-Mellon	21	22	6	5	11	27

drafted. Therefore we can predict that of the class which accepted admission for the fall of 1968, less than half, perhaps as few as one-third, will be left in the fall of 1970.

We realize that the present method of draft selection is in a transitional period as far as graduate students are concerned, since in the future mainly 19-year-olds will be affected. Nevertheless, the transitional period will be of approximately 4 years duration. If no special consideration is given to graduate students during this period, the effect on our graduate program will be disastrous.

The situation is actually worse than predicted by Mrs. Vetter who suggested that after 2 years of military service most graduate students would return to graduate study. It appears, though, that a large percentage of students are actually leaving the field of physics as a result of a I-A classification and that they will not return to our department at a later date. This statement is based on interviews with students who have left our graduate program over the years for nonacademic reasons. Over the years, also, there has been no equivalent flow of graduate students from other fields into our department, so that the loss of graduate students is not balanced off.

The recently announced postponement of induction of graduate students until the end of the academic year does not affect the long-range predictions made here. Although the postponement will allow many students to obtain their Master's degrees, it does not avoid a I-A classification and the period of uncertainty which causes students to leave graduate study in physics.

In assessing the effect of the actual and the further predicted decrease in graduate enrollment on our department it should be noted that graduate students are heavily engaged in our teaching and research programs. Specifically, one-third of our students teach and more than 95 percent are involved in some research project. Obviously, a large decrease of graduate enrollment caused by the draft will have a very damaging effect on our department. The blame for this unhappy situation clearly lies with the legislative and executive branches of our government. Unless drastic changes in the draft laws are made, our government is guilty of eroding the educational and research programs of some of the finest physics departments in the country.

A volunteer army, recommended by

the President, would clearly provide one solution to the problems outlined above. Failing that, we propose that during a transitional period of approximately 4 years, deferments be extended to graduate students. This would allow a man to finish his training before he starts military service. Such a man is much more likely to return to physics than one whose study is interrupted, thus helping to assure an adequate supply of highly trained physicists for the needs of our country.

W. E. MEYERHOF

*Department of Physics,
Stanford University,
Stanford, California 94305*

Mind Assault

Stanley Milgram's "The experience of living in cities" (13 Mar., p. 1461) provides evidence on the quality of life in the city. He reports that McKenna and Morgenthau devised an experiment in which telephone callers misrepresented themselves as long-distance callers "who had, through error, been connected with the respondent by the operator." The callers then proceeded to diddle the subjects by representing themselves as persons in need of information. When that dialogue was established, the subjects were then put to a greater test when the caller asked, on some pretext, that the respondent "please hold on." The caller would put the phone down for almost a minute, and then would ask further questions, in the cases where the respondent had continued to make himself available. "Scores were assigned the subjects on the basis of how helpful they had been."

Henry Thoreau observed in *On the Duty of Civil Disobedience*, "It is not so important that many should be as good as you, as that there should be absolute goodness somewhere; for that will leaven the whole lump." From that I draw the uneasy conclusion that the small leavening of absolute duplicity which McKenna unloads onto the lump of troubled city life may do more to increase those troubles than to alleviate them. The informed citizen of our city will henceforth consider the dangers of mind assault as well as body assault when he wonders whether he should open his door, or heed the phone call of a stranger. . . .

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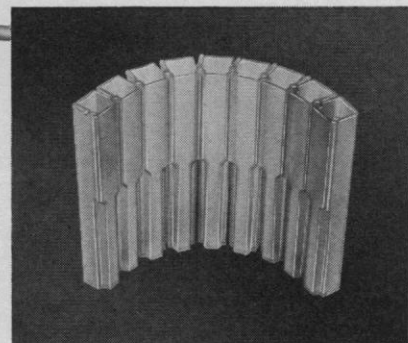
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The Wrong Top Priority

At the moment, American conservatives and liberals, government and people, all consider the elimination of pollution the domestic problem which deserves first priority. Public opinion polls show that Americans ranked fighting pollution next to fighting crime; fighting pollution ranked higher than any other needs, including those of improving schools and expanding medical services. A very high 56 percent favored allotting more money to the purification of our air and water, while an extremely low 3 percent favored less expenditure in this area. The President clearly indicated his concern in his message to Congress on 10 February: "The time has come when we can no longer wait to repair the damage already done, and to establish new criteria to guide us in the future." Furthermore, he added that pollution "may well become the major concern of the American people in the decade of the '70's."

This new commitment has many features of a fad: a rapid swell of enthusiasm (most of the ecology action groups are less than 6 months old), fanned by the mass media (the number of activists at Columbia University tripled after the *New York Times* reported that pollution was The Cause of the Year). And the commitment is rather shallow. Few citizens seem aware of the costs they will have to bear as taxpayers, consumers, and automobile and home owners. For example, the increase in fuel costs for landlords is estimated to run between 15 and 20 percent. Another typical feature of this past fad is the preponderance of advocates who feel that the advancement of their project would achieve a whole spectrum of good things, ranging from revival of the Judeo-Christian tradition to improvement of the "quality of life."

To arouse the public and Congress, the newly found environmental dangers are being vastly exaggerated; we really are not all about to be asphyxiated by carbon monoxide. Nor is it true that, unless we *act now*, "air pollution will screen out the sun and make big cities uninhabitable; [that] the fragile biosphere we all live in is becoming poisonous and may cease to support life; [that] plagues threaten" [editorial, *Life* (6 March 1970)]. The time frequently set for this "end of the world" is "within 10 to 15 years." Even if a presently threatened species—say, Louisiana's brown pelicans—were to disappear, it is still ridiculous to expect that the whole ecology would be thrown so out of equilibrium that our economy or society would collapse.

The complicated problems that pollution control poses can be handled only in part through a crash program. Public and legislative commitment ought to be built up for a long pull. But even if one day water and air again are as pure as they were before man polluted them, many other environmental problems—from ugly cities to overcrowding—will still be with us.

Now we should continue to give top priority to "unfashionable" human problems. Fighting hunger, malnutrition, and rats should be given priority over saving wildlife, and improving our schools over constructing waste disposal systems. If we must turn to "environment," first attention should be given to the 57,000 Americans who will *lose their lives* on the roads in 1970.

More deeply, we must face the fact that our society and policy are still organized as if our real top priority was the production of consumer goods and their consumption. Unless we learn to turn much more of our resources, manpower, organizational skills, and attention to public issues, none of the annual fads will cause a significant, lasting reduction in any of our domestic problems.—AMITAI ETZIONI, *chairman, Department of Sociology, Columbia University, New York, New York*

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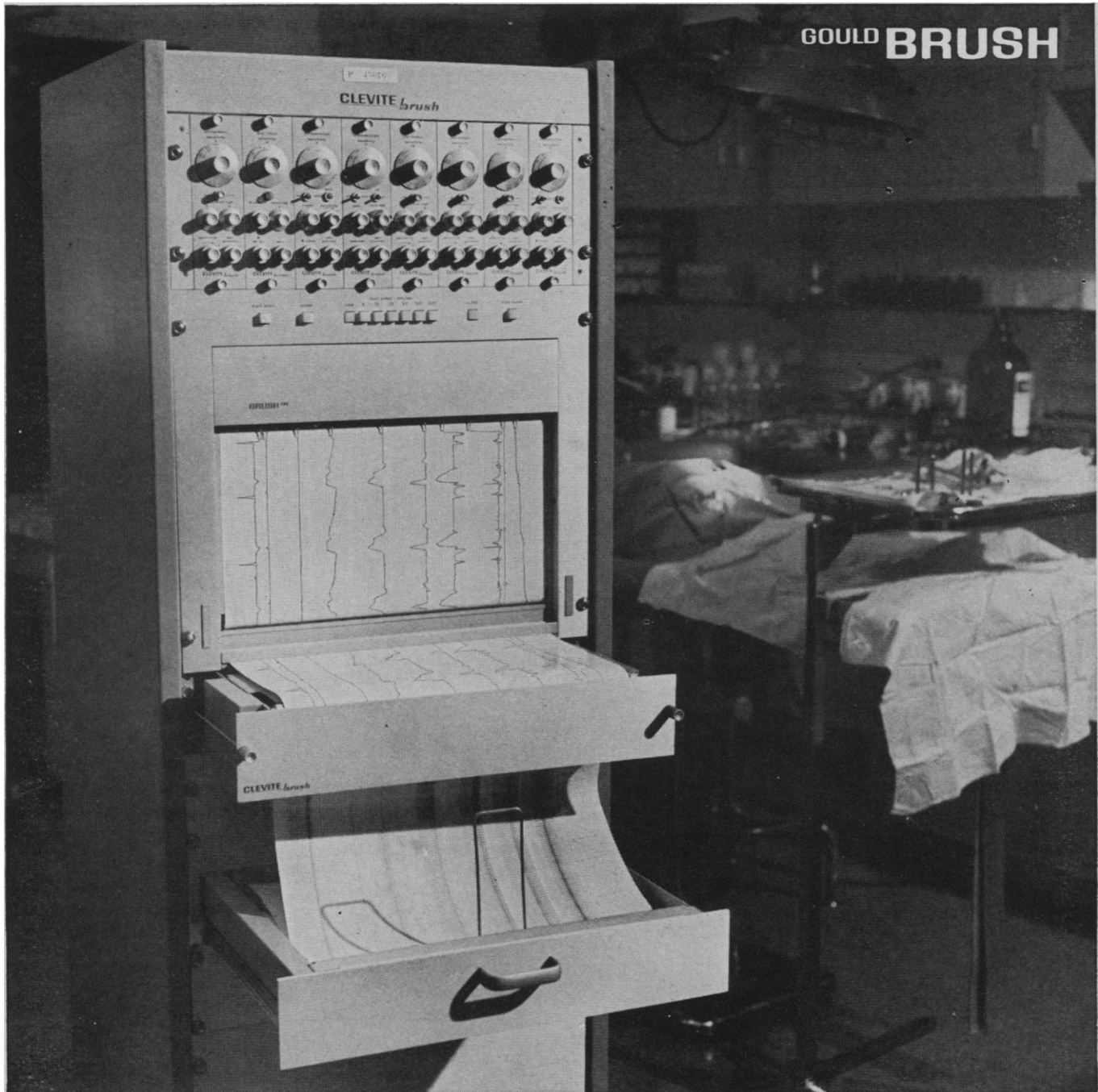


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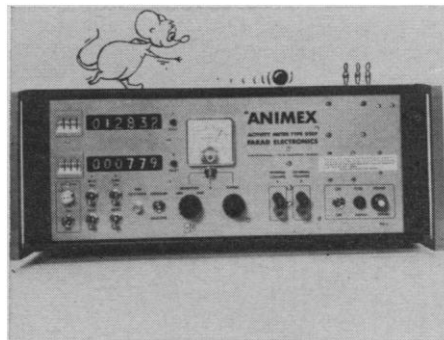
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29-1. **Drug Metabolism in Man**, New York, N.Y. (E. S. Vesell, Pennsylvania State Univ. College of Medicine, Hershey, Pa.)

29-1. **American Soc. of Heating, Refrigerating and Air Conditioning**, Kansas City, Mo. (J. T. Szabo, 345 E. 47 St., New York 10017)

29-1. **Society for Industrial and Applied Mathematics**, Denver, Colo. (N. Bleistein, Dept. of Mathematics, Univ. of Denver, Denver 80210)

29-1. **Marine Technology Soc.**, 6th annual conf., Washington, D.C. (D. L. McKernan, 130 M St., NW, Washington, D.C. 20036)

29-1. **Water Quality Management Data and Instrumentation**, Madison, Wis. (I. Grossman, New York State Dept. of Health, 84 Holland Ave., Albany 12208)

29-3. **International Conf. of Operational Research Soc. and Inst. of Management Sciences**, London, England. (Mrs. M. Kinnaird, Operational Research Soc. Ltd., 62-64 Cannon St., London E.C.4)

30-3. **American Dental Soc. of Europe**, Dublin, Eire. (D. Derrick, 140 Park Lane, London W.1, England)

July

1-3. **Institute of Management Sciences**, London, England. (S. W. Hess, Wharton School, Univ. of Pennsylvania, Philadelphia 19104)

1-3. **Institute of Navigation**, 25th annual, Colorado Springs, Colo. (R. E. Freeman, Suite 832, 815 15th St., NW, Washington, D.C. 20005)

1-4. **Canadian Dental Assoc.**, Winnipeg, Man. (J. P. Beattie, 435 Academy Rd., Winnipeg 9)

1-6. **National Education Assoc.**, San Francisco, Calif. (S. M. Lambert, NEA, 1201 16th St., NW, Washington, D.C. 20036)

2-3. **American Inst. of Aeronautics and Astronautics and Canadian Aeronautics and Space Inst.** joint meeting, Toronto, Ont., Canada. (H. C. Luttmann, 77 Metcalfe St., Ottawa 4, Ont.)

5-9. **Agricultural Pesticide Soc.**, Ottawa, Ont., Canada. (W. H. Minshall, Research Inst., Canada Agriculture, University Sub Post Office, London, Ont.)

5-9. **Canadian Soc. of Agronomy**, Ottawa, Ont. (R. Loiselle, Ottawa Research Sta., Central Experimental Farm, Ottawa)

5-9. **Canadian Soc. of Soil Science**, Ottawa, Ont. (A. R. Mack, Soil Research Inst., Central Experimental Farm, Ottawa)

6-10. **Microwave Spectroscopy Conf.**, Bangor, England. (Meetings Officer, Inst. of Physics and The Physical Soc., 47 Belgrave Sq. London S.W.1, England)

6-10. **Urban Water Resources Management Conf.**, Henniker, N.H. (K. R. Wright, Wright Water Engineers, Denver, Colo.)

6-11. **Symposium on Applications of Holography**, Besancon, France. (J. Ch. Vienot, Laboratoire de Physique Générale et Optique, Faculté des Sciences, Univ. de Besancon, 25 Besancon)

6-12. **Society of Nuclear Medicine**, Washington, D.C. (M. Glos, 211 E. 43 St., New York 10017)

7-9. **Conference on Scanning Electron Microscopy in Materials Science**, Newcastle

upon Tyne, England. (E. H. Boulton, School of Chemistry, The University, Newcastle upon Tyne)

7-9. **Conference on Modern Welding Techniques**, New York, N.Y. (J. A. Fellows, American Soc. for Metals, Metals Park, Ohio 44073)

7-10. **Catalytic Oxidation Principles and Processes**, intern. symp., London, England. (J. F. Gibson, Chemical Soc., Burlington House, London)

7-10. **International Conf. on the Chemistry and Physics of Organic Scintillators and Liquid Scintillation Counting**, San Francisco, Calif. (C. T. Peng, School of Pharmacy, Univ. of California, San Francisco 94122)

7-10. **Symposium on Stock and Recruitment**, Aarhus, Denmark. (L. R. Day, Intern. Commission for Northwest Atlantic Fisheries, P.O. Box 638, Dartmouth, Nova Scotia, Canada)

8-10. **American Soc. of Agricultural Engineers**, 63rd annual, Minneapolis, Minn. (J. L. Butt, P.O. Box 229, St. Joseph, Mich. 49085)

8-10. **Symposium on Non-Aqueous Electrochemistry**, Paris, France. (J. Badoz-Lambling, Laboratoire de Chimie Analytique, 10 rue Vauquelin, Paris 5)

8-10. **Western Resources Conf.**, Denver, Colo. (J. J. Schanz, Jr., Denver Research Inst., Univ. of Denver, Denver 80210)

8-11. **World Congress of Digestive Endoscopy**, 2nd, Copenhagen, Denmark. (S. Stoichita, 29 ree Pitar Mos, Bucharest, Rumania)

9-10. **Texas Water Pollution Control Assoc.**, 9th conf., Houston, Tex. (H. N. Myrick, Dept. of Civil Engineering, Univ. of Houston, Houston 77004)

12-16. **Powder Metallurgy**, 3rd intern. conf., New York, N.Y. (P. K. Johnson, Metal Powder Industries Federation, 201 E. 42 St., New York 10017)

12-18. **International Soc. of Gastroenterology**, 4th world congr., Copenhagen, Denmark. (M. Andreassen, Univ. Kirurgiske Klinik C., Rigshospitalet, Copenhagen)

12-18. **Photochemistry**, 3rd intern. symp., St. Moritz, Switzerland. (D. Bryce-Smith, Dept. of Chemistry, Univ. of Reading, Reading, England)

12-18. **International Soc. of Urology**, 15th congr., Tokyo, Japan. (T. Ichiawa, 1 Toyamacho, Shinju Ku, Tokyo)

13-15. **American Assoc. of Physicists in Medicine**, Washington, D.C. (J. A. Hancock, Jr., Box 2546, Malcolm Grow USAF Hospital, Andrews Air Force Base, Washington, D.C. 20331)

13-17. **American Soc. of Civil Engineers**, Boston, Mass. (W. H. Wisely, ASCE, 345 E. 47 St., New York 10017)

13-17. **Engineering Foundation Research Conf.**, Henniker, N.H. (F. P. Huddle, Reference Service, Library of Congress, Washington, D.C.)

13-17. **National Policy for Materials**, Henniker, N.H. (F. P. Huddle, Library of Congress, Washington, D.C.)

13-17. **Transportation and Engineering**, Boston, Mass. (W. H. Wisely, American Soc. of Civil Engineers, 345 E. 47 St., New York 10017)

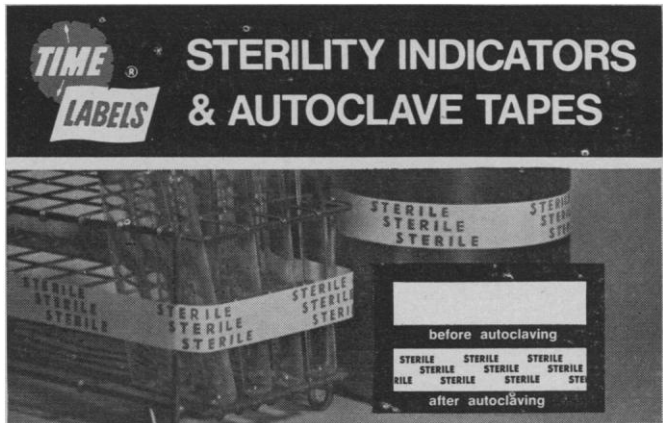
14-16. **Electromagnetic Compatibility**, intern. symp., Anaheim, Calif. (J. C. Senn, P.O. Box 1970, Anaheim 92803)

15-23. **World Water Balance**, intern.

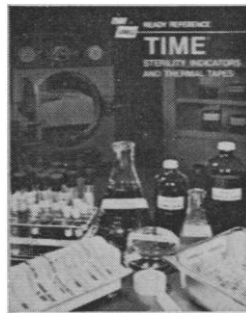
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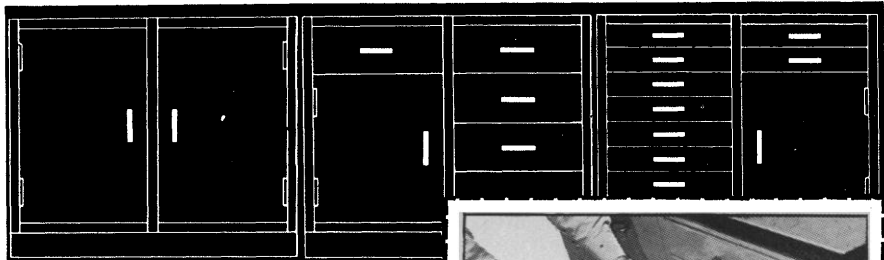
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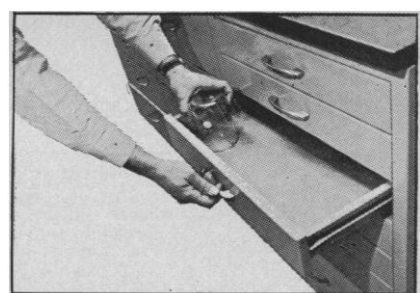
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symp., Reading, England. (R. L. Nace, U.S. Geological Survey, Water Resources Div., Washington, D.C. 20242)

16-19. American Soc. of **Extra-Corporeal Technology**, 8th intern. conf., New Orleans, La. (E. C. Berger, 287 E. Sixth St., St. Paul, Minn. 55101)

16-20. American **Malacological Union**, 36th annual, Key West, Fla. (A. Solem, Field Museum of Natural History, Chicago, Ill. 60605)

17-18. Rocky Mountain **Cancer Conf.**, Denver, Colo. (D. G. Derry, Colorado Medical Soc., 1809 E. 18th Ave., Denver 80218)

19-24. American Assoc. of **Clinical Chemists**, 22nd natl., Buffalo, N.Y. (D. A. Pragay, P.O. Box 38, Buffalo 14215)

20-22. American Inst. of **Aeronautics and Astronautics**, Detroit, Mich. (W. I. Marble, 2 Pennsylvania Plaza, New York 10001)

20-22. Society of **Automotive Engineers**, Detroit, Mich. (W. I. Marble, 2 Pennsylvania Plaza, New York 10001)

20-22. Conference on the **Fatigue Problem**, Boston, Mass. (J. A. Fellows, American Soc. for Metals, Metals Park, Ohio 44073)

20-22. Society of Mechanical Engineers **Reliability and Maintainability Conf.**, Detroit, Mich. (W. I. Marble, 2 Pennsylvania Plaza, New York 10001)

20-24. Association for the Study of **Animal Behavior**, Birmingham, England. (S. Dimond, Dept. of Psychology, University College, Cardiff, Wales)

20-24. Symposium on **Coastal Geodesy**, Munich, Germany. (G. W. Lennon, Inst. of Coastal Oceanography and Tides, Bidston Observatory, Birkenhead, Cheshire, England)

20-24. **Reactions in Solution**, intern. conf., Kent, England. (G. R. Martin, Chemical Lab., Univ. of Kent at Canterbury, Canterbury, Kent)

20-24. **Urban Systems Engineering**, Henniker, N.H. (M. Wachs, Univ. of Illinois, Chicago)

21-23. Society for **Experimental Biology**, Dublin, Ireland. (A. P. M. Lockwood, Dept. of Oceanography, Univ. of Southampton, Southampton, England)

21-23. National Symp. on Data and Instrumentation for **Water Quality Management**, Madison, Wis. (I. Grossman, New York State Dept. of Health, Div. of Pure Waters, Albany 12208)

21-24. Conference on **Atomic Physics**, 2nd intern., Oxford, England. (E. K. Woodgate, Dept. of Physics, Clarendon Lab., Parks Rd., Oxford)

21-24. **Computer Science Symp.**, 2nd annual, Bangkok, Thailand. (L. Padunchewit, Computer Science Lab., Chulalongkorn Univ., Bangkok)

22-24. **Electronic Probe Analysis**, 5th natl. conf., New York, N.Y. (P. Lublin, Gen. Telephone & Electronics Lab., Bay-side, N.Y. 11630)

22-24. **An Equipment Manuals Symp.**, Los Angeles, Calif. (R. Post, Dept. of the Army, Materiel Command, Washington, D.C. 20315)

24-26. **Linguistic Soc. of America**, Columbus, Ohio. (T. A. Sebeck, Patton House, Indiana Univ., Bloomington 47401)

25-1. Institute on **Religion in an Age of Science**, Star Island (Portsmouth), N.H.

(Mrs. E. R. Goodenough, 89 Irving St., Cambridge, Mass. 02138)

26-1. **Water Pollution Research**, 5th intern. conf., San Francisco, Calif. (J. Parkhurst, California Host Corp., Room 635, Davis Hall, Univ. of California, Berkeley 94720)

27-31. Instrument Soc. of America, Research Conf. on **Instrumentation Science**, 29th, Geneva, N.Y. (N. E. Huston, Univ. of Wisconsin, Madison 53706)

28-30. Conference on **Nondestructive Evaluation**, Philadelphia, Pa. (J. A. Fellows, American Soc. for Metals, Metals Park, Ohio 44073)

29-31. International Symp. on **Bio-mechanics**, San Diego, Calif. (Y. C. Fung, 5022 Basic Science Bldg., Univ. of California, San Diego 92037)

29-31. **Acoustical Holography**, 3rd intern. symp., Newport Beach, Calif. (H. E. Calkins, Douglas Advanced Research Labs., McDonnell Douglas Corp., Huntington Beach, Calif. 92647)

29-1. **Reticuloendothelial Soc.**, 4th intern., Freiburg, Germany. (K. Fleming, 7799 Heiligenberg, Postfach 3, West Germany)

30-1. **Equine Nutrition**, 2nd symp., Ithaca, N.Y. (H. F. Hintz, Dept. of Large Animal Medicine, Cornell Univ., Ithaca 14850)

August

2-5. American Soc. of **Animal Science**, University Park, Pa. (G. P. Lofgreen, Imperial Valley Field Station, 1004 E. Holton Rd., El Centro, Calif. 92243)

2-5. **Primitology**, 3rd intern. congr. Zurich, Switzerland. (J. Biegert, Anthropological Inst., Univ. of Zurich, CH 8001, Zurich)

2-6. National **Medical Assoc.**, Atlanta, Ga. (E. C. Walden, 4200 Edmonson Ave., Baltimore, Md. 21229)

2-7. Society for **Industrial Microbiology**, Kingston, R.I. (V. S. Kenny, Gagliardi Research Corp., P.O. Box 390, East Greenwich, R.I. 02818)

3-4. American Soc. of **Safety Engineers**, San Diego, Calif. (A. C. Blackman, The Society, 850 Busse Highway, Park Ridge, Ill. 60068)

3-7. Future Implications of **Biomedical Technologies Conf.**, Deerfield, Mass. (C. Williams, National Science Foundation, Washington, D.C.)

3-7. American College of **Chest Physicians**, 11th intern. congr. on Diseases of the Chest, Lausanne, Switzerland. (M. Kornfield, 112 E. Chestnut St., Chicago, Ill. 60611)

5-7. **Engineering in Medicine**—Bioceramics Conf., Henniker, N.H. (C. W. Hall, Southwest Research Inst., San Antonio, Tex.)

3-7. **Molecular Biology and Pathology**, 3rd conf., Saratoga Springs, N.Y. (K. T. Lee, Dept. of Pathology, Albany Medical College, Albany, N.Y. 12208)

4-6. **Stress Corrosion Cracking Conf.**, Philadelphia, Pa. (J. A. Fellows, American Soc. for Metals, Metals Park, Ohio 44073)

5-7. Association of American **Feed Control Officials**, Louisville, Ky. (B. Poundstone, Kentucky Agricultural Exper-

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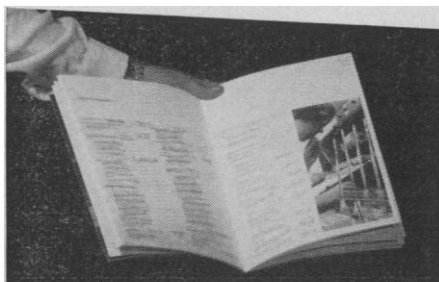
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5-7. Applications of **X-Ray Analysis**, 19th conf., Denver, Colo. (J. B. Newkirk, Dept. of Metallurgy, Univ. of Denver, Denver 80210)

5-12. International Council on **Health, Physical Education and Recreation**, Sydney, Australia. (A. Willee, Dept. of Physical Education, Univ. of Melbourne, Melbourne, Australia)

6-15. **Antarctic Geology and Solid Earth Geophysics**, intern. symp., Oslo, Norway. (L. DeGoes, Natl. Acad. of Sciences, 2101 Constitution Ave., NW, Washington, D.C. 20418)

9-12. **Soil Conservation Soc. of America**, Toronto, Ont., Canada. (H. W. Pritchard, 7515 NE Ankeny Rd., Ankeny, Iowa 50021)

9-13. **Biocommunications 70 Conf.**, Houston, Tex. (H. R. Smith, Medical Illustration, Room 414E, Baylor College of Medicine, Houston 77025)

9-14. **Food Science and Technology**, 3rd intern. congr., Washington, D.C. (C. L. Willey, Inst. of Food Technologists, 221 N. LaSalle St., Chicago, Ill. 60601)

9-15. **Microbiology**, 10th intern. congr., Mexico City, Mexico. (L. F. Bojalil, Apartado Postal P.O. Box 60-603, Mexico 18, D.F. Mexico)

10-13. Society of **Automotive Engineers**, Los Angeles, Calif. (W. Marble, 2 Pennsylvania Plaza, New York 10001)

10-14. Continuing **Engineering Education**, Andover, N.H. (W. M. Mueller, American Soc. for Metals, Metals Park, Ohio)

10-14. Environmental Aspects of **Nuclear Power Stations Symp.**, New York, N.Y. (J. H. Kane, Div. for Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

10-14. **Particulate Matter Systems Conf.**, Deerfield, Mass. (D. W. Fuerstenaue, Univ. of California, Berkeley)

11-13. **Photovoltaic Specialists Conf.**, Seattle, Wash. (J. Loferski, Div. of Engineering, Brown Univ., Providence, R.I.)

16-18. American Acad. of **Physical Medicine and Rehabilitation**, New York, N.Y. (C. C. Herold, 30 N. Michigan Ave., Chicago, Ill. 60602)

16-21. World **Medical Assoc.**, 24th general assembly, Oslo, Norway. (A. E. Romnaldez, 10 Columbus Circle, New York 10019)

16-27. **Wool Research**, 4th intern. conf., Berkeley, Calif. (H. Lundgren, U.S. Dept. of Agriculture, 800 Buchanan St., Albany, Calif. 94710)

17-19. **Alaska Science Conf.**, 21st annual, College. (Hannelore, c/o Dept. of Civil Engineering, Univ. of Alaska, College 99701)

17-19. American **Peptide Symp.**, 2nd, Cleveland, Ohio. (R. R. Smeby, Cleveland Clinic Foundation, 2020 E. 93 St., Cleveland)

17-19. **Trace Analysis with an Emphasis on Pollution and Environment Factors**, Edmonton, Alta., Canada. (J. A. Plamdeck, Dept. of Chemistry, Univ. of Alberta, Edmonton)

17-20. International Conf. on **Ephemeroptera**, Tallahassee, Fla. (W. L. Peters, P.O. Box 111, Florida A & M Univ., Tallahassee 32307)

17-21. New England Assoc. of **Chem-**

istry Teachers, 32nd summer conf., Manchester, N.H. (H. B. Bjornson, 95 Falls Ave., Medford, Mass. 02155)

17-21. **Computers in Undergraduate Science Education**, Chicago, Ill. (R. Blum, Dept. of Physics and Astronomy, Univ. of Maryland, College Park 20742)

17-21. National **Metric Study Conf.**, Deerfield, Mass. (R. P. Trowbridge, c/o Engineering Foundation, 345 E. 47 St., New York 10017)

17-21. International Assoc. of **Milk, Food and Environmental Sanitarians**, Cedar Rapids, Iowa. (H. L. Thomasson, P.O. Box 437, Shelbyville, Ind. 46178)

17-21. Symposium on **Recovery of Uranium from the Ores and Other Sources**, Rio de Janeiro, Brazil. (J. H. Kane, Div. of Technical Information, U.S. Atomic Energy Commission, Washington, D.C. 20545)

17-22. **Anatomical Congr.**, 9th intern., Leningrad, U.S.S.R. (W. Bargmann, Dept. of Anatomy, Univ. of Kiel, Kiel, Germany)

17-22. **Carbohydrate Chemistry**, 5th intern. symp., Paris, France. (F. Percheron, 4, Ave. de l'Observatoire, 75, Paris 6^e)

18-21. **Chemical Engineering Conf.**, Melbourne, Australia. (P. D. O'Connor, Australian Acad. of Science, Gordon St., Canberra City, A.C.T., 2601)

18-21. **Detonation**, 5th intern. symp., Pasadena, Calif. (S. J. Jacobs, U.S. Naval Ordnance Lab., Silver Spring, Md. 20910)

18-27. International **Astronomical Union**, 14th general assembly, Brighton, England. (L. Perak, General Secretary, Astronomical Inst., Czechoslovak Acad. of Science, Prague 2)

19-20. **Water Quality**, 5th annual intern. symp., Washington, D.C. (David X. Manners Co., 237 East Rocks Rd., Norwalk, Conn. 06851)

19-26. Institute of **Mathematical Statistics**, Hanover, West Germany. (L. Katz, Statistical Lab., Michigan State Univ., East Lansing 48823)

20-21. American **Astronautical Soc.**, Santa Barbara, Calif. (T. Mitchell, Univ. of California, Santa Barbara)

20-22. Therapy of **Advanced Cancer**, 9th natl. conf., Madison, Wis. (R. J. Samp, University Hospitals, 1300 University Ave., Madison 53706)

21-23. **Soil Geomorphology Field Conf.**, Tucson, Ariz. (J. W. Hawley, Soil Science Soc. of America, P.O. Box 3129, University Park, N.M. 88001)

23. **Botanical Soc. of America**, Bloomington, Ind. (B. F. Palser, Dept. of Botany, Rutgers Univ., New Brunswick, N.J. 08903)

23-26. Association of American **Geographers**, San Francisco, Calif. (J. W. Nystrom, 1146 16th St., Washington, D.C. 20036)

23-27. **Phycological Soc. of America**, Bloomington, Ind. (P. L. Walne, Dept. of Botany, Univ. of Tennessee, Knoxville 37916)

23-28. American Soc. of **Agronomy**, Tucson, Ariz. (M. Stelly, 677 S. Segoe Rd., Madison, Wis. 53711)

23-28. International **Diabetes Federation Symp. and Conf.**, 7th, Buenos Aires, Argentina. (V. G. Foglia, Paraguay 2155, 7° piso, Buenos Aires)

23-28. International **Law Assoc. Conf.**

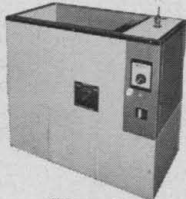
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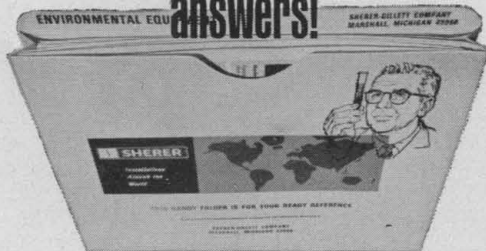


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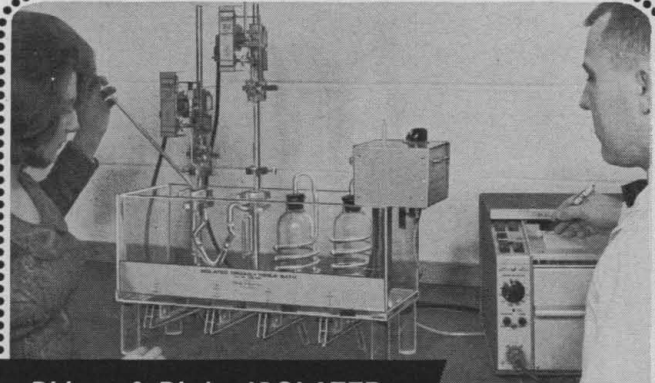
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54th, The Hague, Netherlands. (A. Cronheim, Holland Organizing Centre, 16, Lange Voorhout, The Hague)

23-28. **Liquid Crystal**, 3rd intern. conf., Berlin, Germany. (R. Hosemann, Fritz-Haber Institut der Max-Planck-Gesellschaft, Faradayweg 46.1, Berlin 33)

23-29. **Crop and Soil Science Meetings**, Tucson, Ariz. (M. Stelly, 677 S. Segoe Rd., Madison, Wis. 53711)

23-29. American **Fern Soc.**, Bloomington, Ind. (A. M. Evans, Dept. of Botany, Univ. of Tennessee, Knoxville 37916)

23-29. American Soc. of **Plant Physiologists**, Bloomington, Ind. (W. H. Klein, Radiation Lab., Smithsonian Institution, Washington, D.C. 20560)

23-29. American Soc. of **Plant Taxonomists**, Bloomington, Ind. (L. I. Neveling, Jr., Arnold Arboretum and Gray Herbarium, 22 Divinity Ave., Cambridge, Mass. 02138)

23-29. American Soc. of **Zoologists**, Bloomington, Ind. (G. Sprugel, Jr., Illinois Natural History Survey, 179 Natural Resources Bldg., Urbana 61801)

24-26. **Chemical Engineering Conf.**, Sydney, Australia. (P. D. O'Connor, Secy., Australian Acad. of Science, Gordon St., Canberra City, A.C.T., 2601)

24-26. **Energy and the Environment**, 24th annual conf., Oak Ridge, Tenn. (W. W. Grigorieff, Special Projects Office, Oak Ridge Associated Universities, P.O. Box 117, Oak Ridge 37830)

24-26. **Genetics** Soc. of America, Seattle, Wash. (B. Wallace, Dept. of Genetics, Cornell Univ., Ithaca, N.Y. 14850)

24-26. **Mathematical** Assoc. of America, Laramie, Wyo. (A. B. Willcox, The Association, 1225 Connecticut Ave., NW, Washington, D.C. 20036)

24-26. International Conf. on **Psychosurgery**, Copenhagen, Denmark. (E. R. Hitchcock, Dept. of Surgical Neurology, Royal Infirmary, Edinburgh, Scotland)

24-26. International Conf. on **Radiation Effects in Semiconductors**, Albany, N.Y. (J. W. Corbett, Dept. of Physics, State Univ. of New York at Albany, Albany 12203)

24-27. **Soil Science** Soc. of America, Tucson, Ariz. (J. W. Hawley, The Society, P.O. Box 3129, University Park, N.M.)

24-28. Application of **Environmental R & D to Landfill Disposal for Solid Wastes**, Deerfield, Mass. (E. A. Glysson, Univ. of Michigan, Ann Arbor)

24-28. Quantitative Decision Making for Delivery of **Health Care**, Andover, N.H. (A. Jacobs, Univ. of Rochester, Rochester, N.Y.)

24-29. Congress of Intern. Soc. of **Haematology**, Munich, Germany. (J. L. Tullis, 110 Francis St., Boston, Mass. 02215)

25-28. Symposium on the **Chromosphere-Corona Transition Region**, Boulder, Colo. (J. W. Evans, Director, Sacramento Park Observatory, Sunspot, N.M. 88349)

25-28. **Western Electronic Show and Convention**, Los Angeles, Calif. (R. Howard, WESCON, 3600 Wilshire Blvd., Los Angeles 90005)

25-28. Institute of **Mathematical Statistics**, Laramie, Wyo. (L. Katz, Statistical Lab., Michigan State Univ., East Lansing 48823)

26-29. **Small-Angle X-Ray Scattering**,

2nd intern. conf., Graz, Austria. (O. Kratky, Inst. for Physical Chemistry, Univ. of Graz, Heinrichstrasse 28, A-8010 Graz)

27-30. Society for the Study of **Amphibians and Reptiles**, 13th annual, Kansas City, Mo. (J. L. Vial, Dept. of Biology, Univ. of Missouri, Kansas City 64110)

28-30. International **Mathematical Union**, 6th general assembly, Menton, France. (C. B. Morrey, Jr., Dept. of Mathematics, Univ. of California, Berkeley)

28-30. **Soil Geomorphology Field Conf.**, Tucson, Ariz. (J. W. Hawley, Soil Science Soc. of America, P.O. Box 3129, University Park, N.M. 88001)

28-1. American **Quaternary Assoc.**, Yellowstone Natl. Park and Bozeman, Mont. (M. Davis, Great Lakes Research Div., Univ. of Michigan, Ann Arbor 48104)

28-2. International **Mineralogical Assoc.**, 7th congr., Tokyo, Japan. (C. E. Tilley, Dept. of Mineralogy and Petrology, Univ. of Cambridge, Cambridge, England)

29-3. American **Physiological Soc.**, Bloomington, Ind. (H. Hazelrigg, News Bureau, Indiana Univ., 306 N. Union St., Bloomington 47401)

30-2. American Inst. of **Chemical Engineering**, Denver, Colo. (J. Henry, 345 E. 47 St., New York 10017)

30-2. **Electronic Materials** Technical Conf., New York, N.Y. (A. Reisman, I.B.M., P.O. Box 218, Yorktown Heights, N.Y. 10598)

30-2. **Geological Assoc. of Canada and Mineralogical Assoc. of Canada**, Winnipeg, Man. (R. F. J. Scoates, Manitoba Mines Branch, 900 Norguay Bldg., Winnipeg)

30-4. Laurentian **Hormone Conf.**, Quebec, Canada. (J. Sanford, Laurentian Conf. Office, 222 Maple Ave., Shrewsbury, Mass. 01545)

30-4. **Strength of Metals and Alloys**, 2nd intern. conf., Asilomar, Calif. (J. A. Fellows, American Soc. for Metals, Metals Park, Ohio 44073)

30-5. **History of Medicine**, 22nd intern. congr., Bucharest, Rumania. (B. Dutescu, Strada Rozelar 13, Bucharest)

30-5. **Ornithological Congr.**, 15th intern., The Hague, Netherlands. (N. Tinbergen, Dept. of Zoology, Parks Rd., Oxford, England)

31-2. Symposium on **Heteroatom Chemistry**, London, Ont., Canada. (D. H. Hunter, Dept of Chemistry, Univ. of Western Ontario, London)

31-3. American **Sociological Assoc.**, Washington, D.C. (E. H. Volkart, 1001 Connecticut Ave., NW, Washington, D.C. 20036)

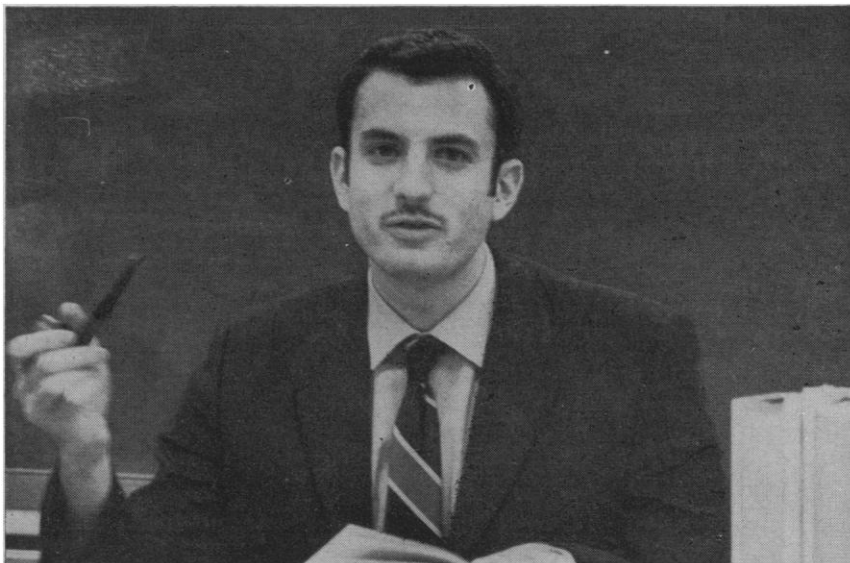
31-4. Modern Concepts in **Corrosion Engineering**, Andover, N.H. (W. H. Boyd, Battelle Memorial Inst., Columbus, Ohio)

31-4. American Soc. of **Limnology and Oceanography**, Kingston, R.I. (G. H. Lauff, W. W. Kellogg Biological Sta., Michigan State Univ., Hickory Corners 49060)

31-4. **Neuropathology**, 7th intern. congr., Paris, France. (J. Lapresle, Hôpital de la Salpetriere, 47 Bld de l'Hôpital, 75 Paris 13^e)

31-4. Symposium on **Polarisation Phenomena in Nuclear Reactions**, Madison, Wis. (J. Teillar, Laboratoire Joliot-Curie, Faculte des Sciences d'Orsay, Orsay 91, France)

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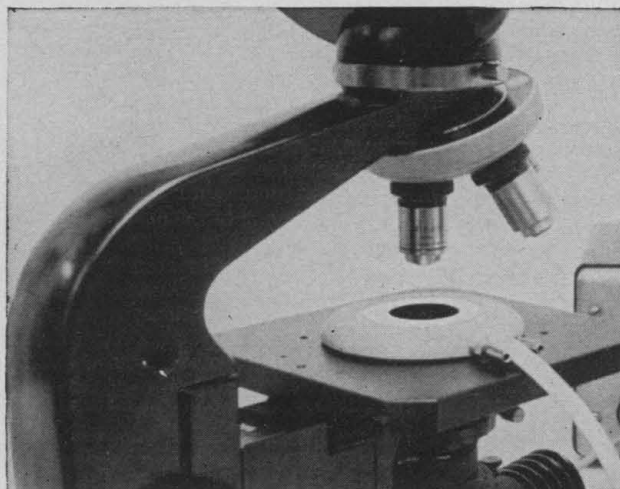
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BOOKS RECEIVED

(Continued from page 963)

east Missouri. Carl F. Tolman and Forbes Robertson. Missouri Geological Survey and Water Resources, Rolla, 1969. vi + 68 pp. + maps. Paper, \$2. Report of Investigations No. 44. Contribution to Precambrian Geology No. 1.

Fast Burst Reactors. Proceedings of a meeting, Albuquerque, January 1969. Robert L. Long and Paul D. O'Brien, Technical Coordinators. Div. of Technical Information, U.S. Atomic Energy Commission, Oak Ridge, Tenn., 1969 (available as CONF-690102 from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.). x + 646 pp., illus. Paper, \$3. AEC Symposium Series, vol. 15.

Fertilization. Comparative Morphology, Biochemistry, and Immunology. Vol. 2. Charles B. Metz and Alberto Monroy, Eds. Academic Press, New York, 1969. xx + 556 pp., illus. \$34.

Fish in Research. A symposium, Vermillion, S.D., November 1968. Otto W. Neuhaus and John E. Halver, Eds. Academic Press, New York, 1969. xii + 312 pp., illus. \$8.50.

Fish Physiology. W. S. Hoar and D. J. Randall, Eds. Vol. 3, Reproduction and Growth; Bioluminescence, Pigments, and Poisons. Academic Press, New York, 1969. xvi + 488 pp., illus. \$24; by subscription, \$20.

Gallium Arsenide Lasers. C. H. Gooch, Ed. Wiley-Interscience, New York, 1969. xii + 340 pp., illus. \$14.50.

Genesis of Stratiform Lead-Zinc-Barite-Fluorite Deposits in Carbonate Rocks. (The So-Called Mississippi Valley Type Deposits). A symposium, New York, March 1966. J. S. Brown, Ed. Economic Geology Publishing Company, c/o A. M. Bateman, Yale University, New Haven, Conn., 1967. x + 466 pp., illus. Paper, \$6. Economic Geology Monograph 3.

Genetics of Antibiotic-Producing Microorganisms. G. Sermonti. Wiley-Interscience, New York, 1969. xiv + 390 pp., illus. \$18. Techniques in Pure and Applied Microbiology.

Gravity Flow of Bulk Solids and Transportation of Solids in Suspension. Alexey J. Stepanoff. Wiley, New York, 1969. x + 198 pp., illus. \$9.95. Materials Handling and Packaging Series.

Gum Technology in the Food Industry. Martin Glicksman. Academic Press, New York, 1969. xvi + 592 pp., illus. \$27.50. Food Science and Technology, vol. 8.

Histology. Thomas S. Leeson and C. Roland Leeson. Saunders, Philadelphia, ed. 2, 1970. xii + 532 pp., illus. \$11. Two supplementary filmstrips, \$15.

History and Human Survival. Essays on the Young and Old, Survivors and the Dead, Peace and War, and on Contemporary Psychohistory. Robert Jay Lifton. Random House, New York, 1970. x + 406 pp. \$8.95.

The Honest Politician's Guide to Crime Control. Norval Morris and Gordon Hawkins. University of Chicago Press, Chicago, 1970. xii + 276 pp. \$5.95.

In Quest of the Unseen. B. J. F. Laub-scher. Vantage, New York, 1969. 240 pp. \$4.50.

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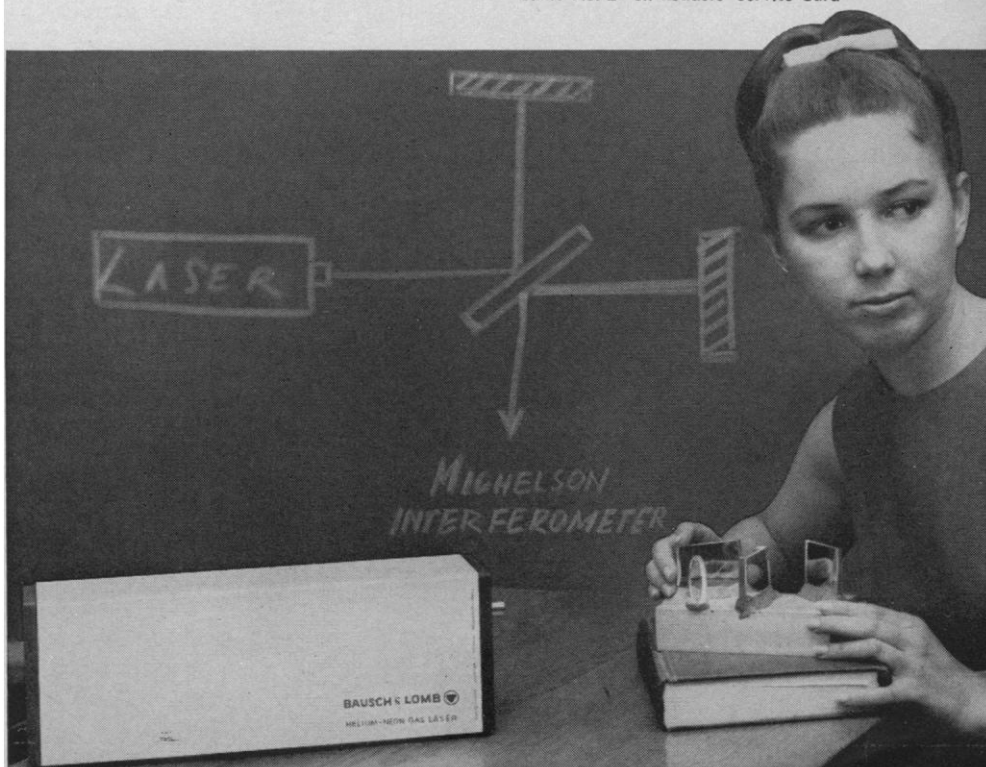
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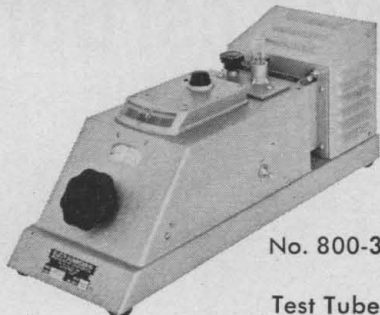
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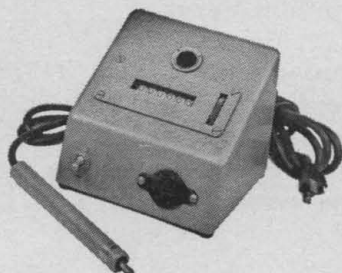


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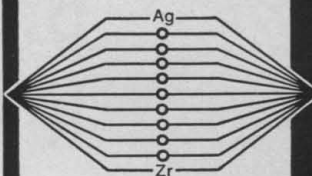


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